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THE JOURNAL
OF THE
AMERICAN MEDICAL ASSOCIATION
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Vol. 55

October - December

1910

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American Medical Association
Chicago

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The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOL. LV, No. 14

CHICAGO, ILLINOIS

OCTOBER 1, 1910

THE BOOKKEEPING OF HUMANITY*

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The accurate collection, tabulation and analysis of records of births, still-births, deaths, marriages, divorces, and sickness may be said to constitute the bookkeeping of humanity. The bookkeeping of dollars is very important, but of far greater importance is the bookkeeping of those events in the lives of human beings which are fundamental to an understanding of the movements of mankind, and which are also fundamental to the practical application of hygiene, to secure higher efficiency, longer duration of life and fuller measure of happiness.

Without vital statistics, a nation cannot know its vital latitude and longitude, its national time of day on the great ocean of time. Through vital statistics a nation is able to know its temperature and pulse, and follow and understand other vital functions. Or, again, its vital potentialities are reflected and comprehensively expressed in such statistics.

To live a successful life, a man must notice the symptoms which forecast his demise, that he may take action to neutralize them or to prepare for his end; and so should a nation carefully collect and keep such checks and balances that tell of increase or decrease in numbers, and causes affecting the same, and which tell the status of social conditions, so that the question of living or dying may be rationally considered. We have this illustrated in the case of France, where lately vital statistics disclosed the fact that the death-rate exceeded the birth-rate, thus forecasting, if the conditions continued, the demise of a great nation.

Human life in its beginning, its duration and ending, is the predominant consideration in all personal, social, state and national problems. The standing of a nation is finally to be measured by the standard of human lives.

No thoughtful person denies these facts. Yet, what a surprise it is, yes, a shock, to remember that we ignore in great degree these important matters. We do not fail to keep records of all legal procedures, of all commercial transactions, no matter how insignificant; we will deny ourselves needed rest and sleep to record a little or big real estate deal; we will keep careful minutes of a town meeting or of a social club; yet in many states a human being, made in the image of God and endowed with an immortal soul, can be born and can die without any public and frequently no private record of the fact. However, it is not so with animals and plants.

For them, elaborate systems record their birth, entire career and death. Every pedigreed calf, colt, dog, rooster, ram, and even cat, has its birth and death recorded; yet children, our hostages to fortune are born, and fathers and mothers die, without record. The National Government at the cost of millions annually maintains a Bureau of Animal Industry which looks after hog cholera, Texas fever and sheep rot, keeping accurate statistics; it also maintains at a cost of millions annually a Department of Agriculture, which collects crop statistics, beef, pork, poultry and mule statistics, but in not a single place in the whole country do we so accurately know the number of cases of diphtheria and the deaths from this cause among our babies. These conditions make one ask, "Is civilization a failure or has the Caucasian played out?"

IMPORTANCE OF VITAL STATISTICS TO THE INDIVIDUAL

Besides the general importance of vital statistics to a nation as a nation, they also have an importance of the greatest moment to the individual. For instance, by vital statistics must be determined the right to attend school, to enter certain occupations, to vote, to marry, to hold or to dispose of property, to employment by the state or country in military or civil service; responsibility for crime or misdemeanor; exemption from military or jury duty; qualifications or disqualifications for certain public offices; and privileges and immunities of a public nature; also private contracts in great variety, as in insurance and partnership. Indeed, there is hardly a relation from the cradle to the grave in which the evidence furnished by accurate vital statistics may not prove of the greatest individual and general, social or governmental value. The two great important events in the lives of men are birth and death; the alpha and omega, the beginning and the end. For a state not to make these events of accurate record for each individual is to neglect to keep abreast of practical civilization; yes, to be really civilized.

SANITARY VALUE OF VITAL STATISTICS

The public and individual value of vital statistics has been briefly set forth, but after all, their sanitary value is of greater importance. The value of the practical application to every-day life of the ounce of prevention, will hardly be disputed; and surely the prevention of disease constitutes the very crown of scientific medicine. The connection between the accurate registration of the existence of infectious diseases, of all deaths and the causes of death, and the practical prevention of disease, seems to be apparent. Whatever throws light on the causes of sickness and death, or whatever hastens or retards marriages or increases or decreases the number of births, must be helpful, yes, vitally necessary; but to be so, must have numerical treatment.

* Chairman's address before the Section on Preventive Medicine and Public Health of the American Medical Association, at the St. Louis Session, June 7-10, 1910.

Plainly, the capable health officer must have vital statistics at hand to be efficient in instituting such measures as are reasonable and necessary to prevent disease. The general must know the position, numbers, equipment and character of his enemy in order to carry on a successful battle. So for a successful fight the hygienist must have a like knowledge of his enemy.

EDUCATIONAL VALUE OF VITAL STATISTICS

Then there is the educational value of vital statistics. Need this point be dwelt on? Is it required to show how the relative destructiveness of the various diseases, the death-rates and sickness-rates from them, would educate the people to the necessity of action? The fact that the number of deaths from tuberculosis leads all the rest, the fact that pneumonia is the next greatest cause of death, and other life facts, are surely of the highest educational value. To convince and lead to action the keepers of the public purse so that the state can do her part in disease-prevention, vital statistics are absolutely essential. Surely, sanitary administration will be defective where vital statistics are wanting, and it will be efficient where they are accurate and complete. Low ideals of cleanliness and of health, accompanied by low ideals of morals, will exist to a greater degree where vital statistics are ignored than where they are accurately collected. Immediate records of births and deaths should be made, because experience teaches that an accurate record in all cases cannot or will not be secured unless reports are made forthwith and at once. The fact which should be given on birth and death certificates are now pretty well determined, and to the practitioner of medicine alone belongs the highly important duty, and also the privilege in cases of death, to render a correct statement of cause of death. The science of medicine, in the person of the medical attendant, is the only possible source of this knowledge which is fraught with such great importance to the family of the dead, to society at large and to medical science.

REPORTING INFECTIOUS DISEASES

Every parent naturally wishes to protect his household against disease, just as he would protect against the rending of wolves or the sting of serpents. To have this protection, the aid of the physician is necessary, and gladly should the aid be given. When the infection of scarlet fever or other transmissible disease appears in a household, it is indeed wicked for any person possessing the information not to lend his most efficient help to prevent its extension. A physician negligent in reporting an infectious disease which comes under his care, or negligent in warning and instructing the family in regard to the preventing of transmission to others, is an enemy to society, an enemy to himself and an enemy to the profession of medicine. More, he is a dangerous member of society and should be hunted down and brought to book as would a poisoner of wells, the assassin, or the incendiary. In reporting an infectious disease, that proper measures for control may be instituted, the physician not only renders a service to society, for which society might well pay, but he also renders help to his neighbors, he helps himself, he performs a Christian duty, he performs a service to scientific medicine and fulfills his Hippocratic oath.

If the patron asks a physician not to make public the fact that an infectious disease exists in his house that he may not be troubled with placard and quarantine, let the physician kindly and firmly, with proper exposition of the law and with gentle reminder of the Golden Rule,

give his absolute refusal. Let not the representative of the noble and learned profession of medicine for one instant enter into even the shadow of an act which is contrary to the statutory law and which opposes that divine rule of action, "Do unto others as you would have them do unto you."

As to compensation for service in reporting infectious diseases: The public can well afford to give compensation but in case it does not, still the duty of reporting and the honor of fulfilling the duty remain with the physician. We often hear quoted the clause of the Constitution which says in effect that all services rendered to the state shall be paid for; but let us look into this proposition. If required to return many data the physician should certainly be paid therefor, but for the return of the simple fact of the existence and location of an infectious disease, he is not altogether entitled to pay nor should he ask it. The right of the government to require that the physician be licensed need not be argued; the license system is desired by the profession. But what is a license? As regards infectious diseases the license is clearly granted to deal with this class of cases on the tacit understanding, first, that he has the diagnostic ability to recognize these cases when he sees them; second, that he will promptly give the state the benefit of his special knowledge.

The special duty of reporting infectious diseases, is, therefore, imposed when a license to practice medicine is asked for and granted. It has been argued in courts that the payment of fees for reporting the presence of infection would be as contrary to a proper public policy as to give fees for reporting a fire or for reporting a theft clearly seen in operation.

VALUE OF VITAL STATISTICS TO MEDICAL SCIENCE

Medical science, like all other sciences, must, for its development, have coordination of the facts, and numerical expression must be given. In the numerical relations of recoveries to deaths, in the numerical relations of the destructiveness of the various diseases, in the numerical relation of diseases and deaths compared with various age periods, in the numerical relations of sex, nationality, social condition and occupations and employments, scientific medicine finds much valuable material for her advancement. All of these relations and also other facts are supplied by vital statistics. Every true physician is in love with his profession; he would have it make all advancement possible and will always lend his aid and services to such end.

It follows then, that for the science he has adopted for his life work, if not in the service of his patients and if not in the service of society, he will gladly and eagerly contribute his part to vital statistics.

ACTUAL INSTANCES

Two actual instances showing the responsibility of physician to family in the matter of reporting births will probably serve a good purpose. A young man and wife came from Switzerland to Indiana. They were hardy, honest, and industrious, the very kind of people needed to make a nation. They settled in Switzerland County, probably being attracted by the name. In time a child, a girl, was born to them. The father was thrifty and intelligent and within three years became a foreman in a saw-mill. When his child was about two years old the father was accidentally killed by a log rolling over him. Time had not been sufficient for him to accumulate property. So the wife struggled with wash-tub and needle to support herself and child. One day the news

came that a brother of the father, the child's uncle in Switzerland, had left \$12,000 to the issue of his brother. Great was the rejoicing, which on account of the neglect of a physician to record the birth, was to become bitter sorrow. Before the Swiss government would turn over the property it must have proof that the little child was the issue of the dead man. As said, the physician had made no record and now he was dead. Neighbors know of the birth of the child but could not testify except as to their belief of the fatherhood. The testimony of the mother was not admissible in her own country for she could lead any child into court and declare any man to be its father. It was the physician's birth certificate made at the time of birth and presumably in the presence and by the authority of the father, that the law demanded. It could not be produced, and the helpless infant whom the physician should have been eager and happy to protect and serve, lost its inheritance. What a cruel and unnecessary blow was this, from the hand of a practitioner of the learned and benevolent science of medicine! Surely, a physician's duty to the families he serves and to the helpless infants he pilots into this world, are not fully performed until he has made out a certificate of birth and taken reasonable care that it is made of due legal record.

Another incident. Farmer Hadley, of Indiana, dying, left his valuable farm in trust to his unthrifty son, to go to his granddaughter on her twenty-first birthday. The girl had been told the date of her birth and always celebrated as her birthday the annual recurrence of the same. However, when she believed she was twenty-one, and then claimed her inheritance, her father denied her age, saying she was only nineteen. The family Bible was appealed to, but the leaf with the family record was gone. No birth record had been rendered, and the attending physician was dead. The court was in a quandary. A Solomon was needed for judgment. At last a neighbor remembered that a valuable cow belonging to the grandfather had given birth to a calf on the day the girl was born, and he could swear to it. Perhaps the grandfather had recorded the date of the birth of the calf. His farm books showed this to be the case. The date of the birth of the human being was established.

SUMMARY—CONCLUSIONS

The importance of vital statistics to the family, to the state, and to medicine, can hardly be overestimated. The physician, the representative of the science of medicine, is, except in instances, the only member of society who can supply information in regard to causes of deaths and the presence of infectious diseases. As it is of very great importance to the family that its births, deaths, and cases of infectious diseases be legally recorded, and as the family presumably pays for the physician's services, the physician, therefore, should not consider his services fully performed nor that he is entitled to his fee until the certificates which are of such great importance are duly made. And again, the physician should remember when reporting vital statistics, that he is giving obedience to the statutes of his state, on which he depends for protection; that he is protecting the helpless; that he is doing a general good, and that he is serving the science of medicine.

ABSTRACT OF DISCUSSION

DR. PRINCE A. MORROW, New York: The subject is most important, but attention should be called to the fact that there is a large and important class of diseases which are infectious, and dangerous to the public health, but which are practically ignored in our system of vital statistics.

In few of our vital statistics is there mention made of deaths from gonococcus infection, or from syphilis. Now, we all know that these diseases figure very largely as causes of death, for instance, in England and Wales, during the year 1907 there were 1,840 deaths recorded from syphilis. Dr. Osler, in commenting on this statement, says that if we are to appreciate the importance of syphilis among the deadly maladies, we must include the deaths from paresis, and locomotor ataxia, half at least of the deaths from softening of the brain; and other diseases of the nervous system. He estimates that at least 6,000 or 7,000 are annually slain every year in England and Wales by syphilis directly.

Now, this list of 6,000 or 7,000 deaths does not embrace the vast number of still-born children dead from syphilis. He says, in addition to this, if we include in this category the deaths from the coccus of Neisser we shall find that there should be debited to the venereal diseases many thousands of deaths annually—a mortality that comes only after tuberculosis, pneumonia and cancer.

Another point is that in the presence of any infectious disease the cardinal obligation of the physician is to prevent the extension of the disease, and the infection of others, but in the case of syphilis the only duty of the physician, as he understands it, is to cover up and conceal the fact—to protect the secret of his patient. He does not seem to consider it a part of his duty to protect the other members of the household or the public from this very infectious disease. As Dr. Hurty intimated, we can never educate the public in this disease unless we tell the truth. The public has no conception of the enormous extent to which these diseases prevail.

The medical profession has not recognized its obligations to the public in this regard; and if a reform in vital statistics is to be instituted, I know of no one who is better qualified and who is more likely to inaugurate this innovation than the very able and courageous secretary of the Indiana State Board of Health.

DR. ARTHUR R. REYNOLDS, Chicago: Dr. Hurty's paper is most timely and should be placed in the hands of every physician throughout the country. I have always believed that it was the duty of all physicians to report cases of contagious diseases as well as births. They owe it to the public in return for privileges they enjoy. I think that most physicians think so, too; but often they neglect it, and sometimes assert that they should be paid for it. The pathetic instances and forcible illustrations that Dr. Hurty has given show that the duty is binding on us all.

DR. P. M. TOWNSEND, Marshalltown, Ia.: I attended a charity patient with a neglected case of chancroid—gonorrhoea and syphilis—one of the worst cases that I ever handled. The girl was unmarried, and pregnant; and all summer I dreaded the decision as to what my duty was in regard to protecting other physicians. Knowing that the family was poor and that there would be no financial inducement for the physician to undertake the risk, I feared to report the case to the other physicians in the county, lest they might refuse to attend the case when the girl came to the time of confinement. Before I had decided what my duty was toward my fellow practitioners, the girl miscarried and called for a physician, and the secretary of the county association attended her. Later on I learned that a woman who was present at the time, and had to administer the anesthetic, knowing something of the neighborhood gossip in regard to the case, wanted to know if there was any danger of her "getting anything," and thus called the physician's attention to the possibility. Up to that time he had examined the patient without uncovering her person, but he then, in very great exasperation, having looked at the skin and external genitalia, scarred by the chancroids, said that if he had known what kind of a case it was he would not have attended it for a hundred dollars. We need more publicity in regard to venereal diseases, for our protection as well as for the protection of the public.

DR. HENRY B. HEMENWAY, EVANSON, Ill.: Certain diseases like smallpox are common-law nuisances; in other words, the courts have decided that they are nuisances, and therefore reportable. Most diseases are not common-law nuisances. For example, malaria should properly be reported; but it is not a

common-law nuisance, and so legally it can hardly be required to be reported unless the statutes specifically mention it. If gonorrhoea and syphilis are to be reported (and I do not for one second question the advisability of it), the statutes of the state should definitely mention those diseases. The ruling of the board of health is always subject to the court action; and a court uneducated in matters of medicine must take the opinion of one physician as legally as good as that of another. Therefore the ruling of boards of health is liable at any time to be nullified by a court decision. Statistics, in order to be accurate, must be complete. Many physicians imagine that they may be compelled to report a case of scarlet fever, or possibly typhoid fever; but they take it that disclosing the presence of the gonococcus or syphilis in a patient, would be betraying professional confidence. That provision should be covered by a state legislative enactment.

DR. PRINCE A. MORROW, New York: The law in New York state is mandatory that all diseases which are infectious and dangerous to the public health should be reported.

DR. HENRY B. HEMENWAY, Evanston, Ill.: That expression "infectious" must be passed on by the court. Although malaria, for example, is infectious, and we know that it is infectious, there are many physicians who deny its infectiousness to-day; and therefore if we attempted to require the reporting of malaria, we might find that the court would decide against us.

DR. J. N. HURTY, Indianapolis: Of course, there is no doubt about the desirability of reporting the malarial diseases. That they will be reported eventually I have no doubt. But to secure reports of them at present seems to me to present insurmountable difficulties. We cannot yet obtain perfect reports of those diseases that the people think should be reported. The existence of scarlet fever is sometimes hidden. Until people understand their duty to their neighbors, how can we secure the reporting of malaria?

Of course, my conviction is that it is the duty of the physician from every point of view, to report vital statistics.

One of our most prominent gynecologists, a cultivated man, educated at Harvard College, and the Harvard Medical School, contended that he should be paid for reporting a birth. That contention indicates a very serious situation, it seems to me. When the matter so particularly concerns, or may concern the material welfare, of his patient and the child, and the physician is the only man who can do it, I would say that he might just as well at a birth leave the placenta *in situ* as not to report its occurrence, because until he has attended to both matters he has not completed his work. Let him complete his work; then let him have his pay.

A BRIEF REPORT OF THE NEBRASKA EPIDEMIC OF POLIOMYELITIS*

H. M. McCLANAHAN, M.D.
OMAHA

This epidemic occurred during the summer of 1909. In proportion to the population it was greatly more extensive than the epidemic in New York City of 1907. My report is based on personal letters received from fifty-eight physicians, a number of whom I have seen personally. I have been greatly aided by Drs. H. W. Orr and W. H. Wilson of Lincoln, Nebraska, and hereby acknowledge my appreciation of their courtesy. Dr. Orr investigated the epidemic with a view to determining chiefly the nature and extent of the resulting paralysis. His paper was recently read before the American Orthopedic Society. Dr. Orr wrote directly to the people and received replies from 213 families, reporting on 315 cases. The total number of cases reported to him was 619. A brief summary is as follows:

Fully recovered, 151; not reported, 195; died, 91; one arm affected, 21; one leg, 53; side, 7; both arms, 4; both legs, 61; all extremities, 24; trunk, 10; face, 4.

Dr. W. H. Wilson, state health inspector, visited the chief centers and saw many of the cases. I quote as follows from a letter received from him April 25, 1910:

There were something like 275 cases reported to this office but from what I know of the situation, having been out much over the field, I am satisfied that there must have been at least three times this number of cases and perhaps more. The death record is practically complete, inasmuch as death certificates must be filed before burial permits are issued. I find that 137 deaths are recorded in which the cause is given as poliomyelitis, spinal paralysis and cerebrospinal meningitis, but they are manifestly all belonging to the same class. Making an analysis of the first eighty cases reported I find that in seventy-two of these the duration of the disease was from one to five days, about three days being the average. In eight cases the time preceding death was from ten to fifteen days. No patient over 20 years of age. . . . As to the patients who have completely recovered I have no data of any degree of accuracy except on eighty cases, and of these as near as I can learn 75 per cent. have completely recovered.

In my investigation the chief purpose was to determine the variety of the disease. The following points were covered in a letter of inquiry addressed to physicians:

1. Total number of cases.
2. Total number of fatal cases.
3. Clinical varieties as follows: (a) cerebral type, (b) bulbar type, (c) polyneuritic type, (d) ordinary type. (By cerebral type, I mean cases with high fever, delirium, convulsions, rigidity of neck or opisthotonos, when after one or more days these symptoms subside to be followed by paralysis; by bulbar type cases indicating paralysis in the medulla, as evidenced by disturbance chiefly in the breathing; by neuritic type, cases with a great deal of hyperesthesia and severe pains in the extremities; by ordinary type, cases beginning with fever, vomiting, diarrhea or constipation, to be followed sooner or later by paralysis.)
4. Cases of complete recovery without paralysis.
5. Parts paralyzed in cases of recovery with paralysis.
6. Age of patient.

The following-named physicians have reported to me, and I wish to acknowledge my sense of appreciation for their courtesy:

From Polk County, Drs. Shaw, Malster, Anderson, Post, Woepfel; York County, Drs. Hallett, Hylton, Shidler, Stark, Karrer, McKinley, Demeree; Dawson County, Drs. Sayer, Wengert; Custer County, Drs. Sargent, Comstock; Valley County, Drs. Bartoo, Lee; Nance County, Drs. Johnson, Eastman, Ohanerl; Merrick County, Drs. Benton, Robinson; Seward County, Dr. Doty; Webster County, Dr. Wegman; Dodge County, Drs. Davis, McDonald, Smith, Heyne; Nemaha County, Dr. Dillon; Saline County, Dr. Bentz; Phelps County, Dr. Sanders; Hitchcock County, Dr. Mellea; Douglas County, containing the cities of Omaha and South Omaha, Florence, Benson and Dundee, Drs. Gilmore, Porter, Ellis, Adams, Wigton, Rix, Roswater, Lake, Bishop, Morrison, Jefferson, Mack, Somers, Swanson, J. C. Moore, R. C. Moore, Impey, McClanaghan, Brown, Dwyer, Loomis, Van Camp.

Reports from the counties were as follows:

County.	Population.	Cases.
Polk	12,000	384
York	19,000	130
Valley	8,000	90
Custer	20,000	82
Douglas	175,000	79
Nance	9,000	72
Webster	12,000	43
Dawson	13,000	41
Seward	16,000	25

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

Dodge	24,000	17
Merrick	10,000	19
Nahama	16,000	5
Otoe	24,000	5
Saline	26,000	3
Hitchcock	5,000	2
Colfax	12,000	1
Phelps	12,000	1
Hamilton	14,000	...
Total cases		999

DIAGNOSIS

It would be strange indeed if, in the presence of an epidemic like this, mistakes in diagnosis were not made. Except for the literature of the New York epidemic there was nothing in the text-books to guide physicians or to give them any adequate conception of its symptoms or nature and the literature of that epidemic was not available to the large majority of physicians. It was called summer grip, mysterious disease, spinal paralysis, cerebrospinal meningitis and poliomyelitis. There were cases of the cerebral type that could not be differentiated from true meningitis except by lumbar puncture. This was done in a number of cases, and unfortunately one or two misleading reports were received by physicians concerning the bacteriologic findings.

So far as I can ascertain, the *Diplococcus meningitidis intracellularis* was not found in any of the cases. As the disease spread and as other cases appeared without meningitic symptoms, however, it became manifest that we were visited by an epidemic similar to that which prevailed in New York. We now know that some of these are cases of true meningitis and present symptoms similar to that disease, the only distinction being that they are not caused by the intracellular diplococcus.

NATURE OF THE DISEASE

The report of the collective investigating committee on the New York epidemic clearly shows that we must form a new conception of this disease. We must recognize that it is a general infection, that it involves many organs in the body, including the gastro-intestinal tract, the lungs, liver and other organs; that the toxin has a peculiar affinity for the nervous system, that it may involve only a part of the spinal cord or may spread to any part of cerebrospinal axis; hence we may have meningo-encephalo-myelitis. There is a cellular infiltration, chiefly of the anterior horn of the cord and more or less degeneration of the ganglion cells. The extent of permanent paralysis will depend on the degree of degeneration. The fact that many patients having early paralysis recover completely is evidence that degeneration does not take place in all cases, and that the cell infiltration is removed by absorption with complete restoration of function. It is probable that the early weakness and paralysis are due to a toxin which has a peculiar affinity for the nerve centers, inhibiting their function. This conception of the disease will greatly aid us both in diagnosis and in treatment.

My reports show that nearly all the fatal cases were due to bulbar paralysis. By this is meant an involvement of the motor centers in the medulla leading to paralysis of respiration. My reports indicate that nearly 90 per cent. of the cases were of this type, and that nearly all of these cases died within the first three days. When bulbar symptoms occur death may ensue within a few hours. These symptoms may occur in cases that otherwise seem mild. Again there may be cases with serious cerebral symptoms without bulbar symptoms; hence with all cases we have this complication to fear. I believe it to be true, however, that bulbar symptoms seldom or never occur after the first week. This complication was to me the important lesson of our epidemic. It was my sad privilege to witness the death of one of these cases. From the first symptom indicating respiratory failure to the fatal issue was only seven hours. Several of the physicians have frankly

Dr. Orr in his paper gives reports from 13 other counties not included in my list, with a total of 37 cases. I am satisfied from my experience that neither Dr. Orr's report nor mine contains all of the cases that actually occurred. His report showed a total of 91 deaths. Dr. Wilson, whose report is official, gives a total of 137 deaths. The total number of deaths in my report is 61. It follows that my report does not include nearly all the fatal cases. There are several reasons for this. For instance, I saw three cases out in the state which terminated fatally, but which are not included in my report. Again, I know of instances in which the attending physician was discharged and another called in, and, the case terminating fatally, the first physician would not include this case in his list of cases.

I have personally seen 47 cases, 15 during the acute stage and 22 because of the resulting paralysis, and in taking a careful history of these cases I found that 6 patients had no physician during the acute stage, seeking medical advice only because of the resulting paralysis. Physicians in the storm-center of the disease informed me that they were satisfied that there were many cases throughout the country districts in which no physician was called. My reports concerning the resulting paralysis were so incomplete that I shall not attempt to classify them. The chief object I had in view was to determine the clinical varieties, and the reports yield the following results: cerebral type, 107; bulbar type, 86; polynueritic, 113; ordinary, 495; unclassified, 188; total, 989.

The first case was reported in the month of March, but only 7 cases are reported from that time until July 1, and only 20 cases after November 1, four-fifths of all the cases occurring during the months of July and August. Those two months were unusually warm and dry. It is preeminently a disease of warm weather. Fifty-five per cent. of all the cases occurred in the counties of Polk and York, with a total population of 31,000 people, and the greater number of the cases occurred within an area of 20 by 24 miles. It was preeminently a disease of the rural district. A Fourth of July celebration was held in Stromsberg, Polk County, and I am told by reliable physicians that within two weeks after that the disease swept like a wave over the adjoining country. Another center in Webster County existed, with miles of intervening country without a case as far as can be ascertained. There were other centers in Nance, Valley, Custer and Dawson Counties, with considerable areas of intervening country without any reported cases. The physicians in some of these centers requested the state board of health to establish quarantine. This was done and the result seemed amply to justify this procedure. I think I can truthfully say that the physicians having the largest experience are satisfied from it that the disease is not only infectious, but contagious as well. Were there time I might recite many interesting experiences related to me.

told me that they had been greatly shocked and surprised to have a case terminate fatally in which but a few hours before they had given a favorable prognosis.

A careful study of my report and letters written to me indicate that constipation was the rule, diarrhea the rare exception. One physician who saw eighty-six cases did not have a single case in which diarrhea was a symptom. The constipation was obstinate, sometimes requiring two or three days to secure a bowel movement. This would seem to indicate that the disease caused an inhibitory effect on the muscular coats of the bowel. Vomiting was a rare symptom. As nearly as I can gather from the reports over 80 per cent. of the patients vary in age from 2 to 10 years, the extreme limits of age being 4 months and 67 years. A patient who died at the age of 37 was the oldest one reported whose case was fatal.

The most surprising feature of the report, however, was the number of cases reported of complete recovery. I am not able to give the exact figures. Some write that after the acute symptoms had subsided the cases passed from their observation. Dr. Orr's report received directly from the parents indicates that a larger number of patients have permanent paralysis than would be indicated from my report. My personal experience with patients coming to my office leads me to believe that there are many cases of paralysis of which the attending physician has no knowledge. It is certain, however, that a large number of these patients have recovered permanently, and probably 25 per cent. would be a liberal estimate of those who are permanently paralyzed. I can not discuss the subject of treatment but close with the following suggestions:

SUGGESTIONS

This is an infectious disease.

The evidence that it is contagious is accumulating.

The only safe procedure is to treat it as we would measles or scarlet fever: namely, isolate the patient.

We should realize that it is a general disease, that it may involve any part of the nervous system, that the bulbar type is usually fatal, and that our treatment should be directed toward prompt and efficient elimination.

ABSTRACT OF DISCUSSION

Dr. C. A. ANDERSON, Stromsburg, Neb.: Poliomyelitis is an interesting subject to me, as I am from the county in Nebraska in which a larger number of cases occurred than in any other county in the state. I had 86 cases in my own practice and saw a number of others as health officer. I was the first in the state to report these cases, and believe I quarantined the first cases of poliomyelitis quarantined in the United States.

Though I have learned of earlier cases in other parts of the state, the first case I have been able to find in Polk County occurred about the middle of May, 1909, and had come from some distant part of the state. I saw the first case on May 30, and from that day to July 4, 30 cases occurred in Stromsburg and tributary country. On July 26 and 27 I saw the first 3 cases in which I discovered paralysis, and on inquiry found that the other doctors also had patients with paralysis. I at once telephoned the state health inspector, asking him to come without delay, which he kindly did. After seeing the cases we were informed that no legal provision had been made for quarantining such cases and were advised to isolate them. But this, of course, could not be enforced, nor could the impending Fourth of July celebration be averted. This celebration was well attended and a week later cases were

reported from communities far and near previously free from the disease, but which had representatives at the celebration. During the following 30 days at least 115 cases occurred in the city of Stromsburg and tributary country.

On July 21 we were authorized and commanded by the State Board of Health to quarantine, and in 12 days the epidemic was well under control in our community, only 15 scattered cases occurring after that date. The epidemic reached Osceola, our neighboring town on the east, later, when suddenly 9 cases occurred there. Having profited by our experience, the affected families were at once placed in absolute quarantine, with the result that not a single additional case occurred there. The quarantine recommended by our State Board of Health, and which we carried out, was not absolute, but the same as that recommended for diphtheria, i. e., the bread winners were permitted to go about their business after taking certain precautions. The fact that the people of our community were thoroughly aroused by the ravages of the epidemic contributed much to the effectiveness of the quarantine there. In a community where the danger is not known I believe an absolute quarantine is safer.

Of the 86 cases 4 were fatal, the patients dying of bulbar paralysis on about the fourth day. Eighty-four per cent. were less than 10 years old, children 6 to 7 furnishing a larger number of cases than any other age. From 10 to 22 the susceptibility seemed to be about the same, each year of age being represented except 18 and 19. The oldest patient was 36, and died. In only one case was spinal puncture and an examination of the fluid made. The fluid was clear, but the microscopist stated that he found the *Meningococcus intracellularis*, a statement that is now known to be an unfortunate mistake. The numerous punctures done later in a neighboring county also showed clear fluid which contained no intracellular cocci.

Dr. E. H. BARTLEY, Brooklyn, N. Y.: One important thing in the history of this epidemic is in reference to the period of incubation. The essayist has said it was about two weeks, and Dr. Anderson's figures make it about two weeks after the quarantine that the epidemic stopped suddenly. If they would tell us how long after the Fourth of July celebration the large crop of cases appeared, that would also assist us somewhat in determining the period of incubation.

Dr. H. M. McCLANAHAN, Omaha: I had expected to have the pathologist report the findings in eight or ten cases. It was to me a revelation. My cases were limited to forty-seven, and of the seven patients with the bulbar form, all died. Twenty-two patients came to me because of the paralysis, all of the ordinary type, one with complete paralysis of the muscles of the left side. In another case there is complete paralysis of the left side of the face. We did not find in any of the eight cases in which lumbar puncture was done the *Diplococcus intracellularis*. In three the fluid was absolutely sterile.

THE RÔLE OF OPHTHALMOLOGY IN PREVENTIVE MEDICINE *

HIRAM WOODS, M.D.
BALTIMORE

The rôle of ophthalmology in preventive medicine includes, it seems to me, at least three phases which may be profitably studied by the general profession: 1. Prevention of blindness from infectious diseases and accidents. 2. Prevention of eye deterioration by violation of ocular hygiene. 3. Prevention of remote lesions through recognition of early ocular symptoms of systemic disease. It is my purpose to speak briefly of each of these, bearing in mind the fact that this section has to do rather with the practical results of scientific study than with the details of the study itself.

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

OPHTHALMIA NEONATORUM

Among infectious eye troubles, the most destructive, by long odds, is ophthalmia neonatorum. The number of its victims is little short of a professional disgrace. Its cause is definitely known. While due exceptionally to infection other than gonococci, and while differential diagnosis is important, the fact remains that clinical experience shows the preventability and curability of the disease. Credé's prophylaxis was given to the profession about thirty years ago. On account of occasional so-called "silver catarrh," it encountered some opposition. This was largely overcome by reducing the strength of the nitrate solution from 2 to 1 per cent., in which strength it seems equally effective as a preventive, while its irritating qualities are lessened. Rarely—not more than twice or thrice in a lifetime—hemorrhage from the conjunctiva is seen in infants. As the use of Credé's method became more general, this symptom of hemophilia was laid at the door of the silver salt, hemorrhages, usually fatal, from other parts of the body not receiving proper consideration.

Other preventives have been tried. Maternal disinfection has been relied on; other drugs, mercuric chlorid, potassium permanganate, and the protein silver salts, have been used in the eyes. While all have been more or less effective, the consensus of opinion puts the 1 per cent. nitrate solution at the top. When used properly, in a clean way, this solution is practically always effectual. Its routine use in maternities has almost driven this disease away. "Routine" is important, for whenever discretion has been left to a house staff, to use or not according to maternal conditions, ophthalmia has increased. Though it is always used in most maternities, and employed by many obstetricians uniformly in private practice and by many more when there is the least reason to suspect gonococci infection, one studying statistics of blindness meets with an appalling fact; the percentage of blindness from infantile ophthalmia in schools and asylums is practically undiminished. In some places it is larger. The Maryland school will serve as an example. In 1892 children blind from this disease amounted to about 18 per cent. Now it is nearly 28. An average of 30 per cent. holds everywhere. These cases do not come from maternity hospitals or from eye hospitals, provided the cornea is clear when treatment is instituted, nor from the private practice of the careful physician. In my own state, of this 28 per cent. of all blind children, 77 per cent. were born under midwife care, the remainder under medical care. Observations in other states give similar results. Several conclusions are justified:

First, an increasing number of women in the poorer classes are applying to midwives for care during confinement. This seems directly confirmed by the investigations of Miss Crowell in New York and Chicago, and Miss Small in Baltimore. Birth registration is hard to enforce; but an estimate of 40 to 50 per cent. of midwife attendance is certainly safe. This is in spite of the ample hospital provision which our cities afford.

A second conclusion is that the large majority of midwives are ignorant and incompetent. It is necessary only to call attention to Miss Crowell's findings to prove, not only that the American midwife, white and black, is untrustworthy, but that the foreign woman, better trained in her own country, soon degenerates to the level of demand when she comes to our side.

A third conclusion, more mortifying and disgraceful than those bearing on midwives, follows from the fact

that at least a considerable percentage of infantile blindness can be laid at the door of the physician. There are, it is evident, practitioners who either do not know how to prevent and treat the disease, or, if they know, fail to act on their knowledge. It is well-nigh impossible to reach these men. Medical societies and journals are strangers to them. They pursue their own dogmatic, complacent ways, and their patients take the consequences.

But the midwife problem is one which must have serious study. In many countries of Europe the midwife has not only legal restrictions but educational advantages. Her activity is recognized, and the government prepares her for her work among the poor. Not so, to any degree at least, with us. We so often hear it stated that the midwife is here, and here to stay, that it must be true. That 40 or more per cent. of births are supervised by her lends confirmation. She is evidently more popular with the poorer classes than are our hospitals, maternities or relief societies which furnish free medical attention by women physicians. Yet we know that her ignorance often brings blindness to the baby and death to the mother. Preventive medicine means prevention of the effects of disease; elimination of cause, when possible.

We have recently added to our Maryland laws one regulating the practice of midwifery. It requires ability to read and write, attendance on at least five cases of confinement, under capable supervision, and demonstration to the health board of ability to attend normal labor. It requires report, and forbids treatment of infantile ophthalmia. This law, and others similar, aims at making the midwife as harmless as possible, recognizing her standing, because she is a necessity.

If that is the professional attitude toward her, it seems to me that we must go the full length of the situation, and provide, as is done abroad, for education of the midwife up to her legal privileges. She has a unique place. Her patronage can never rise above a certain social line, and persons below this line do not know how to take care of themselves. Naturally they become, in one sense or another, public charges. I do not mean that they must be supported; but I do mean that their ignorance leads to results from which intelligent men and women must save them. How and by what means the midwife is to obtain educational facilities I do not, at this time, at least, stop to discuss. But, on the doctrine of her necessity in American life, it is worth thoughtful discussion, and such a group of men as make up this Section will soon have to grapple with it.

I am going to suggest, however, a side attack on the midwife problem. It is popular education of the persons who employ the midwife. We have in the Maryland Medical and Chirurgical Faculty a bureau of public instruction. Medical men and women go, at the request of philanthropic societies, among the poor and tell them about prevention. Last fall I addressed an audience of some sixty or more pregnant women under the auspices of a branch of the Women's Christian Association. I afterwards learned that a number of my audience canceled midwife retention, and entered hospitals. I have urged this popular education on our social workers in Baltimore, and mention it here only as suggesting a way of enlightening the ignorant poor who are quick enough to follow advice when they are convinced of its disinterestedness. They will not take such advice from physicians in this spirit.

The fight against ophthalmia neonatorum is the most encouraging preventive undertaking in the rôle of oph-

thalmology. Many states have laws compelling the report of midwife cases, and a few convictions impress midwives with the necessity of getting the babies into proper hands at once. Such has been our experience in Baltimore, where some of us have reported neglected cases and secured convictions. In New York state the Board of Health furnishes free of charge prophylactic sterile silver nitrate solution to those willing to use it. A large number of physicians and the better class of midwives are doing so. The Sage Foundation has taken up the fight, and is ready to furnish money and help promote knowledge where it is needed. In several states there are associations of professional and lay men and women for prevention of blindness. The American Medical Association has a special committee in its Section on Ophthalmology, of which committee Dr. Lewis of Buffalo is Chairman; and there are corresponding members in each state.

There is still needed the same sort of awakening to this disease which has come to the profession in the fight against tuberculosis. Why the mere facts in the case fail to impress many physicians is hard to say; but they do not. I heard a leading county practitioner say that he considered putting nitrate solution into the eyes of a new-born baby, "just because the father had had gonorrhoea," as almost criminal. One step might be taken in impressing such men if ophthalmia neonatorum were put in the list of diseases to be reported. It could be easily enforced after a little; for if a child lost an eye the parents would almost certainly take him or her to an oculist, and thus failure to report would be brought home to the first attendant. Such a lesson would induce a man to post himself on treatment and prevention.

ACCIDENTS

Accidents as a cause of blindness have been gone over so thoroughly that I shall hardly more than allude to them. In the line of prevention, however, a sane and safe method of observing Fourth of July merits professional activity. Since passage of an ordinance forbidding the use of fireworks within the city limits, such accidents as we saw in abundance years ago in Baltimore, are now almost unknown. Dr. Robert L. Randolph deserves special mention for activity in this work. The comparison between cities with and without such regulations, as produced by *Collier's Weekly* a year ago, shows what can be done if medical influence is used. Antiseptic treatment of eye wounds from industrial accidents has saved many eyes whose sight was not entirely destroyed, though in former years these eyes would have been removed without hesitation. Sympathetic ophthalmia is now a rare disease. Personally I have seen but one case in a number of years; yet risks which would have been formerly considered unjustifiable, are now taken to save the injured eye.

The principles of treatment are, removal of foreign bodies, if present and removable, rest, cleanliness, cold, and meeting complications with appropriate treatment. Some surgeons claim that hexamethylenamin is highly useful in such cases, and a limited experience with it leads me to agree with them. The most important thing is to get the patient under rigid antiseptic treatment early.

It would be interesting to review, if time permitted, various protective devices now being introduced in factories to safeguard workmen from flying bits of metal, broken machinery, etc. This phase of the prevention of

blindness, however, belongs rather to the industrial than the medical side.

SCHOOL HYGIENE

There is a rôle of preventive medicine in ophthalmology which has received considerable attention from some quarters and has been sadly neglected in others. I allude to school hygiene. The systematic examination of children's eyes for visual acuity often discovers for the first time that refraction is abnormal and enables the child to start school life safe-guarded. General recognition of ocular origin of headaches, etc., does more in the same direction. Recognition that myopia, certainly the progressive type, is a diseased condition, and that it usually comes from neglected astigmatism, is a long stride in saving children from damaged eyes and the numberless remote disturbances which come from the eyes.

Of no less importance than examination of pupils' eyes is school hygiene in the sense of proper lighting of rooms—direction, intensity, etc.; adjustable desks, size of print, character of paper, etc. In such a paper as this it is hardly possible or proper to consider these matters in detail. Yet, with increasing popular interest in medical matters and greater appreciation of hygienic principles, such things demand attention from the physician, because his advice will be sought.

Two phases of school hygiene may be specially mentioned. The adjustable desk, as is known, can be adjusted to the child's measurement. Its use does away with the haphazard method of putting a child in the desk which most nearly fits. It secures comfortable seating, with the body properly supported both in the upright and forward positions, enables the child to bend over the desk, in writing, without elevating one shoulder above the other, and with the page at a proper distance for sustained and comfortable eye work. These desks are not much more expensive than the old-fashioned stationary affairs. They are in use in most of the best private and a few of the public schools. Their universal adoption would, I believe, be most helpful in preventing ocular discomfort and disorders.

Every year an oculist sees a few children with these conditions: vision is below normal, one-half to one-tenth; the child sees well enough to be self-reliant, but study is impossible; either refraction error is absent or its correction does not improve vision; the cause of defective sight is sometimes undiscoverable, apparently a congenital defect. Again, corneal opacities, antipolar cataracts, old superficial chorioidal scars explain the partial blindness. What can be done to educate these defectives? If they try to keep up in a curriculum arranged for children with normal visual acuity, not only does suffering result, but each year sees a little less vision at 20 feet, a little nearer approach of print in order to secure a larger retinal image. In other words, school life is damaging sight.

I, like other oculists, have seen such cases go on to practical, if not absolute blindness. We forbid eye-work, but the prohibition means enforced idleness while the mind is active. A few such children consent to be read to, but the majority rebel, and little by little parents cease the effort. Then either eye-work is done clandestinely, or effort to get education is abandoned. So far as I know, there is no provision made for such children in our educational system. With most of them it is either nothing or the blind school. There has been some recognition of this class in England, and a few men have, in individual cases, done something here.

We need, it seems to me, a midway or modified curriculum in our school system. It should include such studies only as are really necessary for a fair common school education. Maps, diagrams, books, etc., should be large enough in outline or print for the defective to see without effort. I have been able to find a few such maps and books for such children, and the effect of eye-work, under easy conditions, on the eyes themselves, has been surprising and gratifying. Visual acuity has really increased during a period of years.

The principle holds good, too, in a class of squint cases which relapse after operation because the squinting eye is below its fellow in visual acuity and so does not work: that is, its comparatively indistinct retinal image makes no impression on the psychic side of seeing. By selecting type which the eye can see, and forcing work on such type, with the good eye excluded for a little time each day, one is often rewarded by positive increase in vision, sometimes to a point where binocular sight is possible. I have developed such eyes from one-tenth or less to nearly normal.

But it is chiefly to the school idea that I wish to direct attention. Ophthalmology here has a rôle in preventive medicine of both physical and economic value; for not only is such sight as the child has, preserved or improved, but the child himself is made a more or less productive social factor. He will not, with visual acuity assumed, take kindly to instruction designed for the blind, but he will respond to the special efforts made for him. As a class, he merits more attention than he gets.

EYE LESIONS AND SYSTEMIC DISEASE

In conclusion, I want to speak of a rôle in preventive medicine which ophthalmology ought to occupy more than it does. I allude to functional or organic ocular disorders as symptomatic of systemic disease. To the oculist it is important because the best possible work in his own special line will be nullified unless he recognizes the symptomatic meaning of the trouble bringing his patient to him. To the patient it is important, because even if the oculist relieves symptoms without recognition of cause, relapse is inevitable. To the practitioner it is important because the eye, properly studied, often gives indications not gathered otherwise.

There are many ways in which this rôle may be illustrated. How often does a patient go from one oculist to another—to say nothing of the all-sufficient examining optician, or optometrist, as he now calls himself—vainly seeking relief from asthenopia? The mere fact that a half dozen conscientious and capable men have failed should indicate that there is something besides ocular error. This something is often hard to find. Its search demands cooperation of specialist, internist, physiologic chemist, etc. I have traced these persistent functional eye disorders to anemia, incipient and unsuspected nephritis, intestinal auto-intoxication, functional and organic menstrual troubles, supposedly cured or unsuspected hereditary syphilis, etc. Again, the oculist sees interstitial keratitis, or a frank iritis of alleged rheumatic origin; or else it is clearly a secondary syphilitic manifestation. His duty is not done when the eye lesion is cured. Only when he has put the patient where he can receive the systemic review or treatment indicated by the eye symptom can the oculist release himself from responsibility.

On the other hand, the oculist is now, the country over, fighting the so-called optometrist in his effort to secure by legislation a quasi-professional standing. He is doing this disagreeable work because he knows that not only

is the eye itself often injured by delay of proper treatment, while the optician is vainly trying to sell glasses that will cure ocular lesions, but that the symptoms of eyestrain which take the individual to the optician often mean remote and serious troubles. The rôle of ophthalmology in preventive medicine means cooperative medicine. It means that if we view the eye from the standpoint of its own function, this function is often affected by conditions beyond the oculist's power to diagnose or cure; that if ametropia be present, the physician may work in vain to relieve remote symptoms till the oculist helps him; that if the oculist appreciates the meaning of persistent functional disorders, a rigid pupil, seemingly unimportant muscular paresis, he may save his patient from dreadful consequences by asking his brother internist to aid him; that the problem of saving sight is not one which concerns the oculist alone, but is one which demands honest introspection from the physician and effort to educate his patients in the views which medical progress has taught us.

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ABSTRACT OF DISCUSSION

DR. LEARTUS CONNOR, Detroit: Dr. Woods has stated with great clearness the relation of ophthalmology to preventive medicine. But in order to make this relation effective it is necessary that every physician have a definite increase in his working knowledge of ophthalmology. What this shall be and how obtained, is the subject of my remarks. The Section on Ophthalmology has decided that this shall be "a mastery of infectious diseases of the eye" and its "simple refractive defects." Because of the fact that existing ophthalmologists are unable to meet the needs of the one hundred and eighty millions of human eyes in the United States that need refracting, it is proposed that the entire one hundred and thirty thousand physicians be trained to manage simple cases, leaving for specialists the more complicated cases. Using the illustration of an army, we now have the officers, but not the soldiers; it is proposed to recruit the soldiers, and so to organize an effective army for protecting all the people from ocular diseases and disabilities.

If the entire profession is to be trained for the intelligent management of the simple eye disorders, the medical colleges must train them. To encourage them to make such changes as are necessary to ensure such training, it has been found practicable to persuade the state registration boards to require it for license to practice. A year ago the Section on Ophthalmology appointed a committee to promote such persuasion. It reports that four states now make such requirements, viz., Michigan, Utah, Vermont and Nebraska; that the House of Delegates of the American Medical Association, the American Academy of Medicine and the Federation of State Licensing and Examining Boards approve it.

Thus in one department of medicine—ophthalmology—experts have determined what every physician can master and actually practice, without interference with other practice, and so supplement the limitations of specialists and enlarge their own field and supply educated physicians adequate for the ophthalmic needs of all the people, under actual conditions. Farther, it is promoting the actual equipment of every doctor with the skill needful for him to do his part in the service of the people. It is believed that thus the service of ophthalmology in preventive medicine will be infinitely enhanced, just as an army of one hundred and thirty-five thousand is more effective than one of three thousand, and one with both soldiers and officers stronger than one with only officers.

DR. PRINCE A. MORROW, New York: I believe that the gonococcus is responsible for 90 to 95 per cent. (a great many authority say practically all) of the blindness of the newborn. We have the testimony of ophthalmologists that the gonococcus is responsible for at least 25 per cent. of all blindness. Now, I think that in all these discussions on the

prevention of blindness, as far as I have followed them, in the literature put out by the committee on the treatment of blindness, such as "Why Children Need Not Be Born Blind." there is no reference to the education of the public as to the nature and communicable mode of the infection that causes blindness; that is absolutely covered up and concealed; in fact, the entire responsibility is thrown on the shoulders of the physicians and midwives. The only education that the committee attempts to give is the education of the public to an appreciation of the value of the Credé method. As long as the public is ignorant, and kept ignorant, of the nature of the infection that causes blindness, I don't believe that ophthalmia neonatorum will ever be effectively checked. Now, I am a believer in the value of the Credé method; it is the best method in the present state of our knowledge for correcting the effects of this cause; but I regard it as an anachronism in the present day of advanced medical science to endeavor to correct the effects of a cause and ignore the cause itself.

Now, how do we get at this? We are to educate the public, but we cannot do it individually; we cannot say to a mother that her child has been blinded by an infection received from its father; but we can educate the public collectively. The medical secret does not apply to the collectively, it applies only to the individual. I believe that it is the greatest duty, the most urgent obligation on the part of the medical profession of the present day, to enlighten the public in regard not only to this infection, but to all of the infections that come from venereal diseases.

DR. SENECA EGBERT, Philadelphia: In regard to the teaching in the medical schools, I would like to say that, as a matter of fact, some of the students in some of the schools are getting this information and instruction, not only didactically, but also by actual practical work in the ward class. This year I can tell you of a class, numbering eighty at least, every one of whom had practical work in ophthalmoscopy, as well as work with other ophthalmic patients; and, what is more, those men got in final examination a question on refraction. I might say, too, in regard to the examination on ophthalmology, the question on the treatment of ophthalmia neonatorum has been so common in the past years that the students always look for it; and if they don't know anything else about the eye, they do know Credé's method and how to treat new-born infants. That is being done not only in our own school but in other schools throughout the country.

DR. HENRY B. HEMENWAY, Evanston, Ill.: The Chicago Department of Public Health has been conducting, for a short time, what they call a postgraduate school of instruction for midwives. A series of questions is sent out to the midwives, and they are asked to reply to them, and then they are invited to come in and discuss some of those problems with one of the department members. One of the objects of this instruction is this very matter of the prevention of blindness of children.

DR. W. FORREST DUTTON, Carnegie, Pa.: There are three problems presented by Dr. Woods' paper: that of midwife, that of ophthalmia neonatorum, and that of registration of births. I think we should, in the first place, educate the laity to legislate. In Pennsylvania we practically have no midwife law at all; and of those that attempt midwifery, we only have one of those licensed out of about the ninety-nine of those that do the work. I will venture to say that 25 per cent. of the ophthalmia neonatorum is due to the negligence of those practicing midwifery who have no right to practice it at all. Therefore, the blame should be placed where it justly belongs—on the midwife and the laws and not on the physician.

That presents another problem of the registration of births. It may be said that we get back to that when the death certificate is brought in. Well, if those children are allowed to go on until four or five years of age without registration they don't have an opportunity to get back at a midwife. If they would get at the midwife, make the doctor, midwife and parents equally responsible for the registration, I think a great many cases of blindness from these conditions could be avoided. It is legislation, instead of education, in a great

many places, that we want. We must educate the legislators to know that we want this, before we educate the classes up to the standard in preventive measures.

DR. HIRAM WOODS, Baltimore: I agree with Dr. Morrow's general criticisms that an allusion to popular education along the lines of sex hygiene would have made my paper more complete. It was not forgotten, but it is impossible to put in a short paper all one may wish. In the general lectures delivered in Baltimore, under the auspices of the medical and chirurgical faculty, the matter is emphasized. I agree with Dr. Egbert, so far as my experience goes. If my students get away from instruction on eye diseases without realizing that between the eye and the sex problem there is close connection, without appreciating the fallacy of one standard of morality and decency for men and another for women, it is not because such instruction is not given them.

Dr. Morrow claims that advice of ophthalmologists and obstetricians (that Credé's method be general) necessitates the logical deduction that every woman is a possible source of gonococic infection. The thousands of babies who do not have ophthalmia is sufficient proof of the absurdity of such deduction. If statements from the father about his previous life can be relied on, an eye prophylactic can be safely omitted. But, with different standards for the sexes, we must recognize the possibility of undiagnosticable gonococic lesion. And responsibility for risking the baby's eyes rests on the medical attendant. How often does the average practitioner ever think of latent gonococic infection in this light? After possibly two or three children escape, a baby develops ophthalmia. Recent infection in either parent is excluded. What does it mean? It means that an old, forgotten infection was a source of danger to the baby's eyes. In view of the harmlessness of the prophylactic, it is believed that the moral effect or influence of general use of prophylaxis would induce men, who now do not think of it, to use it and thus save many eyes now sacrificed. By noting gross lesions in the mother, the child's danger cannot by any means be determined.

There are physicians not belonging to medical societies, not reading journals, dogmatic, self-satisfied men, who seem beyond reach of new thoughts. They do not know, and the problem is, how to reach them. "There are others" outside of the medical profession, that is so. Post-partum infection, for instance, is most important. When a baby develops ophthalmia on the third or fourth day, you attribute it to maternal infection. How about those that come along later? I recently saw a baby blind in both eyes, the disease having appeared on the twelfth day. There was a dirty nurse, or dirty something, that blinded this child. Here is another problem in midwife training or public medical education. Obstetricians and ophthalmologists have begun their work on the midwife and careless doctor because they are the most conspicuous offenders, and most easily reached. No branch of preventive medicine can live to itself; but in practical, every-day work we must do what we can where we can. I fear it will be a long time before sex hygiene is so generally understood and acted on as to save babies' eyes. In the meantime, the indifferent medical man and midwife should be regulated.

METABOLISM AND MOUTH-DISEASE *

HENRY R. HARROWER, M.D.
CHICAGO

Since there is a very close relationship between the functions of the various organs of the body, it is not unreasonable to suppose that disorganization in one part will be accompanied or followed by disturbances elsewhere. From a study of conditions as they are to-day in both medicine and dentistry, however, it would seem that this important fact is not as fully appreciated as might be expected.

* Read in the Section on Stomatology of the American Medical Association, at the Sixty-first Annual Session, at St. Louis, June, 1910.

It is generally believed that certain more or less intractable diseases of the mouth or its contents are, to a greater or less degree, either accompanied by or associated with changes in the normal metabolic functions of the body. In spite of this comparatively few physicians are stimulated to look carefully into the mouth when evident errors of the metabolism are known to be present; nor do our dental confrères investigate the metabolism of those of their patients who are suffering from the all-too-common and intractable mouth-diseases.

This is not as it should be, for any local manifestation of disturbed function should serve as a reminder that a thorough investigation is not only necessary but imperative. This is just as true of mouth diseases as of skin eruptions, joint difficulties or gastro-enteric disorders. All too often Nature's glaring sign-posts are ignored.

Without a doubt there is a very close relationship between the condition of the buccal mucosa, the gums and teeth, as well as the tongue, and the blood which nourishes them. From time immemorial the condition of the tongue in disease has been used as an important diagnostic sign, and the study of this is given a prominent place in the text-books and current medical literature. For this reason I give it merely passing mention here.

It might be well here to quote a few lines from a valuable editorial entitled "Gingivitis in Diabetes" printed in a recent issue of THE JOURNAL:¹ "The importance of mouth symptoms in the acute infections, such as scarlet fever, diphtheria and measles, is recognized. It is less generally known, however, that in many constitutional conditions the mouth secretions and the mucous membranes covering the gums, cheeks, tongue, etc., furnish early and positive data for diagnosis.

"It becomes a matter of extreme importance, therefore, that the general practitioner shall examine the mouths of all patients, taking careful note of the mucous membrane of the cheeks, beneath the tongue, on the tongue itself, the roof of the mouth, and especially the gums."

The work of a number of broad-minded investigators, among whom the esteemed secretary of this Section, Dr. Eugene S. Talbot, stands preeminent, has called the attention of both the medical and dental professions to the relationship between pyorrhea alveolaris and certain blood dyscrasias.² This subject is of paramount importance and one to which much more attention should be paid. Here we have a vital factor in the solution of a multitude of difficulties, not merely pyorrhea alone, nor, for that matter, mouth diseases *per se*, but of a long list of common and uncommon conditions which embrace almost all the diseases known to medicine. It is a fact that as a profession we have not yet fully grasped the meaning of the Biblical statement, "The blood is the life." I do not mean by this that we do not appreciate the fact that life is dependent on the blood and its healthy condition, but the fact that in the majority of cases disease is due to toxic wastes which are present in the blood-stream and which unquestionably markedly lower its disease-resisting powers.

These poisons are not all of them sufficiently well known to have been isolated and named, but their frequent presence and easily demonstrable untoward effects are apparent to all that take the trouble to look for them.

Principal among these disease-producing toxins are certain acid substances which have been demonstrated to be closely related to indican and other products of intestinal putrefaction. Just what these substances are remains to be proved, but that they are acid in reaction and that their baneful influence is evident in the mouth as well as throughout the whole system is very quickly and easily proved.

Our methods of analyzing the blood and estimating its alkalinity are altogether too complicated for general use. In their place the examination of the urine has been found to be at once convenient, quick and easy; and the results obtained from such examinations will be found at times to be even startling. Probably the one factor obtained by the careful analysis of the urine which in most cases overtops its fellows is the acid index, and, strange to say, hardly more than a mention of it and the method of its estimation is to be found even in the most recent text-books.

Let us for a moment consider the question of the urine analysis and the relations of some of the findings. The urine is usually acid in reaction and the average normal acidity ranges from 30 to 40 degrees (each degree represents the amount of decinormal soda solution required exactly to neutralize 100 c.c. of urine). This acidity, we are told, is due to certain acid salts, principal among which is the acid phosphate of soda. We learn from the text-books that the urinary acidity is very difficult to accurately estimate because of the trouble in securing an indicator which will be responsive to all the various acid salts, and probably for this reason the study of this most important finding has been largely passed over.

Phenolphthalein is the most satisfactory indicator and is used by the majority of investigators. The test is simplicity itself and is fully as accurate as many of the well-known and widely-used tests, as for example, the albumin tests of Esbach or Purdy, or the Doremus urea test. The acidity of the urine should always be determined from a portion of a complete twenty-four-hour specimen, and care should be taken to prevent, as far as possible, alkaline decomposition of the urine. Either a burette or my acidimeter³ may be used. The latter is far more convenient for the physician or dentist in his office, while the former is probably better in routine laboratory work where large numbers of specimens are being handled.

In a paper⁴ published last June I called attention to the frequency with which excessively acid urine accompanied indicanuria and a marked diminution in the amount of urinary solids passed. A series of 250 analyses was mentioned in this paper. These findings, augmented by much further work along this line both by myself and several interested friends, was reported in a paper⁵ read at the annual meeting of the Illinois State Medical Society held last month.

From my findings it would seem, to me at least, that we have conclusive evidence that in the study of the urinary acidity we have something of more than ordinary importance. The relation of this syndrome of findings—acidemia evidenced by a hyperacid urine, intestinal toxemia by indicanuria, and decreased metabolic activity by the frequent low urea index and general

1. Editorial, Gingivitis in Diabetes, THE JOURNAL, A. M. A., May 7, 1910, p. 1548.

2. Talbot, E. S.: Med. Rec., New York, 1907, lxxi, 895; Dental Cosmos, 1909, No. 2.

3. Harrower, H. R.: New York Med. Jour., 1909, lxxxix, 1, 24.

4. Harrower, H. R.: Med. Rec., New York, 1909, lxxv, 966.

5. Harrower, H. R.: The Clinical Significance and Relations of the Urinary Acidity, read at the 1910 meeting of the Illinois State Medical Society, Danville. Not yet published.

reduction in the total solids—to mouth-disease, is quickly found. It is safe to say that in a majority of patients suffering from pyorrhea are acidemics, and the most conclusive feature of this work is that therapeutic measures calculated to reduce the acidemia and eliminate the toxemia have a decidedly beneficial effect on the pyorrhea.

Many patients have been examined by me personally. Dr. Talbot has made hundreds of examinations and several others have by their work proved absolutely that there is decided and close connection between disturbed metabolism and mouth-disease.

I might go further and discuss the relations of the metabolism as evidenced by the urinary findings to diseases of the buccal mucosa, the pharynx and the tonsils, but this is a subject far too broad to be touched on as briefly as would be necessary here. I will close by relating a short but interesting case which was brought to my attention by Dr. A. H. Hoy. When he was visiting in Seattle last summer he was invited to see a little girl suffering from a membranous condition of the pharynx which seemed to be growing progressively worse in spite of heroic doses of diphtheria antitoxin, swabbing with silver nitrate and other antiseptics and the best treatment that one of the leading specialists could afford. Dr. Hoy asked if the urine had been examined. It had not. He then asked for permission to make an immediate examination of a specimen passed in the office. The acidimeter read 180 degrees. A twenty-four-hour specimen was saved, and the next afternoon was tested, showing practically the same degree of acidity.

To make a long story short, the child was treated with alkalies and within a few days the whole condition had cleared up and no evidence of the affection was to be seen save a marked hyperemia of the pharyngeal walls.

It is hoped that a wide-spread study of the relations between the disturbances of metabolism and mouth affections will shortly be inaugurated among the rank and file of the professions, and that the dentists as well as the doctors will come to see the important influence that the hyperacid state plays in disease causation in general and mouth disorders in particular.

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ABSTRACT OF DISCUSSION

DR. EUGENE S. TALBOT, Chicago: For a number of years Dr. Harrower has been making a specialty of this line of work. There is a great amount of suffering among our dental patients. Patients consult stomatologists to have operations performed when they are suffering pain in other parts of the body. I could recall many cases similar to that Dr. Harrower has reported in which by treating interstitial gingivitis I have been able to clear up other conditions of the body from which the patients have suffered for many years. These patients are walking about, yet they are ill. They are not ill so far as the general practitioner is concerned. He must find some lesion—some condition for which they must stay at home or in bed before taking treatment. There is no specialty of medicine wherein prophylaxis is more valuable than in dentistry. If we only knew and understood the mouth symptoms we could ward off disease in many instances. I have under way a series of experiments that are not completed, and I will give here a short report of them to show how these conditions—the urinary acidity and the indican will affect the tissues of the body.

For the past five years I have been making these experiments on seven male patients over 45 years of age who have interstitial gingivitis to a marked degree. All are fleshy,

weighing from 172 to 223 pounds. These patients all have painful micturition. They have been under my personal supervision all the time. All are suffering with acidemia and indicamuria. Four are high livers; three enjoy home life; five at times have urinary acidity of from 82 to 112 degrees; the other two do not exceed 60 degrees; all have abundant indican. These men are always about their business affairs. At times all suffering more or less with rheumatic neurotic pain, headaches, drowsiness, constipation, indigestion, gases in both stomach and bowels. These patients were experimented with in different ways. All were refused meat for a given time; all were refused acids and alcohols in all forms. Sodium bicarbonate was given in doses of from 5 to 20 grains 3 times a day one-half hour after meals until the acidity was reduced to below 35 degrees; from 30 to 40 degrees being normal. All patients were put on buttermilk. In four, the indican was reduced to a minimum and the pain subsided. In three indican remained in the urine. In these latter the buttermilk was withdrawn and intestinal antiseptics given. The indican was reduced by destroying the germs in the intestines. Meat was given for a period of a month or two as the case might be and the urinalysis continued. Painful micturition returned. The experiments showed when the acidity was high and there was abundant indican, painful and frequent micturition occurred. After the urinary acidity was reduced, the pain continued; the reduction of indican in the urine, however, caused the pain to cease and the frequency to lessen. It was also found that the interstitial gingivitis could be more readily reduced and a permanency secured in not only all these patients but in others who were not under special study. It would seem that the decomposition of proteid substances in the intestines and bodily waste do not when alone cause the development of indican but by combination with intestinal germs which are not associated with nitrogenous substances to any extent, and which cannot be destroyed by the lactic acid of buttermilk. One thing is certain, indican and a high urinary acidity act as irritants in the blood stream, and the alveolar process and dental pulp, which are end-organs, are directly and quickly involved.

DR. GEORGE V. I. BROWN, Milwaukee: Dr. E. C. Kirk of Philadelphia has done some interesting work recently. It is evident from the paper just read, that accompanying intestinal putrefaction and other similar conditions, there is a general acidosis which affects the mucous membrane of the mouth in common with other parts. Buccal acidity may also be due to results of local fermentation. We have known for some time that dental caries is fostered in its incipency by the formation of gelatinous plaques. No one, I believe, had satisfactorily shown just how they were formed until it occurred to Dr. Kirk to demonstrate that in the presence of lactic acid the mucin of the saliva is precipitated; he thus easily accounted for these plaques. In the same general way acidosis favors precipitation of mucin; it coats itself along the tongue and the mucous membrane of the cheeks, throat and other parts. Micro-organisms stick to it as flies stick to fly-paper. This explains in a perfectly rational way many of the oral symptoms which have been so long recognized as pathognomonic of many diseases. Dr. Kirk has finally brought this subject to a point at which all the results of the labor Dr. Talbot and others have expended in developing an understanding of the constitutional aspect of buccal disease, and that of Dr. Williams, Fletcher and others who have been investigating along certain other pathologic divisions, may be brought to a focus. The rationale of tonsillitis, pharyngitis and other allied conditions is easily comprehended when one remembers that the tonsillar crypts are filled with this mucin and the micro-organisms thus protected are permitted to multiply under most favorable conditions.

DR. HENRY O. HARROWER, Chicago: Some day when the dental and medical professions are more thoroughly stimulated the discussion of this subject will be much more eager. Dr. Talbot speaks of three patients in whom the indican seemed to remain. It has been proved conclusively that there is a close relation between prolapse of the abdominal viscera and indicamuria, and I would suggest that if Dr. Talbot would look into these three cases, he would find the patients "po-

bellied," and that if the abdominal contents were held in place the indicanuria would eventually disappear. He also referred to frequent and painful micturition. There is more to this than we think. This condition of hyperacidity or systemic acidemia is not only irritating to the kidneys but also to the urinary passages. I found in 25 per cent. of my first 250 cases that hyaline casts were present. Now hyaline casts are mucin, I believe; at all events, they are evidence of renal irritation, and it is not unreasonable to suppose that a condition which will cause the temporary presence of casts may be responsible for permanent kidney disorganization. I am not a crank on alveolitis, nor do I consider this condition of acidemia the sole cause of pyorrhea. Far from it. Unquestionably, local conditions play an important part and the presence of the acids of fermentation in the mouth have a greater bearing, perhaps, than the general condition.

"Acidemia" is the proper word to use in this connection. "Acidosis" is the old word, and Dr. Talbot still uses it. Acidosis is a condition referable in most cases to diabetes, or which only occurs when oxybutyric acid or its congeners are present; it may also be found after anesthesia; but the condition I refer to is properly called "acidemia."

THE PRESENT STATUS OF ANTITYPHOID INOCULATION *

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WASHINGTON, D. C.

Antityphoid inoculation has been very thoroughly studied since 1896, when Pfeiffer did the pioneer work in it. Wright placed the method on a firm basis by his inoculations in the British army, both in India and during the Boer War; and since then there have been many contributions to the subject, especially by Leishman, whose work has helped greatly to bring the subject up to date, as has also the work of Major Russell of the United States Army. From these investigators I quote freely. Some of the later statistics are those of Leishman. These cover a period of three and a half years, to June, 1908. Of 5,453 soldiers vaccinated against the disease, only 21 took it, and 2 died; in 6,610 soldiers under practically the same conditions of life and surroundings, there were 187 cases, and 26 deaths. That is, there were 3.8 cases per thousand among the vaccinated, and 28.3 cases per thousand among the unvaccinated. The experience of the German army in southwest Africa has also been very satisfactory, the number of cases in their troops being only half as many among the protected as among the unprotected, while the death-rate was three times greater among those not protected by inoculation. At Peshawur, in India, Colonel Skinner, R. A. M. C., states that an actual epidemic of typhoid fever was cut short by inoculating 70 per cent. of the command, in addition to methods of sanitation.

These, with other figures, have proven to us that it has been so successful in reducing not only the death-rate but also the number of cases of typhoid fever, that our army is now using it and advocating its use. Not only does it reduce the number of cases, but when a case does appear in a patient who has been inoculated (which is rare, however), the course of the disease is much milder. The figures obtained from Major Russell of the U. S. Army, show that up to about June 1, 8,510 people have been inoculated by U. S. Army medical officers, and that there have been but few severe reactions to the inoc-

ulation. No bad results from it have been heard of, and the protection given by the inoculation has been very well marked, since there has not been a single case of typhoid in any one whose vaccination was completed, and yet there has been in the army at large, among the unprotected, considerably over 200 cases in the same period of time.

Now this is a very important fact, and certainly proves something; for it must be remembered that these inoculations have been given 8,510 people in 102 different army posts and localities, under entirely different surroundings, conditions of sanitation and conditions of exposure, and many of these must have been exposed to the disease more or less, located, as they are, near different large and small cities, from the northwest to the southeast of the United States. At Toledo, Ohio, Dr. Willard J. Stone has been using antityphoid inoculations for the past two years, especially with the idea of producing immunity among physicians and nurses; and he is firmly convinced of their efficacy, and is continuing their use. But I regret to state that their use for such purpose does not seem to be general, as I think it should be, among medical men in that part of the country, nor does it seem to be general in the large cities—as New York or Philadelphia—so far as I can find out, though in Boston more seems to have been done in the way, as you will see.

Dr. Stone has recently reported the successful treatment of a typhoid carrier by vaccine; and this is a great advance, for in his case the bacilli disappeared completely from the urine after six inoculations. Now if we can cure the carriers, then we are doing something, and my remarks in the latter part of this paper are even more important as showing that we need not be so afraid of the carrier. Dr. Stone, who has done a great deal of work in this line is very much in favor of it and states that he believes it offers more chance of cure of carriers than any other known method. This data has but recently come to me, and it should be considered carefully. Many of the individuals inoculated in the series just spoken of have shown, one month after the third inoculation, agglutinative values in dilutions as high as 1 to 500, so you can see this is good corroborative evidence.

During the past year at the Massachusetts General Hospital, there was carried on a series of inoculations under the direction of Spooner. He employed as a test of his results, not only the diminished amount of fever among the inoculated, but also a determination of the immune substance in the blood, using the agglutination test to do so. His results were so encouraging in his first series that he called for volunteers among the nurses and ward attendants, determined to make an effort to stamp out typhoid among the hospital attendants. A large number volunteered. Spooner inoculated nearly one hundred people to January, 1910, made a careful study of their inoculations, and had not a single bad result and only a few severe reactions. Though the reactions among the nurses as a rule were almost nothing, and the suffering and inconvenience among the majority almost *nil*, they all said they would have taken the inoculation anyway, with the hope of the immunity it held forth. This is a matter of considerable importance, because one of the things that hold people back from taking antityphoid inoculation is that they think they are going to suffer a great deal and have a very sore arm, as sometimes occurs in smallpox vaccination; but the fact that in the army we have now vaccinated over

* A lecture delivered to the officers at the camp of instruction, combined maneuvers, Chickamauga Park, Georgia, July 15 and 27, 1910. Published by authority of the Surgeon-General.

8,500 people is surely sufficient evidence that the procedure is harmless, and when I have shown that none of them has developed typhoid fever, while living all over the United States, even the most skeptical person ought to be convinced of the great value of these inoculations. And now the most important fact of all in reference to this last series of cases is that Spooner has lately written that this is the first year that no typhoid fever has originated in the Massachusetts General Hospital. Now it would seem, and I believe, that we can eradicate typhoid fever as it occurs among the nurses and attendants of all institutions. Think what a great thing that would be!

PREPARATION OF VACCINE AND METHOD OF USE

The therapeutic object to be desired in these inoculations, if we may call it such, is the production of specific antibodies which will antagonize and destroy the typhoid bacillus; and to place the patient as nearly as possible in the condition of one who has had typhoid fever. This is the object expressed in few and simple terms. I shall not attempt a scientific discussion of this part of the subject, as that is foreign to my title. I need hardly discuss here the method of preparation of the vaccine, but suffice it to say that the vaccine is taken from a typical typhoid culture which is grown on agar slants for twenty hours, and is then washed off into a small quantity of normal saline solution. It is then tested for purity, placed in sealed tubes and the bacteria killed by heat at 60 C. for one hour, $\frac{1}{4}$ of one per cent. of trikresol is added as a safeguard. The vaccine we use in the army is administered to at least two animals before being used on human beings, and thus the liability of contamination is very slight. Castellani finds that he can produce a higher degree of immunity by using live typhoid vaccines, prepared by a method of his own, which consists of heating non-virulent broth cultures at 50 C. He says that the method is free from danger. With this method we have had no experience, so I merely mention it. There are other methods spoken of in the various reviews on the subject, but the method as described here seems at present to suffice.

The site of the inoculation is the arm at the insertion of the deltoid muscle, the dose to be given subcutaneously, and not into the muscle or into the skin. The arm should be cleaned as for any other operation. After the vaccine has been injected, it is well to disinfect the needle puncture by touching it with a minute quantity of pure phenol or liquor cresolis comp. U. S. P. It is a good idea to massage the injected area for a few minutes. The glass container should be washed off in an anti-septic solution and opened after making one or more cuts near the top with a file. The vaccine can be drawn out of the container with a syringe, or it may be emptied into a salt cellar which has been sterilized by boiling. The syringe and needles should be sterilized by boiling in a 2 per cent. solution of soda. It is necessary to be sure and have perfect sterilization. A fresh needle must be used for each man, or if the same be used it must be plunged into boiling soda solution to re-sterilize it. The most suitable time for the administration of the vaccine is about 4 o'clock in the afternoon, as the greater part of the reaction then occurs before morning. No applicant should be vaccinated who is not perfectly healthy and free from fever at the time; and it is advisable in case of doubt to take the temperature and examine the urine. In case of any man who has fever or any other signs of illness, it should be postponed until he recovers.

This precaution is necessary to avoid the vaccination of men who may be coming down with typhoid fever.

According to the method most used now, three doses are given, ten days apart: the first of 500 million, and the second and third of 1,000 million each. This interval of ten days has been adopted because experience has shown that nothing is to be gained by giving the doses at shorter intervals. The method of giving it is simple and easy, and it can readily be done by any physician with due care for cleanliness.

REACTION AND PRODUCTION OF IMMUNITY

There is usually some headache and malaise, and local reaction consisting of a red and tender area about the size of the palm of the hand, and sometimes tenderness in the axillary glands. The entire reaction is over in forty-eight hours, and during this period it seems best not to permit any active exercise, such as long walks or rides. Some few individuals may be very susceptible and develop a severe general reaction, (headache, backache, nausea, vomiting, herpes labialis and, rarely, albuminuria, and some loss of body weight). The number of severe reactions has been small, and regardless of their severity they all disappear completely inside of forty-eight hours.

The production of large quantities of specific antibodies does not become evident until about eight or ten days after vaccination. The second dose is therefore not given until the first has become effective, since there may be a temporary fall in the quantity of protective bodies present in the serum after the administration of the second and third doses.

The question of increased susceptibility, or anaphylaxis, as it is termed, is one of some importance and worthy of remark, because it is still under discussion and in dispute to some extent, and has a bearing, perhaps, on the ideas of some against the inoculation. It is believed now, I can properly say, by most investigators, to be of no great importance, and so far I have been unable to obtain the history of any distinct case of anaphylaxis to typhoid vaccine. It is safe to say, therefore, that ordinarily the protection against typhoid commences immediately after the first dose and gets stronger and stronger up to a point as yet undetermined, because the inoculations have been so recently used in any great numbers that it is not yet possible to exactly determine the duration of the immunity from any available statistics.

But we know it gives protection and can do no harm; therefore, even if it only lasts a short time, why not use it? The English statistics quoted above show that it will last three years, and that is certainly long enough, because in the army one can easily revaccinate a man, and three years will carry a soldier through most campaigns. And again, three years will cover most nurses' period of training and most doctors' days of hospital work; and so, again, why not use it?

Antityphoid inoculation has been heartily indorsed by the Surgeon-General and his associates, after a rigid investigation of the subject by a board of eminent physicians of the country; and the Secretary of War has been asked to make it compulsory for all recruits, and it is hoped he will soon do so. So it will be seen how thoroughly convinced the U. S. Army medical department is of its desirability. The British authorities stand in the same position, as also do many civilian practitioners. In the U. S. Army it is explained to the men by lectures, and examples are shown, and so far

we have had a ready response from the men. I personally have inoculated over 200 applicants, and have not seen a patient sick enough to go to bed: and at Fort Barrancas, Florida, where the men have constantly been more or less exposed to typhoid fever, there has not been a case for nearly two years among approximately 700 men: and while as yet they have not all been inoculated, yet many have, and each one protected helps to prevent somebody else from getting the disease.

The history of the use of antityphoid inoculation we know goes back to 1898, and to many of us it may seem strange that such a promising procedure has been used so little up to date: and yet it seems not to have been popular or widely used among hospitals in civil life, in institutions, or among gangs of men working on big jobs. One of the main reasons for this is the idea among the people—and I find this is so to quite an extent in the army, too—that it gives the patient a bad sore arm, makes him sick and really prostrates him. This is not true. Very few suffer at all from it, and it is not to be compared in severity with the ordinary reaction from smallpox vaccination.

CONCLUSIONS*

Now, therefore, considering all the data I have presented on the subject, it seems that the present status of these inoculations against typhoid fever is that they are valuable as a method of preventing the disease and are perhaps the most valuable single asset we have in combating an epidemic, and that there is surely no doubt in the minds of most thinking and up to date medical men that they should be used in the following classes of persons: first, all nurses, ward attendants, hospital corps men, red cross assistants, physicians and medical students; also all persons who contemplate a journey into a section where typhoid is known to exist or is suspected of existing. Also, the inoculations should be done generally in districts suffering from an epidemic, and especially in the families where a case exists, and I might add that in time of war all volunteers at camps of concentration should be inoculated as soon as possible after the camp is started.

Finally, it seems that typhoid will always be with us, but there is no necessity of its always being with us in our armies to any such appalling extent as it has in the past; therefore, the necessity for antityphoid inoculations will surely always be with us, for no matter how careful we are of our sanitation, our milk, our water, our flies, our contact infection, we will always have one or more of our much talked of friends, the chronic typhoid carriers, and it is only by inoculating them and other friends and acquaintances that we can keep more or less of them free from typhoid.

I am convinced of the harmlessness, and at the same time, of the effectiveness of this procedure, and would recommend its universal adoption, to the end that our armies in time of peace and war, and our communities at all times, may be kept as free as possible from that terrible epidemic disease, typhoid.

And last, but not least, I believe I can state from a careful study and investigation of the matter that the present status of antityphoid inoculation as a means of prevention is assured, and that its future possibilities are great.

* Nearly 1,000 additional cases have been inoculated since this article was prepared, with about the same results; and Colonel Leishman's recent lectures before the Harben Society show, I believe, the same good results in the very latest work in the British Army.

THE TREATMENT OF SYPHILIS WITH EHRlich'S "606"*

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PART I. THE THEORETICAL AND EXPERIMENTAL BASIS FOR THE USE OF "606"

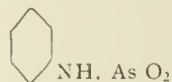
The object of experimental chemotherapy is the preparation and discovery of drugs which shall possess specific powers over given parasitic micro-organisms. The pursuit of this object has recently been greatly promoted by the discovery by Professor Ehrlich of a drug which possesses extraordinary power of destruction over certain, at least, of the parasitic spirochetes. Ehrlich has for many years been engaged in the synthesis of drugs, the ultimate purpose of which was the destruction within the body of such parasitic organisms as trypanosomes and spirochetes under conditions in which the organic cells of the host would be left unaffected. In other words, and to use Ehrlich's terminology, it was necessary to seek drugs which were on the one hand highly parasitotropic and on the other were quite devoid of organotropic activities. In the course of this quest, Ehrlich has had the good fortune to produce a number of drugs which more or less fulfilled these ideal conditions, but recently the quest has been crowned with an extraordinary achievement that promises to be of the greatest importance in the treatment of syphilis and hence of incalculable benefit to the human race.

We may begin by summarizing a fragment of the conceptions which led Ehrlich to his most recent important discovery: The animal parasites causing malaria, trypanosomiasis, syphilis, amebic dysentery, etc., apparently can not be successfully attacked by means of immune sera, and therefore their conquest must be attempted by means of ordinary chemical substances. The history of the treatment of malaria with quinin indicated that this line of attack is a feasible one, particularly in view of the fact that quinin represents the successful employment of one drug out of an innumerable series tried by man in nature. It is possible through the aid of modern synthetic chemistry to prepare an almost infinite number of combinations which can then be tested on animals infected with the animal parasites of the diseases named, until compounds are found which exhibit a higher degree of poisonous effect on the parasite than on the host. Having achieved this first selection, the partially successful compound can then be further altered by possible substitutions, which may serve to render it still more suitable for the purposes in view.

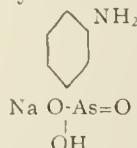
While Ehrlich was engaged in developing this line of investigation, the substance atoxyl, which is an empirical arsenical compound, came into use in the treatment of sleeping sickness, for which it proved a highly useful although not invariably successful drug. This substance, which was demonstrated to be more poisonous for one of these animal parasites than for the human host, became the starting point for chemical variations which culminated in the preparation of the compound "606."

* From the Rockefeller Institute for Medical Research, New York.

The starting point of the successful substitutions in connection with atoxyl was the working out of its real constitution. It had been considered as an anilid of arsenic acid,



which, being an unstable compound, would not allow of the necessary chemical manipulation and substitution. In collaboration with his chemical assistant, Bertheim, Ehrlich ascertained that atoxyl is in fact the sodium salt of para-aminophenyl arsenic acid,



In this compound the molecule of arsenic is firmly attached to the benzole ring, because of which the compound admits of the necessary manipulation and substitution at different positions in the ring. Different substitution products were next prepared and tested for their therapeutic effects on infected animals. Up to the present time, about 630 substitution products have been made and tested, of which four only have proved to possess the requisite parasitotropic properties, without at the same time being injurious to the organs of the host. These substances are: acetyl-atoxyl; arsenophenyglycin, or "418," tryparosan, and arsenobenzol, or "606." Excepting the drug tryparosan, arsenic is the active principle in all the preparations, the other chemical groups present merely serving to fix this substance to the parasite. Thus for example it has been found that the acetyl group has a special affinity for trypanosomes and the amino and hydroxyl groups a special affinity for the spirochetes.

It is obvious that this kind of pharmacologic research is possible only if animals can be used as the basis of experiment. Fortunately, the discovery of the transmissibility of syphilis to the lower animals and of *Treponema pallidum*, the parasitic cause of syphilis, came to be achieved about this time. Hence the new drugs could be tested not only against fowl spirilla and the spiral organisms of relapsing fever, but also against *Treponema pallidum* in infected rabbits. In due time preparation No. "606" came thus to be tested, and was proved to be efficient in a single dose, which while it sufficed to destroy all the parasites was without perceptible injurious effect on the host.

In the course of previous investigations, Ehrlich had ascertained that it was not safe to attempt to destroy the animal parasites by means of repeated small doses of an injurious drug, and for the reason that in the course of this method of treatment, the parasites often develop a toleration for the drug which they transmit to their progeny. The goal, therefore, became the discovery of a drug which in a single dose would destroy all the parasites, leaving the host uninjured, and this extraordinary achievement apparently is accomplished by "606."

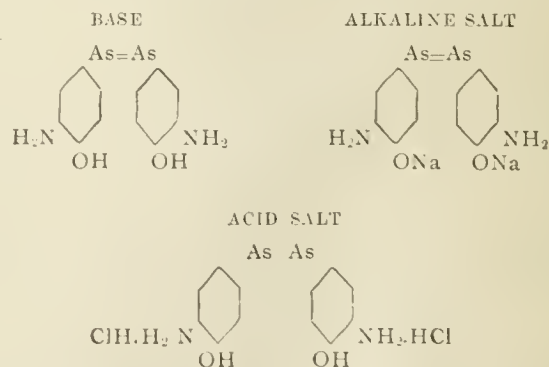
EHRlich's THERAPIA STERILISANS MAGNA

The drug having been proved by repeated tests on animals to be without injurious effect it was next tested on human beings. The first to submit to inoculation were the assistants, since which time several thousand persons suffering from various forms and consequences of syphilis have been treated.

The reports which are appearing at present in practically every number of the important German medical weeklies from different parts of Germany and Austria are almost unanimous in their testimony to the remarkable effects of the drug in syphilis. In all but a few exceptional instances a single dose of the drug has sufficed to bring about a rapid disappearance of the lesions of syphilis and equally rapid improvement in the general condition of the patients. In the few instances in which these rapid effects were not achieved the dose of the drug, which was originally given was, as is now established, too small, and in many of these cases a second and larger injection has brought about the desired result. It is noteworthy that in many instances the patients who have improved rapidly after an injection of this drug had resisted the application of mercury sometimes over many months, or possessed idiosyncracies which made the use of mercury difficult or impossible. Thus far, a special idiosyncrasy against the drug has not come under notice. It is as yet too early to determine whether the patients who have responded so rapidly and perfectly to the administration of the drug as apparently to have been cured of this otherwise chronic disease by a single injection may ultimately suffer relapses. On the other hand many scores of patients have shown no relapses in the several months which have elapsed since the injections. What is highly important in the interests of prophylaxis is that within twenty-four or forty-eight hours of the injection of the drug superficial lesions, such as mucous patches, condylomata and primary lesions are freed from living spirochetes. This remarkable effect of the drug on the parasites can be readily demonstrated on the testicular spirochetal lesions of the rabbit, in which the innumerable spirochetes can be entirely immobilized within twenty-four hours with a single injection of the drug, after which the lesion quickly resolves.

ADMINISTRATION OF THE DRUG

The chemical name of "606" is paradiamidodioxo-arsenobenzole dihydrochlorid.



The substance is a yellowish powder which rapidly oxidizes on exposure to air, and is therefore put up in vacuum tubes. It dissolves in water with difficulty, making a strongly acid solution. As the acid solution is very painful, the substance is administered either as a neutral base (Wechselmann) or as an alkaline salt (Alt). The administration is by injection deep into the muscles, or into the veins or beneath the skin. At first, the administration was made either deeply into the muscles of the buttocks or into the circulation, but at present it is recommended that the administration be made subcutaneously according to the method of Wechselmann.

According to this method, the drug, in a dose which has varied up to the present from 0.3 to 0.6 grams, is dissolved in a mortar in 1 to 2 c.c. of ordinary solution of sodium hydrate. Acetic acid is then added, drop by drop, until the base precipitates out in the form of a fine yellowish suspension. This precipitate is collected in

subdivide the precipitate as finely as possible, which can be done by rubbing. The suspension is then drawn into a suitable syringe and injected subcutaneously below the shoulder blades after previous cleansing and disinfection of the part. It often happens that there is slight pain lasting a few minutes following the injection, and in

TABLE OF RESULTS OF USE OF EHRLICH'S 606 IN SYPHILIS

No.	Age.	Sex.	Infection.	Previous Treatment.	Condition Before Injection.	Injection.	Local Effects.	Condition After Injection.	Serum Reaction.	Remarks.
1	25	M	1 '10, chancre; 2 '10, secondaries.	11 injections 1 gr. Hg Sal.	General secondary eruption; enlarged lymph nodes; serum +	5 12 '10; 8 c.c. each buttock. 0.3 gm. 606, not completely dissolved. Alt method.	Induration for 7 days; slight pain.	No improvement in 3 weeks.	6 16 '10+35 days.	Small dose, resumed mercury.
2	38	M	1905, chancre and secondaries.	Irregular.	Tertiary syphiloma of back and chest; serum ++	5 12 '10; 8 c.c. each buttock. 0.3 gm. 606, not completely dissolved. Alt method.	Marked induration, 7 days, scaly erythema of hands and feet.	Slight improvement in 3 weeks.	6 10 '10++29 days.	Small dose, resumed mercury and KI; drug eruption.
3	21	M	3 1910, chancre; 5 1910, secondaries.	Only local treatment.	Circinate syphilitid of face; macular syphilitid of trunk; enlarged lymph nodes; serum ++	5 16 '10; 0.3 gm. 606; 8 c.c. each buttock. Alt method.	Induration of buttocks for 7 days.	After 8 dys. lesions gone on face, and faint on body.	5 23 '10+7 days.	Left hospital 5, 24, '10, considering himself well. Could not be traced.
4	32	M	5 1907, chancre and secondaries.	More or less constant; liquid.	Sealing syphilitid of palms severe. Serum ++	5 16 '10; 0.3 gm.; 12 c.c. each buttock. Alt method.	Induration lasting 7 days, slight fever 2 days.	5% improvement in palms after 7 days. Completely healed in 1 month.	6 10 '10-25 days.	Began to work as orderly in hosp. 6/6; apparently cured by single injection. See Photographs Figs. 1 and 2.
5	20	F	4 1910, secondaries.	4 grs. Hg Sal. by injection	6 mos. pregnant; faint eruption. Serum +	5 19; 0.3 gm. 606; 10 c.c. each buttock. Methyl alcohol.	Marked induration 5 days, urticarial eruption 2 days.	Apparently well in 21 days.	6 28 - 39 days.	Aborted 5 29; fetus badly macerated, could not be obtained for examination.
6	24	M	10 1909, chancre; 12 1909, secondaries.	Mercury in pill form for several months.	Severe rupial lesions, face, head and arms; hysterical. Serum ++	5 19; 0.3 gm. 606; 10 c.c. each buttock. Methyl alcohol.	Slight induration 4 days.	Marked rapid and progressive improvement. Lesions healed in 39 days.	8 30 - 3 mos. 11 days.	Gained 12 pounds. No recurrence in 3 mos. Photograph Figs. 3, 4.
7	54	M	1882, chancre and secondaries.	10 days treatment in 1882.	Ulcerating syphilitid of knee and leg. Serum ++	5 23; 0.3 gm. 606; 10 c.c. each buttock. Methyl alcohol.	Marked induration of buttocks 7 days.	Sinuses closed induration gone and lesions of light color 21 days.	6 10 - 21 days.	Apparently cured.
8	25	M	10 1909, chancre; 1 1910, secondaries.	2 grs. Hg Sal. by injection	Mucous patches, fading follicular syphilitids of body. Serum +	5 23; .03 gm. 606; 10 c.c. each buttock. Methyl alcohol.	Slight induration.	Marked improvement, lesions gone in 2 weeks.	6 11 - 19 days.	Apparently cured by single injection.
9	28	M	5 1909, chancre; 9 1909, secondaries.	"1 bottle of medicine."	Severe extensive pustular and tubercular syphilitids of face and shoulders. Serum ++	5 26; 0.3 gm. 606; 10 c.c. each buttock. Methyl alcohol.	Induration of buttock 5 days.	Marked improvement. Lesions dry and faint in 14 days.	.....	Gain in weight. Left hospital and could not be traced.
10	24	M	1907, chancre and secondaries.	KI 7 months	Severe periostitis, left tibia. Serum +	6 7/2; 0.3 gm. 606; 10 c.c. each buttock. Methyl alcohol.	Marked induration 7 days.	Pain and swelling disappeared in 8 days.	8 30 - 3 mos.	No recurrence in 3 mos.
11	28	M	1 1910, chancre; 5 1910, secondaries.	No treatment.	Mucous patches and macular eruption on face and legs. Serum +	6 2; 0.3 gm. 606; 10 c.c. each buttock. Methyl alcohol.	Induration 7 days.	Face and leg clear in 7 days.	6 23 - 21 days.	Apparently cured by single injection.
12	22	M	4 1910, 3 chancres on lips; 5/19 0, secondary eruption.	2 grs. Hg Sal. hypodermically.	3 large indurated chancres on lips; erythematous papular eruption on body. Serum ++	6 2; 0.3 gm. 606; 10 c.c. each buttock. Methyl alcohol.	Induration of buttock 5 days.	Chancre gone, eruption very faint; 21 days.	.....	Great improvement in general condition. Photograph Figs. 5, 6. Could not be traced after leaving hospital.
13	29	M	1905, chancre and secondaries.	Treated 4 wks. in hospital, 1905; 1906, 8 weeks in hospital.	Arthritis of knee, broken down glands of groin, emaciated, anemic. Serum +	6 7; .03 gm. 606; 7 c.c. each buttock. Methyl alcohol.	Slight induration.	Marked and rapid improvement in general condition and lesions in 10 days.	6 30 - 23 days.	Apparently cured; 8 30 working as longshoreman; has gained 30 lbs.; serum
14	20	F	6 1910, chancre and secondaries.	No treatment.	Mucous patches, general eruption. Serum.	6 7; 0.3 gm. 606; 7 c.c. each buttock. Methyl alcohol.	Induration 5 days.	Eruption and sores disappeared in 10 days.	.....	Left hospital and could not be traced.

from 1 to 2 c.c. of sterile distilled water, and there are added either 1-10 normal sodium hydrate, or 1 per cent. acetic acid, as needed, until the reaction becomes precisely neutral to litmus. According as the reaction is or is not accurately neutral the injection will be followed by much, little or no pain. It is moreover desirable to

some instances a slight swelling arises on the second or third day following the injection, but no bad effects are produced. There may be slight rise of temperature and in some instances an urticarial eruption has occurred, but no specific toxic effects on the eyes, kidneys, or nervous system have been observed.

PERSONAL OBSERVATIONS

Although the number of cases to be reported on at present is small, the results have been so striking, and are in such accurate accord with the several thousands of cases reported from Germany that it has seemed desirable to make this report, especially because it is probable

one-half of the dose now being employed abroad. Hence it would not be surprising if in this first group relapses occurred. If so it would be both safe and desirable that a second and larger injection be given.

The efficiency of the drug is dependent in part on the dose employed. Hata has permanently cured all rabbits having spirochetal lesions by means of a single dose of an adequate size. We have found that when the dose is too small, relapses occur in the infected rabbits. Hence now that it has been determined that a dose of 0.6 gram is non-toxic for human beings, it is probable that the average dose will approach that quantity. At present, European observers are employing doses varying from 0.45 to 0.6 gram.

The drug is not generally available at the present time. The output is too small for general distribution, and Ehrlich has therefore up to the present been able to supply it to relatively few physicians, whose employment of it has also been in the nature of tests of its value. The final word concerning its value will not of course be said for a number of years, but the fact remains that we possess no drug the extraordinary effects of which in syphilis equals that of "606."



Fig. 1. Scaling syphilitic of palms. A. K. Duration of infection, three years; of palmar lesions, one year. May 16, 1910, 0.3 gm. 606. Wassermann before treatment, ++; June 10, 1910, negative; Sept. 1, 1910, still negative. (See photograph after treatment.)

that the drug will come to be extensively used throughout the United States. The patients were all in the City Hospital on Blackwell's Island, in the skin and venereal wards. The clinical diagnoses were all definite and unmistakable, and the serum reactions which were made regularly were conducted with the Noguchi modification of the Wassermann method.

In injecting the preparation into the first two patients considerable difficulty was experienced in getting the powder into solution, and the full dose of 0.3 gram which it was intended to administer was therefore not given. As we now know, 0.3 gram is a submaximal dose. These patients were injected before the method of Wechselmann had come into use, and even before the earlier modification of the original "Mt" method of preparation suggested by Ehrlich had been published. As a result no marked improvement occurred and the patients were put back on mercurial treatment. The remaining twelve received the full dose intended, and included examples of primary, secondary and tertiary lesions. The effects were in these instances truly remarkable and now, from three to four months after the injections relapses have not been observed to occur. Before the treatment the serum reactions were all positive and at the expiration of the time mentioned, in all the patients who could be traced, they have become negative. Aside from the temporary local disturbance caused by the injection in some instances, no untoward symptoms were observed, except an urticarial eruption in two of the cases. None of the patients received more than 0.3 gram, which is about



Fig. 2. Scaling syphilitic of palms. A. K. Condition of palms two weeks after treatment with 606. (See photograph before treatment.)

The one drug with which it may be compared is quinin, which in many instances is so highly efficient in the treatment of malaria, but even there a single dose does not suffice to destroy all immediately visible parasites, as does an adequate dose of "606."

PART II. THE USE OF "606" FROM THE STANDPOINT OF THE CLINICIAN

Personal experience in the treatment of syphilis has convinced us that mercury given in the early stages in as large doses as the system will tolerate insures the patient more certainly against relapses, and that patients who are treated by small doses over long periods of time in the manner which is still too often employed by even the best known syphilographers sometimes develops in the patient thus treated an immunity to the drug which renders it comparatively inert. This latter class of patients not infrequently become the subjects of obstinate relapsing lesions of the skin and mucous membrane or, later, the victims of paresis, tabes, or other visceral or bone affections. Professor Ehrlich's contention, therefore, as to the value of a drug which at one dose destroys the invading organism is supported by clinical experience in the use of mercury. It is true that the methods of administering the latter have been greatly improved in the last few years, as is witnessed by the greater fre-

treatment by the Wassermann reaction cannot be too strongly emphasized, showing as it does that in the past some patients may have been greatly overtreated while the majority have received too little of the specific drugs. It is well known that there are certain cutaneous and general manifestations of syphilis which respond slowly or not at all to mercury even in heroic doses. Among these may be mentioned certain scaling syphilids of the palms, chronic nodular syphilids in patches of the type which clinically resembles lupus vulgaris, certain forms which affect the flush area of the face and bear a marked clinical resemblance to lupus erythematosus; also mucous membrane affections like leucoplakia, chronic interstitial glossitis and relapsing deep and superficial lesions of the tongue and throat. Aside from these lesions which are under direct observation there are the so-called parasymphilitic manifestations, such as tabes, the treatment of which by the classical drugs leaves much to be desired. In malignant syphilis with early destructive lesions and the development of profound cachexia,



Fig. 3.—Nodular and ulcerating syphilid. W. C. N., date of luetic infection, October, 1909. Rupial and fungating lesions of face and arms of six months' duration. May 19, 1910, received 0.3 gm. 606. Wassermann before treatment, +++; Aug. 30, 1910, negative. (See photograph after treatment.)



Fig. 4.—Nodular and ulcerating syphilid. W. C. N. After treatment with 606. (See photograph before treatment.)

quency with which it is employed hypodermically and by injection, but our present means are still too often slow or inefficient in their action especially in the early stages. Delay or insufficiency in the amount of mercury at this time permits the entire system to become infected by the *Treponema pallidum* and damage to the blood-vessels or important structures takes place which might be prevented by energetic treatment. It will generally be conceded by physicians who come in contact with a large number of syphilitics that while mercury and potassium iodid are efficient in the great majority of cases in controlling the manifestations of the disease, there are certain intractable cases in which they fail to control the symptoms either on account of idiosyncrasy to one or both of these drugs or other causes. Furthermore, owing to the length of time required in treating a case of this infection patients often become discouraged and cease medication after a few months or a year or two. The great advance made in controlling the

mercury, moreover, often fails to do good and not infrequently does harm. When, therefore, Dr. Flexner, of the Rockefeller Institute, in the early part of May, this year, received a supply of the new preparation "606" and asked to be allowed to try it in a number of selected cases in the City Hospital, the proposition was received with favor and the patients in the skin and venereal wards were placed at his disposal. At that time the experience in the use of the drug had been rather limited and the patients who were treated were carefully selected as free from organic disease of the kidneys, heart or eyes; in fact, all the contraindications for the use of the drug, as stated by Prof. Ehrlich, were carefully observed. The patients were also informed that a new drug was about to be employed which would cause them a considerable amount of pain and was yet in the experimental stage. There was no difficulty in obtaining their consent, and the most striking testimony as to its value in the treatment of obstinate cases of lues was furnished by other patients in the wards, who on seeing

the results accomplished by its use repeatedly asked that it be given to them.

The rapid action of arsenobenzol in cases of obstinate syphilis of the palms is strikingly illustrated in Figures 1 and 2.

Patient, aged 32, had a genital chancre three years before, which was followed by the usual secondary symptoms. Following his infection he had taken medicine in "liquid and capsule" form almost continuously. The eruption on his hands was of one year's duration. The Wassermann reaction was strongly positive. On May 16, 1910, he received 0.3 gm. "606." Two weeks afterward his palms presented the appearance shown in Figure 2 and in another fortnight he was entirely well.

The result obtained by the use of "606" in this case was far more rapid than any which we have seen after the use of mercury. Furthermore, after an apparent cure from mercury in these cases of chronic palmar syphilis the majority relapse within a few weeks to a month or two, whereas this patient had had no recurrence up to

obtain complete resolution under several weeks to two or three months; in fact, the induration sometimes persists for a year or longer. As these extragenital initial lesions are a source of great mental distress to the patient and one of danger to his environment, their rapid retrogression under this remedy surpassed the result which could have been expected from mercury.

Figures 3 and 4 illustrate a rather malignant form of eruption which occurred less than one year after infection:

Patient, aged 24, contracted syphilis in October, 1909. A month later a pustular eruption appeared first on his face and then on the body. The lesions become rupial and afterward assumed a fungating type. He also suffered from sore throat, headaches and osteocopic pains. From October up to the time he entered the hospital he had taken mercury in pill form. On May 19, 1910, he received 0.3 gm. "606." There was a perceptible change after a week; the patient's general condition improved and in two weeks he gained 9 pounds.

This form of early malignant syphilis, which indicates low resisting power on the part of the infected



Fig. 5.—Multiple chancres. J. S. C., infection two months ago. Two chancres on upper lip and one on lower in median line; papulo-erythematous eruption on body. June 2, 1910, 0.3 gm. 606. Wassermann before treatment, + . . . (See photograph after treatment.)



Fig. 6.—Multiple chancres. J. S. C. After treatment with 606. (See photograph before treatment.)

September first and the Wassermann reaction has remained negative.

In the case of multiple initial lesions of the lip (Figures 5 and 6) of two months' duration, with secondary manifestations of the skin, complete resolution of the chancres took place within about ten days, leaving practically no evidence of their former existence. The entire appearance of the patient, too, underwent a marked change, as before treatment he was anemic, depressed, and evidently showing considerable constitutional disturbance from his infection. The great improvement which took place in his general condition after the injection continued up to the time he left the hospital. The Wassermann reaction at that time was negative. The duration of the initial sclerosis under mercurial treatment is a very variable one. It is unusual, however, to

individual, sometimes fails to respond to mercury. The almost magical result which followed the use of "606" is illustrated in Figure 4 which was taken about two weeks after the administration of the drug. Up to September 1 the patient had remained well and showed a negative Wassermann reaction.

The cases just referred to are examples of the most brilliant results obtained. In the table additional data are given bearing on the other cases which were treated at the City Hospital. Through the kindness of Dr. Flexner, we have been able in the past month to secure a sufficient quantity of the remedy to treat several private patients who are still under observation; the cases will be reported in greater detail later. One of these was a case of rapidly progressing optic neuritis with tabetic symptoms, the result of a specific infection twenty years before:

Patient, referred by Dr. Marks of Frankfort, was a man, aged 38, in whom it was noticed two and a half years ago

that his pupils were smaller than normal. Shortly afterward, he developed a diplopia which was diagnosed by the ophthalmologist as paralysis of the right abducens and beginning atrophy of the optic nerve. From that time until August 1 he had been under active mercurial treatment but without benefit. His vision since April, 1910, has been rapidly diminishing and he has concentrically contracted field, Argyll-Robertson pupil and partial atrophy of both optic nerves. Although we recognized that affections of the optic nerve are given as a theoretical contraindication to the use of "606," still at the urgent solicitation of the patient and his friends the drug was administered, but he was told beforehand that very little result was to be hoped for. A dose, 0.45 gm., was prepared after the method of Wechselmann and injected beneath the right shoulder blade. This was followed by severe pain which persisted for three or four days and had to be controlled by several hypodermics of morphin. On the second day, a marked swelling appeared at the site of injection which began to resolve at the end of a week. At no time was there any evidence of softening. The patient's temperature rose slightly on the second day reaching 100.4 F.; his pulse was rather high for the first week varying from 90 to 110 and he developed considerable physical weakness. Although little result was expected from the drug in this case, the patient is under the impression that the rapid progress of the disease has been arrested.

In the following case of cerebral syphilis an improvement took place in some of the symptoms which mercury and other medication had failed to influence:

Patient was a man, aged 38, whose infection dated back six years. In February, 1910, the neurologic examination made by Dr. M. G. Schlapp was as follows: "Pupils unequal, the right being larger; they react to light, not to accommodation—very nearly Argyll-Robertson condition. Speech thick, not truly scanning. General involvement of the muscles of the pharynx, tongue and face on right side; anesthesia in the same area. Partial paralysis in the right leg. Foot dragged in walking; weakness in the leg is sufficient to prevent standing on it. Babinski sign pronounced; clonus in both knee and ankle, the whole leg anesthetic." In spite of vigorous mercurial and iodine medication there occurred an increase in symptoms and area involved in June, 1910, while staying in England. The patient lost consciousness on several occasions; he also had facial paralysis complete for a time on the right side. Both legs developed weakness and anesthesia (patient's statement). A similar attack occurred in July, 1910, after a slight improvement, again involving both legs and right side of the face. Incontinence of urine marked. Under 43 injections of a mercury arsenalate, 20 injections and a daily dose of 3 grams of sajodin, rest and hydrotherapy, sufficient improvement occurred to enable the patient to get about.

On August 31 he was given an injection of 0.45 gm. "606" subcutaneously. A Wassermann reaction on this day was positive. Absolutely no pain followed this injection, nor were any unpleasant effects of any kind experienced except the induration which persisted for ten days. Improvement was noted on the day following the injection and he left the hospital on the second day, remaining in bed, however, in his home for two or three days longer. On the day succeeding the injection the patient stated that the mental depression from which he suffered weeks before had become materially less, his facial paralysis showed improvement and his speech disturbance was less marked.

A second examination made by Dr. Schlapp on September 9, nine days after the injection of "606" is as follows: "Pupils in same condition as at first examination. Incontinence has ceased. Paralysis of face and speech muscles has improved; anesthesia the same as at first examination. Right-sided sweating of the face, neck and upper part of the trunk. Both legs show Babinski sign, ankle and knee clonus, indicating extension of the process since February. There is, however, a noticeable decrease in anesthesia and muscular weakness. Diagnosis: Syphilitic obliterating endarteritis of the base, involving both pyramidal tracts and the sympathetic."

The patient was kindly referred by Dr. James C. Johnston, under whose care he is at present. A further report will be made at a later date. (September 21, Wassermann reaction still + —.) The absence of pain in this case was probably due to greater experience and care in preparing the remedy. It is important to emphasize the necessity of thoroughly rubbing the precipitate which follows the addition of acetic acid to the caustic soda solution until a homogeneous paste is obtained. The neutralization of the mixture should then follow and the latest technic as given by Wechselmann¹ observed.

The question of danger in the use of the new drug is one that should be touched on. It would be a marvel should a drug so potent as this one in the destruction of living parasites within the body be wholly devoid of injurious or secondary effects on the organs. We possess indeed no really pharmacologically active drug for which there may not exist contraindications and from which secondary and objectionable effects have not been noted. Certainly neither mercury nor iodid of potassium form exceptions to this rule. The remarkable fact about "606" is that in the several thousand cases in which it has already been employed, and considering the wretched physical state in which many of the patients were at the time of the injection, so very few untoward effects have occurred. It is now clear that the mode of administration is important, and especially the elimination of the methyl alcohol used at an early period to dissolve the drug, since this substance may produce unpleasant if temporary symptoms, as in the three cases reported by Bohac and Sobotka.² The result in a case of Hoffmann's³ in which a central embolic pneumonia, terminating in recovery, followed an intragluteal injection, was probably analogous to the condition of the lungs which may follow from an intramuscular injection of insoluble mercurial salts when the needle has inadvertently penetrated a vein. Ehrlich has warned against the administration of the drug to weak patients suffering from advanced cardiovascular disease, and the wisdom of this precaution has been emphasized by the two accidents encountered at the Charité in Berlin and the neurologic clinic at Bonn. Ehrlich further warns against the use of the drug in cases in which lesions of the optic nerve exist, and urges that in doubtful cases an ophthalmologic examination be made. Finally, it has just been announced that a further improvement in the preparation of "606" has been made which still further reduces the toxicity—indeed it is stated to be one-third that of the older substance. To this preparation Ehrlich has given the name "hyperideal."

From the collective reports of those who have used the drug the impression is gaining that we have in arsenobenzol a most thorough agent in controlling the manifestations of syphilis which are caused by the presence of the treponema. It may reasonably be hoped, therefore, that all the lesions which depend on the presence of the organism will be favorably influenced and the most we can expect in the secondary degenerative changes is that the process may become arrested. Further experience with the drug will determine with more accuracy the dose which is necessary to bring about a cure, the time that must elapse before a second dose can be safely given and the more definite indications for its

1. New York Med. Jour., Sept. 3, 1910, p. 449.
2. Wien klin. Wchnschr., July 28, 1910.
3. Med. Klin., Aug. 14, 1910, p. 1291.

use after relapses or failure of a single dose to control the symptoms.

The authors desire to acknowledge the courtesy of Dr. Robert H. Greene and Dr. Eugene Fuller in placing certain patients at their disposal.

BIBLIOGRAPHY

- Alt, Konrad: Das neueste Ehrlich-Hatapräparat gegen Syphilis München. med. Wehnschr., 1910, lvii, 11, p. 561.
- Alt, Konrad: Zur Technik der Behandlung mit dem Ehrlich-Hatatischen Syphilismittel, München. med. Wehnschr., 1910, lvii, 34, p. 1774.
- Bohac, Karl, and Sohotka, Paul: Bemerkungen zu Ehrlichs Erweiterung "Ueber Blasenstörungen nach Anwendung von Präparat 606" in Nummer 33 dieser Wochenschrift. Wien. klin. Wehnschr., 1910, xxiii, 34, p. 1235.
- Eitner, Ernst: Kasuistik über Ehrlich 606. Wien. klin. Wehnschr., 1910, xxiii, 34, p. 1233.
- Fischer, P., and Hoppe, J.: Das Verhalten des Ehrlich-Hatatischen Präparates im menschlichen Körper. München. med. Wehnschr., 1910, lvii, 29, p. 1531.
- Fraenkel, C., and Grotzen, C.: Erfahrungen mit dem Ehrlich-schen Mittel "606." München. med. Wehnschr., 1910, lvii, 34, p. 1771.
- Hersheimer, Karl: Arsenobenzol und Syphilis. Deutsch. med. Wehnschr., 1910, xxxvi, 33, p. 1517.
- Iversen, Julius: Ueber die Wirkung des neuen Arsenpräparates (606) Ehrlichs bei Rekurrens. München. med. Wehnschr., 1910, lvii, 15, p. 777.
- Kromayer: Theoretische und praktische Erwägungen über Ehrlich-Hata 606. Berl. klin. Wehnschr., 1910, xlvii, 34, p. 1585.
- Michaelis, Leonor: Ueber die Anwendung des Ehrlich-Hatatischen Syphilismittels in neutraler Suspension. Berl. klin. Wehnschr., 1910, xlvii, 30, p. 1401.
- Michaelis, Leonor: Wirksamkeit des neuen Ehrlich'schen Dioxy-diamido-arsenobenzols. (Berliner medizinische Gesellschaft, June 29, 1910.) Berl. klin. Wehnschr., 1910, xlvii, 28, p. 1333.
- Neisser, A., and Kuznitsky, E.: Ueber die Bedeutung des Ehrlich'schen Arsenobenzols für die Syphilisbehandlung. Berl. klin. Wehnschr., 1910, xlvii, 22, p. 1485.
- Schreiber, E., and Hoppe, J.: Die intravenöse Einspritzung des neuen Ehrlich-Hata-Präparates gegen Syphilis. Berl. klin. Wehnschr., 1910, xlvii, 31, p. 1448.
- Schreiber, E., and Hoppe, J.: Ueber die Behandlung der Syphilis mit dem neuen Ehrlich-Hatatischen Arsenpräparat (No. 606). München. med. Wehnschr., 1910, lvii, 27, p. 1430.
- Trempel, G.: Erfahrungen und Erwägungen mit dem neuen Ehrlich-Hatatischen Mittel bei syphilitischen und metasymphilitischen Erkrankungen. Deutsch. med. Wehnschr., 1910, xxxvi, 30, p. 1393.
- Wechselmann, W.: The Treatment of Syphilis with Ehrlich's Dioxy-diamidoarsenobenzol. New York Med. Jour., 1910, xcii, 10, p. 449.
- Wechselmann, W.: Beobachtungen an 503 mit Dioxy-diamido-Arsenobenzol behandelten Krankheitsfällen. Deutsch. med. Wehnschr., 1910, xxxvi, 32, p. 1478.
- Wechselmann, W.: Ueber die Behandlung der Syphilis mit Dioxy-diamido-arsenobenzol. (Berliner medizinische Gesellschaft, 22, vi, 1910.) Berl. klin. Wehnschr., 1910, xlvii, 27, p. 1261; Deutsch. med. Wehnschr., 1910, xxxvi, 27, p. 1297.
- Wechselmann, W., and Lange, Carl: Ueber die Technik der Injektion des Dioxy-diamido-arsenobenzol. Deutsch. med. Wehnschr., 1910, xxxvi, 30 p. 1395.
- Isaac, Hermann: Ergebnisse mit dem Ehrlich'schen Präparat 606, Dioxydiamidoarsenobenzol. Berl. klin. Wehnschr., 1910, xlvii, 33, p. 1528.
- Michaelis, Leonor: Die subcutane Anwendung des Ehrlich-Hatatischen Syphilispräparates. Berl. klin. Wehnschr., 1910, xlvii, 33, p. 1531.

CREATININ AND CREATIN METABOLISM IN CHILDREN *

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In a lecture, delivered before the Harvey Society two years ago, Folin¹ said:

I venture to predict that we shall learn more concerning the abnormal or subnormal metabolism of the sick on the basis of creatinin and creatin determinations alone than could be learned in another thirty years by means of the nitrogen determinations of the past.

Creatin is methyl guanidin acetic acid and may be converted into creatinin by the withdrawal of one molecule of water. It would seem remarkable that creatin, which is the most important of the extractives of muscle and the chief constituent of broths and beef extracts, and creatinin, a constant constituent of the urine, should have received so little attention in clinical medicine. This seems to be even more striking when we consider that uric acid, which appears usually in smaller quantity, both absolutely and in nitrogen content, in human urine, has been the subject of so much discussion.

The explanation lies in the fact that the older method of determination, which depends on the precipitation of creatinin with zinc chloride, was very tedious and unreliable. It was in 1904 that Folin² published his accurate and simple method of determination which has given such an impetus to the study of creatinin and creatin metabolism. Folin's method depends on the fact that creatinin gives, with picric acid and sodium hydrate, a brownish-red color which cannot be distinguished from that of a potassium bichromate solution. The urine is treated with the above reagents, in proper quantity, and the resulting depth of color compared with that of a half normal bichromate solution. The degree of color produced is read off on a colorimeter and the creatinin content is thus given. Creatin may be estimated by boiling it with normal hydrochloric acid, thus converting it into creatin, which latter is then determined as above.

Evidently the creatin and creatinin excreted may come either from the food taken in or from the metabolism within the body, exogenous or endogenous. On a creatin- and creatinin-free diet Folin was able to show that normal persons excrete creatinin but no creatin. Creatin given by the mouth, unless fed in large quantities, does not appear in the urine, and then in part only. The administration of creatin was found to have no effect on the amount of creatinin excreted.

Both Folin³ and Hoogenhuyze and Verploegh⁴ were able to demonstrate the very interesting fact that, although the creatinin excretion differs in different subjects, a given individual, under normal conditions, excretes a remarkably constant amount of creatinin. This is so constant, in fact, that at one time Folin was able to trace the loss of urine from a twenty-four-hour specimen because of the drop in the creatinin content.

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

¹ From the laboratories of Biological Chemistry, Harvard Medical College, and of Physiology and Pharmacology, University of Minnesota.

1. Folin: THE JOURNAL A. M. A., May 2, 1908, p. 1391.

2. Folin: Ztschr. f. physiol. Chem., 1904, xli, 223; and Am. Jour. Physiol., 1905, xlii, 48.

3. Folin: Festschrift f. Olof Hammarsten, lii, Upsala, 1906.

4. Hoogenhuyze and Verploegh: Ztschr. f. Physiol. Chem., lvii,

Position Assumed by Patient in Ear Disease.—According to W. E. Chamberlain in the *Ohio State Medical Journal*, in case of nystagmus of otitic or cerebellar origin the position of the patient in bed is of interest and easy of explanation. With a circumscribed inflammation on the right side and with it a nystagmus to the right, the patient lies on the right side with the head buried in the pillow. In this position, the eyes are turned involuntarily toward the left and the nystagmus and dizziness are decreased. Let now a diffuse supuration follow the circumscribed or let the right labyrinth be removed by operation, then the patient does not lie on the right but on the left side, for in this position the eyes are directed to the right. The nystagmus and dizziness, most extreme with vision toward the left are decreased by looking in the opposite direction. Placed in the Romberg position, a patient with nystagmus to the right will fall to the left and *vice versa*. In other words, he falls in the direction of the slow component.

Hoogenhuyze and Verploegh found the creatinin excretion to be little affected by hard muscular exercise or by protein diet. A professional faster, who had taken nothing but water for fourteen days, did, however, show an increase of creatinin excretion after exercise. This is of interest in connection with the creatinin excretion during the first fasting days of infancy, and will be referred to later.

The creatinin excretion is higher, according to Hoogenhuyze and Verploegh, during the day than at night. The creatinin excretion is somewhat higher under the influence of alcohol and cola, but somewhat lower on days of rest. Van Hoogenhuyze's creatinin excretion rose from 1.85 gm. to 2.781 gm. during fever. A paralyzed patient, on the contrary, showed but 9.2 mg. of creatinin daily in the urine. During periods of excitement in insane patients the creatinin excretion rises. Creatin may appear in the urine of fever patients.

Pekelharing⁵ says that creatinin excreted through the kidneys must be considered as: (1) from the creatin formation through the consumption of proteins in the

creatin and creatinin may be found in the amniotic fluid.

I acidified and boiled the amniotic fluid obtained from the extirpated uterms of a pregnant bitch, and filtered to remove the native proteins: 10 c.c. of the resulting fluid gave a faint but definite Jaffé reaction for creatinin; 50 c.c. of the same fluid evaporated to dryness, redissolved in 10 c.c. of water, added to 10 c.c. of normal hydrochloric acid and heated to 90 C. for four hours, thus converting all of the creatin, if present, into creatinin, gave, by Folin's method, 5.5 mgs.; 25 c.c. of human amniotic fluid, obtained without contamination, by puncturing the bag of waters before the oncoming head, were treated in the same manner. A definite creatinin reaction was given, but it was too dilute for accurate estimation. (Diluted to 100 c.c. it gave a reading of 25 mm. on the colorimeter.)

These results, taken with those immediately following, would point toward a fetal creatin or creatinin excretion.

As the first few days of life are passed under conditions quite different from those of later infancy,

TABLE 1.—DAILY CREATININ EXCRETION

CASE.	AGE (DAYS)								
	1	2	3	4	5	6	7	8	9
Bell	Day's quantity, c.c. 18*	20	10	30	.....	.....	.....	.....	.....
	Creatinin, mg. 15.84	24.92	11.73	25.83	.....	.....	.....	.....	.....
Farley	Day's quantity, c.c. 9	20	6	9	18	25	.....	.....	.....
	Creatinin, mg. 4.5	19.76	3.98	6.68	11.85	18	.....	.....	.....
Baybrant	Day's quantity, c.c. 20	75	53	37	60	185	130	315	120
	Creatinin, mg. 11.83	lost	50.5	17.24	28.23	32.56	15.95	†	119.88

* One mriation lost.
† Urine dilute; slight creatinin reaction.
‡ Urine evaporated.

TABLE 2.—CREATININ AND CREATIN EXCRETION DURING THE FIRST DAYS OF LIFE

CASE.	AGE (DAYS)						
	1	2	3	4	5	6	7
Murphy (Baby)	Day's quantity, c.c. *15	60	16	42	32	121	178
	Creatin, mg. 0.0	0.0	0.0	4.27	2.12	10.1	.....
	Creatinin, mg. 12.00	33.34	9.95	21.0	12.09	30.25	.....
Lindman	Day's quantity, c.c. 8	10.0	†	27	120.	.....	.....
	Creatin, mg. 13.2	0.5	.....	1.76	6.86	.....	.....
	Creatinin, mg. 10.12	10.12	.....	3.96	12.36	.....	.....
Bresitt	Day's quantity, c.c. 64‡	.....	.....	14	.....	.....	.....
	Creatinin, mg. 31.61	.....	.....	20.0	.....	.....	.....
Ricksnas‡	Day's quantity, c.c. 22	14	13	§	50	45	.....
	Creatin, mg. 0.0	2.82	.....	.....	5.39	7.83	.....
	Creatinin, mg. 25.45	14.14	10.68	.....	25.25	14.89	.....

* Eighteen hours.
‡ First 17 hours not collected. First day extends from seventh hour on first day to same hour on the following day.

† Portion lost.
‡ Three days combined.
§ One mriation lost.

tissues; (2) from the splitting and oxidation of creatin, and (3) from the dehydrating action.

If we turn now from this necessarily incomplete discussion of creatin and creatinin metabolism in adults to that in children, the creatin literature may be shortly disposed of. I know of no other analyses in children than those reported in this study and those of Amberg and Morrill.

We may take up the study chronologically. Are creatin and creatinin excreted before birth? If these bodies are excreted before birth they will appear in the amniotic fluid. Of course it is evident that the converse does not necessarily hold true. Creatin and creatinin in the amniotic fluid are not necessarily derived from the fetal kidney excretion. Their demonstration would, however, be an indication. Panzer's⁶ analyses showed no creatinin or creatin in the amniotic fluid, but his work was published in 1899. Von Winckel⁷ says that

especially as regards food intake, it may be of interest to consider them apart. Here, again, I was able to find no results recorded in the literature. The interesting work of Amberg and Morrill⁸ on the "Excretion of Creatinin in the New-born Infant" misses this period, as their youngest infant was 7 days old. The work of Rietschel,⁹ Van Hoogenhuyze and Verploegh and others was done on older infants.

In the work with the urine of older infants, as carried on by other authors, the dilution of the urine has caused great technical difficulty, resulting at times either in the failure to discover the creatinin with the Weyl or zinc chlorid methods or requiring concentration by evaporation for quantitative work with the Folin method.

One is at once struck, in working with the urine of the first week, by the intense reactions. The per cent. of creatinin is as high as in adult urine, about 0.1.

The amount of creatinin excreted each day for each infant may be seen from Table 1.

5. Pekelharing: Zentralbl. f. d. ges. Physiol., u. Path., d. Stoffwechs., iv, 8.

6. Panzer: Cited from fisiologia e pathologia del liquido amniotico, Trovati.

7. v. Winckel: Handbuch der Geburtshilfe, i, 329, Wiesbaden, 1903.

8. Amberg and Morrill: Jour. Biol. Chem., 1907, iii, 311.
9. Rietschel: Jahrb. f. Kinderb., 1905, lxi, 615.

It will be seen that the daily excretion does not remain as constant as with adults. This may be apparent or real. It is evident that, when working with such small day quantities, a few c.c. of urine retained in the bladder at the end of a twenty-four-hour period would cause considerable difference in the result.

Creatinin was, however, present in each case.

The urines in Table 2 were heated over a water-bath for 10 minutes with 2 c.c. of normal hydrochloric acid in order to avoid any error which might be due to the acetone bodies, as the latter were found to be present at times during the first week. This series shows also that creatinin was continually present.

It will be noted in the table that these urines were also treated with 10 c.c. of normal hydrochloric acid for four hours to convert any creatin present into creatinin. Creatin is represented by the difference between the first creatinin reading and the second or creatinin and creatin reading.

These infants were all at the breast and therefore on an almost starvation diet, receiving nothing at first but a small amount of colostrum. In many cases creatin was present in demonstrable quantities, which seemed to increase markedly about the fourth day. Whether this was because of the period of starvation the infant had undergone, the beginning of feeding, both or neither, I am not prepared to say.

If we proceed to the period following the establishment of lactation we have the results of others for comparison. Most texts on pediatrics make no mention of creatin or creatinin. Langstein and Meyer¹⁰ consider creatinin, and stress is laid on the point that, as the infant's food contains no creatinin, that which occurs in the urine must be of endogenous origin or from the "breaking down of certain body tissues—muscle."

So recent a work as von Noorden's Handbook (1906) follows Hoffmann¹¹ as authority for the statement that the urine of infants contains no creatinin. Hoffmann's work was done with the unsatisfactory zinc chlorid method. Rietschel,⁹ working also with an imperfect method, came to a similar conclusion, although he did find traces in febrile urine, and after the administration of creatinin.

This was the state of our knowledge at the time that my study was taken up, in 1906. I found with Rietschel that the Weyl reaction and the zinc chlorid reaction did not give constant results. I did at that time, however, find that the Jaffe reaction for creatinin is constant in infant's urine. Hoogenhuyze and Vorploegh found creatinin present in infant's urine, although their analyses were not made on twenty-four quantities.

The first satisfactory published analyses are those of Amberg and Morrill,⁸ in which they report five analyses on infants 10, 10, 14, 7 and 13 days of age. The infants excreted respectively 26, 26.92, 27.05, 17.48 and 3.01 mg. of creatinin per day. The last infant excreted 2.87 mg. of creatin. They¹² also report analyses made on the urine of an infant beginning with its twenty-sixth day. The analyses are given in forty-eight-hour periods and show: A, 76.9; B, 59.2; C, 75.2; E, 96.1; F, 66.4; G, 59.7; H, 62.7 mg. The creatin excretion during the same period was 11.6, 17.2, 11.1, 0.4, 8.1 and 11.7 mg.

Funaro,¹³ working with the Folin method, found results similar to those just cited.

Amberg, Morrill and Funaro found it necessary to concentrate the urine of infants in order to get satisfactory results. I found, however, that such evaporation changes the proportion of creatin to creatinin, and I was obliged to depend on the somewhat unsatisfactory method of varying dilutions.

My results during childhood after the first week agree closely with those of the above-mentioned investigators, and I will take your time to cite a few results only for creatin and creatinin as determined without evaporating.

Baby M., 23 days old, creatinin 40.37 mg., creatin 2.41 mg. Baby Charles, 6 months old and weighing 5,580 gm., excreted 76.1 mg. of creatinin; and Eugene, aged 11 years and well, excreted creatinin when on a creatinin-free diet, the excretion during the twelve night hours being greater than that during the twelve day hours. His urine showed creatin rarely. Numerous analyses from older children with diphtheria, measles and scarlatina, all on creatin and creatinin free diets, showed creatinin constantly, but creatin rarely or in small amount. Thomas, a boy weighing 48 pounds, and a subject of cyclic vomiting, excreted on the fourth day of an attack, which was a hunger day, except for a few teaspoonfuls of a carbohydrate water, 1,278 mg. of creatinin and 49.9 mg. of creatin.

This and other analyses simply indicate a line of study which may give interesting results in disease. I wish, however, to warn against generalizations from insufficient data, and will omit further analyses in diseased conditions until sufficient material can be gathered to guard against mistakes.

SUMMARY

The study of the creatin and creatinin metabolism in children, although a promising one, has been little worked on. The opinion held until five years ago that infants do not excrete creatinin is undoubtedly incorrect.

Creatinin is present in the liquor amnii, which may mean that its excretion begins before birth. Creatinin is always in the urine of the first week and in a concentration approximately that of adult urine. Creatin is also excreted during infancy. In later infancy creatinin is present in the urine uniformly, but in much more dilute condition than with adults, or during the first week.

Analyses of urine in disease indicate that we may hope to get some clue to the processes of nitrogen metabolism by the study of creatin and creatinin.

It is a pleasant duty to acknowledge my indebtedness to Professor Folin for valuable suggestions, Dr. Green and the house staffs of the Boston Lying-in Hospital, and my own interns at the Minneapolis City Hospital for aid in collecting material; Dr. Moren, for assistance in some of the analyses, and especially Dr. Beard, without whose aid in procuring apparatus this study could not have been carried out.

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Prophylaxis of Ear Disease in Febrile Conditions.—J. J. Pattee, in the *Laryngoscope*, urges: (1) The more general adoption of thorough removal of all adenoid vegetations; (2) the complete removal of hypertrophied or diseased tonsils; (3) the early evacuation of pus from the tympanic cavity by paracentesis, because the streptococcus is nearly always present in otitis due to febrile diseases.

10. Langstein and Meyer: Infant-Feeding and Metabolism, Wiesbaden, 1910.

11. Hoffmann: Virchows Arch. f. path. Anat., 1869, xlviii, 358.

12. Amberg and Morrill: Jahrb. f. Kinderh., 1903, lxxix, 280.

13. Funaro: Biochem. Ztschr., 1908, x, 467.

SYSTEMIC CONDITIONS IN RELATION TO
ORAL SYMPTOMS AND SEPSIS*V. A. LATHAM, M.D., D.D.S., F.R.M.S.
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Until recently this subject had not attracted the attention of medical or even dental writers to any extent, being only now and then touched on in connection with other matters. Lacking the aid of authority I shall try to show its importance in daily practice and, at the same time, ask our members to look more attentively into their cases and see if the work of one of us is not worthy of more concentrated effort on our part earnestly to trace the subject better. I refer to the teachings and papers of the secretary of the Section, Dr. E. S. Talbot, than whom no one has done more to bring together this joint work of the stomatologist and physician in systemic treatment for oral conditions.

Who have better opportunities for observing the detrimental effect of a brain-cramming system of education at the expense of the bony and muscular systems than the wide-awake stomatologists?

"Why do my children's teeth decay so young?" is a common question. "I never had a tooth filled until I was 20 years old or more," says the questioner.

Look at the child with her small, delicate frame with large head, bright eyes and a highly exalted nervous system. We are told that she is ready for high school at 13 and began day school at 4½; she does not care for sports, sits up till 9 or 10, or later, with some neighbor children, and spends three to five hours a day practicing, which excites rather than soothes the nervous system. The amusements seem to be visiting other children, fudge parties, with late suppers and later hours for retiring, and consequently too little sleep; dancing lessons on Saturday and going to the city for a matinee. It is one perpetual round of excitement, with no time for the daily care of the body, including the teeth, or assistance in the home duties, and far less desire to please others or be helpful to anyone but the child's immediate circle. The tendency of the times with the immense struggle to keep the family provided for, the extremes in dress and fashions, the daily routine excitement with seldom a moment for relaxation, cannot help but ruin the finest heritage given to man, the vital structures by which his health, wealth, strength and happiness must be secured.

Prophylaxis—preventive medicine or hygiene—comes first and far above the mechanical art of dentistry, which is overdone. The crying demand of the nerves, however weak they are, to continue reacting by stimulation or excesses in food, drinks and automobiling, is fast developing a new set of disorders in vision, bones, muscles and heart strain, to say nothing of the nervous system. A recent recommendation of the use of the automobile (which to-day is seldom anything but a means for securing distance or speed instead of rest, tranquillity and change), in lung and heart diseases as a curative agent, should be carefully considered before it is accepted. The increase in neuralgia, or so-called neurotic pains, is well known and with the present ill-devised clothing it is no wonder that the speed and wind force should cause concussion and congestions with inflammatory conditions of the various parts of the body and especially the teeth. Again, the hurried meals at road-

houses, excessive in many cases for the immediate needs, on account of the increased oxygen inhalation and faulty elimination, must cause auto-intoxication, and many patients admit this when complaining of vague neuralgic pains or backache. The present urging of very young people into business positions of responsibility is a detriment to many; their hurry to escape the uncongenial atmosphere of the study rooms, and their almost universal carelessness in attending to their daily wants become a matter for thought. Austin Flint says: "The inexorable law of the survival of the fittest applies to man educated or uneducated, as well as to the lower animals, and it seems useless to educate man for work which he is physically unable to perform." The present rush to finish school work allows no extra time, as a rule, for broadening out in other lines, because time and money outweigh the study.

It should be remembered that the child consumes twice as much oxygen as the adult; and throws off a corresponding amount of carbonic acid; this is a gauge of its muscular activity and thus shows the need of the growing child for pure air in plenty. All muscular exertion is an expenditure of nervous force, hence, severe mental exertion and heavy physical strain should not be undertaken at the same time. Why should children not be forced to brain activity in tender years? Because, first, the brain grows most rapidly before the seventh year; secondly, the child is called on to assimilate and appropriate enough to nourish its rapidly growing brain and body, and at the same time to make good the wear and tear of its active nature. Is it not expecting too much of the digestive apparatus of the child to furnish material for its bodily development and, while so doing to supply food for an adult brain? Can we expect an overworked and excited child to digest its food properly and to furnish perfect material on which to feed its starving tissues? The food question of to-day is a real one in view of the extreme notions in children in regard to what they must eat, especially their repugnance to green vegetables.

Is it any wonder that the first seven years constitute a period of stress, with the brain growth, dentition, disorders incidental to infections and other childhood diseases? The rapid and great increase in the need for orthodontia, adenoid and nasal operations, the choreic cases, disorders of vision and digestion, etc., are evidence of this. Any mental strain shows itself on the teeth by increased caries as well as increased sensibility of the dentine, and especially as a cause for gingivitis and its allies, alveolitis and pyorrhoea. Overwork of any vascular part such as the overtraining of the muscles for athletic contests, will give like results on the teeth. Mental shocks are also a serious menace to general and dental health. When brain activity is forced, a loss occurs to the system and it is called on to restore the requisite amount of phosphorus.¹ This is a vital component of

1. A measure which has proved useful in bony suppurations and alveolitis is the internal administration of ethereal tincture of phosphorus (1 to 1,000) 3 minims after each meal, well diluted with water. If much pyorrhoeal infection be present, but the teeth sound, the above remedy followed by solution of mercuric chlorid (1 to 1,000) three minims between meals, is worthy of more trial. At the same time the gums should be painted with Dr. E. S. Talbot's iodine and glycerin mixture, or twice daily, anteriorly and posteriorly, with a dilution of iodine liniment (B. P.) made by adding to 2 drams of liniment water to make 4 ounces. In cases of adults in whom there is much gastric flatulence and pain showing intestinal autointoxication, as well as in the infantile form of digestive disturbance, silicate of sodium acts nicely as a sedative and antiferment. Sodium silicate 172 gm., dissolved in 1 liter of water, to which a trace of fluosilicate of magnesia and carbonate of lithium has been added, may be given in doses of one to two teaspoonfuls three times daily before food, according to age and conditions present. Where the teeth are loose and very sensitive protargol in glycerole, used alone or with an electrode on an interrupted current, helps.

* Read in the Section on Stomatology of the American Medical Association, at the Sixty-first Annual Session, at St. Louis, June, 1910.

both brain and bone in nearly equal amounts; hence, we must not forget that small doses of phosphorus produce good results in the reproduction of bone and are therefore a useful adjunct in so-called pyorrheal treatment. Care must be taken in its administration lest it become a detriment instead of a help, and the cooperation with laxatives is necessary.

The condition of the oral cavity is a most important factor in surgery as an aid to antiseptics and sepsis.² The condition of the gingivæ being important to the physician as well as to the dentist, dentists should study and know what is the healthy normal appearance, and its examination should be undertaken regularly and thoroughly. For convenience we may classify the diseases into two groups:

The constitutional:

1. Interstitial gingivitis.
2. Syphilis—Leukoplakia.
3. Tuberculosis.
4. Scurvy.
5. Purpura hemorrhagica.
6. Diabetes mellitus.
7. Addison's disease.
8. Stomatitis (several forms).
9. Noma.
10. Ludwig's angina.
11. Aphthae.
12. Herpes.
13. Metallic poisons (mercury, copper, lead, silver).
14. Rheumatism.

The local:

1. Traumatic inflammation.
2. Epulis, Fibroma, etc.
3. Polypi, simple hypertrophy.
4. Parulis or alveolar abscess.
5. Papillary and warty growths, chancres.
6. Vascular or nevoid growths.
7. General hypertrophy, hyperplasia.
8. Carcinoma.
9. Sarcoma.
10. Gingivitis, interstitial alveolitis, pyorrhea.

Our training should be such that we can make a diagnosis of any case we may meet with, though it requires considerable experience to do this and book knowledge is a poor substitute for the latter. Many of these diseases dentists are often called on to treat, and others, when diagnosed, perhaps should be handled by a general practitioner. If the stomatologist has been trained as it is his right to be, he can and should take care of these cases or (what is not always satisfactory) work in conjunction with the family physician. The earlier the cases are seen the better, and here, the dentist can do good and save life and valuable time in treating such confusing symptoms as gumma, tuberculosis and neoplasms.

The debated question in the treatment of abscessed teeth—when not to extract—is one still in doubt. Why pus should be allowed to stay doing damage by its burrowing and sepsis in the mouth any more than in any other part of the body, seems a conundrum in these days of thorough surgical treatment. The danger of lymphatic infection, necrosis of soft tissue and bone is not to be lightly passed over, to say nothing of the general condition of the patient. An alveolar abscess does not always burst into the labio-dental sulcus; it is more common for those attached to the upper lateral teeth and the palatine roots of molars to burst into the palate.

Abscesses on the lower teeth sometimes pierce the inner alveolar plate and burst into the cavum oris. From the lower teeth pus may pass inward through the bone, or between the bone and its periosteum and point under the chin or among the fascia of the neck, whence it may reach the thorax, and in its course cause the diseases known as angina Ludovici and edema of the glottis. From a molar tooth the pus may extend along the jaw into the pterygoid region, the temporo-mandibular articulation, or masseter muscle, and from these may reach the brain or ear. I have seen pus soaking backward from upper incisors, cuspids, and molar palatine roots discharging into the nasal floor, the aural cavity and cheek, forming a retropharyngeal abscess.

Ulcerative stomatitis is not a pleasant disease to deal with, especially if the patient is not of a vigorous type, and the disease is not usually found, unless by direct infection, in robust people. In adults and after exanthematous fevers in children it is more often seen, and may arise from impure milk and unhygienic surroundings. The infection almost always takes place at the necks of the teeth, causing an acute gingivitis, but, as the germs multiply and spread, it develops from a hyperemia to thrombosis of the vessels, molecular disintegration or ulceration of the gum, and, eventually, of the periosteum and alveoli. The more acute the case, the larger will be the sloughs and the deeper the necrosis. At the same time the absorption of the products of putrefaction will cause pyrexia, sapremia and even, eventually, death. The picture as presented by the gums in this condition is too well known to consider here, but it will be a wise precaution to examine such ulcerations to determine the bacterial flora² which is not only a wise precaution but a just one for the patient and stomatologist. My own experience has taught me that ulcerative gingivæ may have various bacteria of their own which, on general examination, without a microscopic smear or culture, would never have been thought of. One case I remember especially in which the smear gave a typical pure pneumococcal slide, and the patient died four days later of an acute lobar pneumonia, the whole pharynx and lung showing the membranous exudate of the same type, and inoculations of the blood in guinea-pigs showing the same characters. Another patient, who had a chicken-raising business and whom I saw in consultation, presented a condition allied to noma, the whole of the oral cavity being one mass of membrane of a greenish-white color and the lips so swollen as to be almost indefinable. The lower lip especially, was of a blackish gangrenous color, extending to the chin. The temperature was 105 F., yet the patient tried to do her work under great difficulties until she became delirious, with sweating accompanied by violent rigors and chilliness. In this case, in which the etiologic factor was not clear, the patient may have been accidentally inoculated through a hen flying up and picking her face when feeding or being lifted off the nest, as the patient remembered several such instances; or it may have been a dental infection, as her mouth was sadly lacking in hygiene. Bacterial work then was not what it is now, or I think serum treatment would have been a great help and less tedious and difficult convalescence would have been endured. The extreme sepsis and circulatory disturbance that the patient suffered, together with the general debility and metastatic abscesses in the liver, leg and arm, rendered the prognosis very grave. Luckily, it is not a very com-

2. Latham, V. A.: Dental Digest, February, 1906, p. 127; Differential Diagnosis in Dentistry, Dental Register, 1895, p. 469; Am. Med. Jour., July, 1905.

mon condition, but I have seen enough cases to make me fear the results, both from the point of view of cosmetic effects and from that of recovery. Though ulcerative stomatitis usually occurs in children, still adults are affected and it is likely to be confused with a more recently discovered disease, that is, Vincent's angina.

As in many other diseases of the oral tissues, it is thought that certain micro-organisms play a conspicuous part in the rôle of this disease. Froriep³ first called attention to the organisms resembling yeast fungi. Gravitz⁴ found bacilli in nearly pure cultures, which were described by Loeffler⁵ as similar to the bacillus seen in diphtheria of calves. Other investigations have confirmed the finding of this germ. In every case a bit of the exudate should be obtained with a sterile instrument and cultures taken and smears made for immediate diagnosis, which in a few minutes can easily be made, as no cumbersome laboratory stains are needed when the "soloids" can be had, and fresh solutions made from the tablets, as wanted; uniform results can be secured in a moment. If the diphtheria germ is present, a physician can be called and antitoxin administered without delay. In streptococcic infections of a high degree, with much depression, serum inoculations are a great aid in cutting short the disease; also, in some pyorrhœal cases, if the infection is a pure and not mixed type. When the smear shows a spirillum type, we know we shall not succeed in cutting short the case without most vigorous therapeutic measures. The following case, which occurred last fall in my practice, may interest some stomatologists; it shows the conditions very clearly:

History.—The patient was a young man, aged 20 years, a student of good habits, a moderate smoker and a good athlete. He had been ailing for a month, had been under the care of several physicians and dentists, and was treated with caustics, gargles, etc. As the young man was getting worse, showing signs of rapid loss in weight, anemia, great pain on swallowing, and could not eat, his parents became alarmed and saw a prominent surgeon and, then, a throat specialist. Finally, the patient came into my care.

Examination.—The patient was almost prostrated from the effort of walking a block and a half from the street-car, being breathless and very fatigued; he was sweating profusely; the pulse was 125, very weak and irregular; the temperature was 104 F. The breath was exceedingly offensive; the lips were swollen and it was nearly impossible to open the mouth to see the cavity and fauces. The mucous membranes were covered with a grayish-greenish deposit and bled on the slightest touch. The gingivæ from molar to molar in both lower and upper jaw were ulcerated, especially, around the right and left superior centrals (pivot) teeth and laterals. The centrals had the gum ulcerated to one third of the apex of the roots. The gum about the left lateral on the palatal position was so swollen that the patient could not shut the teeth as he bit. A deep, wide pocket came from this oozing blood and pus. The right superior molar was very much diseased and there was a large plaque of dead skin on the buccal surface. The tongue protruded trembling and was swollen, fissured, bleeding and very heavily coated. The throat, which had been sore and had been treated as if the trouble were a simple tonsillitis, on my seeing it, did not look so bad as the oral cavity. The soft palate and uvula were slightly swollen and reddened; the left tonsil had some slimy, whitish membrane. The posterior fauces were very red and had follicular spots, but no membrane. The intense pain was from the swollen tongue and lips. Deglutition was nearly impossible and gargling very difficult and painful. Pain extended along the ramus to the right ear

and up the side of the face, the submaxillary glands were tender, the head ached, the eyes were suffused and slight constipation was present.

Treatment.—I gave the patient a swabbing and took smears and cultures on agar and blood-serum, then carefully irrigated the month with a warm solution of 1 to 1,000 mercuric chlorid, later, with sterilized water; then, irrigated with alphozone solution in the strength of 1 to 50, swabbed with iodin and cleansed off the loose pieces. The patient was ordered malted milk with half cream in small quantities, and elixir digitalin compound. After a good compound cathartic pill, followed in the early morning with a laxative mineral water, the patient was kept in bed while the exhaustion was so marked, and the irrigations were kept up for 20 minutes at a time every four hours. After twenty-four hours, cupric sulphate was applied locally and washed off later; this seemed to exert a marked influence. Then liquid antiseptic washes were applied and tincture of iodin swabbed all over. Gargling and nasal douches were continued with free purgation. After three weeks the patient gained in weight and had only 99 degrees of temperature.

It was with the greatest difficulty that the disease was checked completely, for if the patient failed to attend to his swabbing and douching even for twenty-four hours, a fresh nidus would start on the superior premolar on the left side, then on the superior cuspid and on the mucous membrane of the cheek, and only constant watchfulness kept the disease in abeyance. The patient had a slight hacking cough. The lungs were good except for several small areas of broncho-pneumonia, and these yielded to bed and treatment. The extreme weakness of the patient was most marked and lasted for several months after the month was healed.

The diagnosis was not easy; the patient and his family all thought that the disease was a direct infection from the physician who treated the throat with some application, not silver, but what they did not know. The smears were of the greatest aid in making the diagnosis of Vincent's angina, and especially in differentiating between diphtheria and mixed infection. The ulcerative form of angina and stomatitis may be mistaken for secondary or primary syphilitic pharyngeal ulcers; it may be taken for the latter especially when it is accompanied by marked local glandular swelling. In the second set of smears from the reinfection there was a more suppurative condition. The findings in these mixed infections are never so characteristic as is usual in pure cases.

Usually the pathologic processes are so characterized clinically. This is particularly important since a great variety of bacteria are found on cultural examination of the tonsillar and pharyngeal deposit. With regard to this there is an urgent demand for a more thorough demonstration of the pathogenicity of spirilla and the fusiform bacilli. Again, the question of the occurrence of these micro-organisms in the oral cavity of healthy people is also of special interest. Miller has found them in healthy persons with carious teeth. Vincent* saw some on the gums and pharynx in fourteen out of eighteen healthy subjects examined, and Bernheim† also noted small numbers mixed with other bacteria. In order to determine their significance positively, the determination of their degree of virulence is needed. This, however, is difficult for either the fusiform bacillus or the spirillum, since, thus far unquestionably pure cultures, either by anaerobic or aerobic methods, have been unsuccessful. Nicolat and Marotte did get a marked increase in the number of fusiform bacilli and spirilla in the condensation

3. Froriep: Chirurgische Kupfertafeln, 1854.

4. Gravitz: Deutsch. med. Wchnschr., 1888, No. 15.

5. Loeffler: Deutsch. med. Wchnschr., 1889, No. 15.

* Vincent: Ann. de l'Inst. Pasteur, 1899, xiii.

† Bernheim: Ueber bacteriologischen Befund bei Stomatitis, 1898, xxiii, 177.

water of certain nutrient serum-media, but without pure culture. Bacteriologic proof of the pathogenicity of the spindle-shaped bacilli and spirilla has not, as yet, been positively given. Therefore, we must obtain more evidence by anatomic research or clinical observation. The bacilli penetrate deeply and, in new localities yield almost pure smears; hence, there is a danger of recurrent attacks.

One point to remember with regard to stomatitis is that it may follow a complication of a great number of more or less grave infectious conditions, or may occur in the course of good general health; and when one has to deal with patients in whom one may suppose a more or less abundant elimination of toxins or irritants by way of the secretions, one should always examine the mouths with care; very often more or less advanced lesions will be found. The uremic form of stomatitis is generally a serious condition; the fetor of the breath is very marked, strong and repulsive, even nauseating; the tongue is heavily coated white; when the renal symptoms are helped and the uremic intoxication clears, the inflammation of the buccal mucous membrane recovers quickly. Lancereaux, I believe, was the first to describe especially the buccal uremia and Barie first traced clearly the history of these particular symptoms. The saliva should be carefully tested in these cases for urea, which may be diminished or sometimes augmented. Barie had a patient who produced 900 gm. of saliva in twenty-four hours. As is well known, normal saliva always contains a certain quantity of urea, scarcely exceeding a few milligrams, or from 2 to 3 *cg.*, exceptionally from 20 to 50 *cg.*; in the pathologic state, on the contrary, as in uremia 5 or 6, and even as much as 9 gm. of urea in twenty-four hours has been known; the patient produces almost as much urea in his saliva as in his urine. At present our bacteriologic investigation of the scrapings of the mucous membrane has only shown a few cocci, and what the real pathologic agent of the affection is, as well as the genesis we cannot say. Why the lower gums, particularly in the mouths of soldiers and smokers, are more prone to attacks of stomatitis, is a subject for thought.

A most valuable remedy for fetor of the breath and many forms of stomatitis which it always accompanies is oxygenated water for rinsing the mouths, on account of its tendency to kill out the anaerobic germs which seem to predominate and give the fetid odor and which have been so often noted in typhoid fever, erysipelas, auto-intoxication in the liver and intestinal cases, syphilis, eruptive fevers, infections, purpura and tuberculosis. The tongue has often been called the mirror of the stomach, and we may say that the mouth is the mirror of most of the infectious diseases and of the general intoxications of the body. This is especially true in conditions of anemia and other chronic diseases which, lately, in many countries, occurring in the practice of the physicians, have been referred to the dental specialist for a report on the existence of any septic conditions of the teeth that may be factors in the etiology, etc. I cannot do better than refer to the paper on anemia published by Dr. Walsh⁶ in which one of the best summaries of the subject can be found. Who has not seen the anemia in children most probably due to necrosed roots and abscesses? Here is a point for discussion with the physicians and dentists as to when it

is best to remove the teeth so as to avoid injury to the arch and teeth of both dentitions, and the best methods of treating such necrosed areas by the bismuth paste, etc. The work of Dr. W. Hunter has been noted in my address on oral sepsis² and pernicious anemia and its ally pyorrhea alveolaris before this Section. The various opinions on this latter subject, alone, are enough to make any reasonable man wish something could be done to bring order out of chaos. Mr. Henry Sewill⁷ says that pyorrhea alveolaris has no connection with caries. To this I cannot agree, for caries is certainly to be found sooner or later. He says that it is a disease of middle life and old age only. I believe that most of the members here have seen it in all ages. If it is to be considered as a process of slow wasting of the alveoli and gradual shedding of the teeth, attended by slight inflammation and constant discharge of foul pus from within the free edge of the gum and alveolus, then we certainly can look for it in cases in which much hurried and forcible regulation has been done. I have seen many cases in which the superior lateral has been forced out from an included jaw and become the seat of a typical pyorrhea, so called, even of alveolitis and a suppurating pocket when every other tooth was in a perfect condition, unfilled, and the mouth well cared for. Those cases of long standing may cause us to wonder whether the pyorrhea has arisen from the lowered health or whether the lowered health has arisen from the depressing effect of the local disease.⁸

The great increase of crowning and bridge work which show poor mechanical judgment and poor reasoning has been, I sincerely believe, one of the greatest factors in the increase of this condition from the violent gingivitis and all its sequelæ which we find almost always present except in exceptional, careful, well-fitted cases by a master hand. Again, we must note that the etiologic factor in some cases consists in articulatory disturbances in both youth and advancing age, through the displacement or advancing of the mandibular angle so that it becomes obtuse, and through the loss of elasticity of the bones by the lime deposits; and thus the appearance of pyorrhea in different parts of the arch may possibly be explained.

As this paper has already exceeded my limited space I shall only call attention to the systemic points which are associated with oral sepsis as applied to mucous membranes. Dental caries may become the exciting cause of a multiplicity of the symptoms and is itself due to two principal causes: the anatomic location of the teeth and the polypathogenic part (if I may coin the term) played by the mouth bacteria. If the Loeffler bacillus and the tubercle bacillus each engenders but a single disease and is truly specific, it is not so with the staphylococcus and streptococcus, which according to their virulence, their mode of entrance into the body, the phagocytic power of the person attacked, their different modes of association, and, without doubt, many other conditions which we do not know, may start on the spot a circumscribed or diffuse suppuration, or may reach the lymphatics and cause an angio-leukitis, an adenitis, adenophlegmon, or erysipelas and vast septic infiltrations of the cellular tissue, and may penetrate the veins as a phlebitis. Here they will deter-

7. Sewill, Henry: *Med. Press and Circular*, Oct. 22, 1902, p. 431.

8. Antral suppuration may occur from alveolar infection without the intervention of carious teeth. In cases of alveolar pyorrhea masses of granulation tissue seen on extracted teeth, on sectioning, show a rarefying osteitis spreading into the bone, while the tissue farthest away from the advancing inflammation shows fibrosis.

6. Walsh, David: *Some Points in the Modern Diagnosis and Treatment of Anemias*, *Med. Press and Circular*, Sept. 21, 1902, p. 223.

mine a regional symptom of a septicemia or abscess of the gravest character. The micro-organisms, if they act on the spot, first seek the alveolus (alveolodental periostitis) then the mandible (osteoperiostitis, osteomyelitis of the jaws); or conjointly bone and mucous lining. If they follow the contiguous tissues of the mouth, we get stenoparotiditis: if they penetrate through the alveolus of an upper tooth (first or second molar), maxillary sinusitis. If they pass on to the air-passages, bronchopneumonia follows. If they enter into the digestive apparatus they produce or help to produce in people subject to chronic abscessed teeth, anemia or so-called "dental cachexia" of Lejars,⁹ or the acid putrid intoxication of Richet.¹⁰ Everyone who has followed the clinical evolution of the lymphophlegmonous septicemia of the neck knows that it may be either simple septicemia or septic pyemia. If an incision is made in the phlegmonous parts, it is with great trouble that one will find in the deep parts a minute suppurating point containing only a dram or so of a secretion which may not be pus in character; or nothing at all may be found. Here is a clear proof that we must distrust surgical infections which do not suppurate. Suppuration may be a means of defense for the organism. In many of these severe cases death comes on very rapidly, the nerve centers being profoundly affected and not giving the brain time to react under the cellular intoxication, while the patient has a slight delirium, but depression irregularity and weakness of the pulse, respiratory insufficiency, dyspnea, toxins thrown off by sweats, diarrhea and albuminuria.

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ABSTRACT OF DISCUSSION

DR. M. H. FLETCHER, Cincinnati: The thing that presents itself most forcibly to me is the lack of knowledge in parents of the laws of physiology. That is, the lack of proper knowledge of the conditions under which to bring up children, and from our view-point the mouth is very important. I have read in various works that the saliva of animals is strongly alkaline, but to go to the abattoir, apply a bit of litmus paper to the saliva of animals and find it change as quickly from acid to alkaline as it would be in a solution of bicarbonate of soda, and find this in absolutely every case, is something that should be considered by us. I take it that civilized environment has changed the physiology of man to almost the opposite condition. For it is a rare thing to find human saliva more than barely alkaline. Now, with the strong alkaline condition found in the mouths of animals, no acid decay could exist. Again, the eating of the rough food by these animals constantly rubbing against their gums, keeps the tissues healthy and strong. This feature is of great importance for there is a development of large rolls of connective tissue or callus at the necks of the teeth of these animals, especially just inside of the lower front teeth, where the food comes in contact with the mucous membrane. This is true in carnivora, where the teeth are conical, but not to the degree found in the herbivora; the biting with conical teeth also cleans them to the gums. When animals are kept from their normal diet and fed on civilized food, there is a marked delicacy or softening of the gums in consequence. I do not believe these points have been brought before our present generation strongly enough to impress them properly, and, since our teeth are not cleansed by our food, and our mouths do not have this protective alkaline saliva, by all means let us use the superior intelligence Providence has given us and

give our gums this hard rubbing that they need, and the mouth and tongue the proper cleansing and the result will be to the development of healthy, strong gums and good teeth. Our intelligence should lead us to know where to begin and how to correct these defects; then we will know how to teach our children about them.

THE RELATION OF BLOOD PLATELETS TO HEMORRHAGIC DISEASE

DESCRIPTION OF A METHOD FOR DETERMINING THE BLEEDING TIME AND COAGULATION TIME AND REPORT OF THREE CASES OF HEMORRHAGIC DISEASE RELIEVED BY TRANSFUSION *

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It is my purpose in this paper to report three cases and experiments which furnish additional evidence to show that the blood platelets play a part in stopping hemorrhage, and that one type of hemorrhagic disease may be attributed to an extreme reduction in the number of platelets. The cases possibly explain the relief which sometimes follows transfusion in hemorrhagic disease. It is my purpose also to describe a method for studying hemorrhage called the bleeding time, and to describe briefly a simple method for determining the coagulation time.

In the cases there was marked hemorrhagic diathesis, a normal coagulation time, and almost an absence of platelets. Transfusion was performed in each case. After transfusion there was a marked increase in the number of platelets and remarkable relief of hemorrhage. When the platelet counts returned to their previous low level, hemorrhages returned. Later in the course of the disease in two of the cases, the platelet count rose spontaneously and this rise also was followed by relief of hemorrhage. The cases are reported to show the marked dependence of pathologic hemorrhage in this type of disease on the reduced numbers of platelets. The experiments are reported briefly to show that platelet counts reduced experimentally by benzol are not associated with changes in the coagulability of the blood which account for the hemorrhages of the condition and suggest that this type of hemorrhagic diathesis is due directly to the lack of platelets.

A METHOD FOR DETERMINING THE BLEEDING TIME

A small cut is made in the lobe of the ear. At half-minute intervals the blood is blotted up on absorbent paper. This gives a series of blots of gradually decreasing size. Each blot represents one-half minute's outflow of blood. The rate of decrease in the size of the blots shows the rate of decrease of the hemorrhage. The cut should be made of such a size that the first half minute's outflow of blood makes a blot 1 or 2 cm. in diameter. The total duration of such a hemorrhage is called the bleeding time.

Figure 1 (A, B, C) was made from cuts of different size. These sets of blots show that within certain limits the duration of a hemorrhage does not depend on the size of the cut. If these figures represent capillary hem-

9. Lejars, Felix: *Leçons de Chirurgie*, Masson, Paris, 1895, p. 330.

10. Richet: De l'intoxication putride qui accompagne certaines fractures dites simples du maxillaire inférieur, *Bull. Soc. de Chir.*, 1865, Series 2, iii, 410-431.

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

orrhages it is evident that a large number of capillaries will stop bleeding as rapidly as a small number.

The normal bleeding time varies from one to three minutes.

The bleeding time is slightly delayed (five to ten minutes) in severe anemia (Fig. 2).

Great delays in the bleeding time were found in, (1) cases in which the platelet count was excessively reduced (ten to ninety minutes—Fig. 3), (2) cases in which the fibrinogen content of the blood was excessively reduced (ten minutes to twelve hours), and (3) experimental animals in which both platelets and fibrinogen were reduced.

It is remarkable that the bleeding time is independent of the coagulation time. The bleeding time was normal in several cases of jaundice in which the coagulation time was very much delayed. Two of these patients died of pathologic hemorrhage.



Fig. 1.—Normal bleeding times; A, from small cut; B, from larger cut; C, from very large cut.

It was also normal in a patient with hemophilia, who had a slight delay in the coagulation time and pathologic hemorrhage. The bleeding time was found to be normal in several types of purpura hemorrhagica in which the platelet counts were normal. It is difficult to explain why these patients had hemorrhage into the tissues, from mucous membranes, and from operation wounds, and at the same time had normal bleeding from ear-pricks.

The bleeding time, then, in types of disease associated with low platelet counts, or with a reduced quantity of fibrinogen shows a tendency to prolonged hemorrhage. In these types of disease, a delayed bleeding time is a

more reliable indication of hemorrhagic diathesis than hemorrhagic symptoms, for such symptoms usually depend on general and local causes. The latter are, of course, not constant. In the cases reported in this paper the bleeding time was invariably delayed when pathologic hemorrhage was evident, and was often considerably delayed before hemorrhage began.

The method is apparently of no value in determining the tendency to bleed in jaundice and hemophilia, and in the types of purpura hemorrhagica which have normal platelet counts.

A SIMPLE METHOD FOR DETERMINING THE COAGULATION TIME¹

The apparatus consists of a slide on which are mounted two 5 mm. disks. One disk is covered with the blood to be tested. The other is covered with normal blood. The two drops of blood should be of about the same depth. The slide is then inverted over a glass nearly full of water kept at 40 C. and is covered with a warm, damp cloth. The coagulation time is determined by holding the slide in a vertical position for a moment. When the end point is reached the drop does not hang, as in Figure 4a, but retains the contour of a perfect sphere



Fig. 2.—Slightly delayed bleeding time. From a case of secondary anemia.

(Fig. 4b). The end point appears sharply and is easily determined.

The normal coagulation time by this method varies from five to seven minutes. A very shallow drop clots one to two minutes sooner than a very deep one. The normal blood can be used for a control, or can be used for obtaining a comparative time.

If simply the comparative time is desired, the temperature of the water may be allowed to vary between 35 and 40 C., and the glass may be covered with the hand instead of a damp cloth. A delay of two minutes can be easily determined by this method.

PLATELET COUNTS

Wright's method² was used in making the platelet counts. According to this method the blood is drawn up in a 1-100 pipette, mixed with a solution of cresyl blue and potassium cyanid and counted by the red cell

1. This method is a modification of Hinman and Sladen's slide method (Johns Hopkins Hosp. Bull., 1907, xviii, 207). The principle was first used by Millan.

2. Wright and Kinnicut: Tr. Assn. Am. Phys., May, 1910.

technic. The red cells are laked by this solution and the leukocytes and platelets are stained. This is a great advantage, for the platelets can be easily recognized and can be counted with a high dry lens. The counts made by this method are uniformly lower than those made by Pratt's method.³ This method, however, gives constant results if care is used in the technic. The normal count, according to Wright and Kinnicut, varies from 250,000 to 400,000.

of interest in showing relief of hemorrhage, both after the rise in the platelet count following transfusion, and after a spontaneous rise in the count which occurred later in the disease.

History.—S. M., a man aged 20, Armenian, tailor, was admitted to Massachusetts General Hospital May 8, 1909, complaining of epistaxis. The family history is negative for hemorrhagic disease. The patient has always been strong and well, and has had no serious illnesses. He has never had prolonged epistaxis, spontaneous ecchymoses, joint trouble, urticaria, nor abdominal crises. His digestion has always been

TABLE 1.—CASES OF HEMORRHAGIC DISEASE IN WHICH THE PLATELET COUNT, COAGULATION TIME AND BLEEDING TIME WERE DETERMINED

Disease.	No. of Cases.	Symptoms.	Plate Count.	Coag. Time.	Fibrinogen Content of Blood.	Bleeding Time.	Other Diseases which may Give Similar Blood and Similar Symptoms.
Idiopathic purpura hemorrhagica.	3	Purpura, spontaneous hemorrhages.	Below 20,000...	Normal...	.....	60 min.+	Peenicious anemia, lymphocytic leukemia, nephritis, typhoid fever.
Aplastic anemia.....	2	Ecchymoses, epistaxis.....	Low.....	Normal...	Nor. in experimental aplastic anemia.	Delayed.	
Chronic Ulcerative colitis.	1	Melena.....	20,000 to 30,000	Normal...	.....	10-20 min.	Phosphorus poisoning, hemorrhagic smallpox.
Chloroform poisoning.....	Dogs. 3	Bleeding from gums and operation wounds.	Normal or slightly reduced.	Normal...	Excessively reduced.	Hours....	
Jaundice.....	2	Hemorrhage after operation.	Abundant in smears.	30 min.	Probably normal in jaundice.	1-2 min....	
	1	Purpura hemorrhagica....	350,000.....	40 min.		3 min....	
	8	No symptoms.....	Abundant in smears.	8 min.		1-3 min....	
Hemophilia.....	1	Bleeding from wound; hematoma in knee.	350,000.....	9 min.	Normal in hemophilia.	2 min....	
Purpura simplex.....	2	Purpura.....	Abundant in smears.	Normal...	.....	Normal...	
Henoch's purpura	1	Purpura, intestinal crisis, melena.	275,000.....	Normal...	.....	Normal...	
	1	Purpura, urticaria, angioneurotic edema.	300,000.....	Normal...	.....	Normal...	
Nephritis.....	4	Epistaxis.....	Abundant in smears.	Normal...	.....	Normal...	
	1	Ecchymoses.....					

TABLE 2.—DETAILED FINDINGS IN CASE 1

Date.	Platelet Counts.	Plates in Stained Blood Smears.	Bleeding Time. (Minutes.)	Coagulation Time.	Urine.	Stools.	Epistaxis.
May 8.....	6,000.....	1-2 per smear.....	47	5 minutes.....	Smoky.....	Tarry.....	Moderate.
May 9.....	None seen.....	None seen.....	90	5 minutes.....	Smoky.....	Tarry.....	Moderate.
May 10.....	3,000.....	.....	.....	5 minutes.....	Smoky.....	Tarry.....	Moderate.
May 11.....	.....	2 per smear.....	50+	4½-5 minutes.....	Smoky.....	Tarry.....	Extreme.
(Transfusions).							
May 12.....	123,000.....	13 in each field.....	3	1½ minutes.....	Clear.....	Tarry.....	None.
May 13.....	.....	1 in 3-4 fields.....	3	.....	.....	Yellow.....	None.
May 14.....	.....	.....	30	.....	Clear.....	.....	None.
May 15.....	.....	3 per smear.....	49	.....	Clear.....	Occult blood.	Slight.
May 16.....	.....	1 per smear.....	50	5 minutes.....	.....	.....	Moderate.
May 17.....	1,500.....	3 per smear.....	50	.....	Clear.....	Fresh blood.	Moderate.
(Spontaneous increase in the number of platelets).							
May 18.....	.....	.....	.....	.....	.....	Occult blood.	None.
May 19.....	.....	1-6 per field.....	32	.....	.....	.....	None.
May 23.....	.....	.....	32	5 minutes.....	Clear.....	No blood.....	None.
May 24.....	24,000.....	3-8 per field.....	4	.....	.....	.....	None.

BLOOD EXAMINATION

May 8, R. C., 3,264,000; Hbg., 50%; W. C., 5,000
 May 10, R. C., 3,260,000; Hbg., 50%
 May 11, R. C., 2,700,000; Hbg., 49%; W. C., 7,000
 May 12, R. C., 3,400,000; Hbg., 46%
 May 14, R. C., 3,500,000; Hbg.
 May 15, R. C., 3,441,000; Hbg., 55%; W. C., 6,000
 May 24, R. C., 5,000,000; Hbg., 70%; W. C., 2,400

REPORTS OF CASES*

CASE 1.—*Summary.*—Acute purpura hemorrhagica. Purpura; spontaneous hemorrhages; practical absence of platelets; delayed bleeding time; normal coagulation time. This case is

3. Pratt, J. H.: A Critical Study of the Various Methods Employed for Enumerating Blood Platelets, THE JOURNAL A. M. A., Dec. 30, 1905, p. 1909.

4. I wish to express my thanks to Dr. F. T. Murphy, Dr. Hugh Cabot, Dr. L. A. Coe and Dr. R. D. McClure for permission to report these cases, and to Dr. J. H. Wright for his kind assistance in making the platelet counts.

good. For three weeks before admission to the hospital he had been feeling run down, and had had slight sore throat. For five days he had been troubled with persistent epistaxis. He noticed that his urine was high-colored, his stools black, and that he was covered with purpuric rash. There was nothing further of importance in the history.

Examination.—The patient was a well-developed and well-nourished young man, pale and weakened by loss of blood. A small amount of blood was then oozing from the border of his gums, and nasal mucous membranes. Scattered over his entire body, including the soles of his feet, mucous membranes, tongue, and sclera, were fine muscular purpuric blotches, 1 to 5 mm. in diameter. In places, especially on the lower extremities, they were confluent, and covered areas 2 to 3 cm. in diameter. Retina were free from hemorrhage. There were a

few mucous râles at the lung apices, and a soft systolic blow at the base of the heart. The spleen edge was palpable just below the costal margin. There were no telangiectases on his skin or mucous membranes. Blood-smears showed almost a total absence of blood-plates, 6,000 by count. On the following day the counts were even lower. The bleeding time was forty minutes. The coagulation time was normal.

The course of disease can be followed by the chart (Fig. 5). During the first four days in the hospital there was an almost constant oozing of blood from the nose, which could be controlled for only short periods of time by packing. The stools and urine each day contained considerable blood.

Transfusion.—On May 11, the patient lost over a pint of blood from the nose, and his condition became so critical that he was transfused at 2 a. m. by Dr. F. T. Murphy. An Armenian friend of about the same age was donor. That a

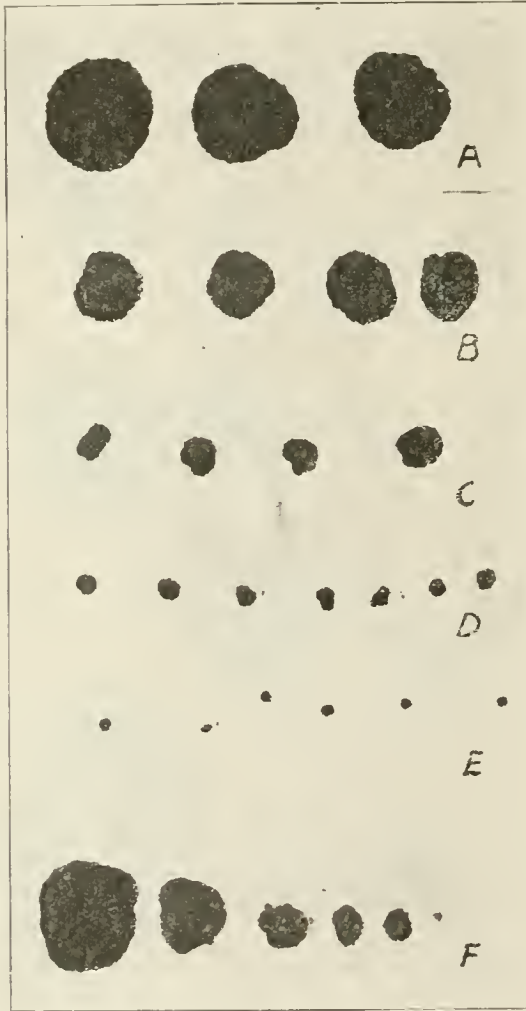


Fig. 3.—Great delay in bleeding time. From Case 1. Platelet count 3,000, coagulation time normal. The blots in Series A were taken immediately after the ear was pricked; Series B, 20 minutes; C, 40 minutes; D, 60 minutes, and E, 80 minutes later. The bleeding time at this time was 90 minutes. Series F, showing a normal bleeding time, was taken after the transfusion. Platelet count was then 110,000.

large amount of blood was given by transfusion was evident from the improvement in the patient's general condition, color, and pulse, and from the rise in the pulse-rate of the donor.

Course of Disease.—The platelet count, taken six hours after transfusion, was 123,000. The bleeding time had dropped to three minutes. The coagulation time was practically unchanged. Epistaxis had stopped before this time, and the packing had been removed from the nose. The urine was then free from blood. The stools on the following morning

were light yellow, but contained a small amount of occult blood. No fresh purpuric spots appeared and the ones present began to fade, disappearing completely in five days. Thirty-six hours after transfusion it could be seen from stained smears that the platelets were decreasing rapidly in number, and on the third day one could be found only after prolonged search. At this time the bleeding time was again delayed. The day following this the patient's nose began to bleed and fresh blood appeared in the stools. Since the onset of the disease the patient had had an irregular temperature, varying from 99 to 103 F. This came to normal, except for slight remissions, on May 20. Apparently the disease had run its course, for at this time plates reappeared in the blood (80,000), and hemorrhage from ear-pricks would last for only three minutes. There was no further epistaxis or melena. Convalescence was uneventful, and since then the patient has continued his vocation without symptoms.

Differential Counts.—Made on May 8, 9, 12, 15, 23. Polymorphonuclear neutrophils made up from 80 to 86 per cent. of the cells. The remainder were lymphocytes with an occasional mast-cell and eosinophil. Only one blast was seen.

Red Cells.—Moderate variation in size. Shape normal. Moderate amount of achromia and polychromatophilia. An occasional stippled cell.

Coagulation Time.—The comparative method was used. The temperature was kept constant at 40 C. My blood, which had a coagulation time of five to six minutes, was used as a control. Usually several determinations were made and the average taken.

Platelet Counts.—Pratt's method was used in making the platelet counts on May 8, 9 and 10. The other determinations were made by Wright's method. The variations in the platelet count were so marked that estimations from stained cover-glass preparations of the blood proved satisfactory. Smears were looked over carefully with oil immersion lens on the days mentioned, and the number seen per smear or field averaged.

Retraction of Clot.—The clot was non-retractile after standing forty-eight hours on May 11 and 16. It retracted normally on May 12 and May 23.

Bleeding Time.—Determined by the method described. As a rule several determinations were made and the times averaged.

Urine.—Normal except that it contained a sediment of red cells and a slight trace of albumin on May 8 to 11. It contained no sugar, bile, peptone, albuminose, or nucleoproteid.

Stools.—May 8 to 12, rather copious, soft and black; from May 13 to 16, soft and light yellow (milk diet). Guaiac test was faintly positive on May 13 and 14; strong on May 15. On May 17, the stools were brown and soft and mixed with about 50 c.c. of fresh blood and a little mucus. On May 18, the stools gave the guaiac test. May 19 to 23, the guaiac test was negative. No parasites or ova were found.

The patient was seen eleven months after his illness and was then apparently strong and healthy. White count 4,700. Polymorphonuclears, 66 per cent.; lymphocytes, 34 per cent.; hemoglobin, 85 per cent. Plates 240,000. Bleeding time one minute.

CASE 2.—Summary.—Chronic ulcerative colitis; melena; reduced platelet count; delayed bleeding time; normal coagulation time. The bleeding time was normal after the rise in the platelet count following transfusion. The melena was slightly increased by transfusion. The case is of interest in showing a difference between the curative influence of transfusion in normal and in pathologic hemorrhage. Although the general tendency to hemorrhage (shown by the shortened bleeding time) was markedly diminished by transfusion, hemorrhage from the intestinal ulcers was increased. The case shows the difficulty of judging the tendency to abnormal hemorrhage by hemorrhagic symptoms alone.

History.—A. C., American, a boy aged 8, was admitted to Massachusetts General Hospital Nov. 15, 1909, complaining of weakness and diarrhea. The family history is negative for hemorrhagic disease. The patient's early life was normal. He had had no serious acute illnesses. After the age of 2 he suffered almost continually from diarrhea. He developed slowly, was always thin, and never strong enough to go to school. After the age of 4, there were four periods of a month or less in which the stools contained considerable blood, and the patient became pale and weak. He bled excessively from a trivial cut once. He never had ecchymosis on slight injury, joint disturbance, nor other evidence of hemorrhagic disease. For a month before admission to the hospital, the diarrhea was more severe, the stools contained blood, and the boy was becoming pale and weak.

Examination.—The patient was poorly developed, thin and pale, skin clear. Except for evidence of anemia, there was nothing of interest on physical examination. There were no telangiectases on the skin or mucous membranes, and no jaundice. Blood-smears showed a scarcity of the plates. Counts varied from 20,000 to 30,000. The bleeding time was twenty minutes. The coagulation time was normal.

During the first two and one-half weeks in the hospital a prominent symptom was diarrhea. The patient had from eight to thirty stools a day, which consisted mostly of thin pus, and often contained a small amount of blood and mucus. The patient's temperature varied from 98 to 103 F.

Transfusion.—On November 3 the patient was transfused by Dr. Hugh Cabot, preparatory to cecostomy. The child's father was donor. Following transfusion there was improvement in general condition and color. The temperature came to normal, and the pulse-rate dropped from 150 to 110.

Course of Disease.—The platelet count, taken two hours after transfusion, was 20,000, and the bleeding time was two minutes. The coagulation time was unchanged. The amount of blood in the stools, however, was increased. In interpreting this result it must be borne in mind that the patient had an extensive chronic ulcerative colitis (proved by autopsy), a condition which may cause melena when the blood is normal. The increase following transfusion was thought to be due to overfilling of the blood-vessels. Cecostomy was performed on the following day without excessive hemorrhage. As in the previous case, the platelets introduced by transfusion disappeared rapidly, and in a few days the count reached its former low level. The bleeding time again became delayed. The melena continued. The boy gradually became anemic, febrile, and died about a month later of septicemia.

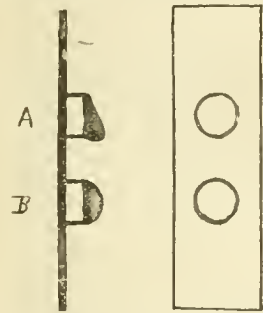


Fig. 4.—Instrument for determining the coagulation time.

Streptococcus obtained from heart blood.

DETAILED FINDINGS IN CASE 2

Date	Platelet count.	Bleeding time (min.).	Coagulation time.
10 26	32,000	20	Normal
10 28	23,000	20	.....
10 30	22,000	20	Normal
11 2	20,000	20	5 min.
(Transfusion).			
11 3	80,000	3	5 min.
11 4	72,000	2½	.....
11 6	25,000	3	Normal
11 8	.....	.....	.....
11 9	25,000	10	.....
11 13	.....	19	.....

BLOOD EXAMINATION

10 15, R. C.	3,600,000	Hbg., 42%	White Counts, 3,700
10 19, R. C.	1,600,000	Hbg., 29%	White Counts, 3,100
10 31, R. C.	1,224,000	Ubg., 15%	White Counts, 4,700
11 2, R. C.	1,200,000	Hbg.,	White Counts,
11 3, morning	3,280,000	Hbg., 70%	White Counts, 3,800
11 3, afternoon	3,416,000	Hbg.,	White Counts, 2,200
11 4, .....	.....	Hbg., 85%	.....
11 9, .....	.....	Hbg., 90%	.....
11 13,	3,600,000	Hbg., 70%	.....

Differential Counts.—Polymorphonuclear neutrophils varied from 40 per cent. to 60 per cent. The remainder were lymphocytes with an occasional mast-cell and eosinophil. No blasts seen.

Red Cells.—Moderate variation in size. Shape normal. Moderate amount of achromia and polychromatophilia. No stippling.

Coagulation and Bleeding Time.—Determined as in Case 1. The platelets were counted by Wright's method.

Retraction of Clot.—On October 26 there was a very slight retraction of the clot after twenty-four hours; on November 3 and 4 a moderate amount of retraction; on November 9 no retraction.

Urine.—Normal.

Stools.—Eight to thirty a day, throughout the patient's illness. Small in amount and of pea-soup consistency. Stools contained considerable pus, a small amount of food residue and mucus. Dur-

ing the first few days, after admission, they contained considerable fresh blood. For ten days before transfusion they contained very little blood. After transfusion the stools were port-wine in color and contained considerable blood. Melena continued until death. Stools contained no parasites or ova. Cultures taken frequently showed only the colon bacillus.

CASE 3.—Summary.—Chronic purpura hemorrhagica: Echinomoses; purpura; hemorrhages from mucous membranes; low platelet count; delayed bleeding time; relief of hemorrhage for three days followed transfusion; relief of hemorrhage after a spontaneous rise in the platelet count.

History.—Georgiana — American, a girl aged 3, was admitted to New York Hospital Oct. 3, 1909, complaining of epistaxis. The patient's parents, and three brothers and sisters are living and well. There is no history of hemophilia in the family. The patient has had no acute illnesses. She has had prolapse of the rectum several times. Since the age of 19 months, she has been subject to nose bleed, and ecchymosis following slight injury. Four months before admission to the hospital, symptoms were more severe, and at one time she became pale and weak from epistaxis and bleeding from

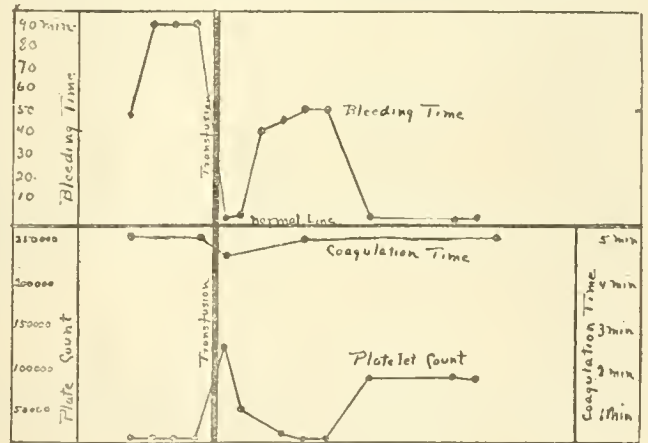
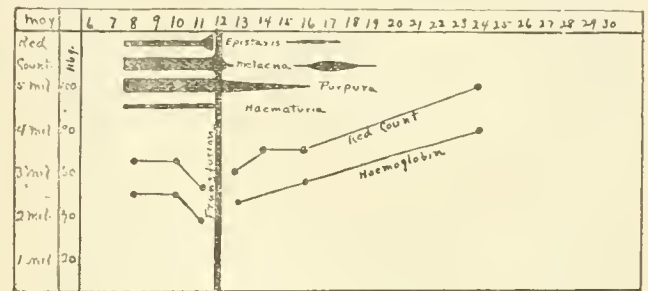


Fig. 5.—Chart of Case 1.

a small cut on the head. She improved somewhat after this, and for the following two months there was little bleeding. Two days before she came to the hospital, epistaxis began again and continued until admission to the hospital.

Examination.—The patient was a moderately developed and nourished little girl. She was pale and rather weak from loss of blood. On the right shoulder, cheek, and lower extremities were several small ecchymoses. There were no telangiectases. The physical examination was otherwise unimportant. Epistaxis continued almost without ceasing for five days, and the child became almost pulseless.

Transfusion.—She was transfused on October 7 by Dr. R. D. McClure. The patient's father was donor.

Course of Disease.—Transfusion improved the patient's pulse—volume and color, but owing to bronchopneumonia, which developed at about the same time, her condition remained serious for a few days. The temperature, which had ranged from 98 to 102 F., began to decrease and reached

5. This case has been reported in another connection by Pool and McClure, *Annals of Surgery*, September, 1910.

normal about a week later. The pulse-rate immediately dropped from 160 to 120 and a few days later to 90, where it remained. There was no bleeding for three days after transfusion. On the fourth day there was slight epistaxis, and hemorrhage from the vagina and transfusion wounds. Later, she had slight epistaxis and melena, as marked on the chart, and a fine petechial rash which followed straining at stool.

Blood Examinations.—August 8—red cells 2,300,000, hemoglobin 24 per cent. Other estimations showed about the same ratio between the red count and hemoglobin. The white count varied from 16,000 to 21,000. Blood smears on some occasions showed an excess of lymphocytes (71 per cent.), but usually polymorphs predominated. The red cells showed polychromatophilia and moderate variation in size. There were no blasts. The coagulation time was about normal (Boggs' instrument). The urine was not remarkable.

For five weeks after leaving the hospital the patient had no further bleeding. During the sixth week, however, she had prolapse of the rectum with bloody stools. One week later, she noticed that ecchymoses followed slight injuries. When seen at this time, (Nov 24, 1909), her color and general health were fairly good. On her head, elbow and legs, were

fusion were 3,000 and 20,000: the bleeding times were, respectively, ninety and twenty minutes. After transfusion the counts were 110,000 and 89,000, and the bleeding time in each case was three minutes. After the disappearance of these platelets, apparently introduced into the patients' circulation by transfusion, the bleeding times were again delayed (forty minutes and twenty minutes). In Cases 1 and 3 the bleeding times (forty minutes and one hour) came to normal after spontaneous rises in the platelet counts.

As to spontaneous hemorrhages, there was complete relief in Cases 1 and 3 for three days after transfusion and after spontaneous rises in the platelet counts. In Case 2 intestinal hemorrhage was slightly increased by transfusion, in spite of the fact that the general tendency to bleed (shown by the shortening of the bleeding time) was less marked. This apparently contradictory result may be accounted for by the fact that intestinal hemorrhage in this case was not entirely pathologic hemorrhage, but was due largely to bleeding from intestinal ulcers. The increase after transfusion may have followed the more complete filling of the blood-vessels.

In each of the cases the coagulation time of the blood bore no relation either to the platelet count or to hemorrhagic symptoms. The coagulation time was practically the same before and after transfusion, and before and after the spontaneous rises in the platelet count.

Other cases of hemorrhagic disease with a reduced number of platelets (twenty) have been reported by Denys, Hayem, Ehrlich, Helber, Bensaude and Rivet, Coe, Pratt and Selling. In one case reported by Bensaude and Rivet⁶ there was a low count (6,000) during a hemorrhage crisis. During a remission in the disease the count was 161,000. Coe⁷ has attached more importance to the relationship between the reduced number of platelets and hemorrhage than other observers. In one of his cases, the most severe epistaxis occurred

when the platelets, estimated from stained smears, were almost absent. Previously they had been present, but in diminished number. In another case of purpura hemorrhagica, platelets, frequently estimated from smears, were almost absent during two hemorrhagic periods, and were present during remissions.

The reported cases differ in etiology. Many belong to the group known as idiopathic purpura hemorrhagica. Some of the cases were evidently symptomatic. One of Pratt's cases⁸ accompanied nephritis. The platelet count was 9,000. Benzol poisoning was the etiologic agent in Selling's cases. The clinical condition was aplastic anemia. In one of his cases the platelet count was 2,500. In Case 2 reported in this paper, the hemorrhagic diathesis may have been secondary to ulcerative colitis. Plate-

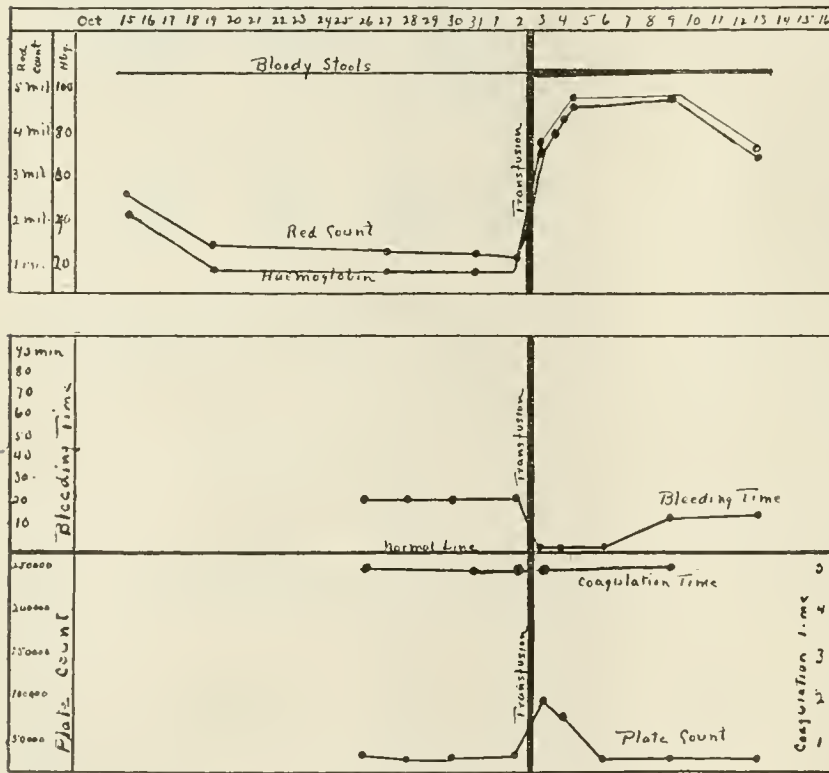


Fig. 6.—Chart of Case 2.

several small ecchymoses. Blood plates, as determined from stained smears and counting chamber, were extremely scarce. The bleeding time was about sixty minutes. The coagulation time was normal. The clot was firm and non-retractile. The white count was 7,000; polymorphs, 45 per cent.; lymphocytes, 55 per cent.; hemoglobin, 90 per cent. The patient was seen again four months later (April 7, 1910). She had been free from hemorrhagic symptoms for some time. Plates were then abundant in stained smears, and hemorrhage from ear pricks would last for from five to ten minutes. The hemoglobin was 85 per cent.

Platelet counts were not made in this case at the time of transfusion. It seems probable, however, that, as in the previous cases, the relief of hemorrhage, after transfusion, was associated with an increase in the platelet count.

COMMENT

A review of the cases shows a striking dependence of hemorrhagic diathesis on the reduced number of platelets. In Cases 1 and 2 the platelet counts before trans-

6. Arch. gén. de méd., 1905, 1, 193.
7. Coe, J. W.: The Treatment of Purpuric Conditions and Hemophilia, THE JOURNAL A. M. A., Oct. 6, 1906, p. 1890.
8. Osler's Modern Medicine, 1908, 1v.

let counts may also be low in lymphocytic leukemia, pernicious anemia, and early typhoid fever, and in each disease purpura hemorrhagica is a recognized complication.

The data leads one to believe that a reduced number of platelets is not simply a phenomenon accompanying some types of hemorrhagic disease, but rather that it may be the direct cause of hemorrhagic diathesis in several diseases.

EXPERIMENTAL WORK

Experimental work seemed desirable to determine whether the hemorrhagic diathesis was due directly to the lack of platelets, or whether it was due to an abnormal coagulability of the blood which might accompany a reduced number of platelets. It seemed desirable also to know to what extent the platelet count must be reduced to cause hemorrhage.

In benzol poisoning we have a condition simulating idiopathic purpura hemorrhagica. Santessin⁹ has reported cases and experiments in which hemorrhages were produced by benzol. Selling's cases¹⁰ of a similar nature clinically, had very low platelet counts. He has found¹¹ that subcutaneous injections of benzol in animals reduces the platelet count. This reduction is thought to be due largely to the aplastic condition of the bone-marrow caused by the poison.

My experiments were performed mainly on dogs, and, according to a method suggested by Dr. Selling. Benzol was given daily for six to twelve days. The platelet count would usually rise at first, but later would fall and continue low for a number of days after the injections of benzol had been stopped. In several instances the count was reduced to 30,000. The white count was usually high even in the late stages of the poisoning.

The results¹² support a conclusion which might be drawn from this series of cases, namely, that when other conditions are normal, moderately low platelet counts are not associated with hemorrhagic diathesis. The platelet counts, after transfusion, in Cases 1 and 2 were only one-third of the normal, and yet there was no evidence of pathologic hemorrhage. The bleeding time was only moderately delayed (ten to twenty minutes) in Case 2, when the platelet counts varied from 20,000 to 30,000. The tendency to bleed in Cases 1 and 3 was extreme only during the practical absence of platelets. In the experimental work the platelet counts in dogs and rabbits were reduced from the normal (200,000 to 600,000) to from 50,000 to 75,000 without the appearance of hemorrhagic diathesis. Only a more extreme reduction (to 30,000) caused a delay in the bleeding time, and hemorrhages into the organs. There is an analogy between this observation and the observations of Whipple and Hurwitz on chloroform poisoning.¹³ They found that, when other conditions are normal, a moderate reduction in the quantity of fibrinogen does not cause hemorrhagic diathesis. In their experiments hemorrhage was prolonged only when the reduction was extreme. It seems likely, then, that both platelets and fibrinogen play a striking rôle in the control of hemorrhage. Either one

may be moderately reduced without symptoms, but after an extreme reduction there is a tendency to bleed.

The experiments failed to show abnormalities in the coagulability of the blood accompanying low platelet counts, which account for prolonged hemorrhage. The coagulation time was normal, or slightly shortened when the platelet count was as low as 30,000. The quantity of fibrinogen was normal or slightly increased (0.55 per cent. to 0.65 per cent.); furthermore, the fibrinogen present was all convertible into fibrin, and the fibrin examined in a number of ways had a normal microscopic appearance.

The serum in one instance was examined by Professor Howell, and found to contain thrombin. The only abnormality in the clot noted was diminished retractibility, a peculiarity shown by Hayem and others to be associated with and probably due directly to a lack of platelets. Normal plasma deprived of platelets in various experimental ways clots quickly, but does not retract from the sides of the vessel containing it, and extrude serum.

The hemorrhagic diathesis is explained, possibly, through investigations on experimental thrombi. In a bleeding vessel, there are conditions suitable for the formation of a thrombus, that is, injured intima and a flowing stream of blood. Platelets, although they have little, if any, influence on the clotting of still blood, play a striking rôle in the formation of thrombi. The inves-

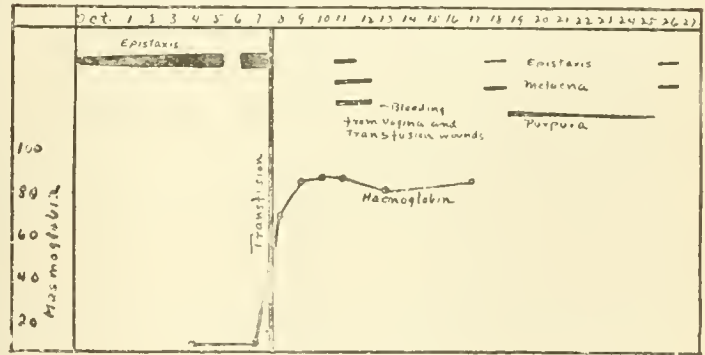


Fig. 7.—Chart of Case 3.

tigations of Hayem, Eberth and Schimmelbusch, Welch, Pratt, and others, have shown that after trauma to a blood-vessel platelets are the first element to adhere to the injured intima, and that within a few minutes they are massed in great numbers at the injured point. Later, leukocytes, fibrin, and red cells are included in the process, and a plug is formed consisting of masses of each of these elements. The investigations of J. H. Wright¹⁴ show more clearly the rôle which the thrombus plays in stopping hemorrhage. His experiments were made by puncturing vessels with a needle. The resulting thrombi were likewise made up largely of platelets, and were evidently a factor in plugging the opening. An absence of platelets would lead to abnormality in the formation of thrombi, and might be a cause of prolonged hemorrhage. Pratt has laid more emphasis than other observers on the rôle which red cells play in thrombus formation. The failure of erythrocytes in carrying out this function explains, possibly, the delayed bleeding time noted in severe anemia.

9. Santessin: Arch. f. Hyg., 1897, xxi, 336; Skand. Arch. f. Physiol., 1900, x, 1.

10. Selling: Bull. Johns Hopkins Hosp., 1910, xxi, 32.

11. Unpublished experiments which will appear in the Journal of Experimental Medicine.

12. A complete report of results will be made later.

13. Unpublished experiments which will appear in the Journal of Experimental Medicine.

14. Personal communication.

CONCLUSIONS

The question now arises whether the facts admit the conclusion that an extreme reduction in the number of platelets is a cause of hemorrhagic diathesis, or whether the low platelet count must be considered a phenomenon which is sometimes found in hemorrhagic disease. The facts are as follows:

1. In the cases of hemorrhagic disease summarized, evidently differing in nature and etiology (acute and chronic idiopathic purpura hemorrhagica, chronic ulcerative colitis, aplastic anemia, nephritis), the constant features associated with the tendency to bleed were the reduced number of platelets, and the modification of the clot probably dependent on it, namely, diminished retractility.

2. In the cases reported in this paper, relief of the tendency to bleed followed not only the rises in the platelet count occurring at a remission in the disease, but followed also the rise brought about by transfusion. In the latter case, the tendency to bleed returned when the platelets disappeared.

3. Experiments in which the platelet count was reduced by benzol failed to show an abnormality in the coagulability of the blood, which accounts for the hemorrhages of benzol poisoning.

4. The structure and the mode of formation of experimental thrombi suggests, from an anatomic standpoint, that platelets play a rôle in stopping hemorrhage.

It may be permissible to mention two more points of interest suggested by the cases.

None of the patients showed so marked a tendency to bleed after transfusion as before, even after the platelet counts had dropped to their previous low level. In Cases 1 and 2, the bleeding times were ninety minutes and twenty minutes before transfusion. On the fifth day after transfusion, when the count was again low, the bleeding times were only half as long, fifty minutes and ten minutes. The spontaneous hemorrhages in Cases 1 and 3 were never so severe after as before transfusion. Since anemia is associated with a delayed bleeding time, this relief might be accounted for by the rise in the red count. In interpreting the beneficial results following transfusion, this point should always be considered.

In each of the cases, the platelets introduced by transfusion disappeared rapidly. It is granted that these platelets may have been destroyed prematurely by the disease from which the patient suffered, or by processes analogous to hemolysis, etc. The uniform rapidity in the rate of disappearance, however, suggests that platelets are short lived bodies. This interpretation is supported by the results obtained from the study of transfusion in benzol poisoning. In this case also, platelets introduced by transfusion disappear rapidly. It is also supported by results, to be reported later, which show that the normal rate of formation of platelets is probably extremely rapid, and may amount to as much as one-fourth of the entire number in the body per day. The evidence suggests strongly that platelets disintegrate or are utilized by the body in enormous numbers, and that the count is kept constant under a given set of conditions by a correspondingly rapid rate of formation.

The type of hemorrhagic disease described in this paper can be sharply differentiated from other types of disease, such as hemophilia, melena neonatorum, purpura simplex, Henoch's purpura, etc., which are due to other abnormalities. To this type of disease belong the

so-called idiopathic purpura hemorrhagica, and some cases of symptomatic purpura. The latter will probably be found most frequently in aplastic anemia, pernicious anemia, lymphocytic leukemia, typhoid fever and intestinal diseases. The symptoms may be mild, or may be so severe and acute that the patient bleeds to death in a few days. In mild cases, purpura may not appear. The only demonstration of the disease may be (as in Case 2) excessive hemorrhage from a local lesion.

The diagnosis is easy. If the platelet count is reduced to a sufficient degree to cause hemorrhage, the fact may be determined by examining carefully made cover-glass preparations. The absence of retractility of the clot is considered by Hayem and his pupils characteristic of the condition, and is of diagnostic import. A point which I have found of value in following the cases and also in the diagnosis is the marked delay in the bleeding time.

Transfusion gives good results in the treatment of the disease. In addition to replacing blood, it stops hemorrhage for a few days, and may tide the patient over a serious crisis. The treatment is probably applicable to the symptomatic as well as to the idiopathic types of disease, and may be useful in the treatment of some cases of typhoid hemorrhage.

In concluding, I wish to acknowledge my indebtedness to Dr. E. H. Whipple, of the department of pathology, to Professor W. H. Howell of the department of physiology, and to Dr. L. Selling for their kind assistance in the experimental work.

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ABSTRACT OF DISCUSSION

DR. J. H. PRATT, Boston: There seems to be some relation between the blood platelets in the blood and purpura hemorrhagica. Normally, the number of blood platelets is about 450,000 to the cubic millimeter. In simple purpura I found the platelet count was greatly reduced; in one fatal case it fell as low as 7,000. This patient had continuous hemorrhages from the lips and mouth. The platelet count was made 3 times on different days, and the largest number of platelets found was 16,000. In a case of mild purpura hemorrhagica there were 105,000 platelets per cm. The only other condition in which I have found very low platelet counts is lymphatic leukemia. The relation between purpura and the coagulation time is less clear. Wright asserted that purpura was due to delay in the coagulation time and that the treatment of the disease consisted in reducing the coagulation time to the normal by the administration of calcium chlorid or calcium lactate. I found the records of the Johns Hopkins Hospital and the Massachusetts General Hospital those of 34 cases of purpura in which the coagulation time of the blood had been determined. The average coagulation time of the blood in this series of cases was 5½ minutes, which is within the normal limits. In only a few cases did I find a delay in the coagulation. I have seen a patient with purpura bleeding to death from the mucous membrane when the coagulation time was normal. Over the lobe of the ear at the site of the puncture a thick, moist clot formed, but blood continued to ooze from the wound for a long time. I believe that Dr. Duke's method of determining the "bleeding time" will be found to have great clinical value. In the case I have just cited in which the coagulation time was normal the bleeding time was doubtless greatly increased.

DR. W. W. DUKE, Kansas City, Mo.: Transfusion must be done by the direct method. Defibrinated blood is free from platelets and therefore in itself would not increase the count. There is a special indication for transfusion preparatory to operation in this condition. In addition to the usual results which follow transfusion, the tendency to bleed is diminished.

THE OPERATIVE TREATMENT OF CON-
GENITAL CLUB-FOOTCHARLES OGILVY, M.D.
NEW YORK

When a number of different operations are devised for the same surgical condition, we may assume, first, that the condition is a difficult one to treat successfully, and, second, that no one operation has proved entirely satisfactory in all cases. This is certainly true of club-foot—*pes equinovarus*. Few if any deformities are more difficult of perfect correction, and in few conditions, if any, do we see more postoperative relapses. It is not the object of this paper to discuss at length the various operations which have been devised, but rather to outline the surgical treatment that, from a varied experience with cases personally treated, I have learned to be most satisfactory.

WHEN TO OPERATE

Operation should be done early. Patients should not be allowed to remain with deformity for one to two years before a corrective operation is performed. If the patient is seen at birth or a few days later, forcible manipulation and a retention bandage dressing will suffice. Cases of the severest types of deformity treated thus early are corrected without operation. For the first three weeks when the skin is soft and tender, the corrective position should be retained after corrective manipulation by adhesive plaster, which is applied over a gauze bandage. After the third week the zinc oxid adhesive plaster can be applied directly to the skin. At the end of the third month, if corrective treatment is still required, a plaster-of-Paris dressing should be employed and this should always extend up to the groin. It is impossible to prevent the inward rotation of the foot and leg by a dressing that does not extend beyond the knee joint. If at the end of the seventh month the deformity of varus or equinus, or both, are present, due to contracted structures on the inside of the foot, or contraction of the *Achillis*, then an operation should be performed.

Though there are bone changes in the tarsus, the deformity is due in great part to the abnormal shortening of the soft structures. The bone deformities involve principally the astragalus, and also to a lesser extent the *os calcis*, scaphoid, cuboid and semilunars. The early remodeling of the foot and ankle, however, does not necessitate any operative bone procedure, as the bones are comparatively soft, and the deformities are not such as to prevent a corrective replacement of the foot. The greatest difficulty is the correction of the varus. This is due to the shortened structures on the inner side of the foot, principally the skin, subcutaneous tissue and fascia. Unless these are divided it is impossible to correct the varus. In severe cases, in patients over 6 months of age, corrective manipulation by stretching the structures gives very unsatisfactory results. The inner border of the foot is short and must be lengthened. Stretching skin and fascia does not give permanent lengthening.

OPERATIVE PROCEDURES

1. *Manipulation*.—If the deformity is but slight, it may be treated by manipulative measures with the patient under an anesthetic. Lorenz has emphasized the importance of this line of treatment. The foot is placed over a wedge-shaped block, and the varus is first

corrected. Not until the fore part can be readily everted should manipulation cease. This may mean from a half to three-quarters of an hour's work. When this is accomplished attention should be given in like manner to the equinus, stretching down the *tendo Achillis*. This manipulative operation may be repeated several times at intervals of a few weeks, many operators preferring several sittings to one. The application of the dressing is in all cases one of the most important steps of the operation. The foot is carefully held by a skilled assistant, with both the varus and equinus in overcorrection. A pad of shaken-out gauze about the size of one's fist is placed over the dorsum of the foot, another over the sole, and a third over the back of the heel. These are retained in place by a gauze bandage. Great care is taken not to draw the edge of any turn of the bandage too snugly over the instep, for this has frequently been the cause of subsequent circulatory disturbance. A thick layer of cotton is then applied from the toes to the groin, which is firmly but smoothly bandaged with gauze. A plaster-of-Paris dressing is applied to the whole limb, extending from the tip of the toes to the groin. Each toe should be of a bright pink color and the greatest care should be taken that good circulation is established before the patient is removed from the operating-room. If the circulation is not good a diamond-shaped fenestra should be cut out of the plaster over the flexure of the ankle-joint, and all the dressings over this area removed directly down to the skin. This eliminates the necessity of removing the whole plaster-of-Paris mold.

2. *Subcutaneous Division of Structures*.—Better results are obtained, even in children under 12 months of age, when in addition to manipulative procedures, subcutaneous tenotomies are performed. The plantar fascia and subcutaneous tissues on the inner and under side of the foot are subcutaneously divided. The tenotome is passed in immediately under the skin, and then turned with the cutting edge towards the deeper structures. The inner side of the foot is now forcibly stretched and the tightened structures are easily divided. If the skin is too short, it also should be cut. The varus is then forcibly corrected until an overcorrection of the deformity is obtained. To correct the equinus the tenotome is passed beneath the *tendo Achillis* and with a saw-like motion this tendon is cut, almost, but not quite through, the uncut remainder being torn apart by pressing up against the foot. By this method a few fibers of the tendon remain which act as a bridge in the process of repair and along which reunion may more readily take place. The dressing already described is then applied.

One sees many postoperative cases in which the fore-foot has been successfully everted but the heel is markedly inverted. This should be carefully avoided by correcting the position of the *os calcis*, which cannot be done in the great majority of cases without first cutting the *tendo Achillis* and forcibly everting the heel.

3. *Phelps' Operation*.—Experience has proved to me that Phelps' operation is the one of choice in all severe cases of patients over 2 years of age. It is sometimes advisable even at an earlier age. I have employed this operation as early as 2 years of age and as late as forty-five years of age. An incision is made commencing in front of the internal malleolus and extending one-third of the distance across the sole of the foot. This incision is carried down to the neck of the astragalus on its inner side. The foot is forcibly corrected, all re-

sisting structures being cut. These are the skin, superficial and deep fascia, the abductor pollicis, the tendon of the tibialis posticus, the flexor brevis muscle, and long flexor tendons of the toes, and finally, if necessary, the deltoid ligament wholly or in part. These resisting structures having been cut, the varus can be readily corrected. It is seldom necessary to ligate any vessel. The open wound thus formed when the varus is corrected may be an inch or more in width. This is covered with protective or sterilized rubber tissue over which the shaken-out gauze is placed as already described. Phelps always cut the tendo Achillis first before making his plantar incision. I have found it more satisfactory to correct the varus before the tendo Achillis has been cut, and always to leave the subcutaneous tenotomy of this tendon as the last step in the operation. If sufficient correction is not obtained by this method, Phelps advised a linear osteotomy through the neck of the astragalus.

If this fails, a V-shaped piece should be removed from the os calcis, the apex of the V meeting the linear osteotomy, and this failing, the removal of the cuboid and scaphoid is indicated. The great advantage, however, of Phelps' method is that bone surgery is rarely necessary. The other advantages are, (2) a lengthening of the foot, (3) a perfect correction of the deformity, (4) a permanent correction, (5) a rapid operation, (6) a useful foot without the need of a postoperative brace. Reported failures are generally owing to a fear of making the incision too long and of not opening the gap sufficiently wide, thus obtaining an insufficient over-correction of the foot. The resulting scar is not hypersensitive. The anesthesia on the under surface of the foot anterior to the incision, which sometimes results, is not permanent.

4. *Excision of a Portion of the Cuboid.*—This operation is strongly recommended in selected cases. In treating clinical patients it often happens that the postoperative care is neglected by the parent and the patient returns months later with marked relapse. In three such patients, one of whom had had three previous operations, I obtained a cure by the removal of the proximal third of the cuboid, making a wedge-shaped excision, at the same time removing the articulating surface of the os calcis. When the foot is forcibly corrected, this space thus formed is closed in and the newly cut surfaces brought closely in contact. This forms a fixed joint, which, after union takes place, holds the foot firmly in position. This operation is especially indicated when the resistance to correction is due not so much to the shortened tissue on the inner side of the foot, but more especially to the disproportionate growth of the cuboid, which can be readily recognized.

5. *Osteotomy of the Tibia.*—The inward rotation of the tibia which sometimes is present results in a toeing inward after the equinovarus has been corrected. This is more especially noticed as the child walks. If the rotation is but slight, it can be satisfactorily treated by a brace. This brace must extend from the foot to the pelvis, as any shorter brace will not control the inward rotation of the foot. With the pelvic band firmly fixed we can rotate the lower end of the brace at will, and being attached to the shoe, the foot is rotated out with it. In cases in which correction cannot be obtained in this way operation should be done. A subcutaneous osteotomy of the tibia is performed. The lower end of the tibia and the foot are rotated outwards, and the limb

put up in a plaster-of-Paris dressing, which should be left undisturbed for five weeks. This treatment alone will ensure satisfactory results.

POSTOPERATIVE TREATMENT

The postoperative treatment of congenital club-foot is quite as important as the operation itself. The number of relapses that occur are due in great part to lack of care, either on the part of the parent or on the part of the surgeon, usually of the former. The first dressing need not be removed for five to six weeks, irrespective of the operation which has been performed. After the first dressing is taken off, another should be applied. It is well to remember that a plaster-of-Paris mold makes the best fitting and lightest dressing that can be applied, and so it is advisable to continue these molds for upward of six months. A short mold should not be applied; the mold should always be carried well above the knee. If a brace is deemed advisable after an operation, it should extend up to the pelvis with a pelvic band. This is a good general rule to follow, and will avoid much trouble and unsatisfactory adjustment experienced with shorter braces. A laced shoe with stiffened ankle should be worn. The sole and heel of the shoe should be one-eighth inch thicker on the outer side than on the inner, thus giving an everted tilt to the foot. Such a shoe should be worn for two years.

Supervision of the case should be continued for at least one year and a half after the operation. This is essential because of the great tendency of the deformity to relapse, and the liability of a gradual relapse being unnoticed until a marked deformity has recurred. The prognosis in every case is good. The foot may remain a little shorter than its fellow. In cases in which long-continued retentive bandage dressings have been necessary, the muscular development below the knee is permanently affected. The amount of this atrophy will depend on the conditions of the case.

SUMMARY

- I. Corrective manipulation should begin at birth.
- II. Early operation should be done if necessary (seventh or eighth month).
- III. Operative procedures will depend on the degree of deformity, and are as follows:
 1. Forcible manipulation under an anesthetic.
 2. Subcutaneous division of contracted structures.
 3. Phelps' open operation.
 4. Other bone operations, especially:
 - A. Excision of a portion of the cuboid in selected cases.
 - B. Osteotomy of tibia for marked inward rotation.
- IV. Long-continued and careful postoperative attention is essential.
- V. The best results are always obtained when the treatment is begun at birth.

125 West Fifty-eighth Street.

Ear Disease in Children.—The greatest service we have yet to render to childhood is to recognize ear disease when there are no striking manifestations. This result will be attained when the knowledge of the pathologist is applied by the clinician, and the ears of all sick children are frequently examined as a matter of routine. E. Gruening, in the *Laryngoscope*.

PARTIAL THYROIDECTOMY IN DEMENTIA
PRÆCOX*RANDOLPH WINSLOW, M.D., LL.D.
BALTIMORE

The term "dementia præcox" is applied to a condition of progressive insanity occurring in young persons, usually between the ages of 18 and 25 years, though occasionally it may be delayed until later in life. This disease, whilst presenting many variations, has been divided into the following groups by Kraepelin: hebephrenia, catatonia, and paranoid dementia, which at times are sharply defined from each other, but sometimes resemble each other so closely that a differentiation is difficult. About 15 per cent. of all cases admitted to institutions for the care of the insane are of this character. It is a chronic form of mental disease, usually beginning insidiously, but sometimes acutely, and generally terminating in complete imbecility. In 70 per cent. of cases there is a history of some hereditary taint; in a few cases a history of trauma or of some infectious disease; in others of overexertion, mental or physical, and in some there is apparently no exciting cause. The chief characteristics of this disease, or possibly group of diseases, are emotional dulness and indifference, progressive mental deterioration, lack of judgment, retarded psychical reaction, weakness of will, with little or no disturbance early in the disease in the field of apprehension or of memory. Even in childhood many of these individuals are peculiar and eccentric; some of them are of dull intellect, but others are well educated and of more than average intelligence. These patients for quite a while before mental symptoms appear may complain of various disagreeable cephalic sensations, of inability to concentrate the attention, of ready fatigue, insomnia, restlessness, listlessness and apathy or excitement, or egotism, unreasonable emotional outbreaks, depression, carelessness as to obligations, indifference and neglect of person; their actions and statements may be silly and impulsive; the patients may be indifferent to the feelings of family and friends, or may display peculiarities of action, dress and speech. With these symptoms there is generally loss of weight, disturbance of the menstrual function, loss of appetite, etc.

This period of the disease may extend over a long or short time, and with or without the above symptoms we may have the development of one of the three characteristic forms.

The hebephrenic form is characterized by the above-mentioned symptoms, which increase in intensity, and to which may be added hallucinations and delusions, which are seldom very prominent, spells of excitement and depression, unreasonable outbreaks of temper, disturbance of conduct, which becomes childish and silly, with more or less marked emotional dulness.

The paranoid form includes two groups of cases that are characterized by the great prominence and persistence of delusions and hallucinations leading in a few years to dementia.

The catatonic form, so called from one of its most prominent symptoms, that of muscular spasm or rigidity, is usually subacute in its onset. After a short prodromal period, characterized by an entire alteration in the disposition and character of the patient, with more or less mental depression, anxiety and fear, certain peculiarities

of the motor system set in with marked muscular tension. Hallucinations and delusions often appear, which are usually of a religious character, incoherent and changeable. Consciousness is clouded or lost and thought disturbed, while the emotional attitude is generally sad or one of entire indifference. Soon a stage of stupor supervenes, in which the patient will not talk or answer questions, may not eat and requires to be fed artificially, remains in one position for long periods and becomes absolutely bestial in his habits. This lasts for varying lengths of time, alternating with remissions in which the sufferer regains more or less lucidity but does not become entirely normal, or he passes from a stuporous state into one of excitement of mind and body, after which he becomes progressively demented.

We have in addition to the mental symptoms, in many cases, marked physical signs, the more frequent being temperature disturbances, rapid, slow or irregular pulse-rate, disturbance of the arterial pressure, marked vasomotor and secretory disturbances, increased and decreased tendon reflexes, loss of weight, tremors of the tongue, facial muscles and extremities, increased mechanical irritability of the muscles, dilated pupils, excessive pupillary activity, leukocytosis and convulsive seizures.

The course of the disease as a rule is slow, extending over several years. All the cases of the paranoid form eventually terminate in dementia. In the hebephrenic form 25 per cent. of the cases terminate in complete mental annihilation, 17 per cent. become demented to a less degree and about 8 per cent. apparently recover. In the catatonic form remissions are frequent, lasting from a few hours to several years; 55 per cent. of the cases terminate in total dementia; 35 per cent. of the patients become demented to a less degree and 10 per cent. apparently recover.

For many years this condition has been ascribed to some endogenous intoxication, and the different internal organs have been interrogated, but with very indifferent success. Two Italian observers, Bernigni and Zilocchi, report degeneration in the thyroid and other glands, and Kraepelin also refers to changes in the thyroid gland in some cases. In 1907 Drs. H. J. Berkley and N. M. Owensby of Baltimore, while casting about for some rational basis for the treatment of this disease, observed a superficial resemblance between catatonia and exophthalmic goiter (Graves' disease), and were led to think of the thyroid gland as a causative factor in the production of this condition. Among the symptoms suggestive of increased or perverted thyroid activity were tremor, hyperidrosis, muscular spasm or rigidity, increased reflexes, leukocytosis, and loss of weight. After the failure of methods of treatment by drugs, and various glandular extracts, and a distinct intensification of the symptoms when iodine and thyroid preparations were used, it occurred to them to try the removal of a portion of the thyroid gland.

In June, 1907, permission was secured to operate in the Baltimore Insane Hospital at Bay View, on two patients, who were the subjects of advanced catatonia. The first patient was a girl aged 19, who after the usual prodromal symptoms, with religious delusions, became excited, unmanageable and destructive, and was committed to the hospital in March, 1907. She then became mute, restless, apathetic, catatonic and untidy in habits and dress, with mask-like expression, sweating and a leukocytosis of 20,000. Subsequently hallucinations supervened, with much excitement, sleeplessness and

* Read in the Section on Surgery of the American Medical Association, at the Sixty-first Annual Session, at St. Louis, June, 1910.

refusal of food. The second patient also presented about the same symptoms, with religious delusions, and excitement, subsequently becoming mute, with increased reflexes, hyperhidrosis, tremor, muscular rigidity and slight leukocytosis. This was a man aged 21. The operations were done by Dr. R. H. Follis, who removed about four-fifths of the right lobe of the thyroid gland in each case.

These patients exhibited a marked change in their mental condition within forty-eight hours and in the course of several months were restored to a condition of physical and mental soundness, and became again useful members of society. Two other patients operated on in November, 1907, improved more slowly, but eventually were restored to health; but in one case there was a recurrence of the symptoms two years later. The same physicians also operated in three cases at the Second Hospital for the Insane of Maryland, which were of longer duration and more advanced, but without beneficial result. In the case of a man aged 25, an inmate of the Sheppard and Enoch Pratt Hospital, who was mute, refused food, and remained in one position until moved by an attendant, and had been in this condition for four and one-half months, partial thyroidectomy was followed by most excellent success. The patient made a complete recovery and was seen by me one and one-half years subsequently, and seemed entirely rational and was following his usual avocation, that of a driver of an express wagon. All the above cases were reported by Dr. Henry J. Berkley.¹

The only other cases I have been able to find in the literature are those reported by Kanavel and Pollock of Chicago,² consisting of twelve patients suffering with the catatonic form of dementia præcox, who were submitted to partial thyroidectomy.

Dr. Kanavel reports his results as follows:

There was absolutely no result in any of the old cases. Of three patients operated on in the so-called favorable stage, two showed marked improvement, lasting, in one case, for two months and in the other, for six months. The third showed no change at all. The two who showed temporary improvement relapsed at the end of the periods mentioned, and are now practically in the same condition as before operation. The pathologic examination of the glands removed did not show changes favoring the diagnosis of thyrotoxicosis although the changes were compatible with it.

Kanavel concludes that while we cannot assume any distinct pathologic basis for ascribing dementia præcox to a hyperthyroidism similar to exophthalmic goiter, the pathologic picture cannot definitely exclude a perverted thyroid metabolism as a factor.

Dr. Berkley's conclusions are also very much in accord with those expressed above. He says:

The results of the histologic and chemical examinations have been inconclusive, as to whether or not we have to deal with a perversion of the secretion of the thyroid gland in catatonia. Nevertheless, it is possible from the symptoms that in catatonia we have a perversion of the secretion of that organ, and that partial thyroidectomy induces a return to the normal in the secretion of the remaining portion of the gland.

As a contribution to the literature of this subject, I append the following brief summary of five cases of patients operated on by surgeons connected with the University Hospital, Baltimore: Of these patients one died from acute thyroidism. Two were greatly improved for a considerable period, and then relapsed into their

previous condition. One was not materially benefited and has since been placed in an institution for the insane; and one improved but has been lost sight of.

This experience is not very encouraging; nevertheless I believe the following conclusions to be justified.

CONCLUSIONS

1. There seems to be some connection between the thyroid gland and the peculiar affection called catatonia.

2. Partial thyroidectomy in the early stages of this disease exercises a favorable and sometimes a curative effect on the condition.

3. In late stages of catatonia and in the other forms of dementia præcox, partial ablation of the thyroid is not followed by beneficial results.

4. The operation is attended with the usual dangers of thyroidectomy and should be done with as much care as in exophthalmic goiter, especially in regard to free drainage.

114 West Franklin Street.

THE INFLUENCE OF COLLOIDAL PROTECTION ON MILK *

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AND

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With the aid of the ultramicroscope which brings into visibility particles whose size approximates the theoretical molecular dimensions, it has been demonstrated that colloidal solutions occupy a sphere midway between coarse mechanical suspensions and true crystalloidal solutions. The slight Brownian movement of small suspended particles at the limit of visibility in the ordinary microscope (about $\frac{1}{4}$ micron), is insufficient to keep them afloat, and they gradually settle out of solution; but as the subdivision of the particles proceeds, this motion gradually increases in speed and amplitude, until it becomes so violent that the particles remain permanently afloat and in solution. Ultramicroscopic particles (ultramicros) as small as about 5 microns (the present limit of the ultramicroscopic visibility) describe an average free path of about ten times their own diameter in one-sixth to one-eighth of a second.

From a practical standpoint, colloids may be divided into the *stable* or *reversible* colloids or hydrosols, which do not readily coagulate and redissolve after desiccation at ordinary temperatures (e. g., gelatin, gum arabic), and the *unstable* or *irreversible* colloids or hydrosols, which exhibit contrary properties (e. g., pure colloidal metals and oxides). Most electrolytes cause the flocculation of fine suspensions and the coagulation of unstable colloids. Stable colloids are not only insensitive to most electrolytes, but they possess the striking and very important property, even if present in surprisingly small quantity, of being able to stabilize and protect unstable colloids from coagulation and permit them to redissolve after desiccation.

The accompanying diagram exhibiting the relation of suspensions, colloidal solutions and crystalloidal solutions, will serve to make clear what is above stated:

1. Berkley, Henry J.: Jour. Insanity, January, 1909

2. Kanavel, A. B., and Pollock, L.: THE JOURNAL A. M. A., Nov. 13, 1909, p. 1675.

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

The application of the simple principles of colloid chemistry to foods gives us a new and valuable insight into their behavior during digestion, for it is a well known fact that the digestibility or desirability of a food cannot be expressed solely by its chemical analysis, any more than such an analysis will express the difference between lamp-black, graphite and diamond, all of which the chemist would report as practically pure carbon.

From a colloid-chemical standpoint, the main constituents of milk may be classified as follows:

- In crystalloid solution { salts (such as NaCl, etc.)
sugar (lactose).
- In colloidal solution { casein—an unstable or irreversible colloid.
lactalbumin—a stable or reversible colloid.
- In suspension { milk fat.

It is possible that some of the fat may be in colloidal solution, for sodium oleate may be present, and this salt is a reversible colloid in aqueous solution.

protective action. We are also informed by Prof. H. Bechhold that these results have been confirmed by ultrafiltration experiments recently conducted by Dr. Grosser at the Krankenhaus, Frankfurt.

The subjoined table will show how milks are influenced by a difference in the ratio between the casein and lactalbumin:

Kind of Milk.	AVERAGE COMPOSITION				
	Cascin.	Lactalbumin.	Fat.	Behavior with Acid.	Behavior with Rennin.
Cow	3.02	0.53	3.64	Readily coagulates.	Readily coagulates.
Woman	1.03	1.26	3.78	Not readily coagulated.	Not readily coagulated.
Ass	0.67	1.55	1.64	.....	.....

It is interesting to note that the milks in the above table are arranged in order of their digestibility, which also corresponds with their relative colloidal protection. Thus Jacobi³ has stated that asses' milk has always been recognized as a refuge in digestive disorders in which neither mother's nor cow's milk or its mixtures were tolerated.

The addition of protective colloids to cow's milk stabilizes it and makes it act more like mother's milk when treated with acid and rennin. In fact, if sufficient protective colloid be added, coagulation of the casein in the stomach may be entirely prevented, or at least the coagula kept in a very fine state of subdivision.

The action of protective colloids is beautifully illustrated in the ultramicroscope, which enables us to see the individual particles of cow's casein in active motion and watch the course of their coagulation by acid, first into small and then into larger and larger groups, whose motion decreases as their size increases, until finally they sink out of solution in coagulated masses. If, however, some gelatin or gum arabic solution be added to the cow's milk before the addition of the acid, the casein particles continue their active dance and do not coagulate. In this connection it is interesting to note that the casein particles in mother's milk appear to be much smaller than those in cow's milk, probably because of the more highly protective medium in which they are formed and exist.

Although their method of action was not perfectly understood, protective colloidal substances have for years been used in the modification of cow's milk for infants. For over twenty years Jacobi has advocated the addition of gelatin and gum arabic to cow's milk and infant's diet,⁴ and the use of gruels, dextrinized starch and similar reversible colloids is familiar to all. It is interesting to note that sodium citrate, which is largely employed as an addition to cow's milk, acts as a protective colloid, and when going into solution actually exhibits actively moving ultramicros in the ultramicroscope, a fact which indicates its colloidal condition.

In addition to stabilizing the casein, protective colloids in milk have a very important influence on the milk fat. In the first place is to be considered the emulsifying and emulsostatic action of reversible colloids,⁵ which may be demonstrated by adding ferric chlorid to an ordinary emulsion of cod-liver oil.⁶ This coagulates the emulsostatic protective colloid and the oil separates out. Of much greater importance, however,

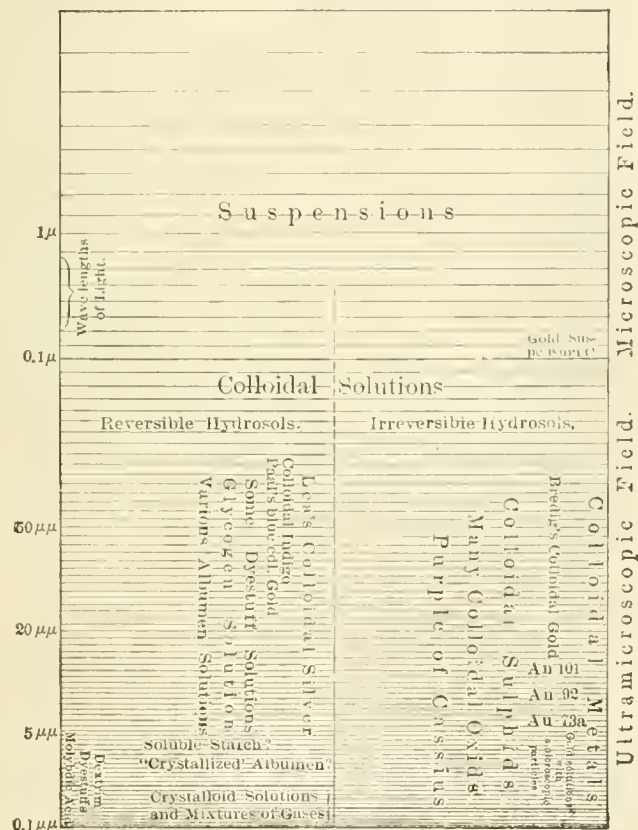


Diagram showing classification of colloidal solutions¹ according to the size of the particles contained in them and according to their behavior on desiccation.

Most formulas and recipes for modifying cows' milk for infant feeding, and for that matter, many analyses, combine the percentages of lactalbumin and of casein under the collective title of "total proteins," thereby obscuring the highly important fact that the lactalbumin stabilizes and protects the casein from coagulation by acid and rennin, as has already been demonstrated.²

Some of our recent experiments have demonstrated that after digestion with pepsin, lactalbumin loses its

1. Zsigmondy, R.: Colloids and the Ultramicroscope (English trans. by L. Alexander; Zur Erkenntnis der Kolloide), John Wiley & Sons, New York, 1909.
2. Alexander: Ztschr. f. Chem. u. Ind. der Kolloide, 1909, iv, 86; *Ibid.*, 1909, v, 101; *Ibid.*, 1910, vi, 197; Jour. Soc. Chem. Industry, 1909, xxviii, 280; Jour. Am. Chem. Soc., 1910, xxxii, 680; Alexander and Bullowa: Arch. Pediat., 1910, xxvii, 18.

3. THE JOURNAL A. M. A., Oct. 10, 1908, p. 1216.
4. Jacobi, A.: The Intestinal Diseases of Infancy and Early Childhood, 1889.
5. Moore and Krombholz: The Relative Power of Various Forms of Protein in Conserving Emulsions, Brit. Jour. Physiol., 1908, xxii, 54.
6. In the churning of butter, the protective action of the lactalbumin is overcome by mechanical agitation, which frequently coagulates colloids.

is the result of stabilizing the casein, for it is a well known fact that casein in curdling carries down mechanically most of the milk fat present,⁷ yielding a greasy, fatty curd which is very difficult for the digestive juices to work on.

It is evident, then, that there is something to be said on both sides of the much-mooted question as to whether fat or casein is responsible for certain forms of indigestion, for apparently both have to do with the formation of the "fat stools." So-called "fat indigestion" therefore may be, and in many cases probably is, caused by insufficient colloidal protection of the casein, and may in such cases be met by adding protective colloids rather than by reducing the percentage of fat to an undesirable minimum. Indeed, cases of "fat indigestion" occur in which the quantity of fat in the cow's milk fed has been reduced to 2 per cent.

The most conflicting opinions have been expressed regarding the desirable percentages of protein and fat in cow's milk as modified for infants. Thus Jacobi⁸ states that a high percentage of protein does not improve a milk's digestibility (therein disagreeing with Dr. Walls, of the Northwestern University), and he therefore attributes the digestibility of asses' milk to its low fat content.

But, on the average, mother's milk contains more fat than the less digestible cow's milk; and even if cow's milk be so modified that it contains the same percentages of "proteid" and fat as mother's milk, it is still not so readily digested. Jacobi suggests that a difference in the fat itself is a factor of importance, and this is undoubtedly so, for S. Levites has shown⁹ that the most fluid fats are most readily digested. The main source of these conflicting opinions, however, lies in the rather unhappy term "total proteids," which as used, includes substances with such different properties as casein, lactalbumin, gluten, and broth extractives, and thus conceals the protective action that the reversible colloids exert on the coagulable casein.

Colloidal protection may be accomplished by the use of animal proteins (gelatin, albumin), vegetable proteins (gluten) or carbohydrates (gum arabic, tragacanth, Irish moss), so that there is wide choice in clinical practice. The dextrinized gruels now used combine the protective colloids gluten and dextrin. Under the ordinary conditions of digestion, casein is coagulated only in neutral or acid solution; it is quite evident, therefore, that alkalis such as lime water and bicarbonate of soda, may by their antacid action, partially or entirely inhibit the coagulation of casein. Quite different, however, is the case of sodium citrate which acts as a protective colloid, as before stated.⁹

CONCLUSION

Increasing the colloidal protection of the casein in cow's milk by the addition of suitable protective colloids tends to improve the digestibility and absorption of both the casein and the fat, and to prevent the formation of indigestible curds and their consequences.

235 West One Hundred and Second Street—62 West Eighty-seventh Street.

7. For an excellent exposition of the Czerny-Keller views on this subject, see Scherschewsky, Jos. W.: *Infant Feeding*, Bull. 11, Hyg. Lab. V, S. P. H. and M. H. Service, p. 658.

8. Hoppe-Seyler's *Ztschr. f. Physiol. Chem.*, 1906, xlix, 273.

9. Gouzon, *Arch. Internat. de physiol.*, 1908, Nos. 1 and 2, or Bordet-Gay: *Studies in Immunity*, p. 423, John Wiley & Sons, New York, 1909.

ABSTRACT OF DISCUSSION

DR. FRANK S. CHURCHILL, Chicago: I think that Mr. Alexander cannot be familiar with the widespread habit among us of "splitting" proteids. In feeding a fairly healthy baby we do not have to split them, but in the case of babies of limited casein digestive power we have to use split proteids, doing it by substituting whey. As a clinician I want to make that statement.

DR. E. H. BARTLEY, Brooklyn: Does milk sugar pass into a colloidal or into a crystalloidal state? It is known that milk sugar when first dissolved will give a certain rotation in the polariscope, which changes gradually for twenty-four hours and then this change ceases.

DR. THOMAS S. SOUTHWORTH, New York: All the information we can get of a collateral order which proves or disproves the theories on which we have been working is of the greatest value to the pediatrician. I hope Mr. Alexander will correct the impression, which he probably did not mean to convey, that it was possible by the protection of colloids to prevent entirely the coagulation of casein. We know as clinicians that though it interferes with it, we may still get pretty large curds in stools when such things have been added to the food.

MR. JEROME ALEXANDER, New York: I was aware of the term "split proteid," and of its significance, but in a paper of this kind I could not go into all the points involved. There is a great difference in the relative protective action of the various colloids. Not only does each substance vary, but it varies according to the particular medium in which it is dissolved. Gelatin is the most efficient of all protective colloids; but as they vary considerably in their protective action, the physician must find out from experience which is the most efficient in any particular case. Whether milk sugar goes into colloidal or crystalloidal solution is a matter of small consequence. It is possible that its particles undergo a progressive decrease in size and there is no way of saying where colloidal solution ends and crystalloidal solution begins. Colloidal protection will not necessarily prevent the curdling of casein entirely, for coagulation would depend on the acidity of the gastric juice, which in turn would be influenced by the sugar content or whatever would tend to produce lactic acid. When we increase the protection of casein in cows' milk we simply tend to make it more difficult to coagulate its casein. Whether the casein will coagulate in the stomach or not we cannot certainly fortell, but so far as the test tubes show it is much less sensitive to coagulation by acid or rennin.

IS ACUTE CHOREA AN INFECTIOUS DISEASE?

ALFRED GORDON, M.D.
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The frequent (though not constant) association of chorea with acute inflammatory rheumatism is a well-established fact. Whether the infectious element of the latter (*Micrococcus rheumaticus*, streptococci) or the toxins elaborated by the suspected micro-organism are the same etiologic causes of the acute chorea it is impossible as yet to ascertain. That other infectious diseases may be followed by attacks of chorea is also well known. Whooping-cough, measles and influenza have been reported as immediately preceding the onset of chorea. All these facts are highly presumptive of the contention of some authors that chorea is infectious in nature. This presumption gains a still more solid ground if we recall the bacteriologic work of Pianese, who found in the spinal cord of a choreic individual a bacillus with the cultures of which he made successful inoculations. Micro-organisms in the brain have also been found by other authors.

While the view of infectious origin of acute chorea is highly possible, nevertheless Charcot's and Joffroy's

original opinion must not be lost sight of, viz., the existence of an inherent degenerative predisposition of the motor apparatus in choreic individuals. This predisposition is brought in evidence as soon as some special cause disturbs the latter. This cause may be any infectious disease.

The observation which I wish here to put on record is in line with the "infection" view of the pathogenesis of chorea. The only difference lies in the fact that instead of being a generalized infectious disease, the cause apparently lies here in an infectious localized focus.

History.—A boy, aged 10, through neglect of his teeth and exposure began to suffer severe pains at the level of lower molars on the left side. The gum became swollen, the jaw at the same level was extremely tender to touch. There was a very marked thickening of the lower maxilla, and the child developed fever and excruciating headache. The pain and tenderness of the jaw increased in intensity. Gradually an abscess formed. An incision was made on the sixth day and a large amount of pus was evacuated; microscopic examination showed the presence of streptococci and staphylococci. The subjective symptoms gradually subsided. While the wound kept on discharging, the mother noticed that things would drop out of the boy's right hand; then he would draw up his right shoulder, wink his eyes and make faces. Gradually the entire body became affected; he could not stand still. The movements were sudden, incoherent and irregular.

Treatment and Course of Disease.—At that stage of the disease, viz., eight days after the onset, the boy was brought to me. It was a case of typical Sydenham's chorea. The remarkable history of the case in regard to the chronologic relationship between the pus formation and the development of choreic movements led me to the thought that there was probably also a causal relationship between the two conditions, and that therefore the clearing up of the nervous phenomena would probably depend on the removal of the focus of infection. Accordingly, energetic measures were taken to remedy the latter condition. The decrease of the purulent discharge became more and more noticeable. The choreic movements did not decrease at first with the same rapidity, but later became less and less marked. Finally the wound healed up. The nervous phenomena continued for a period of six days and eventually have totally disappeared. The entire duration of the chorea was eighteen days. No medication whatever was administered and the whole attention was concentrated on the removal of the focus of infection. General directions, however, were given as to a light diet and removal of stimulants such as tea and coffee.

The parallel development of the localized inflammation, with the development of an abscess and the appearance of typical choreic movements at the time of formation of pus; then later on the gradual disappearance of the purulent discharge with its streptococci and staphylococci and marked amelioration of choreic movements; finally the disappearance of muscular twitchings when the infectious focus was removed—all these facts make the case highly interesting and instructive from the standpoint of the pathogenesis of chorea. This case can be placed alongside of cases with an immediately preceding or accompanying history of acute inflammatory rheumatism, whooping-cough, measles, influenza, etc. The etiologic factor presents itself here, clinically at least, with far more evidence than in the cases with a history of an infectious disease. Of not smaller importance is the therapeutic aspect of the case.

In further support of an infectious origin of chorea I may mention a case seen very recently with Dr. Helen P. Proctor.

History.—A girl of 13 was suddenly taken with chills, fever, headache, vomiting, and general malaise. On the third day, when the above symptoms began to subside, choreiform move-

ments were noticed in the right hand. Gradually the latter spread over the entire body, and at the time the patient was seen by me, viz., twelve days after the onset, she presented a typical form of acute chorea. The irregular and incoherent movements, however, were more marked than in an ordinary case. The twitchings were so violent especially during voluntary acts, that she was unable to sit up or stand up. Bed-ridden position was the most comfortable one for the patient.

The few symptoms immediately preceding the onset of the chorea are identical here with the prodromal manifestations of acute anterior poliomyelitis, which is undoubtedly an infectious disease.

The infectious onset of this case is self-evident and perhaps the severity of the chorea is in keeping with the severity of the infection; the girl indeed complained of very severe headache.

The few facts brought forward speak in favor of some infectious element which irritating the motor tract or motor area produce the characteristic phenomenon of the malady. It is true that in many cases no etiologic cause can be detected in chorea. On the other hand, no apparent cause can be brought out in some cases of acute anterior poliomyelitis and yet being convinced of the infectious nature of this disease, we suppose that the prodromal symptoms are sometimes so slight that they pass unnoticed by the little patient's relatives. It is, possible, therefore, that a similar prodromal condition exists sometimes also in chorea. We do know that infectious diseases may be followed by chorea, also that a local infection may be followed by or develop simultaneously with chorea, as the first of my two cases demonstrates it. The experimental investigations of Landsteiner and Popper, Leiner and Wiesner, Landsteiner and Levaditi, Strauss and Hunton, Flexner and Lewis with regard to transmissibility of anterior poliomyelitis in higher animals are paving the way to a new therapeutic serum.

The same endeavors may perhaps be directed toward the disease discussed in this brief clinical note. The association of an infection, generalized or local, with chorea, as related here, is more than a mere coincidence. Close observation will perhaps reveal in more than in a few cases a prodromal syndrome which happened to pass unnoticed because of the inconspicuousness of the manifestations exactly in the same manner as we learned from experience to consider the onset of acute poliomyelitis. If we wish to carry the pathogenetic analogy between these two affections further, we must turn our attention to pathologic findings. Autopsies in cases of acute chorea are rare. One of the most complete pathologic reports is that of Hudovernig.¹ He found marked vascular lesions in the central nervous system consisting of dilatation of capillaries, perivascular infiltrations with round cells and edema. Cellular changes are found in the cortex and they consist of a glandular degeneration. Vacuolation is seen in the cells of the cornu ammonis. There is also a slight ependymitis and leptomenigitis. He also found a large number of special corpuscular bodies (*Choreakörperchen*) disseminated in the vicinity of blood-vessels and especially in the medulla and pons at the level of the pyramidal pathways. Hudovernig's interpretation concerns chiefly these corpuscles which according to him have an irritative action on the pyramidal tracts and thus produce choreic movements. Whether the corpuscular bodies are specific of chorea is difficult to say. Nevertheless the presence of vascular changes typical of an inflammatory state; also the pres-

1. Arch. f. Psychiat., xxxvii, 1, 1903

ence of cellular changes in the cortex analogous to those in acute poliomyelitis are interesting from our point of view. If the virus of acute poliomyelitis has a special predilection for the cells of the anterior cornua in the spinal cord and sometimes also for the cells of the nuclei in the medulla—in chorea the etiologic agent (to speak cautiously at present) has a predilection for the cells of the cortex and especially in the motor area and not infrequently also for the cells of the nuclei in the medulla. The latter assertion is based on the frequent involvement of the facial muscles and trapezius (seventh and eleventh nerves), also of the respiratory muscles (respiratory center in the medulla), which was so well emphasized recently by W. W. Graves.²

The conclusion to which the few considerations lead is that similarly to acute poliomyelitis, acute chorea is probably associated with some infectious element. The onset of the disease and its pathologic anatomy render the two affections analogous. The fundamental difference lies in the fact that in one disease the motor cells are being destroyed, hence the paralysis, in the other disease the motor cells undergo irritation, hence the twitching. The destructive effect in the former and the irritating effect in the latter point to a difference in the virus in the two affections. As a final feature of interest in this connection may be mentioned the experiments of P. Guizetti.³ He injected cultures of staphylococci under the dura mater and in both carotids in dogs and obtained spasmodic movements partly resembling chorea. It is possible that a certain variety of staphylococcus is specific in chorea, but so far it has not yet been determined. Continuous work in this direction may eventually lead to the discovery of the etiologic factor and, therefore, of a therapeutic serum.

1430 Pine Street.

UNUSUALLY QUICK RASH FOLLOWING INJECTION OF DIPHTHERIA ANTITOXIN

LOUIS NEUWELT, A.B., M.D.
NEW YORK

The usual length of time, elapsing between the subcutaneous injection of a dose of diphtheria antitoxin and the following skin reaction is given by various writers as varying between twenty-four and seventy-two hours. The following case showed an unusually quick reaction:

History.—M. K., boy, aged 6, was seen by me twenty-four hours after he was taken ill. I found him in bed with temperature 101.4 F., pulse 104, respiration 23, and complaining of difficulty in swallowing. A pharyngeal examination showed a typical picture of diphtheritic exudate on both tonsils and spreading partly up the pillars of the fauces. A later bacteriologic test by the New York City Department of Health confirmed the diagnosis of diphtheria. I immediately gave a subcutaneous injection of 3,000 units of diphtheria antitoxin of New York City Department of Health into the tissues of the abdominal wall, and after a few minutes left the patient. I was gone about ten minutes when I was recalled by the mother, who told me that the boy's body had "broken out all over." I returned and found the boy covered with urticarial wheals

varying from the size of a lentil to that of a bean. This rash lasted for about thirty-six hours, gradually abating in severity and the boy finally made an uneventful recovery.

2424 Seventh Avenue.

ESSENTIAL HEMOSPERMIA

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Hemospermia, or blood in the seminal discharge, occurring during the course of an acute inflammatory condition involving the posterior urethra, or adnexa, is sufficiently common as to excite no especial interest.

Ricord believed the source of such bleeding to be the testicle and epididymis. Nelaton, among others, thought the condition to be due to urethral stricture. The present belief is that when the seminal discharge occurring during the course of an acute urethritis is blood-stained, the site of the bleeding is usually the prostatic urethra.

It is well recognized, however, that the blood may come directly from the vesicles as a symptom of a severe acute vesiculitis. Dr. Eugene Fuller¹ says that where the mucous surface of the vesicles is granular, bleeding may be free, occasionally producing severe spermatic colic by overdilatation.

Utzmann differentiates the source of the bleeding by assuming that when the blood comes from the prostate, or prostatic urethra, the dried stains on the linen appear irregularly colored, while in bleeding from the vesicle, the stains appear evenly colored, showing an intimate mixing of the blood with the semen. Much the same idea has been advanced by Guyon.

Such fine-drawn distinctions appear uncalled for, since it is not at all difficult to obtain separate prostatic and vesicular secretion by careful rectal stripping of these regions.

My object in writing this paper, however, is to report briefly two cases which recently came under my notice, and which, for want of a better designation, I have called "essential hemospermia."

Bleeding from the seminal vesicles without any assignable cause is referred to so rarely, and then so briefly, in medical literature as to give the impression that it must be of very unusual occurrence.

Tuberculosis, syphilis, and malignancy are given as possible etiologic factors in obscure cases of vesicular hemorrhage. But we must recognize a certain proportion of cases in which no cause can be discovered and in which prompt and permanent recovery negatives any serious disturbance.

R. Cantalupo² reports in detail a case of bleeding which he attributed to sexual overindulgence. But the common tendency to excesses among men, and the rarity of hemorrhage from the healthy vesicle, would seem to cast doubt on excessive coitus as a cause. Some writers (Gulliot, Robin) have on the other hand attributed bleeding to extreme continence.

A plausible explanation is that advanced by Linzar, who described it as a hemorrhage *ex vacuo*. During ejaculation, the sudden emptying of the long-distended vesicle, he says, relieving the accustomed support on the

1. Personal communication.

2. Cantalupo, R.: Sull'emospermia non-inflammatoria. Arch. internaz. di med. e chir., Napoli, 1897, xliii, 165.

2. Graves, W. W.: A Study of the Respiratory Signs of Chorea Minor, THE JOURNAL A. M. A., Jan. 30, 1909, p. 364.

3. Riv. sperimentale di frenatria, December, 1901.

blood-vessels, may determine a complete rupture of the vessel coats. Such bleeding is similar to the hemorrhage which occasionally occurs on too suddenly emptying the bladder after prolonged retention. In one of my cases, at least, hemorrhage *ex vacuo* would seem to offer a plausible explanation for the bleeding.

CASE 1.—The patient, 27 years old, had been well of an obstinate anterior urethritis for about one month. Because of this infection he had been continent for several months, during which time he had had no seminal emissions. On coitus he noticed the discharge was deeply blood-stained, and consulted me the following day. Alternate stripping of the prostate and vesicles showed the prostatic secretion and that from the right vesicle to be normal. The expressed contents of the left vesicle showed considerable fresh blood—no pus.

Treatment consisted of stripping the vesicle every other day. One week later it showed only a trace of old blood. Seen repeatedly since, he has remained well.

CASE 2. The patient was a Protestant minister, aged 42, married three years, one child. He had no venereal history, had never indulged in sexual excesses, and knew of no cause to which to attribute his trouble. For five or six weeks before, he noticed that the seminal discharge, occurring either while asleep or during coitus, was deeply stained with blood. Nightly emissions had been of frequent occurrence since bleeding was first noticed (probably due to the distention of the vesicle with blood).

Rectal examination showed the prostate and left vesicle to be normal. The region of the right vesicle was slightly tender to pressure and the expressed secretion was deeply blood-stained, but contained no pus. Massage was practiced for six weeks, at the end of which time only a trace of old blood could be expelled. Six months later he reported himself as being altogether well.

124 Baronne Street.

HEMATOMA OF VULVA DURING LABOR

C. E. MOORE, M.D.
WILSON, N. C.

History.—Mrs. F., primipara, had been in labor about four hours, dilatation of the cervix had progressed normally and she was in second stage with everything pointing to a speedy delivery. The pains were rather hard, accompanied by a great tendency to bear down, so I had commenced to give chloroform with each pain. About ten minutes after my last examination, she began to complain of a sharp cutting pain in the right labium. On examination I found a tumor about the size of an orange. In pressing my hand over it to determine whether or not it was a hernia, I noticed at once that it was rapidly enlarging.

Treatment.—Recognizing what I had to deal with, I pushed the chloroform and had the nurses prepare things for opening and stopping the hemorrhage, which had now reached the size of a child's head, and had, indeed, very much the appearance of a child's head just delivered. At this stage the tumor ruptured, producing a ragged rent about two and a half inches just at the junction of skin and mucous membrane and I am quite sure that I removed more than three pints of clotted blood. The cavity was packed with sterile gauze. I then found the child's head pressing against the perineum and in very short time the infant was delivered.

Remarks.—The patient had an uneventful puerperium without rise of temperature. The cavity left by the hematoma was irrigated every day and in about ten days there was very little sign left of what seemed at the time to be a serious condition.

PURPURA HEMORRHAGICA IN PERTUSSIS

H. W. KNIGHT, M.D.
RUTLAND, PA.

The fact that numerous contagious diseases have less severe manifestations as a rule during warm months has led to the popular opinion that it is a good thing for a child to contract such diseases as scarlet fever, measles, mumps, and whooping-cough when the mild form prevails. Physicians owe it to the public to correct this erroneous impression. The following case which developed a rare complication illustrates the error of this opinion.

History.—F. M. W., girl, aged 4, residing in the country, previously a robust healthy child, contracted whooping-cough about June 1, 1910; the disease continued for six weeks. The weather was ideal. During the second week of the disease there developed areas of purpura hemorrhagica due to the mechanical cause. Every time there was a severe paroxysm of coughing, either the spot would enlarge or a new focus of hemorrhage would appear and then gradually enlarge with subsequent paroxysms. These hemorrhagic areas were distributed especially over the arms, legs and back. Some spots appeared in the groins and one on the face. They were as sensitive as if due to contusion. When the whooping-cough yielded the hemorrhage stopped and gradually the areas resumed the normal aspect. The heart, which at the beginning of the disease had a normal action, has been left with a valvular lesion which will be a permanent menace to the child's life. The resistance of the child to disease has been lowered; and this, I believe, is the case with every contagious disease no matter how mild.

Therapeutics

ARTERIAL HYPERTENSION

Dr. Arthur R. Elliott, Chicago (*American Journal of the Medical Sciences*, July, 1910), so sensibly discusses this subject of ever-increasing importance that it deserves more than a passing notice. Increased blood tension which is now early recognized and actually measured is the forerunner of all that may happen to a well man. In other words, most other diseases are caused by accident, it may be medical accident or surgical accident, and even pneumonia is a medical accident. Increased blood pressure is an indicator of what is really going on inside of a man, and represents primarily the circulation of irritants or over-stimulation from nervous excitement and tension. Whichever be the cause, the etiologic factor must be removed or the condition will sooner or later cause cardiovascular-renal disease with its varying serious sequelæ. The highest blood pressure occurs in renal insufficiency, and the greater the insufficiency or the nearer uremia, the higher the tension. If an actual arteriosclerosis is present the tension may be apparently high but actually low.

Elliott does not discuss the nervous side of hypertension; probably he thinks in this rapid age it is useless to discuss lowering such tension. The only possible successful method of lowering this kind of tension is to urge such a patient to go to a quiet place for a complete and absolute change of duties and environment. Nothing else, in this age, is successfully advised; in other words, any other advice to remove nervous excitation is not taken.

Elliott's paper treats mostly of the irritants absorbed from the intestine as the cause of hypertension, and of course anything that modifies the absorption of these irritants will lower the blood pressure. The diet, then, is the first thing to be regulated, and Elliott urges that in regulating the diet common sense be used and the patient be individualized. Certainly any laboratory dogma which simply declares that flesh protein must be absolutely withdrawn from the diet and vegetable protein substituted, and which often does not carry with it limitation of vegetable protein or carbohydrates, is a therapeutic mistake. No one disputes the fact that the amount of meat eaten by these patients who have hypertension is generally too abundant. On the other hand, a certain amount of meat, either limited to once a day or a small amount twice a day, is to most men, who must labor either mentally or physically, more likely to meet the needs of their organisms and prevent muscular weakness than is a vegetarian diet. Anything that is found to cause intestinal indigestion more than any other article of food should be prohibited, but excessive amounts of vegetable proteins, starches, and fruits to make up for the withdrawal of meat is generally inadvisable and often produces harm. Whether or not the water intake should be reduced depends on whether the heart is sufficient or not. With a sufficient heart a patient should drink plenty of water; with an insufficient heart it should be restricted. Elliott advises that these patients learn to limit their intake of salt before it is necessary to withdraw it absolutely from their diet. This means not extra salting the food that comes on the table. This is a wise suggestion, because as soon as edemas occur from renal insufficiency, and even from cardiac insufficiency, the amount of salt in the food should be limited. A successful diet is shown not only by a reduction of the blood pressure, but by a stout patient losing some of his weight, and a thin patient, if not actually gaining in weight, not losing any more.

Elliott believes, as do we, that in spite of the belief of some clinicians that increased blood pressure is compensatory and is Nature's method of taking care of the individual and properly supplying blood to the various parts of the body, that especially when there are symptoms caused by the increased pressure, and even if there are no special symptoms, that it is better and advisable to reduce the pressure. The symptoms positively calling for this treatment are dizziness, full-headedness, short breath, a general feeling of cardiac oppression; these on least exertion and perhaps without exertion.

Elliott urges, and it certainly should be emphasized, that in the first attempt to reduce the blood pressure with drugs such as the nitrites, but small doses should be used and the result very carefully watched. A pressure that is excessive may be so quickly reduced as to cause an unpleasant and even serious syncope by lowering the blood pressure at the base of the brain. He advises after the administration of a small dose of nitroglycerin, from 1/200 to 1/100 of a grain, that the blood pressure be watched for half an hour. If it causes a decided fall of blood pressure, it shows that the blood vessels are not sclerosed and are able to respond to the dilator. The amount of reduction thus found will be an indicator of the proper dose, and of the frequency with which it should be given.

If there are signs of cardiac insufficiency which must come sooner or later in every instance of continued high blood pressure, vasodilators should rarely be used at all, except in emergencies of cardiac pain. Elliott thinks

sodium nitrite in small doses, from 0.03 to 0.20 gram (1/2 to 3 grains), three or four times in twenty-four hours, is the best nitrite to use. It certainly acts longer than does nitroglycerin. On the other hand, it sometimes irritates the stomach. It is astonishing how well nitroglycerin, administered three or four times in twenty-four hours, reduces the blood pressure when the arteries are not seriously diseased, and even a dose as small as 1/400 of a grain, given three or four times a day, will often cause a positive lowering of the pressure with an improvement of all symptoms.

Various physical methods of reducing pressure by baths, hot air, and graded exercise have been so recently referred to in this department that they need only be mentioned here.

If there are signs of an insufficiency of the heart which, as above stated, must occur sooner or later to these patients, vasodilators would rarely be needed, and small doses of digitalis will certainly do good and will rarely raise the blood pressure too high. If there is renal insufficiency and actual renal disease some other drug than digitalis should generally be used, such as strophanthus.

If physical signs of cardiac weakness are not in evidence, the heart may still be insufficient, as will be readily shown by taking the blood pressure after slight exercise. If with increasing rapidity of the heart from the exercise the blood pressure either does not rise at all or rises but a moment to fall below what it was when the patient was at rest, the heart muscle is surely insufficient. Elliott urges that such an examination be made before it is decided that vasodilators are indicated. Under these circumstances, with a heart impaired in its ability to do extra work and yet not so impaired that edema or other signs of lack of compensation are present, the best treatment is a combination of small doses of digitalis and nitroglycerin. This, with a corrected diet and the interdiction of any excessive or sudden exercise, and the establishment of such graded muscular exercise as will increase the muscle and surface circulation, will often restore a perfect compensation.

However well a patient with hypertension may be, he should be cautioned against any sudden spurt of muscular exercise or any prolonged severe muscle strain.

ANAPHYLAXIS IN ITS RELATION TO TREATMENT

It is an interesting and instructive psychologic study to observe the various opinions formed of therapeutic measures by different practitioners. For instance, to most men who had watched several children with diphtheritic laryngitis progress to what experience taught was inevitable death, the first case snatched from such a pitiable fate by the use of diphtheritic antitoxic serum was sufficient to bring conviction that the new remedy was a wonderful addition to our resources. Statistics of a series of cases was not a necessary preliminary to the adoption of the remedy. On the other hand the observation of an occasional sudden death after the use of the new remedy was ample demonstration to some physicians that it was a dangerous thing and should not be used. Later studies have shown why sometimes a fatal result followed the use of this generally beneficent remedy.

The hypersensitiveness of some patients from inheritance or from idiosyncrasy to germ diseases, toxins, and serums has been termed anaphylaxis.

In a paper read before the Johns Hopkins Medical Society, the Director of the Hygienic Laboratory, U. S. Public Health and Marine Hospital Service, Dr. John F. Anderson (*Bulletin of the Johns Hopkins Hospital*, July, 1910), has presented this subject in such a clear manner that a brief abstract of the paper will be of value to the clinician.

Since the seventeenth century it has been known that the blood of certain animals is poisonous to man when injected into his circulation. It has been found later that the blood serum of an animal of one species is often poisonous when injected into an animal of another species. The serum of the horse and donkey to a large extent does not possess this poisonous quality. In some cases, however, the injection of horse serum into man is followed by a combination of symptoms which has been described by von Pirquet, and called by him the "serum disease." In rare instances the injection of horse serum into man has been followed by sudden death.

Experimenting with guinea-pigs it was found that horse serum when injected for the first time is comparatively innocuous. If, however, a dose of 0.001 c.c. of horse serum is injected, and after waiting fourteen days a second larger dose is administered, a fatal result almost invariably follows. Other proteins such as egg white or milk act in the same way. This phenomenon is interpreted as meaning that "the first injection of the foreign protein has so changed the mechanism of the animal's organism as to render it very susceptible to the second injection."

Anaphylaxis is a name coined by Richet from two Greek words *ana* against, and *phylax* guard, or *phylaxis* protection, to indicate the opposite condition to that indicated by prophylaxis, which means preventive of disease. But the former term is somewhat misleading, for the phenomena to which it is applied do not act against the protection of the body against disease, but, on the contrary, often constitute "an important step in the protection of the organism against a certain large class of infections."

Anderson points out that the condition of anaphylaxis may be transmitted from the mother, or may be acquired, and also that it may be brought about by the introduction of any strange protein into the body. He cites as a well-known clinical instance of anaphylaxis that induced in an individual by a second vaccination. In a primary vaccination the period of inoculation is about four days, and then the local symptoms appear, and also more or less constitutional disturbance. In a vaccination following a successful vaccination after several months "the period of inoculation is much shortened, and the clinical reaction very much lessened. The power to react has been so changed that instead of an incubation period of four days, we have an incubation period of twenty-four or thirty-six hours. This acquired power of immediate response is an evidence that protective bodies have been formed within the organism; but there is no absolute immunity in this class of infections though, on account of the power of immediate reaction, the individual is protected.

"Other well-known clinical instances of anaphylaxis are the tuberculin and mallein reactions in tuberculosis and glanders. Neither of the bacterial products is harmful in moderate amounts to a healthy individual, but a person suffering from tuberculosis or glanders will respond to a very small amount of tuberculin or mallein respectively."

Recurring to the experimental studies on guinea-pigs, it was determined that "the toxic action following the injection of the serum is due to a protein in the horse serum and is entirely independent of the antitoxic properties of the serum. It would be exceedingly unfortunate if the studies on anaphylaxis should in any way prevent the usage of diphtheria antitoxin, or any other therapeutic serum, when it is indicated."

"The symptoms following the injection of horse serum into a susceptible guinea-pig are exceedingly characteristic." They appear rapidly, and consist of restlessness, distress, respiratory embarrassment, scratching of the mouth, coughing, sneezing, rapid and irregular respiration, deep inspiratory efforts with sinking of the upper part of the sternum, low blood pressure, paralysis, convulsions and death. The heart continues to beat after respiration has ceased, sometimes for thirty minutes.

As antidotes to this condition have been suggested atropin sulphate, chloral hydrate, oxygen, and adrenalin.

It has been found that guinea-pigs could be "sensitized" by feeding them with the foreign protein for several days. After the appropriate interval, fourteen days, they will react to an injection of the protein.

It may be through some such action as this that "certain individuals have a peculiar idiosyncrasy for certain articles of diet; also, why certain individuals who have never previously received an injection of foreign protein should be so acutely sensitive to a first injection of horse serum." The toxicity of the serum does not have as much influence as the susceptibility of the individual in determining an untoward result.

It has been noted "that many of the cases of sudden death following the first injection of serum in man have been in asthmatics or in persons who have an idiosyncrasy to horses. That is, there are certain individuals who show peculiar symptoms, sometimes resembling hay fever or asthma, when in the vicinity of horses or horse stables; and these individuals are the ones who are so extremely susceptible to a first injection of serum. The knowledge of the fact that the injection of horse serum into such persons is a danger which must certainly be taken into consideration in the use of antitoxin."

Finally it should be remembered that the transmission of anaphylaxis takes place through the mother, and not through the father, and that a child of a tuberculous mother is very rarely born with the seeds of the disease in its system, but that there is transmitted from the mother to the child a tendency to the disease.

An Organism Isolated from Water, Agglutinated by Typhoid Serum.—W. H. Frost (Bull. No. 66, Hyg. Lab., U. S. P. H. and M.-H. Service) has isolated from the water of the Potomac River after filtration an organism which he named *Pseudomonas protea* which has the property of being agglutinated quite constantly by the serum of typhoid patients. The agglutinins which produce this effect are not entirely identical with those agglutinating the typhoid bacillus. The results of absorption experiments indicate that the agglutination of *Pseudomonas protea* by specific typhoid agglutinating serum is affected by combination with a portion of the specific typhoid agglutinin; that it is therefore a "group" agglutinin. Animals injected with cultures of *Pseudomonas protea* develop agglutinins for this organism, but do not develop agglutinins for *B. typhosus* or other organisms of the colon-typhoid group. The organism is agglutinated by a larger percentage of cases than is the *B. typhosus*, the difference being especially marked in the earlier stages of the disease. The serum of typhoid fever patients often agglutinates this organism in higher dilutions than it agglutinates *B. typhosus*. The organism is not found in Potomac water before filtration.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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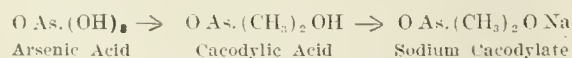
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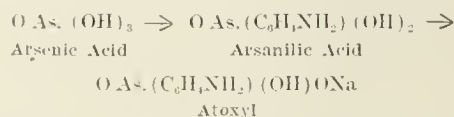
SATURDAY, OCTOBER 1, 1910

"ARSENO-BENZOL"—"606"—"ARSEN-PHENOL-AMIN"

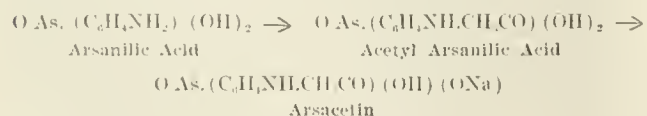
The intense interest shown in the new remedy, "arseno-benzol," for the treatment of syphilis—Ehrlich and Hata's "606"—as well as a revival of interest in the use of sodium cacodylate as shown by A. Heym,¹ and more recently by J. B. Murphy,² makes opportune a discussion of the chemical structure of "606," sodium cacodylate and of atoxyl and its acetyl derivative, arsacetin. Sodium cacodylate is the sodium salt of cacodylic or dimethyl-arsenic acid, which differs from arsenic acid by replacement of two hydroxyl groups by two methyl groups. Thus:



Sodium cacodylate, as described in *New and Non-official Remedies*, is a relatively permanent salt of arsenic acid quite soluble in water and faintly alkaline towards litmus but neutral toward phenolphthalein. Atoxyl is sodium arsanilate, the sodium salt of arsanilic acid. Arsanilic acid differs from arsenic acid in that one hydroxyl group of the arsenic acid is replaced by an amino-benzene or amino-phenol or anilin group. Thus:



Atoxyl also is a relatively stable salt of arsenic acid quite soluble in water and practically neutral in reaction. Arsacetin or sodium acetyl arsanilate is the sodium salt of acetyl arsanilic acid, which latter differs from arsanilic acid in that one hydrogen atom of the amino group is replaced by an acetic acid residue. Thus:



The Ehrlich-Hata preparation—"606"—is but distantly related chemically to sodium cacodylate, atoxyl and arsacetin. It has recently been patented by a Ger-

man firm, Meister Lucius & Brüning, which will control its manufacture and sale. Its structural formula is:



According to the patent specifications, it is obtained from nitro-phenol-arsinic acid, which, on reduction, is changed to amino-phenol-arsinic acid, which, by still further reduction, yields "606," a derivative of arseno-benzene ($\text{C}_6\text{H}_7\text{.As: As.C}_6\text{H}_5$). The formula above shows that "606" contains two atoms of tri-valent arsenic united, on the one hand with each other, and on the other hand having replaced a hydrogen atom in a benzene molecule. Each benzene molecule also contains one hydroxyl or phenol group and one amino or anilin group. The chemical constitution may be indicated by the name di-amino-hydroxy-arseno-benzene and the relative position of the several groups shown thus:

3-diamino-4-dihydroxy-1-arseno-benzene

This name has been abbreviated to arseno-benzol or arseno-benzene, which, in a way, is unfortunate, in that it is the name which properly belongs to another body. As it is desirable that the shortest name truly indicative of its composition should be used in the literature, the term "arsen-phenol-amin" is recommended as an abbreviated scientific synonym for this new body which has unfortunately been introduced into medicine under the term "606." Since this product is patented, however, it may be given a catchy rather than a scientific name.

To understand the chemical properties of this body, it should be noted that the arsenic is in the unstable tri-valent form and not in the stable penta-valent form, as in sodium cacodylate, atoxyl or arsacetin. Furthermore, it should be said that the two phenol or hydroxyl groups give the substance a weak acid character enabling it to form weak salts with strong alkalies just as phenol forms them with sodium hydroxid, etc. On the other hand, the two anilin or amino groups give it basic properties, and just as anilin combines with hydrochloric acid to form a salt, so this substance combines with hydrochloric acid to form a chlorid. Since the molecule contains two anilin groups it combines with two molecules of hydrochloric acid. These anilin groups, however, impart but weak basic properties to the molecule, and hence the chlorid, when dissolved in water, is decomposed with liberation of hydrochloric acid, so that the solution is strongly acid. "Arsen-phenol-amin" (or "606"), is very unstable and is put on the market in the form of its hydrochlorid, which, owing to its acid character, however, cause injections of it to be very painful. For this reason the hydrochlorid is treated with an amount of alkali exactly sufficient to combine with the hydrochloric acid of the salt and to liberate the base "arsen-phenol-amin" which is insoluble and which is injected in the form of a suspension in water.

It is impossible at this time to determine the actual value of the drug, but certain deductions can be made

1. New York Med. Jour., Oct. 30, 1909.

2. THE JOURNAL A. M. A., Sept. 24, 1910, p. 1113.

from the large number of cases already reported. There is no doubt that this new remedy produces remarkable results in a surprisingly short time. In some desperate cases of syphilis a cure, temporary at least, followed a single injection: in many of these mercury and other antisypilitics had totally failed. The question as to the permanency of the cure is not answered, and only time can answer it. But if such splendid results may be obtained by one injection, it would seem probable that the remedy would bring about a permanent cure when its action is more clearly understood, and the treatment followed out for a longer or shorter time.

Finally, physicians should remember that this new discovery is, after all, an arsenic preparation. In the past all new arsenic preparations, though at first recommended as wonderfully active and marvelously free from the toxic effects of arsenic, have in the end been found to possess, in varying degrees, the potency for harm common to this element. It will be fortunate if this new discovery is not found to have similar drawbacks.

WHO PAYS THE BILLS?

Newspaper men are not easily misled as to motives, neither are they slow to recognize the real forces behind an effort to influence public sentiment. An editorial in a recent number of the Baltimore *Evening Sun* shows how the better class of newspaper editors regard the strenuous and well nigh hysterical efforts now being made to simulate a popular uprising against the awful iniquity of national health legislation:

"Two objections to the proposed department of health have been raised. The first comes from the more fanatical adherents of the so-called metaphysical healing arts. These persons hold that the art of medicine, as it is practiced, say, at the Johns Hopkins University, is a snare and a delusion. They object to being vaccinated, they deny that typhoid is infectious, they maintain that Dr. Welch is an ignoramus, they believe that magic words are more efficacious against hydrophobia than Pasteur's vaccine. Finally, they fear that, if a national health department is established, its head will induce Congress to pass laws against them. A mere statement of the argument of these folk is all the answer it needs. They have a right to their beliefs, however ridiculous, but they have no right to put the rest of us in peril.

"The other objection to the proposed department is voiced by those who fear that it will be controlled by the American Medical Association, an organization of allopathic physicians. The grounds of this fear are not quite apparent, but, assuming it to be well grounded, what of it? The foremost physicians and surgeons of America belong to the Association; it is in the forefront of the battle against disease; its objects are precisely those of the department under consideration. A nation with such men guarding its health would be a nation to

be envied. They are by no means perfect as men, for human perfection is very rare in the world, but as physicians they belong to the most scientific, progressive and competent of all schools.

"These are the only objections we have ever heard to a national department of public health. We believe that both of them are unutterably silly."

As the *Sun* well says, the mere statement of the arguments of the National League for Medical Freedom is all the answer that is necessary. But the attack on the Owen Bill is only a pretext. The American Medical Association is the real target. The forces behind this movement are endeavoring to take advantage of the popular feeling against trusts and monopolies by branding the American Medical Association as a "doctors' trust", a designation, by the way, which originated with certain so-called medical journals which derived their support from nostrum venders.

Evidently, the manufacturers of "baby-killers", sophisticated and adulterated foodstuffs, cheap and bad whiskies under the guise of "family remedies", and fakers and swindlers doing business under the guise of physicians, hope that the American public and press will accept this designation without asking for proof or evidence, and that by such methods the American Medical Association and its work can be discredited in the public estimation. We related last week that "the delegates smiled" when the members of the committee on resolutions, at the Conservation Congress at St. Paul, were overwhelmed with a flood of telegrams carefully arranged for beforehand, protesting against the endorsement of a national department of health. Truly, newspaper editors and managers must smile with equal persistency when "copy" is received for half-page advertisements at a daily cost of \$25,000, denouncing the national organization of the medical profession as a "doctors' trust." Newspaper men know the cost of a general advertising campaign. They also know that only those who are financially and mercenarily interested in blocking the work which the American Medical Association is doing, and who fear to have any further light thrown on their nefarious doings, would furnish the money for such an extensive and expensive advertising campaign. The National League for Medical Freedom asks no dues of its "members", yet it has used large quantities of the most expensive newspaper advertising space. Who pays the bills, and whence comes all the money?

Certainly it does not come from the few homeopaths who have joined the league, nor from the few eclectics, nor from the small number of osteopaths; and surely the Christian scientists are not shouldering this enormous burden. The obvious conclusion is that the money comes from those exploiters of human weakness and credulity whose fraudulent practices have been exposed by the American Medical Association, and whose pocket-books have been injured in consequence.

Current Comment

THE EFFECTS OF TOBACCO ON BODY AND MIND

While it has been shown that nicotin acts as a poison in the lower animals, depressing the nervous, circulatory and respiratory systems, there is considerable diversity of opinion as to the effects of tobacco on human beings. There is, however, a fairly well-established belief that even the moderate use of tobacco is not without possibilities of evil, while excessive use is distinctly harmful. The effects, naturally, are more pronounced in youth and adolescence than in later life. Some observations made by Dr. George L. Meylan,¹ of Columbia University, are interesting in this connection. In a study of 223 college students from two classes it was found that 115 were smokers and 108 non-smokers. The smokers were a little older than the non-smokers, and they presented only corresponding differences in measurement (weight, height, lung capacity, total strength). On the other hand, the non-smokers exhibited a distinct advantage in scholarship, but in this connection other considerations must be taken into account. For one thing, the smokers participated in larger proportion than the non-smokers in athletics and in fraternity membership, and the scholarship-records of smokers, athletes and fraternity members alike were lower than those of other students. Besides, there is a leisure-class type of college students, who smoke and go in for athletics and fraternity membership, but who, as a rule, do not attain high grades of scholarship. The non-smoker, on the other hand, is usually ambitious, industrious and self-dependent, and with less inclination and opportunity for the athletic and social aspects of college life. There will be no serious dissent from the following conclusions: The use of tobacco by adolescents is injurious; there is no scientific evidence that the moderate use of tobacco by healthy mature men produces any beneficial or injurious physical effects that can be measured; there is an abundance of evidence that tobacco produces injurious effects in (a) certain individuals suffering from various nervous affections, (b) persons with an idiosyncrasy with respect to tobacco, (c) persons who use it excessively. It is generally conceded that the use of tobacco by college students is closely associated with idleness, lack of ambition, lack of application and low scholarship, though these may not be due entirely to the tobacco.

A YEAR AS INTERN IN A HOSPITAL

The time is not far distant when a physician, before receiving license to practice medicine, will be required, after taking the four-year medical course, to spend a year as intern in a hospital. At present, the majority of the graduates of leading medical colleges succeed in obtaining such work and the deans of a number of these colleges say that as a rule the students who do not take these internships are the very ones who most need them. As has been reported, six medical colleges have provided an optional fifth year of hospital work for which the degree of M.D. *cum laude* is granted. It is now

reported that beginning in the fall of 1911 every student matriculating in the medical department of the University of Minnesota will enter on a five-year medical course, the fifth year to be spent in a hospital as an intern. This is in accordance with the "ideal standard" for physicians suggested by the Council on Medical Education and adopted by the House of Delegates of the American Medical Association at Portland in 1905.

NON-ENFORCEMENT OF ANTISPITTING ORDINANCES

From information recently collected it appears that out of seventy-four cities reported as having antispitting ordinances only thirty-six had made any arrests. It is found that in the enforcement of these ordinances health officers are somewhat more vigilant than the regular police. Newton (*Journal of the Outdoor Life*, August, 1910) says that the real reason for the non-enforcement of the ordinance is indifference on the part of citizens, lack of civic pride and failure to appreciate the danger from the unrestrained practice of the habit. He says that the police fail to enforce it as they regard it as merely intended to abate a minor nuisance, but that health officers are primarily responsible, as the community looks to them for leadership in all health matters. It seems to require specially detailed officers or inspectors. It is probable, however, that the public agitation and the numerous means of calling attention to the danger have led to a very decided abatement of the nuisance.

TWO DISEASES TO BE RECKONED WITH

While infantile paralysis and pellagra are not new diseases, their occurrence hitherto has been so comparatively infrequent in this country that no statistical segregation of them as causes of death has been made in the mortality statistics of the registration area of the United States. According to a bulletin of the Bureau of the Census in 1909, 569 deaths were due to acute anterior poliomyelitis and 116 to pellagra. Only 23 deaths from pellagra were reported in 1908. The figures for 1910 will no doubt show many more deaths from the former disease on account of its prevalence and the study and attention given to it. As the registration area includes only a small portion of the country where pellagra occurs most frequently, the actual number of deaths from this disease will not be known until there is a more complete registration of vital statistics.

HEALTH EDUCATION IN FLORIDA

The Florida State Medical Society has inaugurated a campaign against malarial fever and has issued four bulletins for public distribution through the press of the state and otherwise. These bulletins are short and adapted to popular understanding, being written to correct erroneous ideas regarding the transmission of malaria and to emphasize the importance of mosquitoes as a means of disseminating diseases. In one bulletin the experience gained in building the Panama Canal is outlined and a number of popular misconceptions corrected. Some of the views previously held by the medi-

1. Popular Sci. Monthly, August, 1910, p. 170.

cal profession and still believed in by the public are referred to—such as that malaria is transmissible by the atmosphere, through dust-laden air, noxious gases, night air, odors and vapors arising from decaying vegetable matter, recently turned earth, swamps, impure drinking water, etc. The bulletin shows how these apparent causes are in reality connected with the development of malaria only in so far as they make possible the propagation of mosquitoes. Another bulletin discusses the individual attack and emphasizes the necessity of proper treatment. These bulletins are short and interestingly written and are being generally quoted by the press of the state.

THE PUBLIC CONSCIENCE AWAKENING ON PREVENTABLE DISEASE

The public interest in health conditions is rapidly increasing. Evidence of this fact can be found in the changing attitude of newspapers toward public health problems and the growing comprehension of their importance. For instance, the recent editorial comment in the *New York World* on typhoid fever would have been impossible ten years ago:

Every life lost by typhoid is a wasted life. It is absolutely preventable. People who live in marble halls without caring whether poison runs in the pipes behind them; the very rich who spend millions in display, but neglect sanitation; college professors caught unaware by epidemics like that in Ithaca—these have themselves to blame if the disease occurs. Typhoid originating in any community disgraces it.

In former generations, epidemics of typhoid fever and other filth diseases have been regarded as dispensations of Providence just as a high death-rate has been looked on as a natural ratio which could not be altered. The *World* has emphasized one of the most important principles of the coming gospel of health—*i. e.*, that the occurrence of preventable diseases is a discredit to the community.

Medical News

COLORADO

Personal.—Dr. George A. Moleen, Denver, starts for Europe this week.—Dr. William C. Bane, Denver, who was operated on recently for appendicitis, is making a good recovery.—Dr. William W. Grant, Denver, has recovered from injuries received in a recent collision between his automobile and a street car.—Dr. Hubert Work, Pueblo, has been elected state chairman of the Republican party.

Bequests.—The late Joseph Schoenberg, Denver, bequeathed \$25,000 to the National Jewish Hospital for Consumptives in that city.—By the will of the late Louis H. Kaplan, Anniston, Ala., \$15,000 is devised to a hospital for consumptives in Denver. The executors have asked the probate court to determine whether this legacy shall be paid to the National Jewish Hospital for Consumptives or the Jewish Consumptive Relief Society.

State Society to Meet.—The annual meeting of the Colorado State Medical Society will be held in Colorado Springs, October 11-13, with headquarters at the Antlers Hotel. The entertainment provided for the society includes a ball on the first night, a jungle party or barbecue in one of the canyons on the second night, and a banquet at the Antlers Hotel, the third night of the meeting. The mornings are to be devoted to the work of the society, and the afternoons and evenings to entertainment of the delegates.

CONNECTICUT

Infectious Diseases.—During August 32 cases of measles were reported in 14 towns, 63 cases of scarlet fever in 33 towns, 6 cases of cerebrospinal fever in 4 towns, 36 cases of infantile paralysis in 16 towns, 127 cases of diphtheria in 30 towns, more than 88 cases of whooping cough in 17 towns, 224 cases of typhoid fever in 54 towns, and 239 cases of tuberculosis in 45 towns.

Epileptic Colony.—The board of trustees of the Connecticut Colony for Epileptics held its first meeting September 20, and elected Dr. Max Mailhouse, New Haven, president; Dr. William L. Higgins, South Coventry, secretary. Dr. John M. Mountain is the third medical man on the board, which is composed of eight members, one from each county in the state. The superintendent of the colony will be elected in the near future.

GEORGIA

Appropriation for State and Not Local Sanatorium.—The appropriation of \$50,000 noted in *THE JOURNAL*, September 17, made by the Georgia legislature, was for the State Tuberculosis Sanatorium located at Alto, and not for the LaGrange Sanatorium, a private institution.

Staff Shows Appreciation and Regret.—The consulting staff of the Wesley Memorial Hospital, Atlanta, has adopted resolutions setting forth the excellent professional and faithful loving personal qualities of its associate, the late Dr. Abner Wellborn Calloun, expressing its appreciation of the privilege of serving with him on the board, and its sorrow at his death.

Society Meetings.—At the fourth annual session of the Eighth District Medical Association of Georgia, held in Monticello, August 17, the following officers were elected: President, Dr. J. R. Robins, Siloam; vice-president, Dr. James D. Weaver, Eatonton, and secretary-treasurer, Dr. Dan H. DuPree, Athens (re-elected).—The Pike County Medical Association was recently organized at Barnesville with Dr. John M. Anderson, Barnesville, president; Dr. William H. Aycock, Molena, vice-president, and Dr. Marvin M. Head, Zebulon, secretary.

College Open.—The Hospital Medical College, Atlanta, opened for its third annual session, September 15. Since the close of last session new laboratories have been added to the institution.—The Atlanta College of Physicians and Surgeons has recently received a gift of \$50,000 to establish and equip laboratories of histology, physiology and embryology. Dr. Harry S. Bachman, Philadelphia, has been elected professor of physiology; Dr. Justin F. Grant, Morgantown, W. Va., embryology and histology, and Dr. Funk, Philadelphia, adjunct professor of bacteriology.

ILLINOIS

Personal.—Drs. Alfred A. Knapp and Charles G. Farnum, Brimfield; Dr. and Mrs. William D. Hohmann, Kewanee; Dr. Thomas W. Curry, Streator, and Dr. and Mrs. George S. Isham, Dr. Joseph B. DeLee, and Dr. and Mrs. Thomas D. Palmer, Chicago, have returned from Europe.—Dr. Elijah S. Smith has succeeded Dr. William F. Burres, Urbana, as physician of Champaign county.—Dr. Hiram T. Hardy, Kaneville, who was operated on in Chicago recently for the removal of gallstones, has recovered and returned home.—Dr. and Mrs. Arthur Paul Wakefield, Springfield, have started for their post of duty at Chao-Hsien, China.

Chicago

Resolutions of Sorrow.—The Chicago Dermatological Society has adopted resolutions setting forth that in the death of Dr. James Nevins Hyde, the society has suffered an irreparable loss, the medical profession has lost a great teacher, and the community a model citizen.

Hospital Notes.—Arrangements have been completed for the laying of the cornerstone of the Iroquois Memorial Emergency Hospital at 87 Market St. A memorial tablet is to be placed in memory of those who lost their lives in the Iroquois fire.—The cornerstone of the new Deaconess Hospital at Morgan St. and 54th Place was laid with appropriate ceremonies, September 18.

INDIANA

Personal.—Dr. Patrick H. Jameson, Indianapolis, is reported to be ill and confined to his house. Dr. George W. Switzer, LaFayette, has been elected secretary of the Methodist Hospital, Indianapolis, vice Dr. Deloss M. Wood, Battle Ground, deceased.

Sentenced and Paroled.—In the Circuit Court, September 15, Dr. Charles G. Young, Washington, charged with having performed an illegal operation, is said to have changed his plea of not guilty to guilty, and to have been sentenced to imprisonment for from three to fourteen years in the state penitentiary, and to have been fined \$100. He was released on parole, the commission in lunacy having decided that he was sane but a wreck from the excessive use of alcoholic stimulants.

IOWA

Personal.—Dr. Gilbert G. Cottam, Rock Rapids, has disposed of his business and will locate for practice in Sioux Falls, S. D.—Dr. Samuel Druet, physician of the state reformatory, Anamosa, since 1898, has resigned, and Dr. Thomas C. Gorman, Anamosa, has been named as his successor.—Dr. J. Fay Cole, Oelwein, has been elected grand chancellor of the Knights of Pythias of Iowa.—Drs. Nicholas Schilling, New Hampton, Hans F. K. Haerem, Story City, and Willis E. Keith, Lost Nation, have started for Europe.

MARYLAND

Personal.—Dr. J. McPherson Scott, mayor of Hagerstown, while cranking his automobile recently, sustained a fracture of one of the bones of the right forearm.—Dr. F. Webb Griffith, Upper Marlboro, has been appointed visiting physician to the Maryland Agricultural College, vice Dr. Harris Nalley, Mount Rainier.—Dr. Frederick V. Beitler, Halethorpe, has been elected professor of pathology and bacteriology in the Baltimore Medical College.

State Hospital Overcrowded.—Dr. Joseph C. Clark, superintendent of the Springfield State Hospital for the Insane, reports that there are more than 1,000 patients at present in the institution, which is greatly overcrowded. A three-story brick building is to be erected at once to accommodate 150 patients, and a powerhouse is also to be built at an expense of \$75,000.

Baltimore

Personal.—Dr. J. Page Strong, who has been seriously ill with typhoid fever, is convalescent.—Dr. John M. T. Finney has given an infirmary to the Country School for Boys. One ward of the infirmary is to be used for the isolation of patients with communicable diseases.—Dr. G. Milton Linthicum is convalescing from typhoid fever at Maryland General Hospital.

Cause of Typhoid in Militia Camp.—Dr. Alexius W. McGlannan, chief surgeon of the First Brigade, Maryland National Guard, announces that the outbreak of typhoid fever in the Maryland troops last summer was due to an infected spring near the camp. Ten members of Troop A suffered from the disease and one death occurred. Several of the Corps of engineers, United States Army, suffered in a similar way.

MASSACHUSETTS

Warren Prize Awarded.—The Warren triennial prize for 1910, of the Massachusetts General Hospital, Boston, has been awarded to Dr. George H. Whipple, assistant professor of pathology in Johns Hopkins University and resident pathologist in Johns Hopkins Hospital, for an essay on "The Pathogenesis of Icterus."

MISSOURI

Medical School Opens.—University Medical College, Kansas City, opened for the school year, September 6. Dr. John Puntun made a brief address of welcome.

Personal.—Drs. Scott P. Child, Jesse E. Hunt, Otho L. McKillip, Archie N. Johnson, Eugene P. Hamilton, Frank C. Neff, Fred B. Kyger, W. H. Bailey, F. LaMar, and William J. Thompkins have been appointed medical inspectors of the public schools of Kansas City.—Dr. Martin T. Balsey has been made medical examiner of the public schools of Joplin.—Dr. Charles B. Hardin, Kansas City, who has been traveling on account of his health for the last six months, has improved and resumed practice.

St. Louis

Personal. Dr. William A. H. Steinman, an intern at the City Infirmary, vice Dr. Halbert R. Hill, resigned, is said to be the first resident physician to obtain a salary. On September 15, he was granted a salary of \$50 a month.

Faculty Additions.—The following additions to the faculty of the Washington University Medical Department are announced: Dr. George M. Smith, formerly of New York, instructor in pathology; Dr. W. McKim Marriott, instructor in pathologic chemistry; Dr. Walter E. Garrey, associate in

physiology; Robert A. Gessell, instructor in physiology, and Dr. Dennis E. Jackson, associate in pharmacology.

New Dispensary Established.—St. Louis University has established a free clinic adjoining Alexian Brothers Hospital in South St. Louis. Dr. William W. Graves has charge of nervous diseases; Drs. Harvey S. McKay and Carroll Smith are in charge of the department of diseases of women and surgery; Dr. Clarence Loeb is ophthalmologist; Dr. William M. C. Bryan, otologist, rhinologist, and laryngologist; Dr. Charles H. Neilson is in charge of the department of internal medicine, and skin diseases will be treated by Dr. John W. Marchildon.

NEW YORK

Local Health Officers Must File an Oath of Office.—Attorney General O'Malley holds that a local health officer must file an oath of office after his appointment to the local health board within a reasonable time, otherwise the office is considered vacant and the local board of health may appoint another man to the office and the latter appointment is legal.

War on Infantile Paralysis.—Dr. Eugene H. Porter, State Health Commissioner, has issued a statement that there seems to be no reasonable doubt that poliomyelitis is communicable and that even though the cause may not be positively determined, its transmissibility seems to be positively determined, and that as a result of a consideration of the subject, the State Department of Health has decided to put the disease on the list of contagious diseases to be reported to the Board of Health and to be quarantined for twenty-one days. It is believed that this plan will result in the report of a much larger number of cases than hitherto, and will be the means of furnishing much valuable information.

Field Day at Rochester.—The net receipts of the annual field day of the Rochester Public Health Association, held August 6, were \$5,200. While the greater part of the receipts are to be for the benefit of the Children's Free Dispensary, a portion will be used for the running expenses of the dispensary on South Washington Street, and a fixed sum of the balance will be set aside for a basis of the proposed children's hospital. Dr. Montgomery E. Leary, who is actively interested in the plan for this hospital, states that it will be an enlargement of the Children's Free Dispensary in hospital form, and that it will cost about \$30,000.

New York City

Appeal to Nathan Straus.—A letter drawn up by a number of social and philanthropic individuals has been sent to Nathan Straus urging him to reconsider his decision to close the milk stations that he has been maintaining in this city. The letter indicates the desire on the part of individuals and philanthropic agencies to cooperate with him in keeping the depots open.

Mortgage on Academy of Medicine.—The property of the New York Academy of Medicine at 17-21 W. Forty-third Street, has been mortgaged to the Farmers' Loan and Trust Company for \$220,000 for a period of three years. The academy recently acquired the adjoining property and the abutting house on Forty-fourth Street in order to enlarge its building.

Object to Tuberculosis Clinic.—The plans of the Board of Health to open a clinic for the treatment of tuberculous patients on Willoughby Avenue near Stuyvesant Avenue, Brooklyn, has met with strenuous opposition on the part of the Church of St. John the Baptist, which maintains a parochial school and orphan asylum immediately opposite the proposed clinic. A petition signed by all the residents within a radius of two blocks will also be presented in opposition to the plan.

Increased Appropriation Asked.—President Lederle of the Board of Health, has submitted to the Board of Estimates his estimate of the appropriations needed for his department during the coming year. He asks for \$4,076,578, or \$1,328,885 in excess of this year's budget. The principal increases are as follows: Division of chief clerk, \$48,949.50; division of child hygiene, \$320,545; division of contagious diseases, \$113,150; division of general sanitary inspection, \$57,210; division of milk inspection, city and country, \$60,510; research and vaccine laboratories, \$101,759, and division of hospitals, \$486,056.

OHIO

College Opens for Year.—The Eclectic Medical College, Cincinnati, opened for its sixty-sixth annual session, September 19, in its new building on West Sixth Street adjoining the Seton, formerly the Presbyterian Hospital.

Injured in Collision.—Dr. Morris D. Stepp, Cleveland, fractured three ribs and sustained internal injuries in a collision between his automobile and an electric car near Cleveland, September 25. Mrs. Stepp and her two small children were killed in the accident.

Dairymen's License Revoked.—By reason of the report of the dairy inspectors of Dayton to the effect that the dairies of S. C. Burrall and Phillip Erbaugh are in bad sanitary condition, and that neither dairymen has made any effort to place his establishment in a sanitary condition, the licenses of these men to sell milk and cream in Dayton are said to have been revoked.

PENNSYLVANIA

Philadelphia

Woman's College Opens.—The Woman's Medical College of Pennsylvania opened on September 21, for its sixty-second term. Dr. Clara Marshall, dean of the college, delivered the opening address.

Personal.—Dr. James M. Anders returned from Europe September 20.—Dr. Frank Woodbury sailed for Europe September 21.—Dr. G. Carl Huber, Ann Arbor, Mich., has been appointed professor of embryology at the Wistar Institute.—Dr. Edward B. Meigs, formerly connected with the University of Pennsylvania, but in late years associate of physiology at Harvard, has been added to the staff of the institute.

Floating Hospital for Babies.—Dr. Joseph S. Nell, in making his report on the work accomplished during the summer in the campaign against infant mortality, has asked for the purchase or rental of a large boat steamer or barge that can be utilized next summer for a floating hospital. The work at the recreation piers has extended so much that the Department has felt the necessity of keeping the baby hospital on the Chestnut Street Pier open day and night, and the exact time of closing them has not been decided.

Advance of the Pure Food Crusade.—Following up the investigation of the manufacture and sale of impure ice cream, Special Agent Harry P. Cassidy, of the state dairy and food department has turned his attention to the cheaper qualities of candies retailed by small stores in the city and sold almost exclusively to children. Samples were obtained and sent to Professor LaWall. When analyzed many of these were found to be flavored with ethers, colored with coal tar and coated with shellac. Warrants were issued for the arrest of seven dealers.

WEST VIRGINIA

State Physicians to Meet.—The annual meeting of the West Virginia State Medical Association will be held in Parkersburg October 5 to 7.

Personal.—Dr. Carl W. Ulfert, Wheeling, has been appointed physician of Ohio County, vice Dr. John J. Allen.—Dr. Harriet B. Jones, Wheeling, has returned from Europe.—Drs. William R. Whitman, Bramwell, and Wade H. St. Clair, Bluefield, have gone to Rochester, Minn., for clinical studies.

WISCONSIN

Personal.—Dr. Frank E. Darling has resigned as registrar of vital statistics in the health department of Milwaukee.—Dr. Edward B. Bradford, Hudson, has sold the Hudson Sanitarium to Wallace Campbell, Minneapolis.

Refuse to Accept Rucker's Resignation.—The Milwaukee City Council, after investigation of the charges preferred against Dr. William Colby Rucker, health commissioner, have refused to accept his resignation, have importuned him to remain in his present position, and have requested Surgeon General Wyman, P. H. and M.-H. Service, to consent to Dr. Rucker's return to Milwaukee.

GENERAL NEWS

Fraternity Meeting.—The twelfth annual general assembly of the Phi Beta Pi Medical Fraternity will be held in Philadelphia, October 4 to 7. Headquarters will be established in the Continental Hotel, at Ninth and Chestnut Streets, and Mr. William Coffin, Jr., of Jefferson Medical College, is chairman of the committee on arrangements.

Personal.—Dr. Leon T. LeWald, medical corps U. S. Army, has resigned and has been appointed director of the Edward N. Gibbs x-ray laboratory at the New York University and Bellevue Hospital Medical School, New York City, succeeding Dr. E. W. Caldwell. Prior to his service in the Army Dr. LeWald was instructor in gross pathology in New York Uni-

versity and a medical officer of the national guard of New York.—Dr. Charles Wardell Stiles, United States Public Health and Marine-Hospital Service, returned from Europe September 14. Dr. Stiles attended the International Zoologic Congress at Gra, Austria, August 15-20, in connection with the International Commission of Zoologic Nomenclature.—Dr. Charles C. Walker, medical missionary and physician to the American legation at Bangkok, Siam, has returned to the United States for a visit after six years' absence.—Dr. K. F. Meyer, Leipzig, arrived in New York, September 17, from Africa, where he has been pursuing studies of tropical diseases, chiefly those of cattle. He intends to continue his researches in Texas.

FOREIGN NEWS

Cholera in Enrope.—According to cable dispatches, September 26, several cases of cholera have been reported at Rome, 28 in Hungary with 11 deaths between September 24 and 26, and there is quite an epidemic at Naples, 100 new cases and 50 deaths being recorded during the day of the 25th. The last official reports by mail from Russia state that 154,445 cases of cholera have been reported in that country since the beginning of the epidemic last April up to August 14, with 74,723 deaths. A strolling band of gypsies from Russia started an epidemic in Apulia, the southeastern province of Italy, over a month ago, although none of the party had cholera—a typical illustration of the dangers of healthy germ carriers. The Berlin Letter below mentions the few cases that have occurred in Germany. A few other isolated cases have occurred since in Germany, one each at Dresden, Stade and Marienburg, and 3 germ carriers have been discovered among the Vistula River rafters. In the second week in August, 24,000 new cases were reported in Russia, with 11,000 deaths.

The "606 Fever."—Dr. A. Pulido Martin, in an article in the *Siglo Medico*, of Madrid, Sept. 10, makes some caustic and seemingly injudicious comments on the Ehrlich-Hata preparation for syphilis. He says that he is amazed at the extraordinary advertising that a patented remedy is now receiving—the exclusive property of a single manufacturing firm—and warns physicians not to catch this "606 fever," and to go slow in forming their judgments, as there is commercial money-making involved. "The daily papers," he says, "at Hamburg, Cologne, Vienna and especially at Frankfurt, the latter inspired directly by Ehrlich, are publishing columns on the subject but without much scientific value. They add another cipher when they mention the number of cases in which the new drug has been applied; they relate how a Hungarian physician hurried to Frankfort and obtained the details of the manufacture of the drug from Ehrlich and then returned to Budapest and announced the organization of a society to produce the new drug; this was then followed by reports of Ehrlich's indignation at this news and his assertion that the drug is the property of a certain firm of manufacturing chemists and that the Hungarian physician could not possibly have learned the full details of its preparation as he, Ehrlich, related them only in a general way, and, besides this, he has modified the substance since, making it less toxic so that it can be injected in larger doses, the new substance being called by a new name, Hyperideal; this statement is followed by the declaration that the 'Hy' is not to be put on the market, and is not distinct from the original '606' (to avoid spoiling the sale of the latter), but is destined solely for use in his own service, etc., etc." "From the many reports that have appeared on the subject it is evident that the '606' or 'Hyperideal,' or whatever other name it may bear by the time these words are published, does not keep well, the injection is painful, and the fever and other signs of a reaction compel vigilant oversight for a few days. Other authors have reported that the injection of '606' was followed by the death of a patient, but the daily papers, commenting on these fatalities, speak of the authors reporting them as enemies of German science and state that these experiences are negligible as the patients were on the point of dying anyway." He adds in conclusion, "It must not be forgotten that other arsenical remedies, used even for syphilis, which at first were regarded as harmless, later proved to have a decidedly toxic action on remote organs, such as atrophy of the optic nerve under atoxyl treatment. Neither must it be forgotten that, while it has not yet been proved beyond question that a therapeutic problem has at last been solved, there cannot be the slightest doubt in respect to the business end of the '606' matter." Bearing all these things in mind, he urges his readers to restrain their first impulse of enthusiasm as not fully justified up to the present.

CANADA

Dislocation or Fracture.—Judge Lamont of Prince Albert, Sask., is said to have handed down a decision in the case of George Dangertield, who sued Dr. Alfred David for \$10,000 for alleged incorrect diagnosis of an injury, awarding damages of \$1,664.25 and costs to the plaintiff.

Presentation.—Dr. Alexander H. Beaton, Orillia, who has just retired after thirty-three years' service as superintendent of the Provincial Asylum for Idiots, was presented, on September 12, with a handsome oak cabinet of silver. The presentation was made on behalf of the citizens by Dr. William C. Gilchrist, and the address was read by Dr. Ainsley P. Ardagh.

New Medical Journal.—It is announced in the *Montreal Star* that Morang & Company, Limited, Toronto, have made arrangements with the executive committee of the Canadian Medical Association for the publication of the journal of the association, which will be published as a monthly magazine with Dr. Andrew McPhail, Montreal, as editor, and at the appearance of this journal the *Montreal Medical Journal* will be discontinued.

Hospital News.—The Victoria Hospital in Fredericton, N. B., is to be materially enlarged.—Edmonton will increase its hospital accommodation at an expense of \$175,000.—Winnipeg is erecting a tuberculosis hospital for advanced cases.—A sanatorium for tuberculosis has been opened at Ninette, Man.—A hospital for incurables is to be erected in Vancouver.—Victoria, B. C., is to have a new isolation hospital.—Waterloo and Wellington counties, Ontario, are to have a sanatorium for consumptives.

Medical Society Meetings.—The Maritime Medical Association, at its annual meeting in St. John, N. B., elected the following officers: President, Dr. Everind A. Kirkpatrick, Halifax; vice-president for Nova Scotia, Dr. George E. Dewitt, Wolfville; for New Brunswick, Dr. George G. Melvin, St. John; for Prince Edward Island, Dr. Henry E. McEwen, O'Leary; secretary, Dr. David T. C. Watson, Halifax, and treasurer, Dr. George G. Corbet, St. John, N. B.—The British Columbia Medical Association, at its annual meeting, held in Tranquille, elected the following officers: President, Dr. Octavius Weld, Vancouver; vice-president, Dr. Charles E. Doherty, New Westminster; secretary, Dr. Alexander S. Monroe, Vancouver, and treasurer, Dr. James D. Helmcken, Victoria.

Personal.—Dr. Helen MacMurchy has been appointed medical inspector of girls and Dr. Wilmot A. Graham inspector of boys in the public schools of Toronto.—Dr. Joseph W. Lane, Malboroughtown, has been elected president of the Ontario Medical Council.—Dr. John William Scott McCullough, Alliston, has been appointed secretary of the provincial board of health of Ontario, vice Dr. Charles A. Hodgetts, Toronto, resigned to accept the position of medical advisor with the Dominion commission of conservation.—Drs. James M. MacCallum and Samuel Cummings, Toronto, have gone to Europe to spend some months in graduate work.—Dr. E. A. McCullough, who was recently appointed superintendent of the London (Ont.) Sanatorium for Consumptives, has resigned and returned to Toronto.—Sir James A. Grant, M.D., Ottawa, who has been sojourning in Scotland the past summer, has been presented with the freedom of the City of Inverness.—Dr. Andrew W. H. Lindsay of Dalhousie University, Halifax, and registrar of provincial medical licenses for Nova Scotia, has been appointed honorary academic council of the student's representative council of Edinburgh University.—Dr. Charles Sheard, Toronto, has again resigned the office of medical health officer. It is understood that the resignation is due to adverse criticism on the part of newspapers in regard to the quality of Toronto's water and the administration of the Toronto Isolation Hospital, the latter of which is now being judicially investigated.—Dr. Alexander S. Monroe, Vancouver, B. C., has been elected secretary of the British Columbia Medical Society.—Dr. Henry E. Tremayne, Prince Rupert, B. C., has been appointed quarantine and dominion medical health officer at that port.—Dr. William A. Lincoln has been appointed superintendent of the Calgary, Alta., General Hospital.—Dr. John A. Gunn has resigned the superintendency of the Winnipeg General Hospital.—Dr. N. J. James, formerly resident physician at the Muskoka Cottage Sanitarium, has been appointed superintendent of the South Dakota State Sanitarium, Custer, S. Dak.—Drs. Herbert J. Hamilton, Charles J. C. O. Hastings and Augusta Stowe Gullen, Toronto, and William Burt, Paris, Ont., have been elected medical representatives on the senate of Toronto University.

MANILA LETTER

(From Our Regular Correspondent)

MANILA, Aug. 16, 1910.

San José Medical College Closed

The San José College of Medicine and Pharmacy of Santo Tomas University has permanently closed its doors. This leaves the Philippine Medical School the only medical school in the Philippine Islands and the only school to which the Filipinos outside of Manila may look to train medical men for them. Some three months ago by order of the pope, the San José College of Medicine and Pharmacy was turned over to the Jesuit order at the protest of most of the students. It soon became evident that it was the intention to close the institution. The students through a lawyer began proceedings for an injunction against the pope and the papal delegate to the Philippines, Father Algne, to restrain the transfer and closure of the college. Some little mystery seemed to underlie the entire proceedings and considerable dissatisfaction and indignation was felt by most of the students. Now in answer to the medical students Vice-Rector Llanos of Santo Tomas University states that lack of funds render it impossible for the university to maintain a college of medicine and pharmacy. He asserts that "already the College of Medicine and Pharmacy owes the university 143,000 pesos (\$71,500) and it owes another society 113,000 pesos (\$56,500) owing to deficits during past years when it was enjoying the income from its estates (i.e., part of the friar lands bought by the government). Now that the property has passed out of our hands, it is impossible for us to pay from the little money at our disposal, the deficit between the earnings and expenses of the institution." This leaves many of the students in a rather lamentable position. They have spent several years at the institution and have been expecting to get their degrees within the next year or two. Now that the college is closed there is no place for them to go to finish their medical course. The majority of them speak very little or no English and their training in the Spanish schools, where they got very little science, and in the medical college makes it practically impossible for them to complete their course in the Philippine Medical School without beginning almost at the bottom again. A delegation of the students has asked that they be admitted to the Philippine Medical School, but so far arrangements of this kind have not been granted. At present, therefore, for a population of 8,000,000, the supply of physicians comes from one school, which for each of the next few years will graduate a class of about 15.

Cattle and Meat Inspection in the Philippines

As was indicated in a previous communication, there has been established a thorough system of inspection of cattle and meat shipped into Manila. There seems to be some promise of freeing the Philippines from communicable infectious diseases of live stock, and it is desired not only to protect the consumer but also to prevent the introduction of other diseases, that this rigid inspection has been established. The quarantine regulations require that cattle coming from an infected port and those exposed to infection while in transit are to be kept in quarantine for a period of 60 days before being allowed to land. This has proved so expensive that it is not altogether practicable. To obviate this latter difficulty, a Manila business man, Senor Faustino Lichanso, has proposed to erect a floating matadero (abattoir) out in the bay. According to this ingenious plan, which has been approved by the Bureau of Health and the Municipal Board, animals after a thorough inspection are to be unloaded directly from the ship to be slaughtered on the matadero and again inspected. The matadero is also to be equipped with a burning plant for the purpose of destroying diseased parts, offal and such other material as is not used. The prevalence of pleuropneumonia in so many of the Australian cattle coming to this port is to a great extent responsible for these measures.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Sept. 17, 1910.

Decline of Lunacy in Scotland

In a previous letter (THE JOURNAL, Aug. 27, 1910, p. 788) it was stated that there was a tendency for the increase of lunacy, which has been constantly recorded in England in recent years, to cease. The figures for Scotland, which have just been published, are still more satisfactory. In 1903, for the first time in 19 years, a fall in the number of pauper lunatics in establishments in Scotland was reported. The

report for 1909-10 states that there is reason to believe that the year 1903 marked a turning point and that no permanent increase in the amount of registered insanity is likely to occur beyond that due to increase of population. The following are the proportion of admissions to asylums per 100,000 of the population in the last 5 quinquennial periods: 1886-1890, 73.4; 1891-95, 79.4; 1896-1900, 82.4; 1901-05, 84.4; 1906-10, 77.3.

The Crusade Against Tuberculosis

In spite of the work which has been done for the prevention and cure of tuberculosis there are at present in the United Kingdom between 350,000 and 400,000 persons suffering from tuberculosis, and each year 60,000 die from pulmonary tuberculosis and 30,000 from other forms of this disease. With these figures before it, the National Association for the Prevention of Tuberculosis has decided to make further efforts to educate the people in the prevention and treatment of the disease, which is still responsible for the deaths of 1 person out of every 10. The committee of the association points out that, as the working classes are losing \$15,000,000 a year in wages owing to sickness due to consumption, it is time that steps were taken to disseminate a knowledge of its infectious nature and the method by which its spread may be limited. The committee finds that the quickest and ultimately the cheapest way to educate the nation is by means of (1) traveling tuberculosis exhibitions; (2) caravans with lantern-slides; (3) popular lectures; (4) an information bureau for the press and public; and (5) the distribution of literature. It is estimated that to conduct a campaign efficiently on these lines would cost \$25,000 a year. The committee has also made arrangements for a "campaign by poster," which is being assisted by the billposters' association. One large firm has undertaken to produce 30,000 bills measuring 10 feet by 7 feet 6 inches, printed in eight colors.

The Hygiene of Childhood

State interference in hygiene of childhood has considerably increased in recent years. Presiding at the conferences of the congress of the Royal Sanitary Institute, Sir William Collins, M.P., delivered an important address on the hygiene of childhood. He said in part: Child life is a most sensitive reagent to hygienic and mal-hygienic influence. Early sanitary reformers, like Dr. Farr, have taught us to keep our eyes on the death-rate, but until recently we have complacently regarded the improvements in the general health-rate while ignoring the fact that until within the last few years the infant death-rate has shown little disposition to decline. Happily, attention is now concentrated on child life and the influences which act on it for weal or woe. Voluntary agencies, administrative bodies and the legislature are all alive to the importance of such questions. The years of school life—from 5 to 14—are tending to become not merely educational, but a period of state handling of childhood. There should be hospitals for the treatment of measles and whooping-cough, diseases which lay a heavy toll on child life. Physical education in schools should not be of the nature of military drill, for such is not the best form of exercise; it gives a bias or premature specialization to the child. More attention should be paid to moral education; otherwise the tendency is to make a good animal rather than a good citizen. We should foster self-knowledge, self-reverence and self-control and not a military spirit or a morbid form of spurious patriotism. The state is doing more and more for the individual, but that is no reason why the individual should do less for himself, but, rather, why he should be encouraged and spurred on to do more and to exercise the spirit of self-reliance and independence which they are trying to teach in the schools.

Hygiene of Ships

Another important paper read at the congress was on "The Necessity of a Revision of the Standard of Hygiene of Crews' Spaces in New Vessels," by Dr. Howard Jones, health officer of Newport. He said that it was most unfortunate that the accommodation provided in new vessels constructed in Great Britain was in a considerable proportion of cases very unsatisfactory from a hygienic standpoint. In the designing of new vessels the most elementary rules of sanitation were constantly ignored. In many instances the standard was much lower on new vessels than on old. The conditions were so bad that it was not surprising that the types of men in the merchant service were degenerating. It was humiliating that small countries like Norway and Denmark demanded a higher standard of hygiene in reference to crew spaces than did Great Britain.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Sept. 16, 1910.

Tuberculosis in Rural Districts in France

At the last meeting of the Association Française pour l'avancement des Sciences, Dr. Maurel, professor in the Toulouse college of medicine, reported the results of the investigation, embracing 2,500 communes, that he had undertaken in regard to tuberculosis morbidity among the rural population. Figures furnished by physicians practicing in these communes (Dr. Maurel selected communes where only one physician practiced) show that the number of subjects of tuberculosis in the country is, on an average, 2.93 per one thousand inhabitants. The departments most affected are those of Mayenne (15 per cent.), Loire (5.9 per cent.), Drôme (5.7 per cent.), Hautes-Alpes (8 per cent.), Côtes-du-Nord (4.3 per cent.), Seine-Inférieure (4.14 per cent.), Vienne (4.6 per cent.), Creuse (4.7 per cent.), Auvergne (4 per cent.), Haute-Savoie (4 per cent.); those less affected are Basses-Alpes (1 per cent.), Hautes-Pyrénées and Landes. In general, the departments of the south are less affected; those of the north are more so. Altitude and the vicinity of the sea seem to play no part. In general, tuberculosis is increasing appreciably almost everywhere. The causes are immigration toward cities, military service and primary schools, through which the contagion is disseminated, bovine tuberculosis, alcoholism, the deplorable domestic sanitation in the country, where dwellings are small and without light and air, and the lack of prophylaxis and disinfection.

Dr. Lafforgue, a military physician, expressed doubts in regard to the dissemination of infection in the country by dismissed tuberculous soldiers. He believes that, while soldiers sometimes contract tuberculosis in the barracks, they often have brought it to the regiment, where it is developed, as Dr. Kelsch has shown, with the first fatigues. Dr. Lafforgue says that excuses from service are at present very liberally granted by the military physicians, who are disposed to grant them even in doubtful cases.

Suit Against Surgeon for Sudden Death During Anesthesia

Dr. Forgue, professor of clinical surgery at the Montpellier college of medicine, was recently prosecuted for professional negligence, the sum of \$20,000 (100,000 francs) damages being asked for the death of the plaintiff's son on the operating-table during chloroform anesthesia. The Montpellier court decided against the plaintiff, on the ground that the syncope to which the patient succumbed was one of those accidents against which science at present has no remedy, and that Dr. Forgue had taken all the precautions usual in such cases. Dr. Forgue then brought a cross-action, on the ground of the injury to his reputation through the prosecution. Taking into account the fact that this prosecution was the outcome of the excitement occasioned by a painful event, he limited his demands to the sum of 20 cents (1 franc). The court sustained this demand and sentenced the father of the deceased to pay Dr. Forgue 1 franc damages.

The Hennequin Prize

Dr. Jules Hennequin, who is well known for his ingenious apparatus for the treatment of fractures, and whose death I mentioned some months ago (*THE JOURNAL*, April 23, 1910, p. 1387), by his will founded a biennial prize of \$300 (1,500 francs), which he has requested the Société de chirurgie of Paris to award to the author of the best memoir on the anatomy, physiology, pathology and traumatism of the human skeleton.

Suppression of Nursing-Bottles With Tubes

About a year ago (*THE JOURNAL*, July 3, 1909, p. 40) I mentioned a bill bearing on the sale of nursing-bottles with tubes. This bill finally resulted in the law of April 9, 1910, which forbids the sale, exhibition and importation of such nursing-bottles, and the courts have already sentenced twelve retail grocers of the neighborhood of Alençon, Normandy, for infraction of the law.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Sept. 8, 1910.

Personal

The associate professor of pharmacology at Göttingen, Dr. W. Heubner, has been made a regular professor. He is 31 years old, the son of the Berlin pediatricist.—At Marburg the associate professor for pharmacology, Dr. Gürber, has been

raised to a regular professorship, and the associate professor of otology, Dr. Ostmann, has received the title of regular honorary professor.—Prof. L. Brauer, the director of the medical clinic at Marburg, has been chosen to be director of the public hospital at Hamburg-Eppendorf, as successor to the late Professor Lenhartz.

Cholera

The second victim of cholera in the neighboring town of Spandau, mentioned in my last letter, died two days ago. No other cases have developed. Berlin is still free from the disease. In Russia cholera continues its ravages unchecked. In the week from July 31 to August 6, according to the recently published official figures, 21,000 cases were reported, and 9,000 of the victims died. An Austrian scientist has suggested in the *Wiener klinische Wochenschrift* that the other European governments will have to bring pressure to bear on Russia to compel the Russian government to take more effectual measures for the prevention of cholera, as it is a perpetual menace, year after year, for the rest of Europe. The Austrian writer is evidently unaware of the difficulties and hopelessness of any diplomatic measures of the kind. It would be impossible to compel the Russian government to undertake any measures on its own soil unless war was declared against it. Besides, there is no doubt that the Russian government is anxious to exterminate cholera within its borders, and the realization of this desire fails solely on account of the inadequate sanitary organization and sanitary official force, the stupidity of the populace and the inadequate financial means.

Russian Discrimination Against Jewish Visitors

As is well known, Jewish physicians who wish to visit Russia find many difficulties thrown in their way, and it has repeatedly happened that German Jewish physicians, summoned in consultation for Russian patients, have not been able to answer the summons, or only with considerable delay, on account of the hindrances placed in their way by the passport authorities. Nonsensical as these regulations are, it has not been possible hitherto to bring the Russian authorities to a more rational point of view. On the occasion of the Moscow International Medical Congress, Virchow was able to obtain from the Russian government the assurance that no difficulties would be placed in the way of attendance at the congress of German Jewish physicians, only by making this the indispensable condition for his acceptance of the chairmanship of the German national committee. It has required repeated efforts also this year to smooth away the difficulties for German Jewish gynecologists to attend the international gynecologic congress, to be held at St. Petersburg in October. In the same way the members of the Naturforscher congress at Königsberg, this fall, have experienced no little difficulty in obtaining passports for the contemplated excursion over the Russian border. Both these meetings, however, will undoubtedly suffer from the fear of the cholera epidemic.

Eddyism in Berlin

Notwithstanding all the exposures which have repeatedly appeared in the daily papers and the statements of physicians to individuals, it has proved impossible to stamp out Eddyism in Berlin. On the contrary, it has obtained quite a number of adherents, some with considerable means, and it is known that especially the members of the so-called better social circles are joining this cult. A few days ago a circular was widely distributed by the society containing exact instructions how to get well without medical aid by prayer, alone or supplemented by the laying-on of hands by the Eddyite "elder."

Medical Inspection of Chauffeurs

It has recently been ordered that the applicant for a chauffeur's license must present the certificate of a physician (*beamteten Arztes*) to the effect that the candidate has no physical defects which would interfere with his management of an automobile, especially defects in hearing and vision.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Sept. 10, 1910.

Personal

After a prolonged vacancy the chair of ophthalmology has been again filled, and Professor Dimmer has consented to be the successor of Professor Schnabel. The new director of the first eye clinic in Vienna is a pupil of Arlt, Jäger and Fuels.

In 1895 he was appointed professor of ophthalmology at Innsbruck; then he was called to Graz. He has published, besides several minor papers, the more important books: "Ophthalmologic Diagnoses," "The Light-Reflexes of the Retina," "Anatomy and Physiology of the Macula Lutea." His contributions to medical literature have always elicited much interest.—Prof. Julius Tandler has been appointed professor of anatomy, and thus is the successor of the late Zueckerkandl. His appointment will be received by the students with the utmost satisfaction, for he is very popular with them on account of his excellent pedagogic qualities. In fact, he is perhaps the best teacher, in the strict sense of the word, here in the university. His classes and courses are famous and are always thronged, and, being the first assistant of the bedridden scientist, Zueckerkandl, he had substituted him for several years. He has been very much engaged in embryologic and ontogenetic work, and one of his favorite lecture-series was that dealing with topographic anatomy. He had been recommended by the senate of the university "primo et unico loco," a rare mark of distinction.

First Cases of Cholera in Vienna

While the first 2 cases of cholera in this city could be traced to the place of infection, and thus all precautions for thorough prophylaxis were possible, 3 new cases happened about a fortnight later in an outlying suburb of the city, where the source of infection remains hitherto unknown. Naturally the endeavors of the board of health are directed, apart from the quarantine and isolation required by the outbreak, to the destruction of all unhealthy conditions existing in the capital. The supply of water is excellent, perhaps the best in all Europe. The sewerage system is also very good and absolutely modern, with the exception of a small area recently incorporated into the city. It was here that the 3 new cases occurred, in a father, mother and child. The method of removing the household refuse and waste is, however, very antiquated and insanitary, and what years of public indignation could not bring about, namely, modern provisions in this respect, may be perhaps accomplished quickly by the threatening approach of a ghastly disease.

State Control of Juvenile and Female Laborers

In a report to the *Wiener klinische Wochenschrift* Dr. Hofmohl deals with the results obtained by the institution of inspectors of factories and home industries as regards the reduction of the work required from females and juvenile workers. The main points aimed at by the state control were the gradual, not sudden, increase of work imposed on young workers, and this has been attained in numerous occupations, and the relief of pregnant women and nursing mothers from the pressure of factory work. Thus in the mining and iron industries, in open shops and in agricultural occupations, persons less than 16 years of age must have no more than 10 hours work a day, with a clear 24 hours of rest each week. Besides this, their work must be at least an hour less than that of their adult work-mates, so that sometimes they have only 8 and 9 hours a day. For women all night-work has been nearly stopped, and in a good number of occupations also the 10-hour limit has been adopted. The conditions of children's work in the factories is regarded as very satisfactory where it is controlled. But in private employment (weaving at home, service as waiters in restaurants, theaters and shows) a law regulating the duration of working hours is urgently required. Here, at present, the inspectors are powerless. The protection of the female laborer during her pregnancy and in childbirth has been given over to the *Krankenkasse*, or wage-earners' insurance society, which is now bound by law to pay the female member coming into such a condition its full sick pay for 6 weeks, commencing 2 weeks before the expected confinement. The death-rate of women engaged in any one of the industries is very high; in fact, it is the highest percentage of all the mortality statistics. Therefore, attention has been turned to that point; married women have a right to a noon rest of 2 hours for the purpose of arranging their household; furthermore, the factories are not allowed to give out work to them to be finished at home. Another clause of the new act dealing with the provisions for sick female workers requires the appointment of a female district doctor wherever the majority (60 per cent.) of the factory hands of a district consists of females, and inspection by that doctor also of all puerperal cases. These are, of course, the main points only, but they suffice to show the trend of the present social legislation in this country and the efficiency of state control of wage-earners.

Marriages

BOYD A. MUSTER, M.D., to Miss Bessie Crady, both of Lyons, Ky., July 1.

JULIUS BLECHSCHMIDT, M.D., to DOTT CASE, M.D., both of Philadelphia, September 14.

JAMES D. HILLIS, M.D., to Mrs. Edna E. Robinson, both of LaFayette, Ind., August 20.

ORIE C. YODER, M.D., Peru, Ill., to Miss Sadie Albrecht of Tiskilwa, Ill., September 15.

HENRY LONGSTREET TAYLOR, M.D., to Miss Ethelberta Geer, both of St. Paul, September 8.

WALTER BAUMGARTEN, M.D., to Miss Louise Knapp, both of St. Louis, Mo., September 20.

FRANK P. WAS, M.D., to Miss Elizabeth Annie Howorth, both of Chicago, September 21.

AUBREY V. JONES, M.D., Louisville, Ky., to Miss Mable Sells, at Anderson, Ind., recently.

HENRY J. NICHOLS, M.D., U. S. Army, to Miss Grace Gundry of Catonsville, Md., September 21.

FRANK W. COWGILL, M.D., Baxter, Iowa, to Miss Estella Werts of Russell, Iowa, September 7.

PAUL BROWN DUNBAR, M.D., Baltimore, to Miss Alice Lenore Davison, at Norfolk, Va., September 7.

JOSEPH MILTON TRIGG, M.D., to Miss Clara Lillian Roberts, both of Shawnee, Okla., September 4.

HURON WILLIS LAWSON, M.D., to Miss Franceska Kasper, both of Washington, D. C., September 14.

WILLIAM GEORGE MCKAY, M.D., Jacksonville, Fla., to Miss Inez Louise Neal of Letts, Iowa, September 14.

GEORGE ROGER ALBERTSON, M.D., Moline, Ill., to Miss Mary K. Klacke of Cedar Rapids, Iowa, at Iowa City, recently.

WALTER HARDING YOUNG, M.D., Freedom, N. H., to Miss Ethel Marie Hardy of Dedham, Mass., September 14.

FREDERICK JOHN JENNINGS WOOD, M.D., to Mrs. Mabel Wheeler Bailey, both of Brooklyn, N. Y., in Boston, July 12.

FREDERICK T. KOYLE, M.R.C., U. S. Army, to Miss Sarah A. Leopold of Savannah, Ga., at Washington, D. C., August 30.

LOWELL MCKEE GREEN, M.D., Nashville, Ind., to Miss Maud Beatrice Fargo of Portland, Ore., at St. Louis, September 15.

Deaths

Henley C. Rutter, M.D. Medical College of Ohio, Cincinnati, 1869; of Columbus; a veteran of the Civil War; a member of the American Medical Association; for four years superintendent of the Dayton State Hospital, and later superintendent of the state hospitals at Athens and Columbus; founder and for several years superintendent of the Ohio Hospital for Epileptics, Gallipolis; up to last year in charge of the Park View Sanitarium, Columbus; an alienist and writer on sociologic problems and diseases of the nerves and mind, died September 17, in an ambulance, while on the way to Lakeside Hospital, Cleveland, from the effects of poison, believed to have been self-administered with suicidal intent while mentally irresponsible, aged 61.

Gustav Baumgarten, M.D. Washington University, St. Louis, 1856; a member of the American Medical Association; passed assistant surgeon in the Navy throughout the Civil War; in 1899, president of the Association of American Physicians; from 1867 to 1871, editor of the *St. Louis Medical and Surgical Journal*, and professor of histology and pathology in the College of Physicians and Surgeons from 1873 to 1892 professor of physiology and therapeutics in the same institution, and since that time professor of practice of medicine in Washington University Medical School; died at his home in St. Louis, September 19, aged 73.

Lucius French, M.D. Berkshire Medical College, Pittsfield, Mass., 1853; a member of the American Medical Association, and International Association of Railway Surgeons; in 1908, made a life-member of the Scott County Medical Society; local surgeon at Davenport for the Chicago, Milwaukee and St. Paul Railway; assistant surgeon of the Thirty-first Iowa Volunteer Infantry during the Civil War; president of the local board of U. S. Pension Examining Surgeons from 1864 to 1884; died at his home, September 19, from angina pectoris, aged 78.

William Smith Nelson, M.D. New York University, New York City, 1887; of Utica; a member of the American Medical Association; a member of the staff of the Faxon Hospital; an authority on pulmonary tuberculosis, and examiner for the State Tuberculosis Hospital, Raybrook, N. Y., died September 12, in Butler Hospital, Providence, R. I., aged 47.

Charles Cook Ransom, M.D. University of Buffalo, N. Y., 1883; of New York City; a member of the American Medical Association; a member of the visiting staff of the City Island, Blackwell's Island, and president of its medical board; died in the Faxon Hospital, Utica, N. Y., September 13, after an operation for intestinal obstruction, aged 50.

Ira Ellis DuPree, M.D. Louisville Medical College, 1874; a member of the Medical Association of Georgia; formerly of Danville but of late years of Athens, Ga.; a surgeon of volunteers during the Spanish-American War; local surgeon for the M. D. and S. Railroad; died at Saranac Lake, N. Y., from chronic pulmonary tuberculosis, aged 56.

Elisha Warick Miller Low, M.D. a graduate in medicine but never in practice; who spent most of his life in developing the lime business, and was for seventeen years president of the First National Bank of Bloomsburg, Pa.; died at his home in Lime Ridge, August 21, from organic heart disease, aged 81.

Milan A. Gates, M.D. Detroit Medical College, 1880; a member of the American Medical Association, and member of the American Association of Railway Surgeons; local surgeon to the Chesapeake and Ohio Railroad; died at his home in Ronceverte, Va., September 14, from locomotor ataxia, aged 65.

John S. Lewis, M.D. Jefferson Medical College, 1868; a member of the Iowa State Medical Society; president of the Humane Society; a veteran of the Civil War; a member of the staff of the Finley Hospital, Dubuque; died at his home in that city, September 14, from pernicious anemia, aged 65.

F. G. Hall (license, Texas, 1907); of San Antonio, Texas, for seventeen years a practitioner, and formerly in the government medical service at Ketchikan, and Juneau, Alaska; died in a hospital in San Antonio, September 6, from shock following an operation for pyelonephritis, aged 47.

Joseph R. Sewell, M.D. Southern Medical College, Atlanta, Ga., 1888; formerly general director of the Carrollton (Ga.), Sanitarium and School of Electrotherapeutics; was shot and instantly killed in his office in Atlanta, September 20, by a patient believed to have been insane, aged 48.

George L. McIntire, M.D. Baltimore Medical College, 1888; of New Martinsville, W. Va.; a member of the American Medical Association, and a veteran of the Civil War; died in the North Wheeling Hospital, Wheeling, W. Va., September 12, from appendicitis, aged 63.

Timothy D. Sullivan, M.D. Bellevue Hospital Medical College, 1884; of Calais, Maine; a member of the American Medical Association; an oculist and special United States pension examining surgeon for the eye and ear; died at his home, August 31, from enterocolitis, aged 54.

Hugh Sloan, M.D. Albany (N. Y.) Medical College, 1865; of Utica; a member of the Medical Society of the State of New York; in 1873 a member of the local board of health; died at his summer cottage at Lewis Point, Oneida Lake, September 7, aged 66.

Everard Mead Grant, M.D. Tulane University, New Orleans, 1872; a member of the American Association of Railway Surgeons, and local surgeon at Terry, Miss., for the Illinois Central Railroad; died at his home, September 3, from nephritis, aged 65.

Samuel White Fain, M.D. New York University, New York City, 1892; a member of the American Medical Association; physician to the Jefferson County Asylum for the Poor; died at his home in Dandridge, Tenn., September 17, from anemia, aged 42.

James Wylie Bowden, M.D. Bellevue Hospital Medical College, 1869, and for sixteen years thereafter clinical assistant to the late Dr. James R. Wood; died at his home in Yonkers, N. Y., May 3, from cerebral hemorrhage, aged 62.

James H. Johnson, M.D. University of Buffalo, N. Y., 1866; a veteran of the Civil War, and for many years surgeon of the North Dakota Soldiers' Home, Lisbon; died at his home in that place, September 14, from cerebral hemorrhage, aged 71.

Richard Kissam Macalester, M.D. University of Zurich, Switzerland, 1890; house physician for the Glenwood Springs (Colo.) Company from 1898 to 1906; died at his home in Denver, September 16, from pulmonary tuberculosis, aged 51.

Joseph Aiken Reid, M.D. Eclectic Medical College of the City of New York, 1908; superintendent of St. Vincent's Hospital, West Brighton, Staten Island, New York; died at the home of his mother in Brooklyn, September 13, aged 23.

James Frank Gillespie, M.D. College of Physicians and Surgeons, Baltimore, 1897; for many years a school teacher in Nova Scotia; died at his home in the Bronx, New York City, September 12, from heart disease, aged 41.

George E. Barth, M.D. Kentucky School of Medicine, Louisville, 1869; State University of Iowa, Iowa City, 1875; formerly of Rock Island Ill.; died at his home in St. Louis, September 15, from nephritis, aged 62.

Walter Peck Miller, M.D. University College of Medicine, Richmond, Va., 1898; a member of the Medical Society of Virginia; died at his home in Newport, September 2, from ulceration of the intestine, aged 34.

Joseph Boyd, M.D. Medical College of Ohio, Cincinnati, 1888; a member of the Kentucky State Medical Association; of Cynthiana, Ky.; died September 16, at a hospital in Oxford, Ohio, from nephritis, aged 47.

Benjamin Whitaker Daniel, M.D. University of Pennsylvania, Philadelphia, 1858; assistant surgeon in the Confederate service during the Civil War; died at his home in Atlanta, Ga., September 13, aged 78.

James Henry Clarke, M.D. College of Physicians and Surgeons, New York City, 1889; died at his home in the Bronx, New York City, September 14, from septicemia following an operation wound, aged 44.

John Samuel Sellers (license, Maryland, 1893), a member of the Augusta County (Va.) Medical Society; died at his home in Weyer's Cave, September 2, from chronic interstitial nephritis, aged 41.

Marcel Pietrzycki, M.D. Cooper Medical College, San Francisco, 1872; a prominent citizen and formerly mayor of Dayton, Wash.; died suddenly at his home, September 12, from heart disease.

Eugene M. Bancroft, M.D. Eclectic Medical Institute, Cincinnati, 1892; of Southington, Ohio; was instantly killed by the overturning of his automobile at Warren, Ohio, September 13, aged 42.

Duncan Hossack Hutchinson, M.D. University of Toronto, 1890; a member of the Ontario Medical Association; died at his home in Port Rowan, Ont., June 2, from heart disease, aged 45.

Ethelbert Norwood Goodson, M.D. Barnes Medical College, St. Louis, 1899; of Hopkins, Mo.; died in the Woodson Sanitarium, September 5, from paresis, aged 33.

Vira Abel Brockway, M.D. Northwestern University Woman's Medical School, Chicago, 1887; died at her home in Chicago, September 21, from cerebral hemorrhage, aged 57.

Samuel T. Botts, M.D. Hospital College of Medicine, Louisville, 1891; a member of the American Medical Association; died at his home in Glasgow, Ky., September 20, aged 68.

Augustus Wierich, M.D. University of Pennsylvania, Philadelphia, 1866; a member of the Illinois State Medical Society; died at his home in Galena, September 13, aged 66.

Ezra Walling (license, twenty years of practice, Mich., 1900); a practitioner in Michigan for fifty-six years; died at his home in Coopersville, September 13, aged 85.

Jimsey H. Rogers, M.D. University of Wooster, Cleveland, 1877; a veteran of the Civil War; died at his home in Louisville, Ohio, September 1, from nephritis, aged 64.

Elizabeth Griselle, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1856; died at her home in Salem, Ohio, August 23, from pulmonary tuberculosis, aged 79.

Henry T. Reinsel, M.D. College of Physicians and Surgeons, Baltimore, 1886; died at his home in Coraopolis Heights, Pittsburgh, September 12, from heart disease, aged 51.

Americus V. Watkins, M.D. Eclectic Medical College of Pennsylvania, Philadelphia, 1871; died at his home in Dausville, N. Y., August 30, from paralysis, aged 68.

Irving Oscar Cummings, M.D. Harvard Medical School, 1890; a member of the Massachusetts Medical Society; died at his home in Brewster, August 2, from chronic interstitial nephritis, aged 46.

William Cooper, M.D. Eclectic Medical Institute, Cincinnati, 1867; died at his home in Kokomo, Ind., September 17 from disease of the stomach aged 71.

Upton A. Ager, M.D. Rush Medical College, 1867; died at his home in Peru, Ind., September 7, from cerebral hemorrhage, aged 71.

Eugene Scott Alexander, M.D. College of Physicians and Surgeons, Chicago, 1901; of Indianapolis; died in a hospital in Chicago, September 4, aged 38.

John F. McKinley, M.D. Eclectic Medical Institute, Cincinnati, 1876; died suddenly at his home in Arcola, Ill., September 14 from heart disease.

Gregg Garrison, M.D. University of Halle, Germany, 1878; (years of practice, Ill., 1878); died at his home in Wayne City, April 12, aged 79.

Orlando W. Cummings, M.D. Rush Medical College, 1883; died at his home near Buda, Ill., September 6, from cerebral hemorrhage, aged 54.

William T. Wilson, M.D. Rush Medical College, 1863; a retired physician of Bunker Hill, Ind.; died at his home September 3, aged 83.

Katherine Kurt, M.D. Hahnemann Medical College, Chicago, 1882; died at her home in Akron, Ohio, from pneumonia, aged 57.

Pharmacology

REMEDY FOR SORE THROAT

It is not an uncommon occurrence for THE JOURNAL to receive a letter from a layman who believes—or professes to believe—that he has made an epoch-making discovery in therapeutics. The definiteness of the claims made for the therapeutic virtues of these "discoveries" is equaled only by the indefiniteness of the description of the products themselves. So rarely, in fact, is any information of even approximate definiteness sent that a communication received recently by the Council formed a rare exception. This letter was from G. M. Rathbun, of Sedan, Kan.

Mr. Rathbun stated that he had a remedy for "diphtheria, tonsillitis, ulcerated sore throat" and similar conditions. So far the letter differed in no essential respect from others describing the virtues of "cures" proposed by laymen. He went on to say that he wished the medical profession to know of the remedy so that it might be more widely used, and to that end had interviewed Professors Bailey and Havenhill of the State University of Kansas. These men had suggested that he write to the Council on Pharmacy and Chemistry and make known his desire; hence the letter. With the letter were the statements of two physicians of Sedan, Kan., to the effect that the preparation had considerable value as an antiseptic for stomatitis, tonsillitis and similar conditions. Mr. Rathbun was told that if he wished to give physicians the benefit of his remedy he should describe briefly its composition and method of preparation. This he did in the following words:

"This remedy is composed of a strong tea or decoction of sage and garden saffron (about equal parts in bulk), sweetened to make it reasonably palatable, and acetate of copper (verdigris¹), 5 or 6 grains to the ounce, shaken well together and shaken well before using. The acetate of copper must not have remained long in a pulverized or 'floured' condition before being put into the tea. This remedy should be used with a swab, especially when used far back in the mouth or throat."

That this mixture should possess antiseptic and astringent properties is to be expected, and as such is doubtless of value in mild affections of the throat or oral mucous membrane. It may have some place as a local application in cases of diphtheria, providing always that its use is entirely subsidiary to the antitoxin treatment. Therein, however, lies the danger of advising the use of a topical remedy in cases of "sore throat"—that curative measures are apt to be postponed until serious systemic damage has resulted.

Mr. Rathbun's mixture undoubtedly has the astringent and antiseptic action of the copper salts, perhaps slightly fortified by the very mildly similar action of sage and saffron. More than this, however, surely should not be claimed for it.

1. The term "verdigris" is loosely used. Frequently it refers to cupric acetate; more popularly it is used in reference to the carbonate, while rightly it should mean the basic acetate of copper.

MAIL-ORDER MEDICAL CONCERNS

Light Shed on Some of Their Inner Workings by the Rainey-Atkins Tragedy

The sordidness and general disreputableness of the mail-order medical business again has been brought to public attention by the recent Chicago tragedy in which Dr. James M. Rainey shot and killed his one-time partner, Louen V. Atkins. Rainey, a graduate of the Eclectic Medical Institute of Cincinnati, has for many years operated in Chicago, in partnership with Atkins, a quack medicine concern known as the "Dr. Rainey Medicine Company," at the same time he has been manager of the American Animal Therapy Co.

The former concern sold a "general debility cure" called "Vitaline"—said, by the way, to be put up by one of the large "ethical" pharmaceutical houses—which was advertised in the cheap-grade magazines and sold on the mail-order plan, no local business being sought. The nostrum was sold at \$1 a bottle or 6 bottles for \$5. It appeared from the testimony given at the inquest that when a "patient" became dissatisfied with the Vitaline "treatment" and threatened to cause trouble for the concern an effort was made to turn him over

drew from the "Dr. Rainey Medicine Company" and opened in the same building a rival concern called "Dr. James M. Rainey, Incorporated." The similarity of names of the two companies caused much trouble and confusion in the delivery of the mail and recently Atkins had changed the name of his concern to the "American Home Treatment Company."

As is common with mail-order medicine companies, one of their methods of getting the names of prospective victims was to purchase them from "letter brokers." These "brokers" buy and sell the letters of those unfortunates who have been so unwise as to write to quacks or "patent medicine" houses. Not only did Rainey and Atkins buy the names of possible "patients" but they evidently sold the original letters of their past customers. In the list sent out by one of the largest "letter brokers" in the country we find tabulated under "Female Complaint Letters," "7,900 Dr. Rainey Med. Co. 1908 & 1909" letters for sale. It was this very practice of buying letters that led to the tragedy. Atkins had received and cashed a money-order that was intended for Rainey and when the return of the money was demanded Rainey was accused of having taken the name of the person sending it from

FREE Dollar Bottle Vitaline

YOU PAY NOTHING FOR IT



Dr. Rainey says: "My scientific formula of Vitaline is the sure cure for the diseases and symptoms mentioned below—it's the most certain of all and there is no doubt about this. Vitaline tablets are just the treatment so many are looking for, what they should have and must have to be made strong, vigorous and healthy. It makes no difference how weak you are nor how long you have had your trouble, Vitaline tablets will easily overcome it—they will not fail nor disappoint you.



MAKES STRENGTH AND HEALTH

WRITE TO DR.

FILL COUPON BELOW

by writing your name and address. Send just 10c in stamps or coin to get the bottle packed and pay postage. This is all you have to do to get a \$1 bottle of Vitaline Tablets free. We give you the \$1 bottle without cost or obligation to prove what a wonderful remedy Vitaline Tablets are. We know when you have taken them you'll say with a glad heart that you have at last found the right medicine.

Vitaline tablets act on the Vital Organs that generate vitality and create the brain force which makes one feel strong, vigorous and healthy, equal to all the duties and pleasures of robust strength and health. They give you vigor and vitality every day and restore you so fast and completely you never know there was anything the matter.

Vitaline tablets are prepared by us under the U. S. Pure Food and Drugs Law by Dr. Rainey, No. 217. You never had anything like them, combining their wonderful strength and strengthening powers.

We send you our illustrated book, "Vitality" You have never seen one like it. Our testimony is from people cured a far longer forty years of doctors will convince you of all we claim for Vitaline tablets.

Exact size of Bottle containing 20 Vitaline tablets.

NERVOUS WEAKNESS, DEBILITY—L. o. e. c. Nervousness, Weakness, Twitching, Jerking, Empty Feeling, Wormed Feeling, Weak, Aching Back, Lack of Strength, Energy or Ambition, Bad Dreams, Poor Memory, Rashful, Restless at Night, Despondent.

STOMACH TROUBLES—Pain in Stomach, Loss of Appetite, Dyspepsia, Indigestion, Bad Taste or Breath, Sick Headache, Bloating, Heartburn, Sour Belching, Spitting Up, Catarrh, Gas, Grawling, Nervousness.

HEART WEAKNESS—Fluttering, Spitting, Fatigue, Pain in Heart, Side or Shoulder Blade, Short Breath, Weak Sinking, Cold or Dirty Spells, Swelling, Rheumatism, Throbbing in Excitement or Exertion.

CATARRH—Rawling, Spitting, Nose Running, Itching, Watery or Yellowish Matter or Stopped Up, Sneezing, Itchy Headache, Coughing, Deafness, Pains in Kidneys, Bladder, Lungs, Stomach or Bowels may be Catarrh.

BLOOD TROUBLES—General Debility, Paleeness, Thin, Weak, Run-Down, Nervous, Rash, Ores, Ulcers, Pimples, Chilly or Feverish, Loss of Flesh and Strength.

ENCLOSE 10 CENTS IN STAMPS OR COIN, for Postage, Packing, Etc.
Dr. Rainey Medicine Co., Dept. 2, 152 Lake Street, Chicago. I enclose amount for postage and packing. Send at once by mail in plain package. \$1.00 bottle Vitaline Tablets, without cost or obligation to me.

NAME

ADDRESS

FREE Dollar Bottle Vitaline

YOU PAY NOTHING FOR IT



We have proven our scientific formula of Vitaline is the sure cure for the diseases and symptoms mentioned below—it's the most certain of all and there is no doubt about this. Vitaline tablets are just the treatment so many are looking for, what they should have and must have to be made strong, vigorous and healthy. It makes no difference how weak you are nor how long you have had your trouble, Vitaline tablets will easily overcome it—they will not fail nor disappoint you.



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WRITE TO DR.

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ENCLOSE 10 CENTS IN STAMPS OR COIN, for Postage, Packing, Etc.
AMERICAN HOME TREATMENT CO., Dept. 2, 152 Lake Street, Chicago. I enclose amount for postage and packing. Send at once by mail in plain package. \$1.00 bottle Vitaline Tablets, without cost or obligation to me.

NAME

ADDRESS

Reproduction (1/3 size) of typical advertisements of the "Dr. Rainey Medicine Company" and the "American Home Treatment Company." Notice that the only difference between them is that in the latter Rainey's name has been omitted and his picture replaced by that of another. While "Vitaline" is advertised in papers and magazines as a "sure cure" for a vast number of diseases, its exploiters would not dare put such statements on the label of the Vitaline bottles. The federal government, through the "pure food law," prohibits lying on the label, but it cannot—or at least does not—prohibit the printing of falsehoods in periodicals.

to what they called the "special treatment" department. A question blank would be sent which when filled out by the victim was supposed to be used as a basis for "diagnosing" the case.

On the other hand the American Animal Therapy Co., with which Rainey was connected, markets a "lymph compound" which is recommended for "locomotor ataxia," "paralysis," "loss of memory" and "epilepsy;" this, of course, claims to be an "ethical" (save the mark!) preparation as it is advertised to physicians; thus Rainey seems to have been working both the medical profession and the public.

Atkins and Rainey had frequently quarreled over the method of conducting the business of the "Dr. Rainey Medicine Company" and at the coroner's inquest the evidence indicated that Atkins, who was not a physician, occasionally sent out "literature" which the more conservative—or shrewd—Rainey declared would bring the concern into trouble with the postal authorities. Things finally got to the pass where Rainey with-

Atkins' mailing list. Rainey claimed, however, to have purchased the name from a "letter broker" and the quarrel commenced which ended in Atkins' death. It would be interesting to trace back the chain of events which led up to the homicide; doubtless a poor, humbugged victim probably a woman—who had at some time written to a conscienceless quack hoping for relief from some imaginary or real ailment; after being "worked" to the extent of her purse and being no longer profitable prey, her letter is sold to the "brokers."

At the inquest it was shown that Atkins, who was interested in several "Men Specialists" concerns, was of a quarrelsome disposition and had at various times threatened Rainey and others. The jury exonerated Rainey and he was released from custody.

Occurrences like these have an economic and sociologic interest. They turn, for an all-too-brief period, the searchlight of publicity into the dark and noisome pit of quackery and nostrum exploitation and make clear the miserable sordid-

ness and fraud inseparable from it. Did the hapless victims but know the pretense, the sham, the ignorance, the utter disregard for anything connected with the patient save his dollars, that characterize the average individual who conducts a mail-order medical concern, it would be but a short time before an outraged and indignant public would force the whole disreputable business out of existence.

Correspondence

International Hygiene Exposition, Dresden, 1911

To the Editor:—It now seems probable that the United States will not be officially represented at the International Exposition of Hygiene to be held at Dresden next year. This is a most regrettable circumstance as the exposition bids fair in many particulars to be highly important in both a scientific and commercial sense. It will be an important and conspicuous step in a movement that is at once humanitarian, altruistic and utilitarian, one that is world-wide in its extent and to be identified with which the United States cannot afford to miss a single opportunity.

The exposition, which is to be opened in May, 1911, under the patronage of the King of Saxony, is to cover an area of about 300,000 square yards located in a large park in the heart of Dresden. The guarantee fund for its promotion was made up some six months ago of \$75,000 from the city of Dresden, \$50,000 from the kingdom of Saxony, and enough from other sources to make it aggregate \$250,000. It was then expected that other German federal states would make similar contributions. The buildings will be put up by the participating countries and are presumed to cost from \$12 to \$15 a square yard.

The exposition itself contemplates two general classes of exhibits: one will be strictly scientific from various institutions and scientific organization; the other will be commercial and will be derived from leading manufacturing establishments of the different countries. The scientific exhibit is to be grouped according to subject, so that any special branch of hygiene or sanitation in its present state of development can be studied objectively. The adjacent pavilions will be given over to industrial exhibits representing the latest practical application of science to the maintenance of the health and physical welfare of humanity. In addition to these two distinct branches of the exposition there is to be a third devoted to the historical evolution of the subject. This promises to be a most interesting feature as it will embrace demonstrations of the hygiene of the Egyptians, the Indians, the Persians, the Jews, the Greeks, the Romans and other peoples of remote antiquity.

Furthermore, it is understood that, while the greatest scientific precision will be aimed at, a distinct effort will be made to popularize the whole subject by divesting it as nearly as possible of its technical garb. In fact, a distinct department of personal hygiene, designed to teach the people how to maintain their functional powers and thus to conserve their health and prolong and broaden their lives is to be made a distinct feature of the event. In this particular, Germany is simply following its long and well-defined policy of sending its science home to its people—a policy, the results of which are to be seen in the evidences of progress and prosperity discernable to-day in the land of the Kaiser as nowhere else in Europe.

Ambassador Hill, who strives in every way to maintain most cordial relations not only between the governments of Germany and the United States, but between the peoples of the two countries, and who is keenly alive to the scientific and humanitarian importance of the Dresden event, is not losing an opportunity, official or personal, to secure cooperation from America. It is most unfortunate, however, that without respect to the time when that event was first con-

ceived, it was not brought to his attention by its promoters until the very last minute. Indeed, it seems extraordinary that what has evidently been designed as a most important undertaking should have sprung up with such apparent spontaneity and should be forced through with such unusual haste unless possibly the explanation is to be found in the fact that a similar exposition had been previously planned and announced in connection with the International Congress of Hygiene and Demography that is to be held in Washington in 1912. At any rate, the invitation to send a representative to Dresden to attend a Conference of the executive committee of the exposition was not received at the American Embassy in Berlin until within less than 24 hours before that conference of two days' duration was to be opened on February 11 at Dresden. It was too late to communicate with Washington and it was too late to reach Dresden in time for the opening of the conference, but Ambassador Hill of his own initiative requested Mr. Joseph C. Grew, the second secretary of the embassy, to go to Dresden and unofficially attend as much of the conference as possible.

When Mr. Grew arrived at Dresden on the second day of the meeting he found present delegates from all the German capital states and representatives of Chile, China, Denmark, France, Italy, Holland, Austria-Hungary, Portugal, Roumania, Russia and Sweden. The British minister to Saxony was also present but unofficially owing to the lateness of the invitation, from which same cause some other countries were likewise not represented. Mr. Grew made a formal report on the meeting which was referred to Washington by Ambassador Hill with the recommendation that the United States Government take active steps to be officially represented.

It seems, however, that nothing can be done until Congress acts in the matter. This, of course, takes time, too much time it seems, but not more time than is required for similar matters in most other countries. The only exception of which I have heard, is Japan, which, in spite of its depleted treasury, seems to be in a state of preparedness for precisely such events. This was shown by the fact that the envoy that was sent around the world by the Saxon government in the interests of this exposition reached Japan when its parliament was not sitting. There seemed, therefore, no chance to get a commission authorized or to get money appropriated to support such a commission. Yet, somehow, somewhere, about the imperial treasury at Tokio there was found a way by which Japan managed to keep step at Dresden with the march of progress. It would seem wise if the President of these United States could be provided, as the emperor of Japan seems to be provided, with a contingency fund and could be invested with authority to act in precisely such cases as this. As it now stands Congress will not be in session until December; what its temper will be, whether there will be enough of new blood in it to grasp such fundamental problems of progress and of human welfare will depend entirely on the results of the approaching elections. In any event there is hardly a probability that the necessary action can be secured in time for us to take a creditable hand in an event in which our part must be either creditable or no part at all.

All of this goes to show two things:

1. Great international events, to be fairly international, require more time than has been given to the Dresden exposition.
2. Governments ought to be in a greater state of preparedness than is the government of the United States for contingencies such as this.

There is another aspect of the subject that I cannot refrain from mentioning, and I shall do it by a word of caution against a possible spirit of chauvinism that is liable to assert itself in some quarters in America. There ought to be no feeling of resentment in America growing out of the conjugation of circumstances by which Germany in general and Saxony in particular may seem to be engaged in an attempt to forestall interests in the Washington meeting of 1912. Nor should there be any particular feeling because the American idea of an exposition of hygiene bids fair to find its first

exemplification on the eastern side of the Atlantic. The world is large and the republic of science knows no national lines. Any country has a right at any time to have any sort of an exposition for the general welfare. The multiplication of such events only results in a general augmentation of interest. This being true, the attitude of the United States should be to come to Dresden loyally, if there is time to do so creditably, to take an active part in the proceedings, then box up the whole thing and ship it to Washington as a previously fairly well-advertised feature of the real show.

C. A. L. R.

The Oil Treatment of Pellagra

To the Editor:—Much has been written about pellagra, its symptoms, etc., but very little has been written about its successful treatment; some physicians with large experience still believe that no pellagra patient in this country has recovered. Within the past 4 years I have had 16 cases, 7 being so far advanced that little or no treatment was given and the patients all soon died. The other 9 were all without a doubt true cases with all the classic symptoms of diarrhea, offensive stools, dermatitis, red tongue, insomnia, etc., and were treated by the oil method, which no one else so far as I know has used in such cases, with the following results:

The first 3 patients were treated about 4 years ago by means of petroleum emulsion, sulphocarbonates for the diarrhea and Morton wave and static sparks for the insomnia and nervousness. One, a woman, gained 30 pounds and remained symptomatically well for a year; 6 months after stopping all treatment she developed paroxysmal insanity and soon died. The other 2 kept up the petroleum for about one year and are still symptomatically well, though one had very strong religious delusions for some time. A man, treated later, is still taking the petroleum and has gained over 30 pounds and is in very good condition for the past year; though he is still a little nervous it is perhaps as much from fear as anything else because he has been told by so many doctors that he would never get well. Two others are steadily gaining and improving though they have taken the oil only for the past 3 months. Another, a hard-drinking man, was relieved of the severe dermatitis and diarrhea by 3 weeks' treatment and his mental condition cleared up much, but he soon returned to drinking and died.

Another patient has gained 23 pounds within the past 9 months—one teaspoonful of castor oil and 4 drops of turpentine at bedtime being more acceptable to the stomach and stopping the diarrhea better than the petroleum. A patient with chronic diarrhea and colitis of 7 months' standing, in whom the microscope showed no accountable cause, took the same small doses of castor oil and turpentine every night for 5 months and gained 31 pounds. This is simply mentioned to show what a decided effect the oils, neither of which is much absorbed, have on nutrition when kept up for a long period of time. It must be the cleansing and anti-zymotic effect.

In another case of three years' standing the patient improved for a while but soon had so much nausea that oils were not retained; she developed insanity and died.

The petroleum treatment is not offered as a specific. Though my series of cases is small it shows that the petroleum has certainly had a beneficial effect on almost every patient to whom it has been given if kept up long enough, as some of the patients did not improve much for from 4 to 6 weeks. In 4 of the patients a careful examination of the blood, stools and stomach contents was made which did not, however, show anything of importance—there was little or no hydrochloric acid present. Protozoa resembling the *Cercomonas intestinalis* were found in the stools but have never been considered pathogenic.

I ask the profession to make a patient and persistent trial of this method of treatment and report results. The results so far seem better than those offered by any other method of which I have read, 6 of the 9 patients being still alive, 2 being apparently well for 3 years.

J. W. TORRETT, B.S., M.D., Marlin, Tex.

P.S.—The preparation of petroleum used was that made by S. & D. or P. D. & Co., which contains 33.33 per cent. petroleum and 5 gr. each of hypophosphites of lime and soda to each dram given, being a little stronger than the N. E. preparation.

The Home Exchange Plan for Foreign Education of Children

To the Editor:—I believe that there are many physicians who would like to send their children to school in foreign countries for a year or two, but who hesitate on account of the great expense and the absence of parental care while the children are away. It seems to me that the home exchange plan offers a solution of the problem. Could not you, through THE JOURNAL, make arrangements with British, French and German journals by which a physician here would keep in school and be responsible for a foreign physician's boy or girl in exchange for the same care of his son or daughter in a foreign land? It seems to me that this plan has great possibilities.

C. A. EARLE, M.D., Des Plaines, Ill.

The Ice-Cap in Poliomyelitis

To the Editor:—In THE JOURNAL, Sept. 17, 1910, in the special article on "Epidemic Poliomyelitis," under treatment, you speak of elevation of the spine by pillows to prevent hyperemia of cord. Do you not think that the application of the ice-cap would greatly enhance the effect of this procedure?

In a recent case, that of a child 16 months old, the ice-cap was applied at the onset of the disease. The child usually slept when the ice-cap was applied and was peevish and restless until time for its reapplication. Both legs and part of the right arm were paralyzed. The child is responding freely to treatment. In this case the cold application certainly aided in the treatment and afforded relief to this unfortunate child.

CYRUS W. FRIDY, Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ARTICLES ON POLIOMYELITIS

To the Editor:—Please give me references to recent articles, in English, on acute anterior poliomyelitis.

C. H. TRAVIS, M.D., New Britain, Conn.

ANSWER.—The following are a few of the multitude of articles on this subject which have appeared since the first of this year:

"Acute Anterior Poliomyelitis," by A. J. Rosenberry, in *Southwestern California Practitioner*, January, 1910.

"Acute Poliomyelitis," by W. P. Herringham, in *Clinical Journal*, London, Jan. 26, 1910.

"Some Aspects of Poliomyelitis," by Sir William Gowers, in *British Medical Journal*, Feb. 5, 1910.

"Anterior Poliomyelitis—Infantile Paralysis," by L. L. Cazenaveite, in *New Orleans Medical and Surgical Journal*, February, 1910.

"Acute Anterior Poliomyelitis," by P. J. Peel, in *Chicago Medical Recorder*, February, 1910.

"Anterior Poliomyelitis," by E. J. Melville, in *Vermont Medical Monthly*, March, 1910.

"Acute Anterior Poliomyelitis," by J. W. Cokenower, in *New York Medical Journal*, May 14, 1910.

"Experimental Studies on the Etiology of Acute Poliomyelitis," by I. Strauss and F. M. Hinton, in *New York Medical Journal*, Jan. 8, 1910; abstracted in THE JOURNAL, Jan. 22, 1910, p. 319.

"Medical Aspects of Anterior Poliomyelitis," by L. R. De Buys; "Anterior Poliomyelitis—Etiology and Pathology," by C. W. Juval; and "Nervous Manifestations of Anterior Poliomyelitis," by E. M. Hummel, all in *New Orleans Medical and Surgical Journal*, March, 1910.

"Contagiousness of Poliomyelitis," by H. W. Hill, in *Journal of the Minnesota State Medical Association and Northwestern Lancet*, March 15, 1910; abstracted in THE JOURNAL, April 23, 1910, p. 1496.

"Anterior Poliomyelitis and Its Treatment by Muscle Training," by J. M. Berry and B. van Benbergh, in *Albany Medical Annals*, April, 1910.

"The Acute Stage of Infantile Paralysis," by O. Medin, of Stockholm, Sweden, and "Early Diagnosis of Poliomyelitis," by G. W. McIntyre, in *St. Paul Medical Journal*, May, 1910.

"The Epidemiology of Poliomyelitis," by Joseph Collins, in THE JOURNAL, June 11, 1910, p. 1925.

"Paralysis of the Neck and Diaphragm in Poliomyelitis," by I. Snow, in THE JOURNAL, June 11, 1910, p. 1929.

"A Possible Method of Infection in Poliomyelitis," by N. M. Shaffer, in New York Medical Journal, June 18, 1910.

Abstract of a symposium on poliomyelitis published in report of the meeting of the American Orthopedic Association in THE JOURNAL, July 2, 1910, p. 48.

"Fifty Cases of Poliomyelitis," by J. C. Master, "Clinical Varieties of Poliomyelitis," by H. M. McClanahan, "Acute Poliomyelitis," by F. E. Coulter, and "Poliomyelitis in Polk County, Neb.," by C. A. Anderson, appeared in Western Medical Review, August, 1910, and were abstracted in THE JOURNAL, Aug. 27, 1910, p. 802.

"Poliomyelitis." Editorial in THE JOURNAL, Sept. 3, 1910, p. 861.

"Pathology and Bacteriology of Acute Anterior Poliomyelitis," author's abstract of paper by Drs. H. E. Robertson and A. J. Chesley, in THE JOURNAL, Sept. 17, 1910, p. 1013; published in full in Archives of Internal Medicine, September, 1910, p. 233.

"Anterior Poliomyelitis: Methods of Diagnosis from Spinal Fluid and Blood in Monkeys and in Human Beings," by F. P. Gay and W. P. Lucas, in Archives of Internal Medicine, September, 1910, p. 330.

"Epidemic Poliomyelitis," discussed in Department of Therapeutics, in THE JOURNAL, Sept. 17, 1910, p. 1024.

"Epidemic Poliomyelitis—Infantile Paralysis." Editorial in THE JOURNAL, Sept. 17, 1910, p. 1031.

The following articles by Drs. Flexner and Lewis of the Rockefeller Institute have been published in THE JOURNAL since Jan. 1, 1910:

"Epidemic Poliomyelitis in Monkeys," January 1, p. 45; February 12, p. 535; April 2, p. 1140; May 28, p. 1780, and August 20, 1910, p. 262.

"The Contribution of Experimental to Human Poliomyelitis," by Dr. Flexner alone, Sept. 24, 1910, p. 1105.

ETIOLOGY AND TREATMENT OF ACNE

To the Editor:—Please give me the etiology and latest treatment of acne.
G. G. WHITE, Elkader, Iowa.

ANSWER:—Acne is a disease depending on both general and local causes. One important general cause is auto-intoxication frequently due to disturbances of the digestive organs and probably consists in the absorption of toxic products originating in the intestinal tract. These toxins lower the resistance of the skin to infections and consequently the sebaceous glands become a nidus for the proliferation of various micro-organisms. Among these, the most prominent are the *Bacillus acne*, described by T. W. Gilchrist, in an article in the *Journal of Cutaneous Diseases*, March, 1903, which was abstracted in THE JOURNAL, April 11, 1903, and various forms of pus cocci, particularly the *Staphylococcus albus*, which is said to be found especially in acne indurata.

The treatment of acne must be varied to suit the individual case. Elimination should be promoted and the diet so regulated that both the gastric and intestinal digestive processes proceed properly and thus prevent auto-intoxication. The bowels should be kept open by appropriate laxatives and in certain cases colonic flushing will be useful. Other general treatment depends on the condition of the individual patient.

The local treatment of acne depends on the principle of exciting an artificial hyperemia which is subsequently quieted by sedative measures. Accumulations of pus should be evacuated and comedones removed by the aseptic needle and comedo-extractor. Sulphur in lotion or ointment is one of the best applications for stimulating the skin. It may be applied as sulphur ointment U. S. P. or as liquor calcis sulphuratæ N. F. (Vleninck's solution). Before the application of sulphur it is well to bathe the skin in hot water for a moderate time and thoroughly wash with limimentum saponis mollis (tincture of green soap). This is rinsed off and the skin dried, after which the ointment may be applied. For soothing purposes an aqua calcis and zinc oxid lotion is of value:

R	
Zinci oxidl	10
Pulveris talci	8
Glycerinl	8
Sodii bicarbonatis	8
Aquæ calcis	120
Aquæ rosæ q. s. ad	240
M. Sig. For external use.	

In severe forms, Bier's hyperemic method may be found useful. Therapeutic vaccine injections have been used with considerable success. For these injections a stock or autogenous vaccine may be used. If the stock preparations are employed, the acne bacillus and *Staphylococcus albus* give the best results. In obstinate cases radiotherapy is useful, but should always be used with the greatest caution.

The treatment of acne is discussed in the Department of Therapeutics, in THE JOURNAL, Jan. 30, 1909, p. 384.

WAS IT A CURE OF "CONGENITAL DEAF-MUTISM?"

To the Editor:—A deaf-mute child, aged 3 years, was taken to an aurist. The parents stated that the child had given no signs of hearing since birth, except for very loud noise, and had never had any accident or disease to cause deafness. On inspection, the aurist found that the child responded to a sharp clap of the hands near the head. The tympanic membranes were slightly retracted, and there was a red glow from both middle ears. There were diseased adenoids; otherwise the child was all right. The birth of the child was natural. Removal of the adenoids and treatment developed hearing, and the child learned to talk. Is the aurist justified in claiming to have established hearing and speech for a "congenital deaf-mute?" If not, why?

MAURY M. STAPLER, M.D., Macon, Ga.

ANSWER.—The question asked by our correspondent is one capable of a double answer. "Congenital deaf-mutism," as generally understood, refers to a congenital, incurable, labyrinthine disease. Practically all children who have never talked, and who apparently do not hear by the time they are 2 or 3 years of age, have been condemned to this class and have been regarded as hopeless. Recently, however, some of these children, on careful and intelligent examination, have been found to be afflicted with prematurely developed adenoids, or more or less complete closure of the Eustachian tubes—or both—and relief of this condition, by operation and treatment, has resulted in the production of useful hearing. It is likely that the case to which our correspondent refers belongs to this class of relievable cases. The question as to whether the condition is congenital or not is a delicate, uncertain and technical one. It may have been—or it may not have been. Very likely it was, but the case is not one of the kind which is usually referred to when "congenital deaf-mutism" is mentioned. Nomenclature should be based on pathology. It is not in these cases. Further investigations will compel a more exact nomenclature.

VESICULAR STOMATITIS

To the Editor:—Please publish some information relative to this condition: A patient of mine for many years has had recurrent stomatitis in the form of small discrete ulcers. There is no discernible cause that I have been able to find. Burning with trichloroacetic acid relieves the pain for a short time. The ulcers appear in great numbers and then disappear, only to reappear.
X. Y. Z.

ANSWER:—This condition is a form of vesicular stomatitis. Its etiology is not well understood but it appears to be favored by depressed states and by disturbance of the digestive tract. The treatment indicated above or touching with a stick of silver nitrate is usually efficient. The urine should be examined for indican or other indications of auto-intoxication and search should be made for any general condition which may serve as an etiologic factor. Good hygiene may assist in preventing the recurrence.

INTERNATIONAL HYGIENE EXHIBITION

To the Editor:—Please give the date of the International Sanitary Congress, which will be held in Dresden.
E. M. VANBUSKIRK, Fort Wayne, Ind.

ANSWER:—Our correspondent probably means the International Hygiene Exposition, which is to be held in Dresden, May to October, 1911. A letter appears in the Correspondence Department of this issue on the subject.

PARALYSIS (POLIOMYELITIS?) IN YOUNG ANIMALS

To the Editor:—Owing to the wide-spread interest in the etiology of anterior poliomyelitis, I take the liberty of reporting the following coincidence. I have had several cases of this disease, but in no instance could I trace it to any pre-existing disease or condition. Recently I was informed by the parents of one of my patients that about three weeks prior to the sickness of the child a spring pig became paralyzed in its hind legs and a week later two more pigs were affected in the same way. The paralysis lasted about two weeks, during which time the pigs were helpless and then gradually improved.

I have talked with farmers who tell me of several such instances among young pigs, but they ascribe it to overfeeding. What relation this trouble among the pigs bore to the paralysis of the child is not known.
MERTON FIELD, Minnesota Lake, Minn.

ESPERANTO GRAMMAR

To the Editor:—As there is much irresponsible criticism of Esperanto, especially on occasion of the recent international convention in Washington, I want to offer an opportunity for every thinker to judge for himself. I have had prepared 100,000 brief grammars of the language in pamphlet form, and will send one free to any person who is sufficiently interested to ask for it, enclosing stamp for reply. I think it really due to this great movement for an international auxiliary language, which now embraces fifty nations in its scope, that all interested have the opportunity of judging for themselves.

700 E. Fortleth Street, Chicago. ARTHUR BAKER.

The Public Service

Medical Department, U. S. Army

Changes for the week ended Sept. 24, 1910.

Long, Charles J., dent. srng., Sept. 16, left Madison Bks., N. Y., on 2 months' leave of absence.

Munson, Edward L., maj., Sept. 17th, is detailed to attend and deliver lecture at the Twelfth Annual Convention of the National Guard Association of the United States at St. Louis, Oct. 3, 1910.

Frick, Euclid B., lieut. col., Sept. 13th, in addition to his present duties will take charge of the office of the chief surgeon, Department of California, during the absence of Lt. Col. H. S. T. Liarris, Med. Corps, at Camp Atascadero, Cal.

Ashburn, P. M., maj., Sept. 14, left Army General Hosp., San Francisco, enroute to Camp Atascadero, Cal.

Gibson, Paul W., M.R.C., Sept. 15, left Ft. Yellowstone, Wyo., on 10 days leave of absence.

Burket, John A., lieut., Sept. 15, left Ft. Riley, Kansas, with the 17th Cavalry, on practice march.

Cole, C. C., capt., Sept. 16, granted leave of absence to and including Oct. 15, 1910.

Marshall, John S., E. S. and D. S., Sept. 16, ordered to Columbus Barracks, Ohio, for duty.

Scott, Harold O., D. S., Sept. 16, relieved from duty at Columbus Barracks, Ohio, and ordered to Ft. Hamilton, N. Y., for duty.

Norris, H. C. R., M.R.C., Sept. 16, granted leave of absence for one month and 19 days. Sept. 16, left Vancouver Barracks, Wash., enroute to Martin, N. D., for further orders.

Lauderdale, D. S., civil engineer, Sept. 17, left Ft. Logan, Colo., on 10 days' leave of absence.

Bayley, R. C., lieut., Sept. 19, relieved from further duty in Philippine Div., to take effect on arrival at San Francisco, on transport *Logan* and will report to Supt. Army Transport Service for assignment to duty as surgeon of the *Logan*.

Cowles, Calvin D., Jr., lieut., Sept. 19, will on being relieved from duty as surgeon of the transport *Logan*, by Lieut. Bayley, report by telegraph to the Adjutant General of the Army for further orders.

Kerr, Robert W., lieut., Sept. 19, relieved from further duty in the Philippine Div., to take effect on arrival at San Francisco, on transport *Sheridan*, will report to the Supt. Army Transport Service for assignment as surgeon of the *Sheridan*.

Tasker, Arthur N., lieut., Sept. 19, will on being relieved from duty as surgeon of the transport *Sheridan*, by Lieutenant Kerr, report by telegraph to the Adjutant General of the Army, for further orders.

The following named first lieutenants, Medical Reserve Corps, recently appointed, are ordered to active service, to take effect Sept. 20, 1910, and will proceed to this city and report in person, at 9 o'clock, a. m., Oct. 1, 1910, to Col. Louis A. La Garde, Med. Corps, President of the Army Medical School, for a course of instruction at that school: Fred R. Burnside, Frank N. Chilton, John S. Coulter, William Denton, Harry G. Ford, James F. Johnston, William P. Lamb, Carl A. Scherer, Gordon B. Underwood, James H. Wilson, Faris M. Blair, Albert P. Clark, Edgar D. Craft, George G. Divins, Frederick H. Foucar, Lloyd A. Keffauver, Charles E. McBrayer, Joseph L. Siner, Alleyne von Schrader, William T. Cade, Jr., Billis S. Connor, Samuel S. Creighton, Lauren S. Eckels, Bert R. Huntington, George B. Lake, George E. Pariseau, John H. Trinder, John M. Willis.

Le Wald, Leon T., capt., resignation of his commission as an officer of the Army accepted, to take effect Sept. 25, 1910.

Norris, Harry C., M.R.C., Sept. 20, honorably discharged from the service of the United States to take effect Nov. 7, 1910.

Cole, Blase, M.R.C., Sept. 20, relieved from duty at Ft. Crook, Neb., and ordered to proceed to this city for a course of instruction at the Army Medical School, commencing Oct. 1, 1910.

Pierson, R. H., capt., September 17, left Vancouver Barracks, Wash., enroute to Ft. Plager, Wash., for duty.

Register, E. C., M.R.C., Sept. 19, left Ft. H. C. Wright, N. Y., on 10 days' leave of absence.

Knox, Howard A., lieut., Sept. 22, left from detached duty to Ft. Myer, Va., on 10 days' leave of absence.

Heflebower, Roy C., lieut., Sept. 22, left Ft. Hamilton, enroute to Ft. Slocum, N. Y., for temporary duty.

Flynn, Thomas J., M.R.C., Sept. 21, 1910, the leave of absence granted him by S. O. No. 156, Sept. 17, 1910, Fort Ethan Allen, Vermont, is extended three days.

Cruo, Wayne H., lieut., Sept. 21, granted two days' leave of absence.

Davis, Wm. R., capt., Sept. 21, granted two months' leave of absence.

Sweazey, Verge E., capt., Sept. 21, now on leave of absence, will repair to this city and report in person to the Adjutant General of the Army, for further orders.

Medical Corps, U. S. Navy

Changes for the week ended Sept. 24, 1910.

Pleadwell, F. L., surgeon, detached from the Naval War College, Newport, R. I., and ordered to temporary duty in the Bureau of Medicine and Surgery, Navy Department.

Koltes, F. X., P. A. surgeon, commissioned P. A. surgeon from May 4.

Hollard, H. L., P. A. surgeon, commissioned P. A. surgeon from July 12.

May H. A., P. A. surgeon, detached from the *Charleston* and ordered to the Naval Hospital, Mare Island, Cal.

U. S. Public Health and Marine-Hospital Service

Changes for the week ended Sept. 21, 1910.

Cassaway, James M., surgeon, granted 1 month's leave of absence from Sept. 7, 1910, on account of sickness.

White, J. H., surgeon, granted 7 days' leave of absence from Sept. 17, 1910.

Williams, L. L., surgeon, granted 7 days' leave of absence from Sept. 19, 1910, under paragraph 189, Service Regulations.

McIntosh, W. P., surgeon, granted 7 days' leave of absence from Sept. 23, 1910.

Parker, H. B., P. A. surgeon, granted 3 days' leave of absence from Aug. 25, 1910, on account of sickness.

Anderson, John F., P. A. surgeon, directed to proceed to Ellis Island, N. Y., on special temporary duty.

Goldberger, Joseph, P. A. surgeon, granted 1 month's leave of absence from Sept. 26, 1910.

Schereschewsky, J. W., P. A. surgeon, directed to report at Bureau on special temporary duty.

Francis, Edward, P. A. surgeon, directed to proceed to Philadelphia, New York and Detroit, on special temporary duty.

McCoy, George W., P. A. surgeon, directed to proceed to Berkeley, Cal., on special temporary duty.

Warren, B. S., P. A. surgeon, detailed to represent the Service at the meeting of the state health officers, to be held in Waterloo, Iowa, Sept. 20, 1910.

Rucker, William C., P. A. surgeon, leave of absence for 1 year without pay from June 4, 1910, amended to read from June 4, to Sept. 14, 1910. Granted 10 days' leave of absence from Sept. 14, 1910.

Stanton, J. G., acting asst.-surgeon, granted 26 days' leave of absence from Sept. 21, 1910.

Curley, C. P., acting asst.-surgeon, granted 21 days' leave of absence from Sept. 22, 1910.

Board of medical officers convened to meet at the marine hospital, San Francisco, Sept. 26, 1910, for the examination of Assistant Surgeon Frieuch Simpson, to determine his fitness for promotion to the grade of Passed Assistant Surgeon. Detail for the board: Surgeon Rupert Blue, chairman; Passed Assistant Surgeon F. E. Trotter; Passed Assistant Surgeon R. E. Ebersole, recorder.

Board of medical officers convened to meet at the marine hospital, Stapleton, N. Y., Sept. 26, 1910, for the examination of Assistant Surgeon R. A. Herring, to determine his fitness for promotion to the grade of Passed Assistant Surgeon. Detail for the board: Surgeon Hiram W. Austin, chairman; Passed Assistant Surgeon W. A. Korn; Passed Assistant Surgeon George L. Collins, recorder.

Board of medical officers convened to meet at Philadelphia, Pa., Sept. 21, 1910, for the purpose of determining the physical condition of Surgeon Eugene Wasdin. Detail for the board: Surgeon Hiram W. Austin, chairman and Surgeon W. G. Stimpson, recorder.

Society Proceedings

COMING MEETINGS

American Association of Railway Surgeons, Chicago, October 19-21.

Colorado State Med. Soc., Colorado Springs, October 11.

Delaware State Med. Soc., Wilmington, October 11.

Hawaiian Territorial Med. Assn., Honolulu November 26-28.

Idaho State Medical Association, Boise, October 6-7.

Medical Association of the Southwest, Wichita, Kan., Oct. 11-12.

Minnesota State Medical Association, Minneapolis, October 6-7.

Pennsylvania Medical Society of State of, Pittsburg, October 3-6.

Southern Medical Assn., Nashville, November 8-10.

Utah State Medical Association, Salt Lake City, October 3-4.

Vermont State Medical Society, St. Albans, October 13-14.

Virginia Medical Society of, Norfolk, October 25-28.

West Virginia State Medical Assn., Parkersburg, October 5-7.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION

Thirty-Sixth Annual Meeting, Held at Detroit, Sept. 13-15, 1910
(Concluded from page 1135)

President's Address: Teaching of Clinical Psychiatry; A Medical Educational Problem

DR. FRANK P. NORBURY, Hospital, Ill.: The opportunities at hand should be utilized, new ones developed, higher ideals created, and ethical educational standards readjusted. The fundamental fact of the present controversy regarding medical education is that it is a part of the educational propaganda of the century—a world movement. In this country, guided in constructive analysis in medical education by the Council on Medical Education of the American Medical Association, this progress is based first on the integration of the educational system; second, on the standardizing of undergraduate work; third, on the standardizing of professional courses in medicine. A virile contributory constructive power is the report of the Carnegie Foundation for the Advancement of Teaching. Modern medical education is in the transitory stage in teaching clinical medicine. This transition began with Osler's work at Johns Hopkins when he demonstrated that "teaching hath her victories no less than research." Clinical medicine to-day includes the interpreters as well as the research workers. Medical sociology is the enlarged appreciation of the value of clinical medicine extended to the problems of etiology, preventive medicine, occupational diseases, and general and special civic problems. The scope and value of such work is unappreciated by the unthinking masses of our profession. Clinical psychiatry is prominent

in this field of newer clinical activity. It is in contact with more points in life, its realities, its ignorance, its prejudices, its ethical discordances, and falsifications, than any other department of medicine. The teacher must be a biologist in its widest clinical interpretation, a sociologist that he may grasp all etiologic factors, and an internist that he may be in touch with all of the physical factors entering into the problem. Modern medical teaching must give to the student the opportunity to see the whole at near range. The teaching of psychiatry is a state need, just as much as any other problem of preventive medicine.

Address in Surgery: Diagnosis of Surgical Lesions of the Kidney by the X-Ray and the Cystoscope

DR. LOUIS FRANK, Louisville, Ky.: Although the diagnosis of the character of new growths in the kidney may be impossible before operation, the recognition of a surgical lesion and of the surgical indications is not, as a rule, attended with great difficulty, provided thorough, painstaking and complete examination of the individual is made. In renal calculus the cystoscope and the radiograph furnish a means for physical examination which in the presence of even obscure symptoms will render the diagnosis in most cases practically certain. The cystoscopic examination frequently shows a swollen ureteral orifice. The passage of the ureteral catheter will at once show from which kidney the blood or pus in the urine is coming. The cystoscope is not nearly so valuable an aid as the Roentgen-ray. It does show whether one kidney alone is involved, or whether or not a kidney has ceased to functionate. As a confirmatory diagnostic means the greatest value of the radiograph is in connection with renal calculi. The predominant signs of most renal affections of a surgical character are pain, hemorrhage, urinary disturbance, and tumor. One or more may be absent, or they may all be present in any given case.

Address in Medicine: The Modern Physician, His Successes, His Failures, His Future

DR. JOHN K. MITCHELL, Philadelphia: A time will come, since the disappearance of all disease is unlikely, when governments will make a more organized contest against it, and will teach and enlist all physicians in a common army as now they educate and pay the soldier. This must come, because with improved sanitation and the constant advance of preventive means, illness will grow infrequent, so that unless he is a paid servant of the state the physician will not be able to exist. When that army is enlisted, the occurrence of preventable diseases will be as much a matter for court martial and the punishment of the person who allowed it to pass him as the failure in duty of a soldier asleep at his post. In that golden future in which sickness will be as rare as war is now, instead of being a single-handed fighter, the physician will serve as an enlisted man in the great battle for life and strength against illness and pain; he will have no new duties, perhaps, but new powers—ability to enforce obedience to laws of health—until, under wise ways of life, death, the one unmedicable disease, shall come only to the aged, approaching without notice, to be met without fear, bringing an ending peaceful and calm after an active life and a quiet old age.

Pulmonary Tuberculosis and Syphilis

DR. ROBERT H. BARCOCK, Chicago, discussed the relationship of these diseases and drew the following conclusions:

1. The effect of the association of pulmonary tuberculosis and syphilis seems to depend largely on the stage of the primary disease during which the second infection is acquired.
2. The acquisition of syphilis during the incipient or early period of tuberculosis appears to be of a negative influence or even in some instances to exert a retarding or curative effect on the tuberculosis.
3. Syphilis acquired by a consumptive in an advanced stage is likely to aid the downward progress of the tuberculosis.
4. Tuberculosis when developed during the primary or secondary stage of syphilis offers a bad prognosis and is apt to run a rapid course.
5. When pulmonary tuberculosis develops during the third or late stage of syphilis, it is apt to pursue a slow course, probably because of the tendency of the lues to sclerosis during this stage.
6. The association of these two diseases does not preclude the mercurial treatment of the syphilis by intramuscular injections and

inunctions, but iodine if administered at all must be used cautiously because of its tendency to hasten softening of the tuberculous foci.

7. During the antisyphilitic medication there should be no relaxation in the hygienic measures recognized as necessary in the management of the tuberculosis.

The Interpretation of Jaundice

DR. C. N. SMITH, Toledo, Ohio, gave an interpretation of jaundice as observed in gallstone disease and its associated conditions—the interpretation of a symptom which is both infrequent and inconstant, and, at best, indicative only of complications, or terminal events.

DISCUSSION

DR. J. H. CARSTENS, Detroit: Catarrhal jaundice is caused by gastroduodenal catarrh, so-called. A patient will have jaundice and in the course of five or six weeks it will disappear, and whether treatment has any effect or not I have grave doubts. I had this form of jaundice myself. I took everything my physicians told me to take—sweet oil, calomel, and many other things—but the jaundice continued. I then restricted my diet to nitrogenous food, and did not take any carbohydrates, oils, fats, etc., but some good lean beef, some eggs and water, and in a short time the jaundice disappeared.

DR. R. N. MURRAY, Flint, Mich.: After suffering from jaundice for a considerable period of time and having tried various remedies, at the request of a Flint physician I took ammonium hydrochlorid in doses of from 10 to 15 grains every 2 hours, and in 4 days the jaundice cleared up.

A New Principle in Treatment of Exophthalmic Goiter

DR. G. W. CRILE, Cleveland, Ohio: The benefits which follow the ligation of the superior thyroid artery are due for the most part to the break of the nerve supply which is inevitable in the course of the ligation. In exophthalmic goiter the thyroid shows a work hyperplasia, and the brain cells show a work exhaustion. In this condition the brain sends a more or less constant flow of stimuli into the thyroid, and which responds by an increase in its secretion. This increased secretion causes an increased activity of the brain cells. In this manner the brain and the thyroid reciprocally goad each other, and this deadlock, if not broken, continues until one or the other is worn out. This, I believe, is the explanation of the curious ending one occasionally observes, namely, the sequence of myxedema and exophthalmic goiter. Breaking of the nerve connection between the brain and the thyroid gland renders the disease curable. In no case is a cure effected by operation alone, and no patient is cured until the thyroid and the brain are both restored to the normal. This is best secured by operating in such a manner that there is no excitation of the nervous system, nor of the thyroid; hence no volatile outbursts during or after the operation, and no operative danger; the patient then should be placed in a rest cure for a month or more, depending on the severity of the disease. If, on the other hand, the patient after the operation is at once immersed in the environment in which the disease originated, there will be many disappointments. The plan of treatment by a combination of a benign operation, followed by a prolonged rest cure, will restore the patient, in so far as tissues are not already irreparably destroyed, to the bloom of health.

Surgery of the Great Sciatic Nerve

DR. B. M. RICKETTS, Cincinnati, reported two cases of complete severance of this nerve with subsequent anastomosis, and drew the following conclusions:

1. Compression for sciatic neuralgia hardly justifies the effort.
2. Acupuncture with the injection of electricity or medicaments through an open incision is to be recommended.
3. Acupuncture without open incision is most difficult and uncertain to accomplish good results.
4. The use of a metal wire and tube for direct multiple injections should be encouraged.
5. Stretching the nerve for neuralgia has been more or less beneficial, and second in choice before more radical measures are employed.
6. Neurotomy without suture is to be condemned, but it should be employed before sacrificing any of the nerve tissue.
7. Neurotomy is the last of surgical measures to be employed for neuralgia.
8. Neurorrhaphy (primary or secondary) should be done in cases in which the nerve has been partially or completely severed by any cause.

9. The great sciatic nerve may be completely divided and may remain so indefinitely without great loss of sensation.

10. Both sensation and motion may be improved or completely restored by coapting the severed ends with sutures.

11. A small needle and silk are attended with less trauma than those of larger size.

12. Anesthesia may be local or general.

Surgery of Musculospiral Paralysis

DR. A. H. BARKLEY, Lexington, Ky., drew the following conclusions:

1. Many patients have been operated on but comparatively few cases have been reported.

2. In cases of trauma, associated injury of the musculospiral nerve may be and frequently is overlooked.

3. The anatomic position of this nerve renders it peculiarly liable to trauma.

4. Injuries, such as fractures, falls and blows, are the most frequent cause in the order named.

5. The paralysis occurs with equal frequency in both arms, the middle and lower third being the most often affected.

6. The musculospiral nerve is injured oftener than any other nerve and the injury not infrequently serves as ground for legal action.

7. The condition is more frequent in males and may occur at any age, more especially between 10 and 30 years.

8. In cases in which complete loss of sensation and motor function follows severe injury, the probabilities are that the nerve has been injured and operative interference is indicated. In cases following slight trauma the patients often recover without operation; however, if no improvement is noticed after 2 or 3 months, operation is justified.

9. Secondary cases sometimes present technical difficulties not present in primary cases.

10. No one symptom is pathognomonic and the pathologic condition varies so widely that it is impossible to state before operation with much certainty the exact condition present in a given case.

11. Prognosis is good in clean cases. Especially is this true when operative has been resorted to early. One of the most important determining factors is the length of time the injury to the nerve existed.

12. Operative treatment depends on the individual case; the earlier the operation the better the result. Small round needles and fine silk have given best results.

13. All patients with injuries to the arm, especially fractures, should be impressed with the possibility of the development of musculospiral paralysis.

Rôle of the *B. Coli* Communis in Acute and Chronic Dilatation of the Stomach

DR. F. B. TURCK, Chicago: The *B. coli* plays a part in the gastrointestinal tract in producing lesions in the liver, kidney, stomach and other organs. Experiments were begun with intraperitoneal injections into dogs, rabbits, guinea-pigs and rats. The results obtained were variable and inconstant. On feeding animals with bouillon cultures of the *B. coli* daily over a period ranging from 3 to 14 months, lesions were found in the stomach, duodenum, liver, kidney, brain and spinal cord, varying according to the methods, quantity and character of culture. It was found that animals fed with cultures of *B. coli* would acquire acute or chronic dilatation of the stomach by overworking or overloading the stomach. Examination of the blood showed that it remained sterile during the experiments, and the heart's blood at death was also sterile. In feeding cultures of the bacillus pronounced changes were revealed in the blood and tissues. Agglutination of *B. coli* by the dog's serum was noted; hemolysis of the blood was evident; cytotoxicity and autolysis of the cells of the mucous membrane of the stomach, kidney, liver and other organs were marked on microscopic examination. But there was no bacteremia, no inflammatory reaction in the form of round-cell infiltration, such as one would expect in a reactionary inflammation induced by pyogenic micro-organisms or toxins. It was not the picture of reaction to an infection, but rather a systemic condition of induced cellular change. When feeding was continuous, an acute process was the characteristic picture. When feeding was stopped, the lesions healed. If the feeding was interrupted for a considerable period at short intervals, then resumed, chronic lesions were produced, with round-cell infiltration. It would seem that chronic lesions were simply acute processes interrupted at certain intervals, or a series of acute processes. To obtain spontaneous acute or chronic dilatation of the stomach in animals, it was necessary to feed the animals with cultures of *B. coli* over a long period of time, followed by over-use of the stomach, especially increasing the intragastric pressure. The usual methods of treatment are gastric lavage; diet frequent, but light meals; drugs, such as tonics, laxatives, alkalies, or acid, as indicated; electricity and exercise; hydrotherapy, balneology, rest and recreation. On the failure of these methods, surgical operation is indicated.

Acute Abdominal Manifestations of Syphilis

DR. LOUIS A. LEVISON, Toledo, Ohio, read a paper on this subject which he summarized as follows:

1. Syphilis showing acute abdominal manifestations is not uncommon, but is not generally recognized.

2. The liver is the organ most often affected.

3. Abdominal manifestations occur more often in the tertiary stage.

4. Syphilis of the stomach can simulate most of the ordinary gastric diseases.

5. The symptoms of acute abdominal manifestations of syphilis are in no way diagnostic and include pain, tenderness, fever, jaundice, chills and sweats.

6. The gastric crises of tabes may be considered syphilitic in nature.

Etiology of the Functional Neuroses

DR. ELEANORA S. EVERHARD AND DR. GERTRUDE FELKER, Dayton, Ohio, contributed a joint paper on this subject, in which they drew the following conclusions:

1. The common element in the attributed causes of the functional neuroses is to be found in the fact that the mental processes are not directed; therefore, the patient is the victim of any stimulus which chance may keep before the mind, and that there is no limit to the destruction of efficiency which may result.

2. Those symptoms commonly called nervousness are worthy of serious consideration because they indicate some degree of lack of control of nerve processes.

3. Self-indulgence by training the mind to follow the lines of least resistance predisposes to these neuroses.

4. The value of living in accord with the laws of hygiene cannot be overestimated, both because of its influence on nutrition, and because it requires a measure of self-control, but that alone is insufficient.

5. Conditions of life which demand of the individual, in his vocation or avocation, less exercise of attention and will than he is capable of enduring without fatigue, bear to his nervous system the same relation that lack of muscular exercise bear to his muscular system.

6. Intelligent education at any age is effective, but since the ideal is prevention, the habit of directing mental processes should be established early.

Standardization of Bacterins

DR. R. T. PETTIT, Ottawa, Ill.: The value of bacterin therapy as a general aid to local treatment in certain types of bacterial infections is pretty well established. In the preparation of vaccines I do not try to estimate the number of bacteria present in a given volume. I take up a twenty-four hour blood agar growth of streptococci in a definite amount of salt solution, shake thoroughly, centrifuge to throw down the clumps, put in a bottle specially prepared and kill by heat or carbolic acid. Then I make a 1:10 or 1:100 dilution of this full emulsion and give an initial dose of 5 c.c. of the 1/100 dilution. This induces very little or no reaction. The dosage is then increased up through the 1:10 dilution and full emulsion to the point of local reaction. Then I proceed slowly, keeping in mind that the reaction induced and results obtained are the true indices of dosage. The reaction to be aimed at is a slight or moderate local reaction, an area of redness about the size of a dollar, without the localizing or general phenomena. By using increasing doses up through a series of dilutions this can be procured with a fair degree of accuracy and an estimation of the number of bacteria used is entirely superfluous. The full emulsion can be called 100 per cent. and 10 per cent. and 1 per cent. dilution of this full emulsion may be made. The doses can be recorded as 1, 2, 5, 7 c.c., etc., of the 1 per cent., 10 per cent., or 100 per cent. emulsions. The advantages of a dilution method of estimating bacterial suspensions over a numerical are several. 1. The reaction, the real index of dosage is relied upon and the empirical administration of bacterins is made less possible. 2. An index of antibody production is aimed at. 3. By using this method vaccines can be prepared with much greater rapidity, at least an hour is saved on each bacterin prepared, and if bacterins prove to be of value in acute infections—and the recent work of Dr. Rosenow, of Chicago, on artificial immunization in pneumonia seems to point in this direction—the time saved will be an important factor.

Treatment of Pernicious Anemia Associated with Achylia Gastrica

DR. A. C. CROFTAN, Chicago, submitted a clinical report in regard to the treatment of a certain group of pernicious anemia cases and described three cases in which the patients had been improved rapidly and have remained symptomatically well, without remissions, to date. The one constant factor

seen in the cases of pernicious anemia observed during a period of years that were not distinctly attributed to the effect of syphilis, carcinoma, parasites or profound and continuous loss of blood was a lack of hydrochloric acid from the stomach contents, associated with a variety of digestive disturbances, allied with varying degrees of chronic under-nutrition. That all cases of hyperchlorhydria and all cases of chronic under-nutrition do not develop pernicious anemia calls for the inclusion of some specific factor or factors, hitherto unknown. At all events, the supplying of large quantities of hydrochloric acid, together with abundant proteids by mouth and by rectum, seemed a favorable point of attack and was persistently carried through with gratifying results. From the results obtained, the conclusion was drawn that a trial of this plan in this group of cases is decidedly worth while and seem to produce results not otherwise obtainable by any means so far described.

Diagnosis of Trifacial Neuralgia

DR. H. T. PATRICK, Chicago: In the majority of cases the diagnosis of the douloureux should be easy and certain, as the traits of the disease are few and striking. But a number of other disorders have been referred to me as trifacial neuralgia; the most frequent have been migraine and sinus disease. Others were syphilis, brain tumor, alveolar abscess, and other dental disease, nasal disease, herpes zoster, neurasthenia and lesion of the optic thalamus. The pain of trifacial neuralgia is practically unique. There is nothing else just like it. It is short and sharp, in the beginning only a flash or jab or shot. The interval may be anywhere from a second or two to weeks or months. In the fully developed disorder the paroxysms may last a minute or two and the free intervals be so short that the pain seems continuous. It never really is so. Nearly every patient has intermissions of weeks, months, or even years, during which he is entirely free from pain. One of the most striking peculiarities of the affection is that the paroxysms or jabs of pain are started by slight peripheral irritation, such as washing the face, using a handkerchief, stroking the mustache or the touch of a glass to the lips. I think that the automatic act of winking often acts as an excitant. Such slight sensory stimulus in the area of one division of the nerve may occasion pain in another division. For instance, touching the lower lip may start a pain not in this region, but in the supraorbital area.

Water, the Main Factor in the Prevention of Disease

DR. J. C. MIXER, Hot Springs, Ark.: Nutrition and elimination are the main factors in maintaining health; but of the two elimination is absolutely necessary and must be continuous and invariably performed equally by the sewers of the body. There is little or no vicarious action in the emunction of health and disease. One cannot flush sewers without water and if regular flushing is to be done the water must be furnished the body regularly, and the purer the better. Normal resisting power prevents invasion of any and all diseases; it depends on normal distribution of food, normal lubrication of all body structures and normal excretion of all waste products. Unless food be distributed to the system properly it will become a detriment instead of a help. It cannot be distributed properly without the proper amount of water taken in at the proper time. The stomach is the kitchen in which pabulum is prepared for the system. The small intestine is the table from which the system is served. The system will be served with only just enough, the remainder is thrown through the cecal valve into the sewer. If food is badly digested the system rejects it. If food be more than the system requires the surplus is also rejected. All rejected food is an irritant. May it not be a cause for appendicitis? There is a proper time for taking the proper amount of water. One's judgment should govern the measure of water to be taken with food. To take too much water just before, during or just after a meal, would, so to speak, be to put out the fire in the kitchen, while not enough fluid would compel the stomach to borrow too heavily from the systemic volume. The one would retard digestion and the other would give imperfect digestion.

Gradual Evolution of a Sane Therapy in Tuberculosis

DR. F. M. POTTENGER, Monrovia, Cal.: The position of the sanatorium in the rational treatment of tuberculosis is important. If the sanatorium is conducted on the proper lines it affords the best circumstances under which the known measures, which have influence in building up and curing the patient, may be applied. The home treatment, however, is one of the greatest boons to tuberculous patients, because most patients are not able to be treated in sanatoria and must be treated in their own homes. The true position of home treatment can be readily understood by the fact that it is an attempt to apply sanatorium discipline and sanatorium conditions to the home.

Intestinal Surgery with a Demonstration of a New Method of Suturing the Bowel

DR. A. E. BENJAMIN, Minneapolis: The various instruments and appliances formerly used to facilitate the surgeon in his work on the intestines have almost all been discarded for the simple but efficient method of intestinal anastomosis by thread and needle. The work should be carefully but rapidly performed. A positive blood supply to the tissues making up the anastomosis is necessary. The end-to-end method is not so certain; therefore, the side-to-side anastomosis should be chosen when convenient. The evolution of the intestinal suture has brought us to the point where we are certain of good results, when the sutures are properly applied and are of the right material. Non-absorbable suture material should be cast off into the lumen of the intestine after serving its period of usefulness, and this is best accomplished when used for the inner layer; there is then less destruction of tissue. When placed externally it promotes unnecessary adhesions, plastic exudate and fibrous bands. It may interfere with proper bowel function, because of its prolonged irritation. Absorbable suture material used for the outer layer is soon taken care of and does not cripple the action of the intestine. The application of the suture in intestinal work has been carefully studied. It must serve the purposes of controlling hemorrhage, proper coaptation of the tissues, security against leakage, must avoid pursing, be quickly introduced and not strangulate the tissue. The back-lock stitch of Pagenstecher's thread as applied by the author for the inner-layer serves all these purposes. Experimental work has demonstrated that chromic catgut lasts sufficiently long when employed as the outer suture for positive and firm union to occur. The after-treatment of cases of suturing the bowel should be carefully supervised by limiting the diet, starvation treatment, if necessary, until the union is sufficiently strong before it becomes necessary for the bowels to be called on to pass their contents onward. A perfect, clean and satisfactory result is obtained with the inner Pagenstecher lock-stitch, and a chromic catgut stitch for the outer in intestinal anastomosis.

Other Papers Read

The following papers were also read: "Requirements and Limitations of Nitrous Oxid and Oxygen Anesthesia," by Dr. C. K. Teter, Cleveland; "Myositis Ossificans Progressiva," by Dr. A. R. Elliott, Chicago; "Neurologic and Psychiatric Aspect of Tuberculosis," by Dr. C. H. Hughes, St. Louis; "Preliminary Report of Cases Treated by Spengler's Tuberculosis Immune Blood," by Dr. W. F. Woolston, Chicago; "Operation for Cleft Palate," by Dr. G. V. I. Brown, Milwaukee; "Office Treatment of Aural Disease," by Dr. W. W. Pennell, Mt. Vernon, Ohio; "Prostatic Hypertrophy," by Dr. J. E. Cannaday, Charleston, W. Va.; "Wassermann Reaction," by Dr. W. T. Mefford, Chicago; "Pyloric Stenosis in the Infant," by Dr. W. D. Haines, Cincinnati; "Pleural Effusions, Their Diagnosis and Treatment," by Dr. E. B. Montgomery, Quincy, Ill.; "Psychic Factor in the Causation of Certain Functional Psychoses," by Dr. C. F. Read, Hospital, Ill.; "Rôle of Physician, Philanthropist, Publicist and Politician Regarding a Federal Department of Health," by Dr. L. H. Montgomery, Chicago; "Non-Operative Treatment of the Prolapsed and Dilated Stomach and Abdominal Viscera," by Dr. N. Rosewater, Cleveland.

AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION*Twentieth Annual Convention, held at Saratoga Springs, N. Y.,
Sept. 13-15, 1910*The President, DR. T. D. CROTHERS, Hartford, Conn., in the
Chair**The Physics of Light Therapy**

DR. T. D. CROTHERS, Hartford, Conn., reported an exhaustive study of the theories of light, of the many forms and modifications of light, and of the diverse ways in which light is utilized in treatment of disease.

Report on Phototherapy and Apparatus

DR. C. R. DICKSON, Toronto, Canada: Further observations have served to confirm the theory, which is now a well-established fact, that light rays do penetrate the skin and underlying tissues and exert their influence not alone locally, as when concentrated in the treatment of local lesions even to the point of desiccation and canterization, but are also taken up by the circulation and induce systemic changes not equaled by any other physical agent.

Report on Dietetics

DR. BYRON S. PRICE, New York, read this report, which gave the present-day opinion of authorities in experimental work with regard to foods and their effects when taken into the body, and their relation to auto-intoxication, especially having in view the prevention of arteriosclerosis and allied conditions. The report considered in this relation the physical, chemical, physiologic and pathologic conditions of food and of digestion and elimination, as well as the scientific explanation of why milk, farinaceous and other foods act differently in different conditions.

Standardization of Therapeutic Measures

DR. W. B. SNOW, New York, reported that a survey of the year's progress in physical therapeutics marked a movement toward a more general tendency to the adaptation of rational standardization, away from irrationalism and empiricism, and discussed the various physical therapeutic measures in detail.

Report of X-Ray Treatment of Splenomyeloid and Lymphoid Leukemia, with Blood Findings in Each

DR. J. W. TORBETT, Marlin, Texas, reported two cases, one of each variety, in order to emphasize the importance of observing Pancoast's and Stengel's precautions in treating each class of cases. In the first case, the patient died 16 days after taking the first x-ray treatment. It would have been better to treat the arms and legs alone as Pancoast had advised. The second patient showed some improvement under x-ray treatment.

Psoriasis

DR. HERBERT MCINTOSH, Boston, reported several cases of psoriasis in which the characteristic eruptions were removed by a combination of physical methods of treatment. In his practice he had usually associated the x-ray with the light treatment, in a desire to hasten the cure, though the x-ray could probably be dispensed with. One should not fail, he said, to counsel hygienic living, proper exercise and regulation of the diet, excluding meat as being unfavorable to the progress of the cure.

High Frequency Currents

DR. F. DEKRAFT, New York, called particular attention to the bi-polar utilization of the D'Arsonval current. This could be used in the cavities of the body; for example: for destroying papilloma of the bladder, in the nasopharynx, and also for its sterilizing effect on infected tissues, abscesses, pustular acne, etc.

Treatment of Inflammation not Complicated or Caused by Infection

DR. W. B. SNOW, New York: The systematic proper application of the static current, in the case of a sprained knee, for instance, at the first administration softened the exudation, relieved the pressure and consequently the pain, relaxed muscular tension, and restored motility and utility to the joint. The best means for relieving local inflammations in

which infection does not enter as a factor are the application of the static wave current, the static sparks, the static brush discharge or the direct vacuum tube static current, singly or conjointly. In prostatitis and seminal vesiculitis the results have been most striking, as also in dysmenorrhea and subinvolution and urethral caruncles. Neuritis, herpes zoster, intercostal neuritis, tic douloureux and Bell's palsy have been successfully treated in the same manner, as also anterior poliomyelitis, rheumatoid arthritis, traumatic arthritis and phlebitis.

Electricity in Gout

DR. F. DEKRAFT, New York, said that treatment by drugs has been unsatisfactory, and recommended autocondensation with sufficient D'Arsonval current to produce perspiration. In his experience, the pain and stiffness in the muscles were the last to disappear under the usual mode of treatment. The use of a powerful and thoroughly concentrated resonator effluve accomplished a most valuable purpose by reason of its deep contracting effect on the tissues and the blood vessels. As improvement took place the static brush discharge might be substituted with benefit. Concentrated light was also of benefit; diet and gentle exercise should not be neglected.

Etiology and Treatment of Eczema

DR. H. F. PITCHER, Haverhill, Mass.: The majority of these cases are due to some metabolic or vasomotor disturbance, and the most prominent cause of that disturbance is over-eating. The hygienic and dietetic treatment should be attended to; internal treatment is symptomatic. External treatment of acute eczema should be soothing and protective. The blue light should be used in the early stages, and later, the x-ray and the static brush discharge. The x-ray is the most important, and is the most valuable remedy for relief of the intense pruritus which accompanies this disease; it is the last court of appeal in many of the chronic cases, and seldom fails if properly used. In the subacute form and in the vesicular and seborrheic varieties a very low tube should be used, the treatment lasting from ten to fifteen minutes. When there is much induration the static brush discharge would hasten more rapid resolution. The effluve from the high frequency currents or from the vacuum tubes is also beneficial in this type.

Osteo-Arthritis of the Spine

DR. F. E. PECKAM, Providence, R. I., described this condition in detail, and emphasized the importance of finding the focus of the trouble and the cause before beginning treatment. Auto-intoxication, he said, was the cause in most such cases. In the treatment of this condition there must be produced elimination of toxic material from the tissues locally and a stimulation of the physiological processes to perform their duties in a more nearly normal manner. This might be accomplished by physiotherapeutic measures, no one modality alone usually giving so much benefit as a combination.

Case of Splenic Leukemia Successfully Treated by Modern Methods

DR. G. W. STROBELL, Rutland, Vt., reported this case: Fowler's solution, Bland's iron mass and blue mass were used. x-ray treatments were made over the spleen, alternating with chlorin cataphoresis, the treatments each day concluding with static insulation. By the end of the fourth week the patient declared that she had not felt so well for twenty years. The myelocytes were reduced from 50 to 15 per cent, and the size of the spleen was reduced two-thirds. At the end of the second month the spleen, which had been the size of a man's head, could scarcely be felt.

Lumbago

DR. F. H. HUMPHRIS, London, England: Lumbago should be distinguished from the neurotic spine, from sacro-iliac disease, from cancer of the spine, cancer of the sacro-iliac notch, from the pain from an enlarged prostate, from the backache which ushers in dengue, influenza and other conditions of toxic origin, from Pott's disease and from sacro-iliac relaxation. The ideal treatment is to see that the bowels move freely with mercury and a saline. Sodium salicylate

and sodium of citrate of each 20 grains should be given in a glass of hot water every 4, 5, or 6 hours. The 500-candle-power light should be applied for 15 or 20 minutes, followed by the static wave current for the same length of time.

Treatment of Chronic Metritis with Descent or Displacement

DR. G. BETTON MASSEY, Philadelphia: The form of treatment that I prefer in these cases, when not accompanied by inflammation of the adnexa is the intra-uterine employment of from 20 to 60 milliamperes positive, of the constant current, diffusing copper-mercury ions from the amalgamated electrode for 4 minutes about twice a week, each application being followed by a strongly contracting induction current from a course wire secondary.

Treatment of Cataract by Electricity

DR. S. J. HARRIS, Boston, discussed the history of cataract, the anatomy of the lens, the different varieties of cataract, their etiology and treatment in detail. He reported a number of cases of cataract successfully treated by the direct or galvanic current, a special form of electrode being used over the eye. Mature cataracts were not suitable, he said, for this treatment, and he preferred to operate in such cases. He had had experience in a large number of incipient cases, and in many of these had been able to effect a cure. The subject was still in its infancy, but the rapid progress so far made encouraged him to continue investigation along this line.

Oscillatory Desiccation in the Treatment of Accessible Malignant Growths and Minor Surgical Conditions

DR. W. L. CLARK, Philadelphia, read this paper, drawing the following conclusions:

A current from a static machine of large output with properly adjusted accessories is capable of producing desiccation in morbid tissue. We are able to destroy malignant growths without opening up blood or lymph channels. It is possible to get gradation of current, producing simple stimulation, desiccation or cauterization. Following an extensive surgical operation where there is suspicion of infection or malignancy this current would appear to be ideal in instantly sealing up blood and lymph channels. In cancer of the breast in which the axillary glands are involved a surgical procedure is indicated, but on the first appearance of recurrence it might be used in arresting further recurrence. It might be used in cancer of the cervix to supersede the curette and cautery as a palliative measure. Apparently we can accomplish as much in a few seconds by this method in malignant growths as by the x-ray in weeks or months. In disfiguring neoplastic blemishes of the skin we have a potent weapon.

X-Ray and Light in Infections

DR. F. C. TICE, Roanoke, Va., reported a number of cases of hay-fever treated with bland oil atomization and insulated low-vacuum high-frequency tube to each nostril, with prompt cures, and also cases of acute infections treated with the light and x-ray.

Report of a Noteworthy Case of Sciatica

DR. J. W. TRAVELL, New York, reported a case of sciatica of nine months duration in which during the last three months the patient received constant and thorough treatment in a hospital along the usual lines without appreciable improvement. Sedatives were given regularly at night and the patient could not sleep in bed. Treatment was begun with light, the static wave current and static sparks on the third day after leaving the hospital and all medication was stopped. The patient was able to sleep in bed after the third treatment and was entirely and permanently relieved of all pain after the seventh treatment, treatments being given daily.

Infantile Paralysis

DR. A. W. BAER, Chicago, directed attention to the prevalence of the disease and to the many cases of deformity and paralysis which continue unrelieved in spite of all treatment commonly employed. He has found that contractions and

deformity can be relieved and that the muscles will regain their tone and function even after many years by the use of the direct current applied to the spine followed by the static breeze and sparks, treatment being given three times a week for a number of weeks.

Other Papers Read

Papers were also read by Drs. G. B. Massey, Philadelphia; F. H. Morse, Melrose, Mass.; F. H. Munroe, Newark, N. J.; A. Bassler, New York; L. G. Rabinovitch, New York, and A. W. Yale, Philadelphia.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

United States Life Insurance Company Restores Five Dollar Rate

The United States Life Insurance Company of New York has issued a circular letter to its medical examiners, announcing that the New York law regulating life-insurance companies has been so amended as to make it possible to resume the payment of a five dollar fee for medical examinations. In November, 1906, this company reduced its examination fees, on account, it claimed, of the interpretation placed on the Armstrong Law by the Insurance Department of the State of New York. This interpretation compelled insurance companies to charge the cost of the examination against the individual policy, whereas the amendment, adopted last spring, permits them to charge the total cost of medical examinations for the year against the whole volume of business written for the year. The company therefore notifies its examiners that after September 1, the former flat rate of five dollars for insurance examinations will be re-established. It is evident that any legal reason which may heretofore have made the five dollar rate impossible is now removed and that there is no legal or economic reason why life-insurance companies can not now pay a five dollar rate for medical examinations.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Second Month—Third Weekly Meeting

ANEURISM

VARIETIES: True, false, dissecting, and arterio-venous.
ETIOLOGY: Syphilis, age, sex, alcohol, strain.

ANEURISM OF THE THORACIC AORTA

PATHOLOGY: Changes in aneurism of ascending portion of arch, transverse portion, descending portion of arch, descending thoracic aorta.

SYMPTOMS AND PHYSICAL SIGNS: Relation of symptoms to size and location of aneurism. Pain, cough, dyspnea, aphonia, hemorrhage, dysphagia, cardiac symptoms, pupils.
ANEURISM OF ABDOMINAL AORTA AND ITS BRANCHES: Frequency, location of sac, form. Differential diagnosis.

ANEURISM OF FEMORAL AND POPLITEAL ARTERIES: Symptoms and diagnosis of each.

ANEURISM OF CAROTID, AXILLARY AND BRACHIAL ARTERIES: Diagnosis.

ARTERIO-VEINUS ANEURISMS: Etiology, vessels involved, pathology, symptoms.

TREATMENT OF ANEURISMS

MEDICINAL TREATMENT.

TUFFNEL'S TREATMENT.

SURGICAL TREATMENT: Methods of Antyllus, Arel, Hunter, Brasdor, Matas, Compression, Gelatin treatment.

State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, October 3-4. Sec., Dr. Ancil Martin.
 COLORADO: The Capitol, Denver, October 4. Sec., Dr. S. D. Van Meter, 1723 Tremont Place.
 GEORGIA: Regular, The Capitol, Atlanta, October 11. Sec., Dr. I. H. Goss, Athens; Homeopathic, Atlanta, October 3. Sec., Dr. R. E. Hinman, 153 Whitehall Street.
 IDAHO: Boise, October 4. Sec., Dr. O. J. Allen, Bellevue.
 ILLINOIS: Coliseum Annex, Chicago, October 19-21. Sec., Dr. James A. Egan, Springfield.
 KANSAS: Topeka, October 13. Sec., Dr. H. A. Dykes, Lebanon.
 LOUISIANA: New Orleans, October 18-19. Sec., Dr. A. B. Brown, 108 Baronne Street.
 MICHIGAN: Lansing, October 11-13. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.
 MINNESOTA: State University, Minneapolis, October 4-6. Sec., Dr. W. S. Fullerton, St. Paul.
 MISSISSIPPI: Jackson, October 11-12. Sec., Dr. S. H. McLean.
 MONTANA: The Capitol, Helena, October 4. Sec., Dr. William C. Riddell.
 NEW JERSEY: State House, Trenton, October 18. Sec., Dr. H. G. Norton.
 NEW MEXICO: Santa Fe, October 10-11. Sec., Dr. J. A. Massie.
 NORTH DAKOTA: Grand Forks, October 4-6. Sec., Dr. H. M. Wheeler.
 OKLAHOMA: Muskogee, October 11. Sec., Dr. Frank P. Davis, Enid.
 RHODE ISLAND: State House, Providence, October 6. Sec., Dr. Gardner T. Swarts.
 UTAH: City and County Bldg., Salt Lake City, October 3-4. Sec., Dr. G. F. Harding, 310 Templeton Bldg.
 WYOMING: State Capitol, Cheyenne, October 12-14. Sec., Dr. S. B. Miller, Laramie.

Iowa June Reports

Dr. Guilford H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports the written examinations held at Des Moines, June 6-8, and at Iowa City, June 9-11, 1910. The number of subjects examined in was 8; total number of questions asked, 100; percentage required to pass, 75.

At the examination held at Des Moines the total number of candidates examined was 43, of whom 41 passed and 2 failed. The following colleges were represented:

College.	PASSED	Year Grad.	Per Cent.
College of Medicine and Surgery, Chicago.....	(1909)		83
College of Physicians and Surgeons, Chicago.....	(1910)		89
Hering Medical College.....	(1910)		81
Hahnemann Med. Coll. and Hospital, Chicago.....	(1910)		83, 85
Siox City College of Medicine.....	(1909)		79
Drake University (1908) 79; (1910) 83, 84, 84, 84, 85, 85, 86, 87, 87, 88, 89, 89, 90, 90, 91, 91, 91, 91, 91, 91, 92, 92.			
Barnes Medical College.....	(1910)		77, 79
University Medical College, Kansas City.....	(1910)		83, 84, 84
Ensworth Medical College.....	(1910)		87, 87
St. Louis College of Physicians and Surgeons.....	(1910)		79, 79
Western Reserve University.....	(1908)		92
Jefferson Medical College.....	(1909)		85
University of Pennsylvania.....	(1902)		91
Queen's University, Canada.....	(1906)		89
FAILED			
Ensworth Medical College.....	(1910)		73
University Medical College, Kansas City.....	(1910)		69

At the examination held at Iowa City, the total number of candidates examined was 61, all of whom passed. The following colleges were represented:

College.	PASSED	Year Grad.	Per Cent.
State University of Iowa, College of Medicine (1910) 80, 80, 84, 84, 84, 84, 84, 84, 85, 85, 85, 85, 85, 85, 86, 86, 86, 86, 86, 86, 87, 87, 87, 87, 87, 87, 87, 87, 87, 88, 88, 88, 88, 88, 88, 89, 89, 90, 90, 90, 90, 90, 90, 91, 91, 91, 91.			
State University of Iowa, College of Homeopathic Medicine (1910) 81, 84, 84, 85, 86, 87, 91, 91, 93.			
Jefferson Medical College.....	(1910)		87, 87, 92

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Northwestern University Medical School.....	(1909)	Illinois
Rush Medical College.....	(1909)	Missouri
Hering Medical College, Chicago.....	(1908)	Illinois
College of Physicians and Surgeons, Chicago.....	(1909)	Illinois
Fort Wayne College of Medicine.....	(1881)	Indiana
College of Physicians and Surgeons, Keokuk.....	(1893)	Missouri
University Medical College, Kansas City.....	(1908)	Kansas
Barnes Medical College.....	(1909)	Kansas
St. Louis University.....	(2, 1909)	Illinois
Marion-Sims Beaumont College of Medicine.....	(1902)	Missouri
University of Nebraska.....	(1909)	Nebraska
University of Buffalo.....	(1910)	Nebraska
Cornell University Medical College.....	(1904)	Minnesota

Maine July Report

Dr. Frank W. Searle, secretary of the Maine Board of Registration of Medicine, reports the written examination held at Augusta, July 19-20, 1910. The number of subjects examined in was 10; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 56, of whom 55 passed and 1 failed. The following colleges were represented:

College.	PASSED	Year Grad.	Per Cent.
Medical School of Maine (1910) 76.6, 77.3, 79, 79, 82, 83, 84, 84, 84, 85, 85, 86, 86, 87, 87, 87.1, 88, 90.			
Maryland Medical College.....	(1910)		76, 77
Baltimore Medical College.....	(1910)		87
Tufts College Medical School (1909) 85.7; (1910) 83, 84, 84.9, 86, 88.			
College of Phys. and Surg., Boston.....	(1908)		75.9; (1910) 79, 88
Harvard Med. School (1903) 87; (1909) 85; (1910) 85, 86, 87, 93			
Boston University.....	(1906)		88; (1910) 83, 87
Dartmouth Medical School.....	(1909)		87.5
Cornell University Medical College.....	(1908)		93
Columbia University, College of Phys. and Surg. (1883) 81; (1892) 88; (1900) 90.			
Hahnemann Med. Coll. and Hosp., Philadelphia.....	(1910)		90
University of Pennsylvania.....	(1910)		93, 94, 94
McGill University, Quebec.....	(1910)		86, 89
University of Bishop College, Montreal.....	(1905)		78
Laval University, Canada.....	(1905) 76; (1908)		82
FAILED			
Hahnemann Med. Coll. and Hosp., Philadelphia.....	(1910)		71.4

Book Notices

A SYSTEM OF OPERATIVE SURGERY. By Various Authors. Edited by F. F. Burghard, M.S., Teacher of Operative Surgery in King's College, London. In Four Volumes. Vol. III. Cloth. Price, \$10. Pp. 764, with 381 illustrations. New York: Oxford University Press, 1909.

This volume keeps up the high standard set by the two which precede it. The first chapter, dealing with operations for the removal of tuberculous cervical nodes, gives plain indications for the treatment of these and outlines in a lucid way the knowledge of anatomy required in doing a radical operation for glands of the neck. Mr. Stiles has written this chapter largely from his own experiences and consequently only those procedures which have been found most valuable by him are included.

The chapter dealing with goiter is good, but does not add much to our present knowledge. The author states that he has seen marked benefit follow ligation of both superior arteries and one inferior artery in a very bad case of exophthalmic goiter, but that he considers it to be a dangerous proceeding, and is of the opinion that in acute cases it should never be employed. Ligation of the superior poles, including all the structures connected with them, has been employed so extensively and with such good results in mild and severe cases that such a sweeping condemnation is surprising. Although ligation of the arteries alone may not be followed by such good results as ligation of the poles it has been the experience of many that the ligation of arteries alone has prepared an extremely sick patient for a more radical procedure and has benefited mild cases. The lines of incision and the operative technic concerned in the removal of the thyroid are clearly discussed. The chapter dealing with the surgery of the bile tract is one of the best that has been presented upon this subject. It is based entirely on the experiences of Mayo Robson and the indications to be met in treating lesions of the bile passages are as clearly set forth as is possible in a text-book of this character. The chapter on prostatectomy by Mr. Freyer is largely based on his own experience and is therefore valuable. This work will take front rank as a reference book of operative surgery.

DISEASES OF INFANCY AND CHILDHOOD: THEIR DIETETIC, HYGIENIC AND MEDICAL TREATMENT. A Text Book Designed for Practitioners and Students in Medicine. By Louis Fischer, M.D., Attending Physician to the Willard Parker and Riverside Hospitals of New York City. Third Edition. Cloth. Price, \$6.50 net. Pp. 980, with 303 illustrations. Philadelphia. F. A. Davis Company, 1910.

This is a revised edition, containing considerable new material. The chapter on cerebrospinal meningitis is especially good. The technic of the diagnostic and therapeutic punctures is explained thoroughly and the intraventricular method of injecting serum is shown clearly by an excellent plate. Two

new colored plates, illustrating the von Pirquet reaction have been added. They show not only the normal reaction of a tuberculous subject, but also the degree of reaction to tuberculin in various dilutions.

The hemostatic value of injections of horse-serum in hemophilia and postoperative tonsillectomy is described. The chapter on diphtheria and intubation covers 83 pages. It is exhaustive and well illustrated with charts and plates. Some of the latest ideas on lordotic, or orthostatic, albuminuria are presented and new articles on scabies, acetonuria, indicanuria, pyuria, and diabetes have been added. The book would be improved if the treatment of diabetes were discussed more fully. The dietetic management which is so important in this disease should certainly be considered more at length. The chapters on urinalysis and bacteriologic technic could be omitted from a work of this kind inasmuch as there are so many good books dealing with these subjects. To the various methods of infant-feeding described in the previous editions the caloric method has been added. The author illustrates his method of feeding by cases from his own practice.

The work is well written and is on the whole up to date and valuable to both the student and the general practitioner.

DAS KYSTOSKOP. Eine Studie seiner optischen und mechanischen Einrichtung und seiner Geschichte. Lehrbuch für Aerzte und Studierende. Von Dr. Otto Ringleb, Spezialarzt für Urologie in Berlin. Paper. Price, 7.50 marks. Pp. 194, with 98 illustrations. Leipzig: Dr. Werner Klinkhardt, 1910.

This work is divided into three parts, the theoretical, the practical, and the historical. In the theoretical part the author thoroughly considers the basic principles of light reflection and refraction. He makes free use of excellent diagrams and mathematical formulas to illustrate all points. Perspective is thoroughly discussed. In the second or practical part, the author discusses briefly a few anatomic points in regard to the urethra and bladder and then in elaborate detail describes the construction of the modern cystoscope, including the lamp, the insulation, the shaft of the instrument, the position and method of operation of the prisms.

The various types of cystoscopes, as the children's cystoscope, the retrograde and the different types of catheterizing and operating instruments, are all shown. In the third or historical chapter the evolution of the cystoscope is traced from the original endoscope of Desormeaux to the modern instruments. The photographic cystoscope of Nitze and the demonstration apparatus of Kutner are mentioned in the historical part. This is not a book that will interest the general practitioner at all, but for the cystoscopist it is one of great interest.

PHYSIOLOGY AND PATHOLOGY OF THE SEMICIRCULAR CANALS. Being an Excerpt of the Clinical Studies of Dr. Robert Barany with Notes and Addenda Gathered from the Vienna Clinics. By Adolph E. Ibershoff, M.D. An Foreword by Royal S. Copeland, M.D. Cloth. Price, \$1 net. Pp. 64, with illustrations. New York: Paul B. Hoeber, 69 E. 59th St., 1910.

This book brings the teachings of the younger Vienna school of otologists, especially of Dr. Barany, closer to the English-speaking part of the profession. No otologist can afford to ignore these teachings. Notwithstanding the shortness of the book, almost 7 pages are devoted to subjects foreign to its title, namely "Indications for Labyrinthine Operation in Acute Diffuse, Latent Diffuse and Circumscribed Labyrinthine Suppuration." The radical standpoint exposed there is not warranted by facts and not shared by the profession. On page 9, the author says, "The right anterior vertical (semicircular canal) and the left posterior vertical lie in the same plane." They lie in parallel planes. The writer of the preface deems it necessary to draw attention to the writer of the book: "The profession is to be congratulated that so finished a scholar, and so able a physician and surgeon as"....

DIE UNTERSUCHUNG UND BEURTEILUNG DES WASSERS UND DES ABWASSERS. Ein Leitfaden für die Praxis und zum Gebrauch im Laboratorium. Von Dr. W. Oldmüller, Verwaltungsdirektor des Virchow-Krankenhauses, und Dr. O. Spitta, Privatdozent der Hygiene an der Universität. Third Edition. Paper. Price, 12 marks. Pp. 422, with illustrations. Berlin: Julius Springer, 1910.

The responsible work of sanitary engineers and chemists in looking after municipal water supplies calls for constant

experimenting and research in meeting problems and new conditions. For such work this volume is an authoritative handbook, giving complete methods for the examination and control of water supplies. A great many methods of examination are given, including the results of most recent researches in sanitary chemistry. The results obtained by the methods given are discussed and their sanitary significance explained, presenting a very complete guide for the exhaustive and exacting control of water supplies. The volume is supplemented by a full list of references to allied literature and is well indexed.

HANDBOOK OF ELECTROTHERAPEUTICS. By William James Dugan, M.D., Lecturer on Electrotherapeutics at Jefferson Medical College, Philadelphia. Cloth. Price, \$2 net. Pp. 242, with 91 illustrations. Philadelphia: F. A. Davis Company, 1910.

The author has undertaken to produce a simple and concise handbook of electrotherapeutics, and he has succeeded well in that hard task. The book is without the elaboration of detail that confuses the elementary student, but it is full enough to be a satisfactory guide. The usual topics of electrotherapeutics are covered. The author's position in regard to the therapeutic uses of electricity is temperate and judicious. One historical matter which has received scant justice in the past is given attention by the author in crediting to Dr. William J. Morton the discovery and therapeutic application of high-frequency currents. On the whole the book is worthy of recommendation. It is marred by the large numbers of illustrations of proprietary apparatus—particularly of one manufacture—so that it suggests a commercial catalogue.

THE AFTER-TREATMENT OF OPERATIONS. A Manual for Practitioners and House Surgeons. By P. Lockhart Mummery, F.R.C.S., Senior Assistant Surgeon, St. Mark's Hospital for Fistula and other Diseases of the Rectum, and to the Queen's Hospital for Children. London. Third Edition. Cloth. Pp. 251, with 38 illustrations. Price, \$2.25 net. New York: William Wood & Co., 1909.

The distinction of being the first printed text on this subject probably belongs to this book, and none of the good features which marked the first edition has been omitted. The book has been thoroughly revised, especially the chapters on abdominal surgery, to which has been appended an excellent discussion of the treatment of general acute peritonitis in which the author favors the continuous saline rectal irrigation and withholding food by mouth for the first few days. The chapters on genito-urinary surgery and rectal operations have been added to materially and a new chapter on the serum and vaccine treatment of sepsis is an excellent review of present-day knowledge on this subject.

Medicolegal

Railroad Relief Department Contract and Liability

The Supreme Court of South Carolina had for the first time, in the case of *Barden vs. Atlantic Coast Line Railway Co.* (67 S. E. R. 971), the question of the validity of a regulation or contract of a relief department of a railroad company providing that the acceptance by a member of benefits for injury shall operate as a release and satisfaction of all claims against the company for damages arising from such injury, and, in the event of the death of a member, no part of the death benefit shall be due or payable until releases of all claims against the relief department and company have been executed by all who might legally assert such claims, while if any suit shall be brought against the company for damages arising from the injury or death of a member the benefits otherwise payable and all obligations of the relief department and of the company, created by the membership of such member in the relief fund, shall be forfeited.

The authorities agree, without dissent, the court says, that all contracts made by railroad companies to avoid liability for their own negligence, are void. If an employee is injured by negligence, why should he be required to stipulate in advance that he must choose between a forfeiture on the

one hand, of all benefits which accrue to him under the rules and regulations of the department to which he has contributed each month, and, on the other hand, his right of action, of which he cannot be deprived by any agreement, express or implied? Is not all the benefit to the company? This choice of remedies is to be made only by those employees whose injuries or death are caused by the negligence of the company. On no other contingency is the employee forced to choose. Further, those who are injured or killed by negligence can receive no benefit "unless and until" a complete release of the action for damages is properly executed. Such is the compulsion of the stipulation; such is the "letter of the bond." The election of remedies originates in and is predicated on this stipulation. In the court's opinion, this stipulation is an ingenious scheme devised by the company to avoid responsibility for its negligence, and, as such, is inequitable and void.

Eliminating this regulation and stipulation as void, there was a relief department or association, supported by the mutual contributions of employee and employer, maintained for the sole purpose of relieving and mitigating the suffering of its members—a charity whose noble purposes were untainted by selfish interest. With its character thus defined, the law is well settled that the only duty imposed on the railroad company is the duty to exercise reasonable care in the selection of the physicians and surgeons who are reasonably competent, and, having exercised this duty, the company is not chargeable with the want of skill of the physician or surgeon whom it has selected, in the performance of the service he is required to render.

Inadmissibility of Farmer-Plaintiff's and Other Testimony to Reputation of Physicians—Limiting Examination of Party to One Physician

The Court of Civil Appeals of Texas says, in *International & Great Northern Railroad Co. vs. Lane* (127 S. W. R. 1066), a personal injury case brought by the latter party, a farmer, that he was permitted, while on the stand as a witness, to testify as to the standing of two physicians in another county, who had testified as to the character of his wound and had given opinions as experts as to the permanency of his injuries. The reputation of the two physicians, professionally or otherwise, had not been questioned by any evidence admitted on the trial, and, under such circumstances, the evidence was clearly inadmissible. The mere fact of the physicians being non-residents, in the absence of any attack on their competency, could not justify the introduction in evidence of the opinion of the plaintiff as to their standing in the community in which they lived.

The rule has been stated to be that, after a witness has been adjudged competent as an expert by the court, which is done when his testimony is admitted, his reputation can be sustained only after it has been impeached. In some instances it has been held that, where a physician's skill had been attacked, evidence of reputation was not admissible for or against him. The court need not go so far in this case, but simply hold that, in the absence of any attack on the skill or reputation of a medical witness, testimony as to his reputation as a physician would not be admissible. Especially does it seem objectionable to permit evidence, under such a state of facts, by a plaintiff, a farmer, not skilled in medicine, in regard to the reputation of his own witnesses. The error in the admission of the testimony was not cured by the fact that no other medical witness testified as to the condition of the wounds at the time they were examined by the medical witnesses for the plaintiff. The evidence as to the reputation of the witnesses had a tendency to give undue importance to their testimony, and may have had an influence with the jury.

One physician, offered by the defendant, was allowed to examine the plaintiff's arm, and it had no ground to object because other physicians offered by it were not permitted to examine the arm, although the plaintiff had exhibited the arm to the jury, the physician being a reputable one, whose testimony was not attacked in any way, while the defendant

gave no reason for wanting more than one physician to examine the arm, and did not attempt to show that it was injured by the examination being confined to one physician.

Charitable Hospital Not Liable From Pay Funds For Negligence of Nurse

The Supreme Court of Pennsylvania says that the case of *Gable vs. Sisters of St. Francis* (75 Atl. R. 1087) was brought to recover damages for the scalding with hot water of a young woman on whom an operation had just been performed and who was still unconscious and helpless, the water having escaped from a hot-water bottle placed beside her by a nurse. But it is a doctrine too well established to be shaken, and as unequivocally declared in Pennsylvania as in any other state, that a public charity cannot be made liable for the tort (wrongful act) of its servants. The doctrine rests fundamentally on the fact that such liability, if allowed, would lead inevitably to a diversion of the trust funds from the trust's purposes. The fact that a hospital receives pay for a certain class of patients detracts nothing from its character as a purely charitable institution. It was wholly immaterial that the plaintiff who here complained of injury was admitted as a pay patient. It was insisted, however, that the reason for the rule did not obtain in this particular case, since she had filed a paper in the court below disclaiming any right of execution against any fund of the defendant corporation held for charitable uses and all income of said corporation other than that received from pay patients; and had asked that the verdict be paid out of funds derived from pay patients only. The argument overlooked the fact that every dollar received by the hospital, from whatever source, was stamped with the impress of charity. For what did the plaintiff pay? For accommodations which the hospital was enabled to provide through the use of money charitably donated to it. The room, the bed, the furnishings and conveniences for which the plaintiff paid were all of them the direct and immediate product of the voluntary donations it received. It followed that the money that the hospital received from its pay patients was as strictly the increment of the charitable donations it had received as would be the interest on the money given it if invested on loan. If any profit resulted from this source it could only be regarded as an incidental addition to the trust fund or income.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

The Boston Medical and Surgical Journal

September 15

- 1 *Present Status of the Treatment of Exophthalmic Goiter. J. M. Jackson and T. J. Eastman, Boston.
- 2 *Surgical Treatment of Exophthalmic Goiter. C. A. Porter, Boston.
- 3 Distortion of the Face and Skull Due to Continued Fixed Posture in Early Infancy. J. E. Goldthwait, Boston.

1. Present Status of Treatment of Exophthalmic Goiter.—Jackson and Eastman are of the firm belief that in practically every case it is our duty to treat the patient medically for three months. If at the end of that time no improvement has taken place, preferably ligate the vessels. This may effect a cure. If it does not, and the patient later comes to the operation of partial thyroidectomy—which is as yet the most satisfactory of the radical operations—the ligation will make the operation easier and less dangerous. If the goiter is very large, it is well to remove only the larger lobe and then treat the remaining lobe with the x-ray and medical procedures. Patients who show beginning cardiac failure should be operated on as soon as possible after being put in fair condition by medical treatment. Many cases, however, come to the doctor only after the myocardial changes have begun. Patients in this condition must be treated as cases of advanced myocarditis, for all treatment beneficial to this condition is also beneficial to the exophthalmic goiter. The strictest rest, with ice bags

over the heart and thyroid, a carefully regulated diet, the hydrobromid of quinin, and, if necessary, the cautious use of strychnin and bromids is the treatment to be carried out. We must not expect an absolute cure in the cases in which the myocarditis is advanced, though symptomatic recovery does sometimes occur, and we can hope only to lessen the symptoms and make life better worth living for the patient and the patient's family. In the earlier cases we may be able to effect a cure, and if not we may, by careful medical treatment, improve the condition to such an extent that the patient can be operated on with much less danger than before treatment.

2. **Surgical Treatment of Exophthalmic Goiter.**—Porter agrees with other surgeons that surgery, in properly selected cases, offers more and quicker improvements than medical treatment. To be successful, earlier operation must become the rule before incurable degenerations have developed. When reasonable medical treatment has been carried out the surgeon should be consulted. While from the very nature of the disease permanent cures may not be common, permanent improvements follow timely and appropriate operation in the large majority of cases after medical treatment has proved unavailing.

Medical Record, New York

September 17

- 4 Psychologic Study of Gangs. S. Block, Brooklyn, N. Y.
- 5 Method of Simple Extraction of the Lens. F. Valk, New York.
- 6 Suppurative Adenitis Under the Sternocleidomastoid Muscle Treated with Streptococcus Vaccine. F. Op. de Beek, New York.
- 7 Ainhum Complicating *Uncinariasis Americana* in an American White Girl. F. L. Eskridge, Atlanta, Ga.
- 8 An Improved Pharyngoscope. A. L. Beck, Mamaroneck, N. Y.
- 9 Deaths in Childbirth. F. S. Crum, Newark, N. J.

New York Medical Journal

September 17

- 10 Surgical Importance of the Omentum. L. J. Hammond, Philadelphia.
- 11 *Duodenal Regurgitation due to Fatty Foods and Oils as a Clinical Entity. Fat Intolerance of Gastric Origin. A. Bassler, New York.
- 12 Heredity. H. M. Lee, New London, Conn.
- 13 The Syphilitic and Tuberculous Patient. G. B. Sweeney, Pittsburg.
- 14 A Few Prevalent Eye Diseases. G. W. Vandergrift, New York.
- 15 *Acute intestinal Obstruction Caused by a Foreign Body in the Peritoneal Cavity. H. Roth, New York.
- 16 Important Physical Signs in the Diagnosis of Incipient Pulmonary Tuberculosis. P. H. Ringer, Asheville, N. C.
- 17 Aconite. J. Knott, Dublin, Ireland.

11. **Duodenal Regurgitation.**—Bassler directs attention to a stomach condition in which clinically the oils or fat foods, such as olive oil, milk, cream, butter and eggs, seem to be indicated, but in which they do harm and perpetuate the condition. During the past winter he has seen four individuals, all men of middle age, who were definite instances of this, each of whom had been in the hands of competent practitioners without benefit, and each of whom made substantial recoveries when the fat had been stopped and he was placed on a fat-free diet (skimmed milk, white of eggs, carbohydrates, green vegetables, boiled meats, etc.). These cases occurred in individuals who gave a history of having had no stomach disorder up to the onset of acute symptoms. The subjective symptoms were those of sharp pain in the epigastrium, radiating to the back, which persisted for from several minutes to several hours, and sometimes over one or two at a time. In each instance these pains were described as most severe, irregular in duration, quite incapacitating the patient for the time being and then suddenly ceasing, at which time the individual was as well as ever. There was no distinction in any of them as to when this spasmodic pain would begin or cease, and it was independent of meals or the ingestion of foods of different character or quantities. One of them said that nausea was present at the time that the pain was severe, but none had vomiting at any time during the illness. Other than the seizures of pain, which came on acutely in the first attack, there was nothing particular in the history of any of them.

15. **Foreign Body in Peritoneal Cavity.**—This patient, a woman, had three distinct attacks of abdominal cramps and vomiting before Roth saw her. On opening the peritoneum a considerable quantity of clear serum escaped. Digital exploration revealed a cord-like structure running from the right

side toward the median line and downward, and attached to a mass of adherent intestine which it constricted. On separating this cord-like structure, which proved to be omentum, and withdrawing it from the abdomen, a foreign substance, about two and a half inches long and about one-quarter inch wide, was brought out with it. On examination this foreign body proved to be a pledget of absorbent cotton discolored by blood. Further examination revealed two loops of the ileum adherent at the mesenteric borders. The adhesions were broad and firm and required ligation before division. In the midst of these adhesions some more cotton was found and removed. After repairing the denuded surfaces the cord of omentum was examined and in its lowest portion, the one which was attached to the mesentery, another piece of cotton was found firmly embedded.

Knowing that the patient has never had an abdominal section, suspicion pointed to the uterus as the most probable organ which might have been perforated during an induced abortion. The pelvic organs were therefore carefully examined, but, with the exception of a small indurated area in the lower part of the posterior wall of the uterus—perhaps at the level of the internal os—there was nothing noteworthy. Later the patient confessed to having had several abortions induced, the first in 1906, and the last about March 28, 1908, when about two months pregnant, or about six weeks before the onset of the present illness.

Bulletin of the Manila Medical Society

July

- 18 Importance of the Profession of Nursing. D. C. Worcester, Manila.
- 19 Is Cholera Endemic in the Philippines? A. J. McLaughlin, Manila.
- 20 Diphtheria in the Philippines. W. P. Chamberlain, U. S. Army.
- 21 Diphtheria on the Isthmus of Panama. T. C. Lyster, U. S. Army.
- 22 Vincent's Angina. H. J. Bloombergh, U. S. Army.
- 23 Pharyngeal Syphilis, Especially the Diagnosis. K. Nelson, U. S. Army.

Texas State Journal of Medicine, Fort Worth

September

- 24 *Pathologic Conditions of the Stomach as Determined by Analysis of the Gastric Contents. A. Wolbarst, Tyler.
- 25 Labyrinthitis. E. R. Carpenter, El Paso.
- 26 Operative Procedure in Closing Fecal Fistula. R. W. Knox, Houston.
- 27 Two Cases of Pellagra. J. B. Thomas, Midland.

24. **Pathologic Conditions of the Stomach.**—While laboratory examinations are important in the diagnosis and treatment of gastric disturbances, in Woldert's opinion no examination of the gastric contents would be complete nor would the patient who comes for relief receive that degree of care and consideration which he naturally expects and deserves unless the physician in making such gastric analysis goes deeply into the history of the case before pronouncing his diagnosis and resorting to treatment.

California State Journal of Medicine, San Francisco

September

- 29 Medical Expert Testimony. O. C. Mueller, Los Angeles.
- 30 The Carnegie Report. A. A. D'Ancona, San Francisco.
- 31 A Protest from Cooper Medical College. H. Gibson, Jr.
- 32 The Problem of Pre-Medical Education. T. W. Huntington, San Francisco.
- 33 Notes on Nitrous Oxid and Oxygen for Prolonged Anesthesia and Report of a Few Critical Cases. E. H. Williams, San Francisco.
- 34 Two Cases of Tumor in the Fourth Ventricle and Cerebellum. L. Newmark and M. R. Lennon, San Francisco.
- 35 Tropical Medicine. C. Wellman, Oakland.
- 36 Case Reports. H. C. Moffitt, San Francisco.
- 37 Case of Poisoning by Subnitrate of Bismuth. G. B. Somers, San Francisco.
- 38 *Unusual Case of Strangulated Hernia. R. B. Dempsey, Vallejo.

38. **Unusual Case of Strangulated Hernia.**—The patient complained of intense pain in the left inguinal region and an examination by Dempsey revealed a large mass, very tender to touch, indurated and inflamed. Constipation was absolute, not even flatus passing, abdomen was much distended, face hippocratic, pulse small and tension low, subnormal temperature and moist skin; in fact, many of the symptoms of shock. A hernia had been cured some years ago by injections of a clear substance in solution, probably

zinc chlorid, into region of both rings and at various other places in the inguinal region. It was plain that the man had strangulated hernia, and as taxis failed to reduce it, Dempsey arranged to operate. The regular Bassini incision was made through the skin, revealing a sausage-shaped tumor composed of the pampiniform plexus, vas deferens, a loop of intestine, and the hernial sac, all matted together by dense fibrous adhesions and grown solidly to the pillars of the internal ring. Within the abdominal cavity were numerous adhesions binding the intestines into a mass and firmly adherent to the peritoneum.

The intense inflammation produced by the injections had caused the entire disappearance of the muscular fibers of the external oblique for some distance from the canal, leaving in its place a fibrous membrane, probably the sheath of the muscle, so thin as to be transparent, and loosely adherent to the skin, the fatty layer having disappeared as had the muscular fibers. The conjoined tendon of internal oblique and transversalis had numerous areas of heavy scar tissue distributed throughout its substance, and the only structure not affected was Poupart's ligament. The cord was composed of the vas deferens, with remains of numerous veins and arteries, all occluded and imbedded in a mass of fibrous tissue about three inches long and two inches thick and within the mass was a knuckle of compressed intestine, causing the obstruction.

Little was done but to dig out and separate the knuckle of intestine, remove some of the veins of the cord and return that structure to the abdomen, suturing the remains of the conjoined tendon of internal oblique and transversalis over the cord, as in Fowler's operation, there being not sufficient left to form a floor for a new canal. The remains of the aponeurosis of the external oblique were sutured to Poupart's ligament and the skin closed with a subcuticular stitch. The history of the following month was that of an ordinary hernia. At present the abdominal wall is firm, and the hernia will probably not recur, as the intestines are firmly adherent to the abdominal wall and can not descend.

**The Journal of the South Carolina Medical Association,
Charleston**

August

- 39 *Present Status of Cancer Education. S. Leigh, Norfolk, Va.
- 40 Infantile Scurvy. A. W. Browning, Ellorree.
- 41 *Treatment of Diseased Tonsils. C. W. Kollock, Charleston.
- 42 *The Diseased Tonsil. J. W. Jervey, Greenville.
- 43 Diagnosis of Fractures of Vault and Base of Skull and the Indications for and Technic of Operative Treatment. C. F. Ross, Anderson.
- 44 *Case of Appendicectomy by a Method Devised by Dr. Pettijohn, of the U. S. Public Health and Marine-Hospital Service. F. A. Griffith, Columbia.

39, 40, 44. Abstracted in THE JOURNAL, May 28, 1910, pp. 1815, 1816.

42. Abstracted in THE JOURNAL, May 14, 1910, p. 1599.

Washington Medical Annals

September

- 45 The So-Called Automobile Fracture. C. S. White, Washington.
- 46 Removal of the Upper Extremity for Sarcoma. W. A. Jack, Jr., Washington.
- 47 *Case of an Acute, Febrile and Probably Infectious Disease of Unknown Origin. I. L. Lumsden, Washington.
- 48 Recent Progress in Pharmacologic Therapeutics. W. M. Barton, Washington.
- 49 Scarlet Fever. M. F. Thompson, Washington.
- 50 Volvulus; Resection by Aseptic Basting-Stitch Method. H. H. Kerr, Washington.
- 51 Tumors of the Long Bones. W. F. M. Sowers, Washington.

47. Acute, Febrile and Probably Infectious Disease of Unknown Origin.—This was a case of fever which after a period of slight prodromes for three or four days, had an abrupt onset, the temperature rising rapidly and reaching a point between 103 and 104 F. within two or three days, remaining steadily at about this point for about ten days or more, and then falling, either by crisis or by rapid lysis, and defervescence had begun. The patient's convalescence was uncomplicated, rapid and satisfactory. Among the other and somewhat striking features of the case were a rather severe bronchitis, which persisted as long as the fever continued; a very severe headache, not in any particular part of the head, which continued until defervescence; marked congestion of the

conjunctiva, and rather obstinate constipation, enemata being required to secure a movement of the bowels. There was slight nose-bleed on one or two occasions while the fever was high. There was no labial herpes; no retraction of the head; very slight, if any, stiffness of the neck; no convulsions. Kernig's sign was not present on June 25. The patient showed considerable restlessness while the fever was at its height, and was at times delirious. The results of the laboratory test certainly constitute a strong point in the evidence against the case having been either typhoid or paratyphoid fever. Lumsden is of the opinion that the case was very probably of the same nature as the cases of which M. E. Brill made such an admirable study in New York. [Brill's paper was published in the *American Journal of the Medical Sciences*, April, 1910, and was abstracted in THE JOURNAL, April 30, 1910, p. 1477.]

Kentucky Medical Journal, Bowling Green

September 1

- 52 Hernia of the Bladder. C. B. Spalding, Louisville.
- 53 Practice of Medicine from a Business Point of View. J. Trauwiek, Louisville.
- 54 Pyelitis in Pregnancy and the Puerperium. H. E. Tuley, Louisville.

Journal of Delaware State Medical Society, Wilmington

September

- 55 *Transactions of 120th Annual Meeting of Delaware State Medical Society.

55. This number is devoted exclusively to the proceedings of the Delaware State Medical Society.

Illinois Medical Journal, Chicago

September

- 56 *Effects of Gall-Bladder Infection on the Gastro-Intestinal Tract. F. Billings, Chicago.
- 57 Gall-Stone Disease and Its Relation to Intestinal Obstruction. J. B. Murphy, Chicago.
- 58 *Surgery in Cholelithiasis. E. Ries, Chicago.
- 59 Gall-Tract Infection. J. E. Coleman, Canton.
- 60 Acute Perforating Gastric Ulcer Requiring Gastrojejunostomy as a Secondary Operation—Recovery. J. E. Allaben, Rockford.
- 61 Tumors of the Tongue, Benign and Malignant. E. Friend, Chicago.
- 62 *The Influence of Heredity in Tuberculosis. H. J. Achard, Chicago.
- 63 Tuberculosis of the Ear, Throat and Nose. A. E. Prince and W. G. Bain, Springfield.
- 64 Treatment of Rectal Fistula. J. R. Pennington, Chicago.
- 65 Hysterectomy as a Conservative Procedure. H. Critcher, Roswell, N. M.

56. Gall-Bladder Infections.—Billings has made an analysis of the conditions of 60 patients suffering from cholelithiasis to ascertain the secretions and motility of the stomach in this class of patients. These 60 patients were selected out of 335 patients, because in these 60 there were made careful observations of the digestive power of the stomach. Of these 60 patients, 50 suffered from cholelithiasis with cholecystitis and 10 suffered from cholecystitis with cholelithiasis of the gall-bladder and the common duct. The majority of these patients presented practically normal gastric juice. In a few instances the total acidity was high. In one, 122; in two, 112; in one, 116. In a few the total acidity was low, practically an anacidity, with no more total acidity than would be expressed by the acid phosphates of a test meal. Of these one showed a total acidity of 9 and two of 10. All of the remainder showed an acidity within normal limits. Hyperchlorhydria as represented by a large amount of free hydrochloric acid occurred in only a few. The record shows free hydrochloric acid in one of 70; another 78, and two 88.

Motility was disturbed in 45 of the 60 patients during acute exacerbations of the disease as shown by vomiting. A study of the motility of the stomach during intervals between paroxysms showed that there was practically never an anatomic insufficiency of the gastric muscle. The fasting stomach of the morning showed the presence of gastric juice without microscopic food remnants. In the 2 patients a seven-hour motor meal showed the presence of gastric juice of rather a high acidity with a few food remnants. The remainder of the patients showed an entirely empty stomach with a seven-hour motor meal. The stools of these 60 patients, with 2 exceptions, showed an absence of chemical blood. The analyses of the stomach condition of these 60

patients would seem to indicate that the digestive power of the stomach was not disturbed by cholecystitis, excepting in the acute attack or in exacerbations of the chronic disease. During the acute attack or the exacerbation the disturbance was due to the pain and was manifested by nausea, vomiting and usually anorexia.

58. **Surgery in Cholelithiasis.**—The technical part of the surgery of cholelithiasis, Ries says, has reached a very high and satisfactory stage of development. The limitations of surgical success are few and these are due more to pathological conditions preceding the operation than to any shortcomings of the art of surgery.

62. **Heredity in Tuberculosis.**—Achard believes that tuberculosis as a disease is never inherited. A general and a specific predisposition (hypersusceptibility) may be transmitted; whether an actual tuberculosis develops on this foundation depends on exposure to infection. The transmitted predisposition is probably modified by a degree of specific resistance, which may likewise be transmitted. Congenital tuberculosis is exceedingly rare and, therefore, can not be admitted as the principal cause of phthisis in adolescence or adult life. Congenital tuberculosis is not a hereditary disease but it is due to intra-uterine infection by way of the placenta. It is only possible when the placenta is pathologically altered. Congenital tuberculosis is observed only in the infants of women with far-advanced phthisis, the mothers in all cases on record having died soon after delivery. Infants with congenital tuberculosis succumb always to the disease in the first weeks or at most months of extra-uterine life.

American Journal of Urology, New York

August

- 66 Treatment of Chronic Prostatitis. W. C. Bryant, Pittsburg.
67 Further Report on Antigonococcus Serum and Antigonococcus Bacterins. G. K. Swinburne, New York City.
68 Complications and Sequelae of Gonorrhoea in the Prostate. W. P. Herrick, N. Y.

Montreal Medical Journal

September

- 69 "The Neurotic": A Character Study in Medicine. R. Monahan, Montreal.
70 *Banana Flour and Plantain Meal as a Food for Children Suffering from Diarrhoea. A. E. Vipond, Montreal.
71 Diagnostic Significance of Pain in the Back. W. G. Turner, England.
72 *A Case of Hematoporphyria. H. B. Cushing, Montreal.

70. Abstracted in THE JOURNAL, Sept. 3, 1910, p. 890.

72. **Case of Hematoporphyria.**—In spite of the immediate institution of the treatment usually recommended in these cases, Cushing's patient, a woman, aged 69, became progressively weaker, passed urine and feces involuntarily, gradually sank into coma and died ten days after the peculiar color of the urine was first noticed. The urine remained of the same character to the end. The symptoms were characteristic—pigmentation of the urine, acute vomiting, with constipation, progressive weakness, with obscure nervous symptoms, such as ataxia, mental confusion and, finally, incontinence of urine and feces, and death in coma.

Journal of the Arkansas Medical Society, Little Rock

August

- 73 Cholelithiasis. F. B. Young, Springdale.
74 *Dysentery in Children. F. T. Isbell, Horatio.
75 *Facts Relating to Health Conditions in the Delta of the Mississippi. V. MacCammon, Arkansas City.
76 *Infantile Scorbuts. H. N. Street, Argentina.
77 Anuria, Complicating Hemoglobinuria—A Surgical Condition. M. M. Norton, Sunnyside.
78 Modern Surgery. J. A. Lightfoot, Texarkana

74, 75. Abstracted in THE JOURNAL, June 11, 1910, p. 1911.

76. Abstracted in THE JOURNAL, June 11, 1910, pp. 1991, 1992.

Surgery, Gynecology and Obstetrics, Chicago

September

- 79 *Gastro-Intestinal Auto-Intoxication and Mucous Enterocolitis from the Viewpoint of Surgery. J. C. Wood, Cleveland, O.
80 Muscle Group Isolation and Nerve Anastomosis in the Treatment of the Paralysis of the Extremities. N. Allison and S. I. Schwab, St. Louis.
81 *Treatment of Spasticity and Athetosis by Resection of the Posterior Roots of the Spinal Cord. C. H. Frazier, Philadelphia.

- 82 *Management of the Breast in the Puerperium and During Lactation. C. S. Bacon, Chicago.
83 The Abdominal Wall After Delivery and the Prevention of Abdominal Insufficiency and the Neurasthenic State. H. M. Stowe, Chicago.
84 *Congenital Stenosis of the Pylorus. C. L. Scudder, Boston.
85 Chronic Gastro-Enteric Ileus. A. L. Stavelly, Washington, D. C.
86 *Parasitic Myomata. E. H. Richardson, Baltimore.
87 *Treatment of Congenital Dislocation of the Hip Without Plaster of Paris. H. O. Pelss, Cleveland, O.
88 *Floating Kidney. A. Herff, San Antonio, Texas.
89 Technic of Resection for Prolapse of the Rectum. J. G. Sheldon, Kansas City, Mo.
90 Self-Retaining Retractor for Abdominal Incisions. J. C. Logan, Pittsburg, Pa.

79. **Gastro-Intestinal Auto-Intoxication.**—According to Wood, who has gone into this subject deeply, the most diverse views prevail at present regarding the causation, pathology, and treatment of gastro-intestinal auto-intoxication and so-called enterocolitis. The association of the two conditions is frequently observed. A most common symptom of chronic appendicitis is the discharge of mucus by rectum because of the enteritis excited and perpetuated by the inflamed appendix. There is increasing evidence to show that a causal relationship exists between chronic appendicitis, with or without mucus enterocolitis, and gastro-intestinal auto-intoxication. Lesions of the female reproductive organs may also, either by interfering with intestinal peristalsis through direct pressure or reflexly, so interfere with digestion as to cause gastro-intestinal auto-intoxication. In dealing with the symptom-complex of gastro-intestinal auto-intoxication and mucus enterocolitis it is absolutely necessary, in the majority of instances, to have recourse to surgery before permanent relief is obtained. This statement presupposes that intelligent dietetic, hygienic, and medical measures have been faithfully observed previous to operation. Relief following surgical work, when indicated, is usually immediate. It may be necessary, however, to keep the patient, especially if neurotic, under observation and treatment for some months following the operation.

81. **Treatment of Spasticity and Athetosis.**—Frazier believes that without fear of contradiction it may be said unquestionably that section of the posterior roots relieves in most instances spasticity, even when the spasticity is of the most extreme type and of long duration, in adults and in children, whether of cerebral or of spinal origin. This statement is substantiated by all but one of the thirteen cases under consideration. From the practical standpoint it may be said that the spasticity is relieved to such a degree that resistance to passive motion is abolished and we can go still farther and say, that in most instances, the reflex associated movements, often a very annoying and distressing phenomenon, are also abolished usually together, and the reflexes formerly exaggerated become either normally active or less active than normal. They are permanently lost only in exceptional instances.

What is of considerable importance, and in striking contrast to such pre-existing methods as tenotomies and the like, the effects of root section are enduring. Of the thirteen cases cited, voluntary motion was restored to a marked degree in seven cases; in one of these, however, the spasticity was only partially relieved; of the remaining six, in one no mention is made, in another the condition was unchanged, and in one the movements were fairly good on one side but not so good on the other. Theoretically, we abolish the contractures and restore approximately the normal range of excursion in the movements of the limb; we eliminate the disturbing reflex associated movements, which interfere with voluntary individual movements; we make provision for the return of voluntary motion and theoretically we should have brought about a condition which would enable the patient to use the limb for ordinary purposes. Practically, however, this is true only to a very limited degree. It may be that sufficient time has not elapsed in many of the cases for the best results to be attained. Practice, education, and muscular exercise continued over a longer period may accomplish more than has yet been observed.

82. **Management of Breast in Puerperium.**—The proper time to begin the nursing, says Bacon, depends on the needs of the

child, the activity of the gland and the condition of the mother. Premature children must have food shortly after birth, while a developed child can get along without food for two or three days without danger. There is no doubt, however, that the earliest secretion, the colostrum, is of considerable value to the child and should be secured, if possible. A good average rule is to put the child to the breast from three to six times a day for the first two or three days. On the second or third day, when the breast becomes congested on account of the distention of the lymphatics and blood-vessels supplying the secreting gland structures, there is generally more or less discomfort. This can be reduced in most cases by proper bandaging. The object of the bandage is support and not compression. It must be applied always so as to give relief and not cause more pain. This will be accomplished if it is applied so as to hold the breast to the front of the chest.

The best form of bandage, Bacon says, is made of strong muslin long enough to go around the chest and pin in front. It should be about 16 inches in width with notches 7 or 8 inches deep for the shoulders, over which the edges of the notches are pinned. If the patient is very sensitive and not sufficiently relieved by the bandage, ice bags should be applied. Formerly, Bacon frequently employed massage for this purpose, but lately he has almost discarded this manipulation because of the satisfactory results obtained by the ice. The pump is apt to be painful, its use is not founded on the right principle, and it should be avoided. The rules for the frequency and length of nursing, after the establishment of the secretion, depend on the amount of milk obtained by the child and the character of the secretion.

84. Congenital Stenosis of Pylorus.—In every one of 14 patients, 9 of whom were operated on by Scudder, a pyloric tumor having all the classical signs was palpated and inspected. Moreover, in every case the clinical course of the disease manifested itself as an obstruction to the exit of food from the stomach into the duodenum. In all of these cases the baby was gradually starving to death. The object of this investigation has been to determine whether or not gastro-enterostomy performed on these babies with a demonstrative pyloric stenosis modified in any particular the digestion of fat, starch and protein. The chemical and microscopic examinations of these stools show that in most of the cases the digestion is normal. The protein was not markedly increased in any amount in any of the stools and it was normal in the majority of cases. The percentage of fat in three cases was higher than normal. Excepting these the total amount of fat excreted in one day was within normal limits. These facts, Scudder believes, are evidence that the operation of gastro-enterostomy does not materially change the ultimate disposition of the two food components, fat and protein. If to the chemical evidence be added the clinical facts that all these babies without exception are thriving in apparently perfect health, that they have lived several years since the operation was done, have gained in weight, in height, and in every way seemed well and happy; if these carefully observed clinical facts are considered, the evidence is overwhelming that in these babies gastro-enterostomy has no ill effect on metabolism as measured by the digestion of fat, protein, and starch, and normal growth of these babies.

86. Parasitic Myomata.—The general contour of the tumor in Richardson's case, its definite capsule, the large vessels surrounded by myxomatous tissue situated in a position corresponding roughly to that of the pelvis, the peculiar striated appearance of the islands of myomatous tissue surrounding areas of degeneration, together with the general architecture, suggested very strongly a distorted kidney through some developmental anomaly. The resemblance was so striking at operation that microscopic examination was necessary to determine the true nature of the tumor. It was then found that the peculiar appearance was due to focal degenerations.

87. Congenital Dislocation of Hip.—The apparatus described by Feiss consists of an iron band running around the pelvis to just beyond the anterior superior spines; to this band is fastened an iron strip running down the external aspect of the thigh, not quite as far as the external condyle. To this

there are fastened two bands, one for the lower part and the other for the upper part of the thigh. The stock used is wrought sheet iron, not tempered, and ranges from 15 to 18 gage, depending on the size of the child. The width of the various bands also depends on the size of the child, beginning with $\frac{5}{8}$ of an inch for an infant. The pelvic band may be made a little broader than the others.

88. Floating Kidney.—The operation of splitting the capsule and sewing it to the muscles with catgut has been modified by Herff and used on twenty-four patients without a single failure or a return of the affection. The technic of the modified operation is as follows: The usual incision, about six inches in length, is made, extending from the lower margin of the twelfth rib, along the outer edge of the sacrolumbalis group of muscles, downward and forward toward the median line. If the patient is fleshy, the incision may be extended to give sufficient room. The kidney is exposed in the usual manner, the fatty capsule separated from the organ and the kidney delivered. It is best to separate the fatty capsule as completely as possible before an attempt at delivering the kidney is made, as it simplifies the part of the operation very materially. It is unnecessary to remove the fatty capsule in all cases. Should this be well-developed, however, it may be done to prevent its becoming interposed between surfaces that are to be made to adhere. The true fibrous capsule is then carefully incised on a grooved director and separated from the cortical substance from pole to pole, to the extent of an inch and a quarter on either side of denuded capsule and temporarily fastened with hemostatic forceps. Before reducing the kidney, he passes two rubber tubes, through which silk cords have been drawn, under each pole of the kidney, traversing the perirenal fascia and fatty capsule that has not been detached completely at this point, in order to safeguard against a possible slipping of tubes from under the poles. The kidney is then reduced and placed in position. Two punctures are made on either side of the incision, traversing skin, fascia and muscle, which correspond to the position of the tubes under the poles, and are brought out through the aperture on both sides. The catgut sutures in capsules are rethreaded, passed through muscle and fascia and tied. These serve to keep apart the margins of the capsules in order to expose the denuded cortical portion of the kidney to muscle and fascia and insure adhesive inflammation. A few layers of catgut sutures unite the different layers of fascia and muscle that were divided in exposing the kidney. The skin incision is then closed with a continuous horse-hair suture. The suspending rubber tubes containing silk cord are slit open to the level of the surface of the skin and the opposing ends of the cord are loosely tied over a small roll of sterilized gauze, which completes the operation.

Journal of the Minnesota State Medical Association and the Northwestern Lancet, Minneapolis

September 1

- 91 Municipal Water Supplies. R. O. Beard, Minneapolis.
- 92 Membranous Pericollitis. E. C. Robitshok, Minneapolis.
- 93 Volvulus. A. Barclay, Cloquet.
- 94 *Transgastric Jejunal Feeding After Gastro-Enterostomy Combined with Gastrostomy, Tested in a Case of Arterioenteric Ileus. A. Schwyzer, St. Paul.

94. Also published in *Annals of Surgery*, Sept., 1910, and abstracted in *THE JOURNAL*, Sept. 24, 1910, p. 1144.

Journal of the Medical Society of New Jersey, Orange

September

- 95 *Acute Pyelitis in Children. G. B. Philhower, Nutley.
- 96 Significance of the Agglutinating Power of the Blood During and After Typhoid. G. T. Welch, Passaic.
- 97 Ophthalmia of the New-Born Infant: Its Causation, Prevention and Treatment. E. S. Sherman, Newark.
- 98 Mental Symptoms of Syphilis. J. H. W. Rhein, Philadelphia.

95. Abstracted in *THE JOURNAL*, Aug. 6, 1910, p. 526.

Ohio State Medical Journal, Columbus

September

- 99 *Operative Treatment of Sterility in the Male. F. R. Hagner, Washington, D. C.
- 100 Clinical Significance of Non-Diabetic Acidosis. L. A. Levison, Toledo.
- 101 *Car Nausea. W. McL. Ayres, Cincinnati.
- 102 Extra-Uterine Pregnancy. H. T. Sutton, Zanesville.

- 103 Clinical Observations on Blood Coagulability and Calcium Therapy in Epilepsy. M. L. Austin, Gallipolis.
104 Congenital Syphilis in Pediatric Practice. F. Beekel, Cleveland.
105 Obstetrics as it is Practiced. M. Milliken, Hamilton.
106 Pathologic Conditions of the Nose, Throat and Ear as Etiologic Factors in Degeneracy. R. D. Fry, Cleveland.
107 Femoral Hernia. G. Goodhue, Dayton.
108 Protection of Child Life. C. O. Probst, Columbus.

90. Abstracted in THE JOURNAL, May 28, 1910, p. 1809.

101. **Observations on Car Nausea.**—In looking over the cases of the past 4 years, Ayres found that 75 patients gave car sickness as a symptom or sometimes as a chief complaint, and while it was associated in most cases with headaches, asthenopia and stomach trouble, yet it was given prominence by the patient. Stomach trouble was by far the most frequent accompaniment. Before working out the statistics, he had formed the decided impression that the majority of patients would show astigmatism contrary to rule, either simple or compound, and that the proportion was greater in hyperopic than myopic astigmatism. Out of the 75 patients 30 had plus astigmatism contrary to rule and 31 had plus astigmatism with the rule. Only 58 were contrary to rule, or 51 per cent. of the patients with astigmatism against the rule had car nausea while only 3 per cent. of those having astigmatism with the rule complained of it. In myopic astigmatism, both simple and compound, the proportion is decidedly less, and in the few cases of minus astigmatism contrary to rule, only one-fourth of them complained of car sickness, or just one-half as many as found in plus astigmatism contrary to rule. Car sickness was found in every case associated with astigmatism with or without some other forms of ametropia; it was found in mixed astigmatism and it is to be noted also that 55 per cent. of those unusual cases which had astigmatism with the rule in one eye and against in the other complained of it. The adjustment of correct lenses cured the nausea in many cases completely, other cases reported nearly complete cure, with only occasionally a feeling of nausea on the train, and in every case benefit was derived from the lenses, for not only did the train sickness disappear, but with it in most cases the vertigo, the headaches, the asthenopia and, better still, the stomach trouble.

Denver Medical Times and Utah Medical Journal

September

- 109 Pyogenic Infections in Tuberculosis. G. R. Pogue, Greeley, Colo.
110 The National Florence Crittenton Mission. A. Ditson, Denver.
111 Atropia. W. F. Wangh, Chicago.
112 Practical Vaccine Therapy and Immunity. W. C. K. Berlin, Denver.
113 Personal Hygiene in Infancy and Childhood. W. C. Bane, Denver.
114 Anatomy of the Rectum, and the Sacculi of Horner. M. H. Sears, Denver.
115 Diagnostic and Therapeutic Value of the Roentgen Ray. C. F. Osgood, Ogden, Utah.
116 Necessity for Early Treatment for Strabismus. F. Stauffer, Salt Lake City.

American Journal of Surgery, New York

September

- 117 Surgery of the Large Intestine. J. F. Erdmann, New York.
118 *A New Method of Intestinal Anastomosis. A. L. Sorel, New York.
119 Nomenclature of the Diseases of the Appendix. A. V. Moschcowitz, New York.
120 Bier's Hyperemia in General Practice. E. A. Tracy, Boston.
121 Local Anesthesia. A. E. Hertzler, Kansas City, Mo.
122 Indication for Bier's Hyperemia in Acute Surgical Conditions. E. Adams, New York.

118. **Intestinal Anastomosis.**—The method which Sorel describes he believes eliminates all the inconvenience attributed to the end-to-end anastomosis, and by being the most rapid (more rapid in fact than all mechanical devices), very easy and simple it eliminates the danger common to every other form of anastomosis, namely, long manipulation of the intestine, which makes infection more apt to occur and causes trauma, which facilitates the formation of adhesions. The method has been used by various surgeons in 14 cases in human beings after it was used, always successfully, over 200 times on dogs. This is a suture method in which the cut ends of the intestines are sutured and inverted over a rubber tube. The size of the tube should be one-third less than that of the intestine to be anastomosed, and of about

the same length as its diameter. Any tube of soft resilient rubber, about 0.5 mm. in thickness, can be used.

A plain round, straight or curved needle threaded with silk or linen is passed from within the lumen of either of the two segments of the intestine through the whole thickness of the gut and mesentery, traversing the dead space at a distance of about 3 cm. from the cut edge, avoiding, of course, any blood vessels. The end of silk or linen is held by an artery forceps. The needle is then passed through any one of the catgut loops of the rubber tube; then going to the other segment of the intestine on the same side, it is passed from without in through the mesentery and intestinal wall, again traversing the dead space. The needle is then brought out again through intestinal wall and mesentery, and going back toward the first segment of intestine it is passed under the same catgut loop of the rubber tube, and finally passing through the mesentery and intestinal wall, will come out inside of the intestine at a distance of a few micromillimeters from the point of beginning of the stich. It will be noted that the dead spaces have been traversed four times. The two segments of the intestine are approximated and the two mesenteric angles (dead spaces) are securely closed by gently tying the two ends of silk, the knot being in the inside of the intestine. The two ends of silk are left long, one being held by an artery forceps; the other, armed with the needle, will be brought outside of the intestinal cavity by passing through the whole intestinal wall, close to the attachment of the mesentery and is used for the circular mattress suture of the second stage. The two segments of the intestine are brought over the rubber tube and held in place by one or more temporary stitches, which pass through a catgut loop, thus preventing the tube from slipping and facilitating the circular mattress suture; the temporary stitches should be cut very close to the knot. The catgut loops stand prominently between the two edges of the intestine. The needle is passed through the catgut loop near the attachment of the mesentery, close to the mesenteric angle, and at about 2 mm. from the cut edge of the opposite segment of gut a continuous mattress stitch is begun; the needle goes through the whole thickness of the intestine. As the needle passes from one segment to the other it goes through the catgut loops, the serosa is inverted with each stitch, by tucking it under with a thumb forceps, and gentle traction is maintained so that each stitch is kept taut, and no silk is seen between the two cut edges, which must be closely approximated. Care should be exercised not to pull the silk perpendicularly to the intestine because by so doing it always tears the gut. The traction on the silk must be made by keeping it parallel to the suture line. When the circular mattress stitch is completed the silk is knotted to the end which was held by the artery forceps and the ends are cut close to the knot. The temporary stitches can be cut off when they are reached with the circular suture.

Sorel says that one needs not to be particular as to the regularity of the mattress stitch; the only important points are: to pass the silk under a catgut loop at least once, when going from one segment to the other, and to invert the serosa, keeping the silk taut. The intestine is washed with normal saline solution; and clean pads and towels are put around, the anastomosed gut is taken in one hand and one strand of the catgut is gently pulled until about half the number of loops have disappeared; the ends of the catgut are then knotted and cut close. While pulling the catgut it will be seen that the serosa is inverted.

Virginia Medical Semi-Monthly, Richmond

September 9

- 123 Carcinoma of the Uterus. F. H. Hancock, Norfolk.
124 Typhoid Fever—Diagnosis, Local Manifestations and Reasons for Specific Treatment. H. E. Jones, Roanoke.
125 The Gold-Cure Fraud Again. S. L. Hannon, La Plata, Md.
126 Importance of Differential Diagnosis Between Chancre and Chaneroid. W. H. Atkinson, Washington, D. C.

Journal of Nervous and Mental Diseases, New York

September

- 127 Tumors and Cysts of the Spinal Cord with a Record of Two Cases. C. K. Mills, Philadelphia.
128 Myositis Ossificans. J. K. Mitchell, Philadelphia.
129 *Myasthenia Gravis. M. G. Schlapp and J. J. Walsh, New York.

129. **Myasthenia Gravis.**—In this case, which was studied rather carefully and had at the beginning some appearances that might lead one to think of hysteria, a story of fright was obtained, followed immediately by the gradual development of all the symptoms of myasthenia gravis. The patient was a young woman of 24, a cashier. She was very sensible, with no caprices, no nervous symptoms, and none of the faults of disposition usually set down as due to a tendency to hysteria. She had been in perfect health, missing no time, undisturbed by the menstrual periods, with regular bowels and a good appetite. She was a favorite in her own family.

One evening in 1906 a brother was brought home dead. She was at home when he was brought in and she suffered severely from the shock, swooning away and then afterward vomiting. She was better after half an hour, but she did not sleep that night and felt nauseated during most of the next day. She was unable to eat much for several days and headaches developed. These headaches were very severe and continued even after her appetite returned to a great degree and when she thought that she was quite well otherwise. When she returned to work after the funeral she found that she was very easily tired and that her eyelids began to twitch. The left one was the first to be affected, but both bothered her after a short time. After the twitching had continued for some time she would find it easy to open her eyes, but rather hard to keep them open and the lids would droop. Speech became very tiresome to her, too, and then after an interval she would be worse, and at the end of six weeks she found it very difficult to hold her eyelids up or to talk much, and some difficulty of swallowing developed. These symptoms of gradual loss of use of the muscles continued to develop for six months with certain variations. She died December 23 from sheer weakness of the respiratory muscles, together with the malnutrition consequent on difficulty of swallowing.

The course of the case was typical of myasthenia gravis, except that the intermissions were perhaps more marked than are usually seen. The authors suggest that the secretion of the thymus gland represents some material that maintains the tone and the vitality of the dark red muscle substance. When this diminishes the white substance overgrows somewhat according to that law which seems to hold in all the tissues, that the disappearance of one form of tissue leads to hypertrophy of neighboring tissues of other kinds in the same order. It is possible that the thymus may have the double function of maintaining the vitality of the dark red muscle substance and inhibiting the light red muscle substance. Such double functions are rather common and are to be expected in nature. The shock or fright that represents the beginning of this case of myasthenia gravis may have disturbed certain trophic nervous influences that enabled the thymus gland to do its work.

Medical Fortnightly, St. Louis, Mo.

September 10

- 130 Hygiene of School Life. G. F. Butler, Chicago, Ill.
- 131 Procreation Laws. G. H. Bogart, Brookville, Ind.
- 132 Objectionable and Unusable Chinese Drugs Imported into the United States. A. Schneider.

Providence Medical Journal

September

- 133 *Manifestations of the Angioneurotic Group of Diseases. G. S. Matthews, Providence.
- 134 Epithelioma. J. V. Shoemaker, Philadelphia.
- 135 The Dispensing Druggist. F. C. Clark, Providence.
- 136 Precocity and School Life. F. N. Brown, Providence.
- 137 Epidemic Poliomyelitis. F. T. Fulton, Providence.
- 138 Infantile Paralysis. W. R. White, Providence.

133. **Manifestations of the Angioneurotic Group of Diseases.**—The following summary is made by Matthews of his cases:

Case 1. History of attacks of pain and lameness in ankles, calves, knees, hips. Purpuric spots on knees, calves, thighs. Colicky pains in abdomen, at first mild, then very severe. Some edema of feet. Recurring purpura of fingers and foot, with some edema of fingers. Herpes. Nephritis. Endocarditis. Death.

Case 2. At first pains in epigastrium after taking food. Tenderness over epigastrium. Pains increasing in severity

and more generally distributed over abdomen and regardless of food. Marked erythema with here and there urticarial wheals. Localized edema. Recurrence of erythema. Much headache. Albumen and casts and blood in urine. Recovery.

Case 3. Recurrent attacks of urticaria, pains in chest and abdomen twenty years ago. Arthritis. Edema of ankle. Purpuric spots. Fever for a few days. Pains in upper abdomen and chest. Recurring attacks of pain in abdomen, chest, rectum. Glycosuria. Recovery.

Case 4. Sudden attack of croup. Profuse urticaria, followed by prompt relief of the laryngitis. Recovery.

Kansas City Medical Index-Lancet

September

- 139 Plea for State Provision for Nervous Invalids. J. Punton, Kansas City.
- 140 Spinal Analgesia by the Morton Method. St. E. Sanders, Kansas City.
- 141 Nursing for the Neurologist. The Psychic Factor. What to Avoid. The Principles that Guide. T. A. Williams, Washington, D. C.
- 142 Hospital Accounting. W. T. Dillon, Kansas City.
- 143 What Shall We Do with the Tuberculous Insane? E. W. Schaeffer, Kansas City.

Atlanta Journal-Record of Medicine

August

- 144 Diagnosis and Treatment of Fractures. F. K. Boland, Atlanta.
- 145 The Public and Venereal Diseases. R. H. Stanley, Albany, Ga.
- 146 Development and Nerve Supply of the Intestinal Canal Surgically Considered. J. L. Campbell, Atlanta.
- 147 Tuberculosis of Bones and Joints. T. Toepel, Atlanta.
- 148 Relation the House Fly Bears to Typhoid and Other Infectious Diseases. J. W. Palmer, Ailey, Ga.
- 149 Amylic and Ethylic Alcohol Differentiated: Physiologic Action and Therapeutic Uses and Abuses of the Alcohol Group; Education as Essential as Legislation in Solving the Alcohol Problem. B. W. Hall, Bowman, Ga.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

September

- 150 Surgical Treatment of Vaginal Delivery. E. P. Davis, Philadelphia.
- 151 Extra-Uterine Pregnancy from the Standpoint of the General Practitioner. G. L. Hinner, Baltimore.
- 152 Treatment of Eclampsia. E. C. Hirst, Philadelphia.
- 153 Diagnosis and Differential Diagnosis of the Pathologic Processes Causing Enlargement of the Kidney. C. G. Cumston, Boston.
- 154 *Method of Anastomotic Repair of the Divided Ureter. M. McLean, New York.
- 155 *Fibromyoma of the Uterus. I. S. Stone, Washington, D. C.
- 156 Spontaneous Rupture of the Uterus Due to Hydatidiform Mole. R. Waldo, New York.
- 157 Deformity of Both Hands Occurring in a Child Delivered from a Mother with Oligohydramnios. W. H. Wells, Philadelphia.
- 158 Neuromuscular Exercises, Done at the Word of Command, in the Treatment of Rotary Lateral Curvature of the Spine. J. J. Nutt, New York.
- 159 Pericardial Adhesions in Children. D. L. Schram, Chicago.
- 160 The Middle Ear. C. G. Crane, Brooklyn, N. Y.
- 161 Infantile Scurvy. T. S. D. Grasty, Washington, D. C.
- 162 Pott's Disease. R. G. Moore, New York.

154. Abstracted in THE JOURNAL, May 28, 1910, p. 1813.

155. Abstracted in THE JOURNAL, June 11, 1910, p. 1993.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

September 3

- 1 *Mechanotherapy in Disease. A. Bryce.
- 2 Interpretation of Roentgen Ray Negatives. A. H. Pirie.
- 3 The Spread of Cancer Among the Descendants of the Liberated Africans or Creoles of Sierra Leone. W. Renner.
- 4 *One Cause of Cancer as Illustrated by Epithelioma in Kashmir. E. F. Neve.
- 5 Provision of Medical Treatment of School Children. J. Kerr.
- 6 *Defense of the Home Treatment and Prevention of Scarlet Fever. R. Milne.
- 7 The Tuberculosis Problem on County Areas. A. H. Hogarth.
- 8 Part-Time Medical Officers of Health. F. E. Fremantle.
- 9 Reform of Death Certification. W. Collins.
- 10 Town Planning in Relation to Public Health. J. Robertson.
- 11 Administrative Control of Ophthalmia Neonatorum. G. Reid.
- 12 Etiology and Prevention of Summer Diarrhea. J. Niven.
- 13 State Sickness Insurance (Provision of Medical Attendance) as Affecting the Public Health and the Medical Profession. S. Whitaker and C. S. Loch.
- 14 Importance of Dental Surgery. J. H. Mummery.

- 15 Effect of Foodstuffs in the Causation and Prevention of Dental Caries. J. S. Wallace.
16 Care of the Mouth During General Disorders. H. Mackenzie.
17 Influence of Climate on Dental Caries. A. S. Underwood.

1. **Mechanotherapy in Disease.**—Bryce regards it as very remarkable that the medical profession should so long have neglected the treatment of disease by physical methods or mechanotherapy, especially when in its various branches it has long been exploited by so many irregular practitioners. Speaking of osteopathy, Bryce has no hesitation in saying that the vast majority of his cases are quite capable of being successfully treated by other methods, and that many ailments, especially acute conditions such as typhoid fever, pneumonia, nephritis, "cold in the head," are liable to be seriously aggravated by manipulative attention. It is lamentable that the apotheosis of mechanotherapy should result in such ill-guided enthusiasm as its application to many acute disorders would testify. However, Bryce continues, scientific mechanotherapy has a distinct field of usefulness. He reports several cases which, he says, could not have been treated successfully without some form of manipulative therapeutics. He has used the method in cases of asthma, neurasthenia, neuralgia, and others which have resisted the orthodox methods of treatment, and in some cases he has had beneficial results which could not have been attributed to the influence of suggestion. However, some of the benefit derived may have been due to improved physical condition which naturally results from the treatment, and some of it may have been due to the preliminary relaxation of the muscles and the breaking down of adhesions.

4. **One Cause of Cancer.**—During 25 years, of 4,902 tumors removed by operation in the Kashmir Mission Hospital, Neve found that no less than 1,720 were malignant, and of these 1,189 were epitheliomatous, and 848 were on the thighs or abdomen and were due to the irritation of the kangri, a portable fire basket, carried by the people under their clothes. When sitting down this rests against the inner sides of the thighs or the front of the abdomen. The front of the chest, the breasts and the calves of the leg all are exposed to the irritation of the heat, and these regions are also liable to become the seats of epitheliomatous disease, although much less frequently than the thighs and abdomen. The disease is quite as common in men as in women. The average age of the patients was as high as 55. Epithelioma is extremely rare under 40. Scars from previous burns are often the starting point for epitheliomata. Kangri-burn cancer is a typical squamous-celled epithelioma. In the early stages, the malignancy is slight, it is too slow to infect glands, and is very amenable to operation. In late cases deep glands are involved, and in many cases, owing to adhesions and brawny infiltration of the skin and cellular tissue, it is inoperable. In many cases its origin is in scar tissue. It is demonstrably due to a definite cause, namely, irritation from the constant application of heat. In this respect it is similar to other epitheliomata resulting from mechanical, chemical or thermal irritation. The nature of the cause is opposed to a parasitic theory of origin, and favors a trophic theory of cancer.

6. **Prevention of Scarlet Fever.**—During the first four days in a scarlet fever case commencing at the earliest possible moment, Milne has pure eucalyptus oil gently rubbed in morning and evening, all over the body from the crown of the head to the soles of the feet. Afterward this is repeated once a day until the tenth day of the disease. The tonsils he always swabs with a 1 in 10 phenol solution every 2 hours for the first 24 hours, rarely longer. For 26 years Milne has used pure eucalyptus oil in this way. When this treatment is commenced early, he asserts, secondary infection never occurs and complications are unknown.

Lancet, London

September 3

- 18 *Etiology and Treatment of Sterility. R. A. Gibbons.
19 *Twenty Cases of Syphilis Treated with Ehrlich's "606." J. E. R. McDonagh.
20 *Influence of the New Ehrlich Preparation, "606" (Dioxydiamidoarsenobenzol), on Recurrent Fever in Rats. J. McIntosh.
21 Value of Ossiectomy in Chronic Middle-Ear Suppuration as a Means of Avoiding the Complete Mastoid Operation. H. F. Todd

- 22 *Isohemolysis in Relation to Cancer. H. Upcott.
23 Further Observations on Typhoid Carriers. D. S. Davies, I. W. Hall, E. Emrys-Roberts and J. Fletcher.
24 Rhinosporidium Kinéalyl in Unusual Situations. A. C. Ingram.
25 Congenital Coxa Valga. J. J. Clarke.
26 Leptosy in a White Person Associated with Insanity. R. Jones and R. W. J. Pearson.
27 *Bacteriology of Epidemic Summer Diarrhea. R. S. Williams, H. L. Murray and C. Rundle.
28 Technic of a Simplified Form of the Wassermann Reaction. W. d'E. Emery.
29 Cerebellar Hemorrhage. A. E. W. Hird.

18. **Sterility.**—There can be no doubt, says Gibbons, about the gonococcus being responsible for many cases of sterility, but it is useless to endeavor to make it responsible for nearly all. Gibbons draws attention to the fact that certain continuous vaginal discharges, apart from that caused by the gonococcus, which cannot be cured by douching, may yield to vaccine treatment if the organism causing that discharge be separated, cultivated and a vaccine made therefrom. The modern internal treatment by organotherapy requires most careful consideration and much more experience before statistics of real value can be tabulated. In his own experience, Gibbons has had such success by curing ordinary vaginal discharges, conception following thereon, that he has been most seriously impressed by the fact that apparently simple discharge may contain much toxic material which can act on the protoplasm of the spermatozoa. If any disease exists it must be cured, and if it does not yield to ordinary treatment thorough curetting may be advised, or if this will not be entertained, a course of waters may be of the greatest service.

19. **Ehrlich's "606" Specific for Syphilis.**—It appears from the cases McDonagh has treated, that the earlier the syphilis the larger the dose required (0.45 to 0.6 gram), and that 0.5 gram is ample in the late stages. In his cases it was the general rule for the temperature to rise to 100 F. on the night of the injection, and to become normal after 48 hours; sometimes the fever persisted to the third day, but only in those cases which had some of the toxic edema. In only one case was any albumin found after injection, and in this case it was transient. In almost every case an induration could be felt in both buttocks, probably due to a fibrosis caused by the caustic action of the sodium hydrate; whether the induration will ever disappear time alone will show; at any rate, it causes the patient no inconvenience. Beyond the improvement observed by the naked eye, McDonagh was very much struck by the extraordinary change for the better in almost every patient's general condition: they not only appeared brighter, but felt ever so much better and put on weight; this alone is a great achievement, since there is scarcely a patient who does not become depressed, anemic and lose weight under mercurial treatment. It seems that the severer the case the quicker the action, and the results obtained so far, McDonagh says, reach beyond expectation.

20. **Influence of the New Ehrlich Preparation.**—McIntosh found that "606" (dioxydiamidoarsenobenzol) is a specific remedy for European relapsing fever, and thinks it will be equally efficient in the other spirochaetoses.

22. **Isohemolysis in Relation to Cancer.**—It is evident from Upcott's work that the possession of isohemolysis is very far from being pathognomonic of cancer. But then very few signs of the disease in its curable stages will bear this interpretation. A reaction which is positive in 50 per cent. of patients with cancer deserves, he thinks, to be weighed in the balance with other facts in the endeavor to arrive at a diagnosis. The only other conditions likely to be confounded with cancer in which hemolysis is frequently encountered are tuberculosis and pernicious anemia, especially the former. In such cases, if hemolysis be proved, it is possible that one of the forms of tuberculin reaction would be of value. A negative hemolytic reaction can, of course, carry no weight.

27. **Epidemic Summer Diarrhea.**—The authors isolated from the feces, heart's blood and scraping of abdominal organs of cases of epidemic diarrhea, two groups of organisms producing diarrhea in puppies, the one group apparently new, and corresponding exactly with their original strain *Bacillus F.* and the other identical with *Bacillus suipestifer*. These groups are distinguishable from each other, from *B. paratyphoid* and

from *Bacillus suipestifer* by absorption tests alone. They were not present in the stools of 100 normal children.

Medical Press and Circular, London

August 31

- 30 Spasmodic Pseudotumors of the Large Intestine. M. Loeper.
- 31 Gastroduodenal Ulceration, the Indications for, and the Choice of Operation. K. W. Monsarrat.
- 32 Vicious Circles Associated with the Sexual Organs. J. B. Hurry.

Clinical Journal, London

August 31

- 33 Radical Cure of Femoral Hernia. C. B. Lockwood.
- 34 Simple Infantile Anemia. E. Cantley.
- 35 Life and Work of Edward Jenner. F. M. Sandwith.

Glasgow Medical Journal

September

- 36 Treatment of Operable and Inoperable Carcinoma of the Mamma. G. T. Beaton.
- 37 *Action of Thiosinamin. F. Charteris.
- 38 Old Glasgow Institutions with Medical Associations. H. A. McLean.

37. **Action of Thiosinamin.**—Charteris' records show that in man thiosinamin does not cause alteration in the number of leucocytes, whether given by the mouth or by subcutaneous injection. His experience with thiosinamin preparations is extremely unsatisfactory, and quite fails, he says, to sustain the extravagant and enthusiastic reports of those who have obtained remarkable results in joint cases, Dupuytren's contracture and nervous diseases.

Journal of Laryngology, Rhinology and Otology, London

September

- 39 Treatment, Course and Prognosis of Purulent Diseases of the Labyrinth. G. Alexander.
- 40 Nasopharyngeal Origin of Chorea. S. L. de Ponthière.

British Journal Children's Diseases, London

August

- 41 Duty of the General Practitioner to the Deaf Child. M. Yearsley.
- 42 *Portals of Infection in Tuberculosis. T. R. Whipham.
- 43 Atelosis in a Man, Aged 42: Physical Development Said to have been Arrested at about the Age of 9 Years. F. L. Weber.
- 44 *Rare Congenital Deformity of Nose in an Infant. G. Wilkinson.

42. **Portals of Infection in Tuberculosis.**—In the case of children, Whipham thinks it probable that many patients are infected through the alimentary tract, and that in them the bovine bacillus plays an important, though not exclusive part. It must be remembered that children are very liable to become infected, and when once the disease has gained an entrance it spreads rapidly, as a rule, giving rise to a generalized infection. The tissues in early life show but a slight resistance to the tubercle bacillus, and have little if any power to limit the disease to a given area, or to start reparative processes when once attacked. With age, however, the power of resistance increases. In infancy the lymphatic glands are the first tissues to be involved, the bronchial glands, as a rule, the site of election. The protective power of the gland at this age being but feeble, a generalized tuberculosis in most cases results. After the first year or so the glands are more able to withstand the infection, so that the protection is afforded, perhaps for a time, perhaps permanently. Later, about puberty, the rôle of the lymphatic glands diminishes, and the disease is characterized by lesions in the apices of the lungs as in adult life, but at this age the infection is apt to be more rapid and more virulent than after full maturity has been attained.

44. **Rare Congenital Deformity of the Nose.**—The deformity in Wilkinson's case consisted of a deep depression in the middle line of the nose, with wide separation of the nostrils and flattening and broadening of the whole feature. The nose was 3 cm. wide at the level of the alæ, but only projected about 1 cm., the greatest projection being on either side of the middle line in front of each nostril. These two prominences are separated by a depression of the tip of the nose 2 cm. wide. The nasal bones and nasal processes of the superior maxillæ were flattened. There was no separation between the nasal bones. The columella was 2 cm. broad, and the anterior nasal spine could be felt behind the columella as a broad projection of bone, about 1½ cm. from side to

side. On inspection of the nasal passages the anterior ends of the nasal septum could be seen as a prominent ridge on the inner sides of each vestibule. The two sides of the septum were apparently separated from each other. There was no nasal obstruction. On everting the upper lip there was seen a distinct notch on the buccal surface in the very center of the lip. There was also a well-marked notch in the middle line of the alveolar process. The two halves of the alveolus were not in alignment, but met with a forward-pointing angle. Two uncut incisors could be felt beneath the gum on either side of the mesial notch, showing that this represented a division between the two halves of the premaxillary bone. The deformity arose, no doubt, from failure of fusion of the two mesial masses of the frontonasal process.

Annales de Gynécologie et d'Obstétrique, Paris

August, XXVIII, No. 8, pp. 549-511

- 45 *Treatment of Vaginal Cystocele. (Sur la cure de la cystocele vaginale ou hernie pré-utérine). H. Violet.
- 46 *Anemia of Pernicious Type During Pregnancy. Audebert and Balous.
- 47 Arterial Irrigation of Lower Segment of the Uterus. A. Couvelaire.

45. **Treatment of Vaginal Cystocele.**—Violet distinguishes between (1) primary prolapse of the uterus, which requires hysteropexy or hysterectomy; (2) primary downward displacement of the lower portion of the vagina, corresponding to an actual eversion by way of the perineum, correction of which requires suturing of the levator ani muscles either anterior or posterior to the bladder, and (3) preuterine and retrouterine hernias in the anterior or posterior cul-de-sac of the vagina, by way of the weakest points in the sacro-rectal-genital aponeurosis. He describes the technic which he applies in the latter form, giving the details with illustrations of three cases. The main features of his technic are the closing of the hernial gap by suturing the vesico-uterine ligaments, following this by fixation of the uterus at a point on or just above the isthmus, fastening the uterus thus in physiologic anteversion. As the vagina cystocele is generally associated with sinking of the posterior vaginal vault and elongation of the lips of the cervix, he follows with lozenge-shaped resection of the posterior cul-de-sac and amputation of the cervix before proceeding to reconstruct the perineum by direct suture of the levator ani muscles.

46. **Pernicious Anemia During Pregnancy.**—The case reported is interesting as the extreme anemia of the pernicious type in a ii-para of 26 showed a pronounced turn for the better immediately after the delivery of a macerated fetus about term. The spleen was considerably enlarged, which is not generally the rule with pernicious anemia in pregnancy.

Annales des Maladies des Org. Génito-urinaires, Paris

August 15, XXVIII, No. 16, pp. 1441-1536

- 48 *Hypertrophy of the Trabecule in the Bladder as Early Sign of Tabes. Eighteen Cases. R. M. Frouchellé.
- 49 Treatment of Chronic Gonorrhœal Urethritis. M. Jungano. Commenced in No. 15.
- 50 *Multiple Lesions of the Kidneys. (Lésions multiples des reins). Zimnitzki.

48. Abstracted in THE JOURNAL, September 3, 1910, page 899.

50. **Multiple Lesions of the Kidneys.**—Zimnitzki urges the importance of striving to detect and distinguish the various pathologic processes that may be developing at the same time in an organ. In a case described, a man of 51 with venereal antecedents developed a puzzling syndrome finally revealing itself as a combination of stone in the kidney and mixed pyohydronephrosis with atrophy of one kidney and compensating hypertrophy of the other. He cites several cases of the four types of hydronephrosis: the true internal, the external or false hydronephrosis, the combination of both and the intermittent.

Annales de Médecine et Chirurgie Infantiles, Paris

August 15, VII, No. 16, pp. 494-520

- 51 Paroxysmal Hemoglobinuria in Boy of Four. P. Hausbalter.
- 52 Localization of Lesions in Child's Lung in Pneumonia. E. Weil and G. Mouriquand.
- 53 Seaside Sanatoria for Rabbits and Surgical Tuberculosis. (La cure marine à Berck). P. Audin.

Archives des Maladies de l'App. Digestif, Paris

July, IV, No. 7, pp. 369-332

- 54 *Effects of Nicotin Poisoning on the Finer Structure of the Gastric Mucosa. J. Grosmann and A. Jiano.
55 Incurable Obesity. (Les obésités irréductibles). M. Eabbé.
56 Rapidity of Evacuation from the Stomach of Different Kinds of Milk. (Sur la vitesse du passage pylorique de diverses sortes de lait). P. Carnot and G. J. Slavn.
57 Care Before and After Operations on the Stomach. (Des soins pré et post-opératoires dans les interventions sur l'estomac). Faix.

54. Effect of Nicotin Poisoning on the Stomach.—The experiments on dogs here reported from Bucharest resulted constantly in the development of both parenchymatous and interstitial changes in the inner lining of the stomach—a mixed gastritis.

Lyon Médical, Lyons

August 13, CXV, No. 33, pp. 237-276

- 58 Auto-serotherapy and Heteroserotherapy. (Action de certaines sérosités pathologiques). M. Jaboulay.
August 21, No. 34, pp. 277-316
59 Five Cases of Malta Fever Observed at Lyons. J. Mollard and L. Rimaud. Commenced in No. 32.
60 Pascal's Malady. P. J. Navarre. Commenced in No. 31.

Presse Médicale, Paris

August 24, XVIII, No. 68, pp. 641-648

- 61 Intravesical Segregation of the Urine versus Catheterization of the Ureters. (Division intra-vésicale des urines ou cathétérisme urétéral?) G. Marion.
62 Tuberculosis in the Postal and Telegraph Services. R. Grenier.
63 The Roentgen Rays in Dermatology. A. Barré.
August 27, No. 69, pp. 649-656
64 Heart Complications with Various Varieties of Polymorphous Erythema. P. Teissier and H. Schaeffer.
65 Choroidiform Movements in Tuberculous Meningitis. A. Gonnat.

Revue de Gynécologie, Paris

August, XV, No. 2, pp. 97-192

- 66 *Improved Technic for Subtotal and Total Abdominal Hysterectomy. M. Chaput.
67 Ureter Anomalies. I. E. Papin.
68 Case of Bilharziosis of the Bladder. G. Marion.

66. Technic for Hysterectomy.—Chaput asserts that the drawbacks of subtotal hysterectomy (liability to cancerous degeneration and infection) can be obviated by excising the mucosa lining of the cervix and pushing the entire stump of the cervix down into the vagina and suturing the walls of the latter above it, thus excluding it entirely from the abdominal cavity. He obtains access to the cervix through an incision in the anterior vaginal vault, then slits the cervix, spreads it open flat and resects the mucosa and then sutures it into its cylindrical shape again and invaginates it into the vagina. He also asserts that the drawbacks of total hysterectomy can be obviated by first removing the cervix through the vagina and then removing the rest of the uterus by abdominal section. This is particularly advantageous for the obese. The vaginal operation can be done under local, general or spinal anesthesia. The clamps are removed the second day and the abdominal operation is then done. He describes this technic in detail with illustrations.

Semaine Médicale, Paris

August 31, XXX, No. 35, pp. 409-420

- 69 *Traumatic Neuritis and Hysteria. F. Moty.

69. Traumatic Neuritis and Hysteria.—Moty remarks that as the infectious complications of trauma are becoming of less importance, the nervous disturbances resulting from the traumatism are looming up into constantly greater prominence. Two facts seem to be established by his experience with 161 cases of traumatic neuritis, namely, that the existence of a neuritis can be presumed when the region affected is colder than the corresponding region on the other side, and secondly, that the outcome of the trouble depends in large measure on the individual tendency to hysteria in the patient. If the limb is found colder than its mate, electric tests may confirm the assumption of neuritis. The muscles generally atrophy early and likewise the bones; in some of his patients the sole of the foot was markedly smaller than its mate 3 months after a fracture of the leg with neuritis. In some puzzling cases with chronic arthritis of the knee, the knee was hot, the leg above or below unusually cold, and the diagnosis of neuritis was confirmed by the

asymmetrical shortness of the sole. Trophic ulcerations can be distinguished from tuberculous lesions by this chilliness and atrophy of the limb. When there is traumatic paralysis or contracture there is generally an accompanying neuritis and more or less hysteria, so that he has become convinced that progressive neuritis is a form of what he calls hysterotraumatism. The prognosis, he reiterates, does not depend on the gravity of the trauma but on the degree of hysteria, so that examination of the visual field to estimate the tendency to hysteria and inquiry into the personal and family antecedents will generally afford a basis for the prognosis. In about 10 per cent. of his 161 cases no measures proved more than transiently effectual. If the primary lesion was grave the cure may require years and the limb cannot be expected to regain its former strength after suture of the nerve, although the sensory functioning may be comparatively normal. He commends Weir Mitchell's methods of revulsion in treatment of neuritis; galvanic treatment may also prove effectual. He has witnessed the cure of old trophic ulcers under a few weeks of the continuous current; the sinusoidal current and undulating galvanic current may also render good service. Psychic treatment is of prime importance, he emphasizes; as the course of a neuritis is variable, certain impressions or auto-suggestions may induce at any time a turn for the better. In one of his cases the limb was amputated as a last resort and the intense pains were permanently cured thereby. If the amputation is done while the neuritis is still progressing, the stump is liable to present further neuritic disturbances. In this connection he refers approvingly to Sherren's work in this line (summarized in THE JOURNAL, Feb. 12, 1910, page 571). In 2 cases in which the spinal nerves were involved, he resected the posterior roots of the plexus involved but with only transient benefit. He considers nerve-stretching as practically abandoned now except to release the nerve.

Berliner klinische Wochenschrift

August 15, XLVII, No. 33, pp. 1525-1564

- 70 Farewell Address. (Abschiedsvorlesung). R. v. Olshausen.
71 *Experiences with Ehrlich's "606" in Syphilis. (Ergebnisse mit Dioxydiamidoarsenobenzol). H. Isaac.
72 *Experiences with Ehrlich's "606" in Syphilis. (Die subcutane Anwendung des Ehrlich-Hata'schen Syphilispräparates). L. Michaelis.
73 *Treatment of Disease of the Large Intestine with Drugs in the Form of Gas or Spray. (Behandlung von Erkrankungen des Dickdarms mit gasförmigen und zerstäubten Medikamenten). M. Skaller.
74 Formol Test for Nitrogen in Stomach Content. (N-Bestimmung mit Formol im Mageninhalt und seine diagnostische Bedeutung). A. Barlocco.
75 Biologic Analysis of Chyliform Effusions. U. Carpi.
76 Method of Distinguishing Serum Containing Mercury from Serum of Syphilitics Treated with Mercury. (Zur Unterscheidung sublimatthaltiger Sera von Seris mit Quecksilber behandelten Lueticer). R. Müller.
77 Wassermann Reaction after Specific Treatment of Inherited Syphilis. J. Igersheimer.
78 Justification for Spinal Puncture and Puncture of the Brain. (Beiträge zur Frage der Berechtigung der spinalen und cerebralen Punktion). F. Apelt.
79 How to Distinguish Systole from Diastole in Auscultating. R. Schmincke.
80 Removal of Foreign Bodies from Bronchi and Esophagus by the Aid of the Fluorescent Screen. (Entfernung von Fremdkörpern aus dem Oesophagus und der Bronchien mit Hilfe des fluoroskopischen Schirmes). W. Freundenthal.
81 Intermittent Pulsus Paradoxus from Compression of the Subclavian Artery between the Clavicle and First Rib. G. Riebold.

71 and 72. Ehrlich's "606" in Syphilis.—Isaac reports 27 cases, all showing the promptly beneficial action of the drug; in some cases previous systematic mercurial treatment had proved ineffectual. In an average of 10 days the patients were entirely freed from even extremely severe manifestations of the disease. No serious by-effects were observed but in 2 cases there was a febrile and painful local reaction compelling the use of large doses of morphia for several days. The Wassermann reaction was still positive by the sixth week in all but one patient. Michaelis states that he has not encountered any trace of threatening by-effects in his 71 syphilitic patients treated with Ehrlich's "606."

73. Treatment of Large Intestine with Gas or Sprays.—Skaller applies the drug topically in the form of a spray, borne along on a jet of oxygen under pressure. The outflow of the medicated gas is provided for by an aspirating device.

Experiments on dogs, he states, have demonstrated the practicability and harmlessness of this method of medicating the intestines, the oxygen and spray penetrating to a greater distance and into all crevices much more effectually, he says, than is possible with a fluid.

Correspondenz-Blatt für Schweizer Aerzte, Basel

August 20, XL, No. 24, pp. 753-754

82 *Diagnostic Importance of Ulcerations on the Palate in Typhoid. (Ueber den diagnostischen Wert der typhösen Gaumengeschwüre). M. Lüdin.

82. Ulceration on the Palate as Sign of Typhoid.—The general symptoms and the development of a typical ulceration on one side of the palate in the 2 cases reported suggested typhoid fever, but the further course of the disturbances contradicted this assumption. Both patients were tuberculous but the ulceration had no features characteristic of a tuberculous lesion. In the experiences at the Basel medical clinic these ulcerations of the palate were observed in 11.76 per cent. of the 68 cases of typhoid in the last 3 years, but the 2 cases reported show that they are not pathognomonic of typhoid.

Deutsche medizinische Wochenschrift, Berlin

August 25, XXXVI, No. 34, pp. 1553-1592

- 83 *A New Tuberculin. (Ein neues Tuberkulin). F. J. Rosenbach.
- 84 Relative Resistance of Brazilian Malaria to Quinin. B. Nocht and H. Werner.
- 85 Nature of the Wassermann Reaction. J. Citron and F. Munk.
- 86 Porges' Reaction in Syphilis. (Die Porges'sche Luesreaktion). W. de la Motte.
- 87 Alcohol Paste for Sterilization of the Hands. H. Selter.
- 88 Advantages of Tincture-of-Iodin Sterilization of Field of Operation. W. Müller.
- 89 Direct Visual Inspection of Upper Respiratory Tract in Children. (Bedeutung der direkten Untersuchungsmethoden der oberen Luftwege im Dienste der Kinderheilkunde). E. Meyer.
- 90 *Vibration Massage Catheter. (Wasserdruckmassage. Neues System der Vibrationsmassage für Körperhöhlen). H. Dreuw.
- 91 Improved Technic for Injection of Ehrlich's "606." (Zur Technik der Injektion von Dioxy-diamido-Arsenobenzol). W. Wechselmann and Lange.

83. Rosenbach's Tuberculin.—Rosenbach produces his tuberculin by the growth of the *Trichophyton holosericum album* on living tubercle bacilli and their culture medium. The toxicity of the tubercle bacilli seems to be materially reduced by the action of this fungus, while the other properties of the bacilli do not seem to be altered. The Rosenbach tuberculin is thus much less toxic, he asserts, while the doses can be larger and the therapeutic efficiency is far greater than that of ordinary tuberculin. He relates extensive experience with it in pulmonary and surgical tuberculosis and lupus at the university polyclinic, at Göttingen, in his charge.

90. Vibration Massage Catheter.—The catheter is closely studded with holes and tap water introduced through it induces a vibration which massages the cavity, as Dreuw explains in detail with illustrations. The catheter can be enclosed in a rubber bag or not as desired. The same principle of vibration massage from running water, he adds, can be applied to instruments of different shapes designed to be introduced into the body cavities.

Deutsche Zeitschrift für Chirurgie, Leipsic

August, CVI, Nos. 1-3, pp. 1-396

- 92 *Bacteriologic Study of Surgical Tuberculosis. (Beitrag zur Frage der Verschiedenheit der Tuberkulose des Menschen und der Tiere). H. Burekhardt.
- 93 Injuries of the Semilunar Fibrocartilages of the Knee. (Die Meniskusvorwölbungen des Kniegelenks). K. Köhler.
- 94 Isolated Tearing-Out of the Crucial Ligaments of the Knee. (Ueber die isolierte Ausreissung der Ligamenta cruciata des Kniegelenks). O. Köhler.
- 95 Slow Progressive Peritonitis and Abdominal Phlebosclerosis with Desquamation of Epithelium—All of Traumatic Origin. F. Gangitano.
- 96 Treatment of Typical Fracture of the Radius. W. Krantz.
- 97 Joint Disease with Tabes. Three Cases. (Gelenkerkrankung bei Tabes dorsalis). M. Matsuoka.
- 98 *Congenital Hypertrophy and Stenosis of the Pylorus in Infants. P. Dilg.

92. Bacteriology of Surgical Tuberculosis.—Burekhardt found bovine tubercle bacilli in 3 out of 29 cases of tuberculous bone or joint processes, and also in 1 out of 6 cases of tuberculous peritonitis and in 1 out of 9 cases of tuberculous glandular processes in the neck. No bacilli of the bovine

type were discovered in his 4 cases of urogenital tuberculosis. He thus found bovine tubercle bacilli in 5 out of 49 cases of surgical tuberculosis selected at random, the patients being of all ages and of both sexes. He gives a detailed account of his clinical experiences and of extensive bacteriologic study of the 49 strains of tubercle bacilli and 3 from animals. There was nothing in the clinical course or the anatomic findings in the 5 bovine cases to distinguish them from the human type. The outcome, however, was unusually favorable. In the 3 joint cases no special focus could be discovered in the bone, as in the human bacilli cases.

98. Congenital Stenosis of the Pylorus in Infants.—In the case described the pylorus was remarkably thick, the walls encroaching on the lumen which was further obstructed by ridges of mucosa projecting into it. This case emphasizes the importance of early gastro-enterostomy if the threatening symptoms are not promptly alleviated by lavage and dieting.

Fortschritte der Medizin, Leipsic

August 11, XXVIII, No. 32, pp. 993-1024

99 Importance of Creosote in Pulmonary Tuberculosis. (Wirkungsweise des Kreosots bei Lungentuberkulose und die Notwendigkeit einer chronisch-intermittierenden Behandlung der Lungentuberkulose mit Kreosot). K. Martin.

Jahrbuch für Kinderheilkunde, Berlin

July, LXXII, Supplementary Number, pp. 1-284

- 100 Study of Casein in Breast Milk. (Ueber die Einheitlichkeit des Frauenmilchkaseins). L. Langstein and F. Edelstein.
- 101 Lime Content in Breast Milk. (Das Kalkangebot in der Frauenmilch). H. Bahrdt and F. Edelstein.
- 102 Research on Respiratory Interchanges in Infants. (Die Methodik der Untersuchung des respiratorischen Stoffwechsels am Säugling). H. Bahrdt and F. Edelstein.
- 103 Action of the Food Constituents of Breast Milk on the Intestinal Flora in Infants. (Wirkung der Nahrungskomponenten der Frauenmilch auf die Darmflora des Säuglings). H. Bahrdt and H. Beifeld.
- 104 The Amino-Acids in Infants' Urine. (Die Fraktion der Aminosäuren im Säuglingsharn). F. W. Schlutz.
- 105 Epidemic Poliomyelitis in Austria. (Die Epidemie der Poliomyelitis acuta epidemica [Heine-Medinische Krankheit] in Wien und Niederösterreich im Jahre, 1908). J. Zappert.
- 106 Volume of Blood, Hemoglobin Content and Oxygen Avidity of the Blood in Pale and Healthy Appearing Children. (Die Blut- und Hämoglobinmenge und die Sauerstoffkapazität des Blutes bei gesund und bei blausscheidenden Kindern). E. Müller.
- 107 *Influence of Seasons and Other Factors on Infant Death-Rate. (Weitere Beiträge zur Statistik der Säuglingssterblichkeit). S. Rosenfeld.
- 108 Infant Mortality in Italy. (Die Kindersterblichkeit in Italien). A. Borrino.

107. Study of Infant Mortality.—Rosenfeld has been studying the statistics in regard to the infant death-rate in Austria during the last 25 years, comparing the influence of the age of the infants, the mode of feeding, the seasons, etc. His conclusions are that the almost constant drop in infant mortality since 1895 is not to be ascribed to improved hygienic conditions, better feeding, etc., but is the work of certain still unknown, possibly climatic, factors which are at present beyond our control. Nothing else, he declares, will explain the facts observed, especially the almost universal sudden increase in the infant death-rate in certain years and the almost equally universal decline in others, other conditions being apparently the same at both times.

Medizinische Klinik, Berlin

August 28, VI, No. 35, pp. 1359-1394 and Supplement

- 109 Nasal Reflex Neuroses. O. Pihl.
- 110 Localization of Psychic Processes in the Brain. (Einige prinzipielle Bemerkungen zur Frage der Lokalisation psychischer Vorgänge im Gehirn). K. Goldstein.
- 111 *Ehrlich's "606" in Twenty-five Cases of Syphilis. (Die Behandlung der Syphilis mit Ehrlich-Heft 606). K. Junkermann.
- 112 Colon Bacilli Infection of the Urinary Passages. (Die Kollinfektion der Harnwege). D. Raskai.
- 113 *Modification of Momburg Belt Constriction for Hemostasis. (Zur Momburgschen Bluteere). D. Gelyt.
- 114 Electrode Cage for Therapeutic Use of Static Electricity (Therapeutische Anwendung der Intensiv-Franklinisation mit dem "Polyelektroid nach Dr. Fisch"). M. Fisch.
- 115 Determination of Viscosity of the Blood. (Weitere klinische Beiträge zur Viskositätsbestimmung). E. Bachmann.
- 116 *Determination of the Arterial Blood Pressure in Man. (Praktische Anleitung zu einer Messung des arteriellen Blutdrucks beim Menschen). H. v. Recklinghausen.

111. Treatment of Syphilis with "606."—Junkermann reports 25 cases in which Ehrlich's remedy was used; no injurious by-effects were observed although in two weakly patients there was a brief change in the heart rhythm with sweating

and anguish, but no nervous symptoms. No spirochetes could be discovered in the lesions after the injections.

113. **Modified Momburg Belt Constriction.**—Gelyi has found that the abdominal aorta can be compressed and the same results obtained as with the Momburg belt by an apparatus consisting of a steel and rubber pad, mounted in a standard fastened to the edge of the operating table. With a screw the pad is lowered to compress the region of the abdominal aorta, as by the Momburg belt, but the waist is not constricted. Compression can be applied as gradually as desired; when it is no longer needed the whole device is unscrewed from the table.

116. **Measurement of the Arterial Pressure.**—The construction and mode of action of von Recklinghausen's tonometer are described in detail with the principles on which it is based and the interpretation of the findings.

Monatsschrift für Kinderheilkunde, Leipzig

IX, No. 4, pp. 201-280. Last indexed Sept. 3, p. 898

- 117 Early Roman Appeal to Mothers to Nurse their Papes. (Der Philosoph Favorinus als Vorkämpfer für die natürliche Säuglingsernährung). A. Schlossmann.
- 118 Mineral Metabolism in a Healthy Nursling. (Zur Kenntnis des Mineralstoffwechsels beim gesunden Brustkind). L. Tobler and F. Noll.
- 119 *Infant Mortality in the Summer. (Ueber den Sommerd der Säuglinge). E. Klose.
- 120 *Pneumonia and Acute Fluctuations in Weight in Dyspeptic Infants. (Pneumonie und akute Gewichtsschwankungen bei ernährungsgestörten Säuglingen). N. Berend.

119. **Infant Mortality During the Heated Term.**—Klose ascribes the excessive mortality among infants in a large part to the acute loss of water during the summer heat. The heat is not so injurious for the infants when the humidity is high. His experiments and research and comparative study of the work of others confirm the assumption that dry hot summers are particularly injurious for infants.

120. **Pneumonia in Dyspeptic Infants.**—Berend states that the mortality among infants in Hungary is always as high or even higher in the winter and spring than in the summer. Pneumonia is frequent, and he ascribes it to the unhygienic methods of dressing and caring for the infants. Breast feeding is the rule but the spacing is too short and the infants constantly suffer from overfeeding. His experience has shown that when the child loses suddenly in weight the resulting modification of conditions in the circulation favors catarrhal infection. Pneumonia in infants seems to follow an abrupt decline in weight. He found a loss of weight of over 300 gm. in 2 days or of over 500 gm. in 5 or 6 days recorded in 71 out of 400 infants in his service at Budapest in the last 2 years. And pneumonia developed at once in 41 out of these 71 infants. In 41 out of his total material of 78 cases of pneumonia an abrupt decline in weight had preceded the development of the disease. The children were all under treatment for some digestive disturbance. The pneumonia in these 41 cases developed at once after the loss in weight, even when the infants were isolated or there were no other cases of catarrhal affections on hand. His assumption of the causal importance of the abrupt decline in weight in the production of the pneumonia emphasizes the necessity for forestalling and warding off any abrupt decline in weight from loss of fluids, leaving the blood abnormally thick and the viscosity abnormally high, and altering the osmotic processes throughout, thus modifying the natural immunity defenses. In the last 100 infants with chronic digestive disturbances taken into the hospital, 30 had pronounced bronchopneumonia, 30 bronchitis or coryza, and 10 other infectious processes. Only 20 were free from some complicating infection. Even during the summer fully half the infants have a catarrhal respiratory affection when first seen.

Münchener medizinische Wochenschrift

August 23, LVII, No. 33, pp. 1769-1816

- 121 Hypersusceptibility in Relation to Infection and Immunity. (Rolle der Ueberempfindlichkeit bei der Infektion und Immunität). A. Schlotzenhelm and W. Weichardt.
- 122 *Experiences with Ehrlich's "606" in Syphilis. C. Fraenkel and C. Grouven.
- 123 Technic for Treatment of Syphilis with Ehrlich's "606." (Zur Technik der Behandlung mit dem Ehrlich-Hatasehen Syphilismittel). K. Alt.
- 124 *Sciatica Due to Disturbances in the Spinal Roots. (Ueber Wurzelclashes). H. Stursberg.

- 125 Colorimetric Determination of Grape-Sugar in Urine. (Ueber eine kolorimetrische Bestimmung des Traubenzuckers im Harn). W. Autenrieth and T. Tesdorpf.
- 126 *Improved Technic for Amputation on Account of Gangrene and Diabetic Phlegmons. W. Kausch.
- 127 *Kaolin and Talcum Powder as Possible Transmitters of Infection. (Bohns alba als Träger der Infektion). P. Zweifel.
- 128 *Sterilization of Women with the Roentgen Rays. L. Görl.
- 129 Topical Diagnosis of Hemianopsia. F. Best.
- 130 *Emaciation of the Face Corrected by Injection of Human Fat. (Ueber einen Fall von fortschreitendem Schwund des Fettgewebes und seinen kosmetischen Ersatz durch Menschenfett). E. Helländer.
- 131 Formation of Beta-Oxybutyric Acid from Acetic Acid. (Bildung von β -Oxybuttersäure aus Azetessigsäure). E. Friedmann, C. Masse and L. Blum.

122. **Experiences with Ehrlich's "606."**—Fraenkel and Grouven conclude from their experiences with "606" in over a hundred cases of syphilis that it is undoubtedly a remedy which will mark decided progress in treatment of this disease and possibly of others, but they report a fatality after its intravenous administration which they ascribe to an individual hypersusceptibility to arsenic. The patient was a waiter of about 25 who had suffered for years from severe disturbances in speech, word blindness, etc., evidently of syphilitic origin, and had been in the psychiatric clinic for 18 months on that account. The drug was injected in a small amount of water (0.4 gm. to 15 c.c. of water). Fifteen minutes later symptoms of serious arsenic poisoning developed, proving fatal in 3½ hours. Autopsy showed extensive foci of softening in the left temporal lobe and distinct amounts of arsenic were recovered from the spleen, lungs and liver, the only organs examined for this purpose. Since this occurrence the intravenous route is no longer used in the clinic. No appreciable by-effects were observed in any of the other cases. In 30 the fate of the arsenic in the body was investigated and it was found that from 6 to 10 mg. was eliminated daily in the urine during the first week, and from 6 to 8 mg. in the second week, but after this no further traces could be detected except in a few cases in which 2 mg. was found, and up to 9 mg. in one case. The drug induced a decided and early turn for the better, they say, in all the cases except the one mentioned above, surpassing that ever attained by mercury.

124. **Radicular Sciatica.**—Stursberg relates the details of 7 cases which demonstrate that the affection which we call sciatica is not always restricted to the region innervated by the sciatic nerve. Sensory phenomena were observed indicating the participation of roots in the sacral, lumbar and thoracic regions. Some lesion in the posterior roots would explain without difficulty the syndromes observed and this assumption points the way to more effectual treatment. The occasional simultaneous or alternate occurrence of sciatica and lumbago in the same patient confirms this assumption. Lumbar puncture might possibly give relief, or heat applied to the sacral region; measures directed to the sciatic nerve alone are inadequate in this class of cases.

126. **Technic for Amputation for Diabetic Gangrene.**—Kausch cuts straight across the limb in a single plane and leaves the whole wound open. By this means he avoids all crevices and nooks where infection might lurk in extravasated blood, etc. In his first case the soft parts gradually retracted, and after the third week he applied extension to the limb. By the twenty-sixth day the soft parts had nearly covered the bone and they were drawn together with adhesive plaster over the small gap still left, and healing was complete by the end of the third month. The patient was a man of 51. The gangrene and phlegmons had followed a trifling injury of the foot and had not been arrested by amputation of the foot and leg, by the ordinary technic, followed by fistulas, but the whole syndrome subsided immediately after the amputation in a single plane at the middle of the thigh and now with careful diet the patient has no longer any sugar or albumin in the urine. The results were equally good in another diabetic. He attempted in this case during the earlier amputations to wash out clots in the artery by injecting salt solution above. The attempt failed in this instance but he thinks that this might be of advantage in certain cases of gangrene. In his first case the bone projected 6.5 cm. from the soft parts on one side and 2.5 cm. on the other, but the adhesive plaster extension with a weight of from 2 to 4.5

kgm. soon brought the soft parts down to cover the stump. This case exemplifies how a moderate diabetes of long standing can be suddenly transformed into the most serious type by superposed infection; the sugar ran up to 120 gm. with intake of 40 gm. carbohydrates, the urine remaining persistently acid although 18 gm. of sodium bicarbonate were being taken daily. The phlegmons aggravated the diabetes and the aggravated diabetes reacted in turn on the phlegmons—a vicious circle. After the focus had been removed the amputation wound healed as if there had been no diabetes; the soft parts bore as if normal the compression necessary for the extension traction. He insists on the importance of keeping diabetics entirely free from glycosuria. In 2 other cases he was unable to induce the patients to obey his dietetic restrictions after amputation on account of diabetic gangrene, and the other leg became gangrenous. He thinks this might not have occurred if the patients had dieted to keep the urine entirely free from sugar.

127. **Kaolin as Transmitter of Infection.**—Zweifel has been using since 1901 kaolin, fuller's earth or *bolus alba*, as it is variably called, as a dressing for the umbilicus, and always found it satisfactory. He had the kaolin sterilized by baking for several hours in large jars, at a temperature of from 170 to 200 C. Recently, however, 4 of the infants developed tetanus, to which 3 succumbed, and the fourth was saved only by vigorous serotherapy. No cause for the tetanus could be discovered except the possibility that the umbilicus had been dressed with some kaolin which by mistake had not undergone the supposed sterilization. This experience suggests that *bolus alba*, talcum powder, etc., should never be used to dress wounds, dust gloves, etc., in the clinic without thorough preliminary sterilization. He tests the thoroughness of the sterilization by Stieh's technic, that is, the melting of a strip of alloy in a test-tube introduced into the center of the material being sterilized. Unless the alloy is melted he refuses to use the material in question.

128. **Sterilization of Women by the Roentgen Rays.**—Görl reports 9 cases in which the menopause was brought on by Roentgen exposures. Some of the women required 80 exposures for the purpose, and this slow, gradual extinction of the ovarian functioning he regards as one of the advantages of the method. He states that the general stimulating action of the rays was soon evident in the improved general health; no climacteric disturbances were noted in any case, and the heart seemed to be favorably influenced in the myoma cases. The exposure was never strong enough to induce erythema, and thus it cannot act directly on a myoma, but the myomas subsided nevertheless, probably secondary to the sterilization process. The method is especially indicated, he says, for menorrhagia from a cardiac defect, nephritis or myoma when operative treatment is inadvisable for any reason.

130. **Cosmetic Injection of Human Fat.**—In Holländer's case a chorus girl of about 21 became strikingly thin in the face and neck while the rest of the body was well nourished. The progressive loss of adipose tissue was corrected by injection of a mixture of equal parts of tallow and human fat, filling out all the hollows in the face. He has ascertained by experiments that the fat is soon absorbed, leaving a porous scaffolding of tallow which forms an organic combination with the connective tissue. His patient's complexion had been sallow, which he found had been the result of the relaxation of the skin and contraction of the elastic fibers, as at once after the contours had been rounded out the skin became rosy again.

Wiener klinische Wochenschrift, Vienna

August 25, XXIII, No. 34, pp 1221-1238

- 132 Relations between Tumor Cells and Blood Serum. (Beziehungen zwischen Tumorzellen und Blutserum). E. Freund and G. Kammer.
- 133 *Indications for Exclusion of the Pylorus. (Indikationen der Pylorusausschaltung). A. Jann.
- 134 *Indications for Atropin in Internal Medicine. (Die Atropinkur bei Ulcus ventriculi und die Indikationen des Atropins in der internen Medizin). K. Schick.
- 135 Favorable Experiences with Ehrlich's "606" in Twenty Cases of Syphilis. E. Eitner.
- 136 *Bladder Disturbances after Use of Ehrlich's "606" in Syphilis. (Ueber Blasenstörungen nach Anwendung von Präparat 606). K. Bohac and P. Sobotka.
- 137 Necessity for Statistics of Industrial Morbidity and Mortality. S. Rosenfeld. Commenced in No. 33.

133. **Treatment of Stenosis of the Pylorus.**—Jann advocates resection or exclusion of the pylorus as the only rational treatment of stenosis unless the extent of the lesion and adhesions or the general condition prevents such a serious operation. Gastro-enterostomy he regards as merely a palliative operation, only to be preferred in case of necessity.

134. **Atropin in Gastric Ulcer and in Internal Medicine in General.**—Schiek reports the prompt healing in some very serious, obstinate cases of gastric ulcer under a systematic course of atropin, and he expatiates on the importance of this too much neglected remedy in internal medicine. His experiences parallel those of von Tabora; the atropin evidently soothed and relaxed the musculature of the stomach and pylorus while checking the gastric secretion. When all other measures have failed and operative treatment seems indispensable, he injects subcutaneously, twice a day, from 0.001 to 0.0015 gm. atropin sulphate, morning and evening, keeping this up from 4 to 10 weeks with the patient on a milk-cream diet. The healing of the ulcer in his cases was counteracted by motor insufficiency of the second degree and hypersecretion. The atropin paralyzes the vagus innervation of the stomach, which is evidently functioning abnormally in these cases. The subjective symptoms subside generally at once, and perseverance with the atropin reduces the tendency to excessive secretory functioning. The frequent discovery of vagus irritability with gastric ulcer is more than a casual coincidence; each aids in producing a vicious circle, fostered still further by reflex action. He has found atropin useful also in treatment of spastic constipation, spasmodic asthma, pylorospasm, lead colic, cardiospasm and gall-stone colic. By the relaxation induced by subcutaneous injection of atropin, the walls of the ducts allow the stone to pass along or to fall back into the gall-bladder. This treatment, he believes, might prove useful also in kidney-stone colic; Loewi has reported brilliant results from atropin in reflex vasomotor angina pectoris. Surgeons might find atropin useful also, Jann says, in preparing patients with the status lymphaticus for operation. It is also useful to differentiate spastic contraction of the stomach from organic retraction of the stomach walls; in several cases of hour-glass stomach Schiek noticed various signs indicating extreme excitability on the part of the vagus. Before giving atropin, the condition of the nervous system must be carefully investigated. If the vagus is abnormally irritable the drug can be given with confidence, he states, up to 0.091 or 0.062 gm. a day. In the absence of signs of abnormal excitability of this part of the nervous system the greatest caution is necessary; active delirium and other serious by-effects may be observed when the exact indications for it are not heeded.

136. Bohac and Sobotka discuss further their previously published experiences with "606," mentioned in THE JOURNAL, Sept. 3, 1910, p. 898.

Zeitschrift für klinische Medizin, Berlin

LXXI, Nos. 1-2, pp. 1-167 Last indexed August 20, p. 726

- 138 Glycosuria and Fat Stools in Exophthalmic Goiter. (Glykosurie und Fettstühle bei Morbus Basedowii). W. Falta.
- 139 Roentgen Rays in Treatment of Exophthalmic Goiter. W. Falta.
- 140 Interaction of Glands with an Internal Secretion. III. (Ueber Chemotaxis). G. Bertelli, W. Falta and O. Schweigger.
- 141 Metabolism with Artificially Exaggerated Thyroid Functioning (Zur Kenntnis des Stoffwechsels bei künstlichem Hyperthyreoidismus). E. Mayerle.
- 142 Atony of the Esophagus. (Dysphagia atonica. Pseudooesophagus). G. Holzknicht and D. Olbert.
- 143 Thrombosis of the Coronary Arteries. W. P. Obrastzow and N. D. Straschesko.
- 144 Tropical Disease in Sumatra Resembling Typhoid Fever. (Pseudotyphus von Deli). W. Schöffner and M. Wachsmuth.
- 145 Clinical Study of Electrocardiograms. II. Eppinger and O. Stoerk.

Zentralblatt für Chirurgie, Leipsic

August 27, XXVIII, No. 35, pp 1153-1184

- 146 Technic for Resection of Large Intestine. (Zur Dickdarmresektion) Wilmanns.
- 147 *Thrombosis in the Pancreas. (Ueber den hämorrhagischen Infarkt der Bauchspeicheldrüse). A. Hofmann.

147. **Hemorrhagic Infarct in the Pancreas.**—Hofmann reports a case of hemorrhagic infarct of the pancreas in a woman of 57 who had suffered for years from cramps in the stomach, but she had never presented signs of jaundice. A sudden violent pain in the region of the umbilicus and collapse were the first signs of trouble in the pancreas, but she soon roused, though still complaining of intense abdominal pain. The entire abdomen was tender and slightly distended, the right lower portion bulging, pulse 90, temperature 38.6 C. The areas of greatest painfulness were in the stomach region and below the costal arch on each side; there was nothing to indicate sepsis, however. The pancreas was tamponed and drained, but septic symptoms then developed and the patient died the third day after the operation, which seemed to benefit her at first. Another patient is subject to paroxysmal exacerbations of a chronically recurring pancreatitis. In one such attack the pancreas was felt to be unusually hard and the merely exploratory laparotomy seemed to benefit, as all the disturbances subsided afterward. In this case an obliterating endarteritis is probably responsible for the recurring disturbances. The stormy onset with collapse followed by subsidence of the shock symptoms and relatively good pulse are characteristic of hemorrhagic infarct or apoplexy of the pancreas, especially in combination with the absence of motor restlessness and unimpaired consciousness with the signs of peritonitis—the clinical picture thus differing in these respects from that with perforation of a viscus. Another striking feature in the first case was the enormous distention of the cecum and ascending colon, evidently the result of compression of the transverse colon by the swollen pancreas. Drainage and tamponing are seen to be ineffectual treatment; Hofmann believes that if he had resected the infarcted segment of the pancreas the patient might have survived. At the autopsy this part shelled out readily without loss of blood.

Zentralblatt für Gynäkologie, Leipsic

August 27, XXXIV, No. 35, pp. 1161-1184

- 148 Extraction of Dead Fetus in Transverse Presentation. (Feber Dissectio fetus mit dem Küster'schen Rhachiotom). E. v. Seuffert.

Zentralblatt für innere Medizin, Leipsic

August 27, XXXI, No. 35, pp. 873-896

- 149 The Blood in Carbon Monoxid Poisoning. (Hämatologische Untersuchungen bei Kohlenoxydvergiftung). O. Roth.

Gazzetta degli Ospedali e delle Cliniche, Milan

August 21, XXXI, No. 100, pp. 1049-1064

- 150 *Acute Influenzal Urethro-cystitis. G. Ghedini.
151 Alimentary Albumosuria. I. Belfiore.

150. **Influenzal Urethro-Cystitis.**—Ghedini reports what he thinks is the third case on record of acute inflammation of the urethra from the action of influenza bacilli in the blood. The 2 other cases were reported by Cohn and Klieneberger; a large number of cases of cystitis due to the influenza bacillus are on record. His patient was a woman of 35 with acute catarrhal gastro-enteritis and the influenza bacillus in the blood. As the symptoms of this were subsiding, signs of urethro-cystitis developed and the temperature ran up again. It subsided the fourth day with a crisis and the symptoms on the part of the urethra and bladder had all disappeared by the end of the week. Comby has reported 3 cases of painful, rebellious and hemorrhagic cystitis of influenzal origin.

Policlinico, Rome

August, XVII, Surgical Section, No. 8, pp. 331-380

- 152 *The Hypophysis Cerebri and Castration. (Ipofisi e castrazione). G. Fichera.
153 obliqua Internal Inguinal Hernia (Studio dell'ernia inguinale obliqua interna o vesico-pubica). C. Mantelli. Commented in No. 7.
154 Granulated Leukocytes in Pus. M. Abetti.

152. **The Hypophysis Cerebri and Castration.**—Fichera discusses the results of research in this line by various writers, including 4 monographs on the influence of castration in human beings and 10 on experimental work in this line. The hypophysis hypertrophies after castration, suggesting a possible correlation between it and the genital glands. The contradictory findings that have been published he explains as due to the different ages at which the castration was done; a pronounced influence on the size and functioning of the

hypophysis is most likely, he says, when the castration is done in very young individuals.

Riforma Medica, Naples

August 21, XXV, No. 31, pp. 925-946

- 155 Meiostragmin Reaction in Cancer. (Studio della reazione meiostragminica nei tumori maligni). C. Stabiliti.
156 *Pseudocirrhosis of the Liver of Pericarditic Origin. C. Martelli.

156. **Pseudocirrhosis of the Liver of Pericarditic Origin.**—Martelli's patient was a boy not quite 5 years old and the clinical course and autopsy findings were typical of Pick's disease. At the same time, Martelli protests against the assumption that this is a special syndrome; ascites occurs with adhesive pericarditis just as cirrhosis of the liver, compression of the portal vein and peritonitis are liable to be accompanied by ascites. In neither case are there any grounds for setting up the syndrome as a special morbid entity. The child in his case had malaria when quite young and was brought with his family to New York at the age of 4. The emigration authorities did not allow the family to enter the country and they stayed at Ellis Island, he states, during the summer and fall, the heat, the crowding and poor food causing great discomfort. The child in question was taken there with an eruptive fever, probably scarlet fever, the sore throat, swelling of the feet and intestinal disturbances keeping the child in the hospital for 3 months, after which the family was deported to Italy. Signs of adhesive pericarditis developed a year later in the child, proving fatal in 10 months.

Upsala Läkareförenings Förhandlingar

Nov Series XV, Nos. 6-7, pp. 365-493. Last indexed July 23, p. 362

- 157 Extracts from Writings of I. Hwasser, M.D., 1790-1860. E. Clason.
158 Value of Local Skin Typhoid Test. (Om intrakutan tyfoiddiagnos). G. Bergmark.
159 Prospects of Future Progress in Obstetrics and Gynecology. Framtidsmål på förlossningskonstens och kvinnosjukdomarnes område). C. D. Josephson.
160 Palpation of Arteries. (Om Arterpalpation). R. Friberger.
161 Three Cases of Enteroliths. (Tre fall af tarmsten). H. Græve.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

LIPPINCOTT'S NEW MEDICAL DICTIONARY. A Vocabulary of the Terms Used in Medicine and the Allied Sciences, with their Pronunciation, Etymology, and Signification, Including Much Collateral Information of a Descriptive and Encyclopædic Character. By Henry W. Cattell, M.D., Editor of International Clinics. Flexible Leather. Price, \$5. Pp. 1,108, with illustrations in the text. Philadelphia: J. B. Lippincott Co., 1910.

A SYSTEM OF MEDICINE. By Many Writers. Edited by Sir Clifford Allbutt, M.D., Regius Professor of Physic in the University of Cambridge, and Humphry D. Rolleston, M.D., Senior Physician, St. George's Hospital. Vol. VII. Diseases of the Muscles, the Trophic-nervous, Diseases of the Nerves, Vertebral Column, and Spinal Cord. Cloth. Price, \$6 net. Pp. 900, with 98 illustrations. New York: Macmillan Co., 1910.

ANATOMY, DESCRIPTIVE AND APPLIED. By Henry Gray, F.R.S., Fellow of the Royal College of Surgeons. Eighteenth Edition. Revised and re-edited by Edward A. Spitzka, M.D., Professor of General Anatomy in the Jefferson Medical College, Philadelphia. Cloth. Price, \$6 net. Pp. 1,496, with 1,208 illustrations. Philadelphia: Lea & Febiger, 1910.

MANUAL OF HUMAN EMBRYOLOGY. By Many Writers. Edited by Frank Keibel, Professor in the University at Freiburg i. Br., and Franklin P. Mall, Professor of Anatomy in the Johns Hopkins University, Baltimore. In Two Volumes. Volume I. Cloth. Price, \$7.50. Pp. 548, with 423 illustrations. Philadelphia: J. B. Lippincott Co., 1910.

NORMAL HISTOLOGY, WITH SPECIAL REFERENCE TO THE STRUCTURE OF THE HUMAN BODY. By George A. Piersol, M.D., Professor of Anatomy in the University of Pennsylvania. Eighth Edition. Cloth. Price, \$3.50. Pp. 418, with 438 illustrations. Philadelphia: J. B. Lippincott Co., 1910.

A TEXT-BOOK OF VETERINARY ANATOMY. By Septimus Sisson, S.B., Professor of Comparative Anatomy in Ohio State University, Columbus, Ohio. Cloth. Price, \$7 net. Pp. 826, with 528 illustrations. Philadelphia: W. B. Saunders Co., 1910.

THE SURGERY OF CHILDHOOD, Including Orthopedic Surgery. By D. Willard, M.D., Professor of Orthopedic Surgery, University of Pennsylvania. Cloth. Price, \$7. Pp. 800, with 729 illustrations. Philadelphia: J. B. Lippincott Co., 1910.

DR. JESSNER'S DERMATOLOGISCHE VORTRÄGE FÜR PRAKTIKER. Heft 8. Dermatologische Heilmittel. (Pharmacopœa dermatologica). Third Edition. Price, 1.60 marks. Pp. 96. Würzburg: Curt Kabitzsch (A. Stuber's Verlag), 1910.

DR. JESSNER'S DERMATOLOGISCHE VORTRÄGE FÜR PRAKTIKER. Heft 5. Die innere Behandlung von Hautleiden. Third Edition. Paper. Price, 85 marks. Pp. 49. Würzburg: Curt Kabitzsch (A. Stuber's Verlag), 1910.

The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOL. LV, No. 15

CHICAGO, ILLINOIS

OCTOBER 8, 1910

THE BACTERIOLOGY OF ACUTE RESPIRATORY INFECTIONS IN CHILDREN AS DETERMINED BY CULTURES FROM THE BRONCHIAL SECRETION

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In December, 1908, an investigation was begun in the Babies' Hospital to determine what information could be gained in respiratory infections from a study of cultures of bronchial secretions. For the first season interest centered on the *Bacillus influenza* to gain, if possible, some definite information as to its frequency and importance in respiratory infections, and also to see what value, if any, could be attached to sputum cultures in the diagnosis of influenza. The first season's observations extended from December, 1908, to June, 1909, and were made on 250 patients and 40 nurses in the

of this paper a detailed report concerning the *Micrococcus catarrhalis* which was found in about two-thirds of the cultures made. Thus far we have not been inclined to consider its presence as significant or important.

During the past season, from the middle of September, 1909, to June 1, 1910, there have been made, from over 500 patients and 30 nurses and attendants, over 1,100 cultures from the secretions of the respiratory tract during life. There have been made, in addition, cultures from the lungs and heart's blood in 85 routine autopsies. It has been our custom to make a sputum culture from every patient admitted to the wards; at intervals to take cultures from all the inmates of the hospital—patients, physicians and nurses. In most of the acute respiratory cases, especially in the protracted ones, repeated cultures were made. Frequent cultures also were made in most of the febrile cases of obscure diagnosis.

The patients were inmates of the Babies' Hospital and for the most part under three years of age. In taking

TABLE 1.—LIFE CULTURES (BRONCHIAL), SEPT. 20, 1909—JUNE 1, 1910.

	Pneumonia.		Bronchitis, etc.		Pulmonary Tuberculosis.	Non-Respiratory.		Acute Otitis, Paracutis.		
	124 Patients, 333 Cultures.	133 Patients, 354 Cultures.	23 Patients, 44 Cultures.	254 Persons (30 nurses), 374 Cultures.	57 Patients, 86 Ears.					
	Patients. Cultures.	Patients. Cultures.	Patients. Cultures.	Patients. Cultures.	Patients. Cultures.	Patients. Cultures.	Patients. Cultures.	Patients. Cultures.	Patients. Cultures.	
<i>B. influenza</i>	47	93	63	137	6	8	49	77	4	6
Pneumococcus	94	200	105	231	16	26	133	185	13	15
Streptococcus	63	120	71	109	12	16	130	153	15	17
Staphylococcus aureus.	116	257	117	266	16	34	216	300	44	57

Total, 1,115 cultures; 534 persons (30 nurses).

[B. Diphtheriæ = 31.]

Babies' Hospital. The method pursued and results obtained have been set forth in a previous paper.¹ They indicated that the *B. influenza* played a very important part in respiratory infections, especially in winter and early spring, being second in importance only to the pneumococcus. Our observations, however, showed that it played no part in these infections during the warm months, for it disappeared entirely toward the end of May, as soon as permanent warm weather came, and it was not found again until about the middle of October. Pneumococcus infections, on the contrary, persisted throughout the summer months.

During the past season the scope of the study has been somewhat enlarged and has included observations on the occurrence in the secretions of the respiratory tract, both in healthy and diseased persons, of the pneumococcus, the *B. influenza*, the *Staphylococcus aureus* and the streptococcus. In our present report we are not especially concerned with the diphtheria bacillus, and it will be mentioned only casually, although it was noted when present. Nor has there been included in the tables

cultures, so far as possible, the bronchial secretion was secured. Control cultures were taken from the nasopharynx, pharynx and nose in about forty-five cases to determine the variations. Anterior nasal and pharyngeal cultures often disagreed with the bronchial cultures, and hence were deemed rather unreliable as representing the nature of the respiratory infection. Results obtained from the naso-pharyngeal cultures in the main corresponded closely with the bronchial cultures, but were much more difficult to obtain. To avoid contamination it was found necessary, if there was much mucus present, first to cleanse the mouth and sometimes even the pharynx. A curved swab was then passed behind the soft palate into the nasopharynx.

The method of taking the bronchial cultures I have already described. It consists in inducing a hard cough by pharyngeal irritation and catching on a swab the secretion excited by the cough. The cultures may, therefore, be considered to represent fairly accurately the bronchial flora rather than the pharyngeal flora.

The results of the clinical cultures made from Sept. 20, 1909, to May 1, 1910, are shown in Table 1.

The patients are divided into four groups:

1. Holt, L. Emmett: The Bacteriology of Acute Infections of the Respiratory Tract in Children, with Especial Reference to Influenza. Arch. Int. Med., 1910, v. 449.

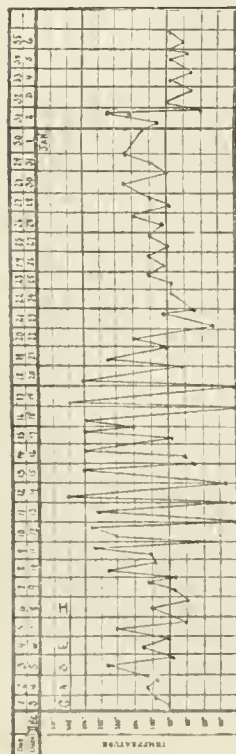


Chart 1.—Temperature in Case 1. Influenza, bronchitis, double otitis and bronchopneumonia.

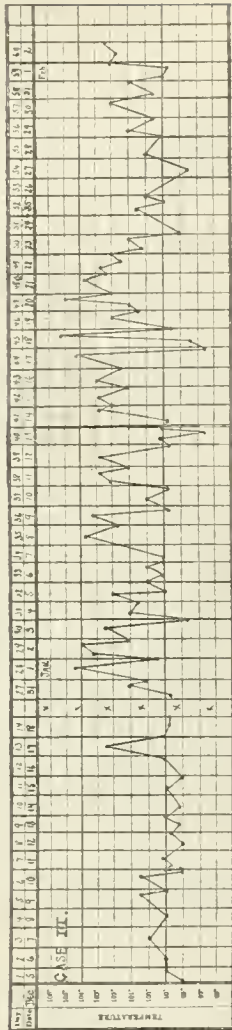


Chart 3.—Temperature in Case 3. Influenza, bronchopneumonia and otitis.

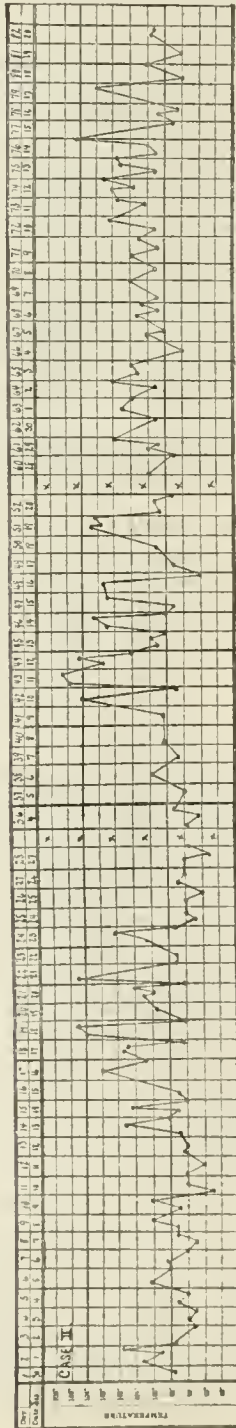


Chart 2.—Temperature in Case 2. Influenza and slight bronchitis.

1. Those with pneumonia. Most of the pneumonias were of the acute primary type, bronchopneumonia being much more common than the lobar variety. Only a few of the pneumonias were secondary to other infections. A small number were terminal infections in children suffering from marasmus.

2. Those with bronchitis and other respira-

tory infections, laryngitis, tracheitis, etc. The cases included in this group were for the most part rather mild infections.

3. Those with pulmonary tuberculosis.

4. Those with non-respiratory diseases. These were surgical patients, children admitted for disordered nutrition (feeding cases) or other chronic diseases, or healthy infants. In this group are included thirty nurses and attendants.

What a mixed infection the acute pneumonia of early life is, this table shows in a striking manner.

Pure cultures were practically never seen, although a single dominant type of infection was present in very many cases. The table shows in the different groups the frequency with which the different organisms were found in the cultures, and also the number of patients in which they occurred.

In the first group, the pneumonias, and, in fact, in all the groups, the predominance of the pneumococcus and *Staphylococcus aureus* will be noted. The percentage of cases showing the *B. influenzae* falls considerably below that observed in the previous season. The streptococcus was rarely the predominant organism found, although present, usually in small numbers, in over one-half the patients and about one-third the cultures taken. The probable explanation of this small percentage is that few of the pneumonias were secondary to such infections as measles, diphtheria, etc.

That the character of the infection in bronchitis is essentially the same as that in pneumonia is not generally appreciated. In the second group of mild respiratory infections, however, it will be noted that the relative frequency of the different organisms found in cultures is about the same as in the first group, except that the percentage of influenza cases is higher. In the third group, the tuberculous cases, the pneumococcus and *Staphylococcus aureus* still predominate. In the fourth group, non-respiratory cases, it is not surprising to find the *Staphylococcus aureus* in about 85 per cent. of the patients and of the cultures, and the streptococcus in about one-half this number. It is, however, rather surprising to find that 52 per cent. of the patients showed the pneumococcus, but it should be remembered that the season was the winter and spring and the patients were hospital inmates. The proportion of influenza cases falls the lowest in this of any of the four clinical groups; but it was found in 19 per cent. of the patients.

I have appended to the table the results of cultures made from 57 cases of acute otitis after fresh paracentesis, as otitis is so frequently associated with acute infections of the respiratory tract in children. It is noteworthy that while about one-half the patients with otitis showed the *B. influenzae* in throat cultures, in only four patients (both ears in two of them) did the cultures made after paracentesis show the *B. influenzae*; the predominant organism was the *Staphylococcus aureus*.

It is desirable, and we hoped it might be possible, to connect certain clinical symptoms and definite cultural findings. In many cases with experience we were able to predict the predominant type of infection, but in very many others it was impossible. The great difficulty apparently lies in the mixed character of the infection, which has already been emphasized, so that the clinical picture, like the cultural findings, was usually of a mixed type. In one group, for instance, a predominant influenza infection, in another a predominant pneumococcus infection, and in others a predominant staphylococcus infection; but these were seen in all possible combinations. There

were many variations in the clinical course of the infections which could be explained by the cultures. In fact, it became evident that a very extended experience will be required before this can be done with even an approach of accuracy.

Very few examples were seen of what we are accustomed to regard clinically as acute pneumococcus infection of the lung—viz., cases with an abrupt rise in the temperature followed by a steadily high range and a critical fall. The pneumonia cases were for the most part atypical both in course and duration. It is my own belief that it is the other organisms present, especially the *Staphylococcus aureus* and the *B. influenzae*, which are largely responsible for these variations.

In our series of cases we were unable to see any definite modification of the symptoms in those which showed the streptococcus in the cultures, except in a few, which were of exceptional severity.

The *B. influenzae* was often present in small numbers, when it did not appear to have any effect on the symptoms, but many of the most irregular and puzzling cases were associated with its presence. A study of this organism in quite a large series of cases led to the conclusion that when present in numbers it did produce quite definite symptoms. We came to recognize several fairly distinct clinical types associated with influenza infection:

1. Cases with pneumonia often small in extent, sometimes with signs only of bronchitis, but with very wide and irregular fluctuations of temperature which occurred without any apparent cause.
2. Very protracted cases with exacerbations and remissions.
3. Recurring cases of pneumonia in which a succession of attacks followed each other, separated by an interval of days or weeks with partial or apparently complete recovery.
4. Cases showing constitutional symptoms of only a mild infection judging by the pulse, the nervous symptoms and the amount of general prostration, but with quite extraordinary fluctuations of temperature which was usually high and very irregular in its course. A small area of pneumonic consolidation sometimes appeared late in these cases. However, there were in many instances no evidences of consolidation and only râles in the chest; in some cases these were few and inconstant.

The presence of the *B. influenzae* was more frequently associated with symptoms of the lower than with those of the upper respiratory tract. In general, influenza infections were characterized by mild general symptoms, by very irregular physical signs and by wide and irregular fluctuations of temperature.

ILLUSTRATIVE CASES

In the following case-reports examples are given of what we have been accustomed to call influenza infections, together with the evidence on which the diagnosis of influenza rested. The charts have been selected from a great number and are fairly characteristic of the clinical conditions met with.

CASE 1.—*Influenza; bronchitis; double otitis; later bronchopneumonia; death; autopsy.* The patient was a delicate child 9½ months old, admitted December 3 with a second attack of acute bronchitis; previously ill for one week. The entire family at home were reported suffering from coughs and colds at the time. On examination there was found moderate prostration and scattered râles throughout the chest. Three days later, on December 6, double otitis developed and paracentesis was done on both ears. The operation was repeated on both ears on December 13 and again on the left ear on December 15 and 27.

The râles in the chest persisted, but not until December 21 were there any signs of consolidation of the lung and then

only over a small area. These signs never cleared up; the prostration steadily increased and with failing nutrition the child died on January 16 of exhaustion.

During the course of the illness the principal interest attached to the wide fluctuations of temperature, chiefly between December 10 and 20. The daily excursion was at times as much as 10 degrees. There were no chills. Such a temperature occurring in a case of otitis after both ears had been opened and with a constant tendency to close led the surgeon to suspect sinus thrombosis or mastoiditis. Further operation was opposed, partly on account of the child's poor general condition, but also for the reason that as the throat cultures showed the *B. influenzae* it was thought that this might be the explanation of the unusual temperature variations.

At autopsy a very small amount of bronchopneumonia was found. The cultures from the lung showed the *B. influenzae* and the pneumococcus. The mastoid and the sinus were carefully examined by the aural surgeon himself and no trace of disease could be discovered.

CASE 2.—*Influenza; slight bronchitis.* This child was under

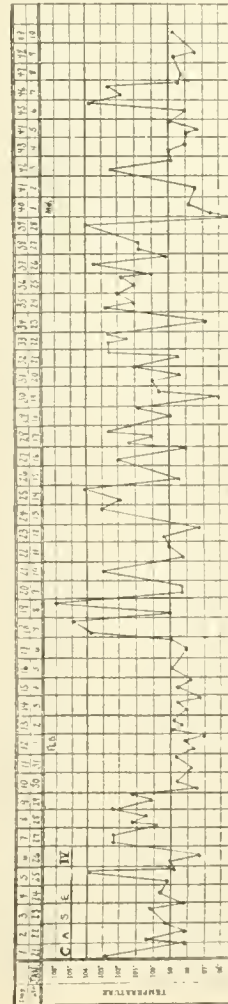


Chart 4.—Temperature in Case 4, unresolved pneumonia and influenza.

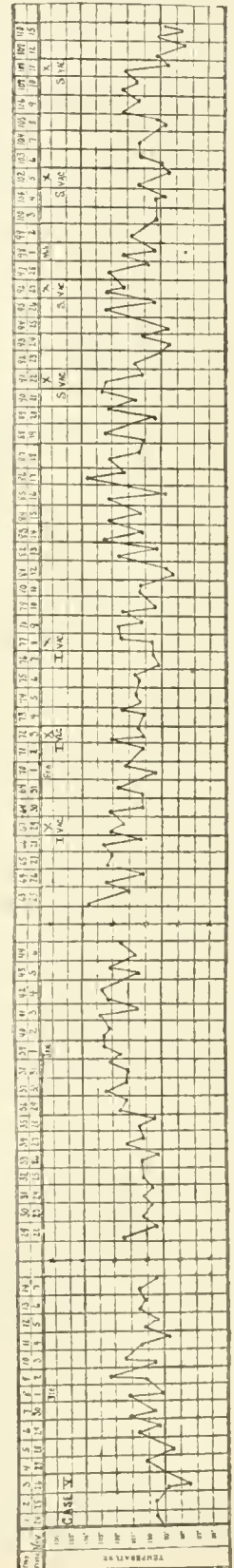


Chart 5.—Temperature in Case 5, prolonged bronchopneumonia and otitis.

observation for three and a half months and in spite of the recurring attacks of fever he was never very sick and gained steadily in weight, on the average about a pound a month. He was a delicate infant, 9 months old, weighing on admission but 10 pounds. He was brought to the hospital on account of poor nutrition and a slight cough. A few coarse scattered râles in the chest could be heard most of the time during his stay but there were no fine râles and no signs of consolidation were ever present.

During the first period of fever, from October 13 to 23, the digestion was not particularly disturbed; and the pulmonary signs did not increase. No cultures were taken at this time. There followed then an interval of nearly two weeks with normal temperature and no signs of illness except an occasional slight cough.

The second rise of temperature came on without apparent cause, with no obvious disturbance of digestion, and no new signs in the chest. No sufficient explanation of this temperature could be found, and as during the previous attack the patient did not seem very sick even when the temperature was as high as 105 F. The urine was normal, and also the ears though frequently examined. No malarial organisms could be found in the blood. The Widal test was negative and the spleen was normal. The tuberculin test was negative. The leukocyte count was low, the average of several examinations being 7,000; the polymorphonuclear percentage ranged from 31 to 36.6. Influenza was suspected but repeated cultures from the bronchial secretion at this time failed to reveal this organism. The temperature subsided before any satisfactory diagnosis could be made.

After a normal interval of about a week a third period of temperature began which continued nearly three weeks; although it was not quite so high as the previous attack, it was of the same irregular type. During this febrile period the sputum cultures showed the *B. influenza* constantly. There were no more general or local symptoms of illness than during the previous periods of fever. A positive agglutination reaction was obtained with the patient's own influenza organisms. I believe that all the febrile attacks were due to the influenza and that the organisms were missed in the early cultures.

Four injections, 75 millions each, of a polyvalent, heterogenous influenza vaccine were given to this patient on January 7, 13, 20 and 26. The temperature did not rise again and the subsequent course suggests that some benefit resulted from the vaccines, but this cannot be definitely affirmed. As in the previous case a disposition of the temperature to go to subnormal after the marked fall is noteworthy.

CASE 3.—Influenza; bronchopneumonia; otitis; death; autopsy. The patient was a delicate child, 7 months old, admitted December 5 on account of its poor nutrition and cough. No symptoms of acute illness were present. During the first two weeks a slight rise of temperature was noted occasionally as shown in the chart. The temperature was then normal until December 31. With this acute rise in the fever the symptoms of bronchopneumonia developed with a small consolidation in the right lung. There was very little change in the signs or the symptoms for the next ten days. Otitis then developed and both drums were opened on January 12. Three days after this a small spot of pneumonia was discovered in the opposite lung. The signs in the lungs did not increase with the high temperature nor did they diminish with the fall in the temperature which succeeded. The child steadily lost strength, however, and died from exhaustion.

The autopsy showed an ordinary bronchopneumonia of moderate extent; no other lesions of importance. The bronchial cultures during life repeatedly showed the *B. influenza*. Cultures from the lungs at autopsy showed the *B. influenza* but no pneumococci.

CASE 4.—Unresolved pneumonia; influenza. The patient was a boy 2 years old, admitted January 21 with a history of two months' illness with pulmonary symptoms and a diagnosis of pneumonia. Temperature on admission was 103 F. Physical signs pointed to a partial consolidation in the right upper lobe behind. Leukocytosis of 40,000; polymorphonuclear percentage, 79. By January 31 nearly all the signs in the chest had disappeared; leukocytosis 14,000.

The patient continued to improve until February 7, there being present in the chest during this time only occasional coarse râles, bronchovesicular respiration and slight dulness over the area previously noted. Following the rise of temperature on February 7 an increase in the signs in the chest took place. More râles were present; they were of finer quality and over a larger area, but only on the right side. There was no definite consolidation. The leukocyte count ranged from 20,000 to 28,000 during the next few days. This exacerbation was of brief duration and after four or five days the only signs in the chest were those which had been noted before the rise in the temperature. During the following three weeks the irregular fluctuations in temperature shown in the chart occurred with no special change in the local or general symptoms. The child coughed moderately but did not appear very sick at any time.

Repeated sputum cultures showed the *B. influenza*. There was no temperature after that last recorded. Careful and repeated examinations were made in this case of the urine, the ears and the blood, without revealing any other cause for the temperature. The inference seemed a fair one that the temperature was due to the influenza infection.

I think that the cultures which we have made go far toward establishing the fact that the *B. influenza* plays a considerable rôle in the respiratory infections of young children. We have tried the use of influenza vaccines in about half a dozen cases without any very decisive results, but I feel that this is a subject demanding further investigation. Their use is indicated especially in the very protracted or in recurring cases of influenza infection. Such an infection, we have shown, may continue for three months, and may probably last a much longer period.

With reference to the precise influence of the streptococcus and *Staphylococcus aureus* on the symptoms and course of respiratory infections, I feel more hesitancy in expressing an opinion. The *Staphylococcus aureus*, I am convinced, plays a more important part in the bronchopneumonia and other respiratory infections of young children than has usually been accorded to it. We began our investigations with the view, which I believe is commonly held, that its presence was to be expected, not only in the sputum, but in autopsy cultures from the lungs, and that it was not significant. But a wider experience has led us to modify this opinion. When present in numbers the staphylococcus, I believe, modifies the symptoms of pneumococcus infections. In some cases it certainly seems to be the predominant organism. We have found this to be true of some cases characterized by temperature not very high, and with rather narrow fluctuations, and with constitutional symptoms of only moderate severity.

The following case, however, seems worth recording. It made a strong impression on all who followed it:

CASE 5.—Prolonged bronchopneumonia; otitis; cure (?) by staphylococcus vaccines. This patient was a premature infant 7 weeks old, and its weight November 25 when the elevation of temperature began was only 3 pounds, 12 ounces. The temperature continued in this case for more than three and a half months. The complete chart is too long for reproduction but the temperature for the periods omitted was exactly like that which preceded and followed them.

The daily fluctuations were for the most part narrow, the usual range being 100 to 102.5 F.; it never touched 104 F. and very rarely went to the normal line. During the greater part of this time there were localized coarse and fine râles in the right lung behind. These signs persisted and from time to time were heard throughout both lungs. There were no signs of consolidation at any time. The infant had a moderate cough but never seemed very sick. The persistent physical signs and the temperature led to a suspicion of tuberculosis but the skin test was negative and no tubercle bacilli

could be found in the sputum. The blood showed a leukocytosis of from 12,000 to 16,000. The child's weight slowly increased to 5 pounds 14 ounces by March 13. On January 12 otitis developed and the left ear was opened; subsequently the right ear was affected and was opened January 20.

CULTURE CARD OF CASE 5

Date.	B. influ- enza.	Pneumo- coccus	Strepto- coccus	Staphylo- coccus aureus.	Source of Culture.
1/6	—	+	—	+	Bronchial.
1/8	—	—	—	+	Bronchial.
1/20	—	—	—	+	Right ear.
1/26	—	—	+	+	Bronchial.
1/27	++	—	—	++	Bronchial.
1/28	—	—	—	++	Nasopharynx.
1/28	+	+	—	++	Bronchial.
2/9	—	—	—	++	Pharyngeal.
2/16	—	—	+	++	Bronchial.
2/20	—	+	+	++	Bronchial.
2/28	—	—	—	+	Bronchial.

The culture card of this patient for January and February is reproduced in full and shows exactly the findings on the different days. As influenza vaccines were being used at this time in some other cases, and as the influenza bacillus was occasionally present in the cultures of this patient, they were first tried. Three injections of a heterogeneous influenza vaccine were administered on January 29, February 3 and 8; the first dose was 50 millions, the second and third 30 millions each. Although the temperature was not quite so regular in its course during and for a few days after these injections, no real benefit seemed to follow.

During February several quite large furuncles appeared over the chest and abdomen. This circumstance coupled with the persistence of great numbers of staphylococci in the sputum cultures led to the suspicion that the essential process in this patient might possibly be a staphylococcus infection. On February 22, 27 and March 5 and 11, injections were given of a staphylococcus vaccine from a stock culture, each dose being 30 millions. The effect on the temperature was immediate and striking, as is shown by the chart. After each injection there was a fall and after the last injection no further rise occurred; but what was quite as surprising, the long persisting signs in the chest quickly and permanently disappeared. From this time the gain in weight rapidly increased and the child was discharged quite well on April 25.

One hesitates to make any deductions from a single case, but the length of observation of this patient and the close study which was possible makes it worthy of the record. I cannot believe that cases of this kind are so very rare.

POST-MORTEM OBSERVATIONS

Turning now to the post-mortem findings, we have observations on 138 autopsies made during the fall, winter and spring months. I have included those of the season of 1908-1909, not previously published in detail. These autopsies were practically consecutive; cultures were invariably made unless the examination was hurried or partial. As a rule autopsies were made early, most of them within twelve hours and very many within six hours after death. All bodies were immediately placed on ice unless the weather was cold. Post-mortem changes do not, I believe, play an important part in the findings. Cultures were made from the part of the lung showing the most extensive disease and in every instance from both lungs. There was substantial agreement of the findings from the two lungs, so that it has not been thought important to separate them. The main facts are given in Tables 2 and 3.

It will be noted that of the 138 cases there were 76 of pneumonia, 20 of bronchitis, 29 of tuberculosis, and in only 13 was there no disease of the lungs. The small number with no pulmonary disease is accounted for by the fact that no summer autopsies are included.

In general the post-mortem findings correspond with the clinical findings by sputum cultures as indicating the

type of infection. Mixed infections were seen in the great majority of the cases. The *B. influenza* was found in the lungs four times in pure cultures; the pneumococcus was found pure in six cases. In this connection I should like to mention one case in which at autopsy a pure culture of influenza was obtained from a sero-fibrinous pleural exudate, and another in which a pure growth of this organism was obtained from empyema pus drawn by aspiration in a patient who recovered. This patient's bronchial secretion gave also a positive influenza culture.

Omitting the staphylococcus, a single organism was found in but 13 of the 138 cases. The significance of the finding of the staphylococcus alone in 26 cases is somewhat doubtful.

Cultures from the heart's blood were made in 117 cases, in 71 of which there was no growth. The *B.*

TABLE 2.—POST-MORTEM CULTURES

	Lungs, 138 Cases—		Heart's Blood 117 Cases.	
	Cases.	Alone.	Cases.	Alone.
<i>B. influenzae</i>	37	4	1	0
<i>Pneumococcus</i>	53	6	8	5
<i>Streptococcus</i>	43	1	22	17
<i>Staph. aureus</i>	86	26	17	14
<i>B. diphtheriae</i>	12	2	2	1
<i>Catarrhalis</i>	7	0	0	0
<i>Pyocyanus</i>	3	0	3	2
<i>B. coli</i>	1	0	2	1

TABLE 3.—POST-MORTEM CULTURES (138 CASES)

Growth from Lungs.	Pneumonia, 76 Cases.	Bronchitis, 20 Cases.	Pulmonary Tuberculosis, 29 Cases.	Non-Respiratory, 13 Cases.	Total.
<i>B. influenzae</i> alone.....	2	2	0	0	4
<i>Pneumococcus</i> alone.....	4	1	0	1	6
<i>Streptococcus</i> alone.....	1	0	0	0	1
<i>Staphylococcus aureus</i> alone.....	8	6	8	4	26
<i>B. influenzae</i> and pneumo- coccus.....	5	1	0	0	6
<i>B. influenzae</i> and strepto- coccus.....	5	0	2	0	7
<i>B. influenzae</i> and staphylo- coccus.....	7	1	2	0	10
<i>Pneumococcus</i> and strep- tococcus.....	1	0	1	0	2
<i>Pneumococcus</i> and staphy- lococcus.....	11	1	5	2	19
<i>Pneumococcus</i> and catar- rhalis.....	5	0	0	0	5
<i>Staphylococcus</i> and strep- tococcus.....	10	1	7	3	*21

* The remaining 31 autopsies showed various other combinations of the above organisms, or of them with *pyocyanus*, *B. diphtheriae*, or *P. coli communis*, but not more than two cases of any one variety.

influenza was found but once, and then not alone; the pneumococcus in but 8 cases; in 5 of these alone. Only the streptococcus and staphylococcus were at all frequent, being found, respectively, in 22 and in 17 cases.

Cultures such as those which we have been making involve considerable labor. Are they of any practical value to the physician? My own belief, after an experience extending over two years, is that they are of great assistance in diagnosis, especially in influenza infections. In cases where the symptoms led us from our experience to suspect influenza we seldom failed to find the organism, usually in the first or second culture, but occasionally not until repeated cultures had been made. These give much more definite results than the search for tubercle bacilli in suspected cases.

The discovery of the *B. influenza* in sputum cultures in cases of obscure high temperature, in cases of recur-

ring bronchopneumonia, or pneumonia running an unusual course, or of high temperature persisting in cases of otitis in which the ears had been opened, or after surgical operations, of course does not establish the fact that the temperature is due to this infection; but when this organism is found repeatedly and in large numbers associated with such symptoms it is, in the winter and spring season at least, extremely probable.²

Further evidence that the presence of the *B. influenza* in the nasopharyngeal and bronchial secretion is significant is shown by the fact that of three recent cases of influenza meningitis which I have seen, the cultures showed in each case the influenza organism in the nasopharynx, and in two in which the examination was made they were also present in the bronchial secretion.

No one realizes more than I that a much more extended study and many series of observations must be made before it will be possible to establish relationships between bronchial or nasopharyngeal cultures and clinical symptoms in respiratory infections. The separation of the respiratory infections is admittedly difficult, but I believe it to be quite as desirable as in the case of intestinal infections. To what extent vaccines may be found useful it is impossible to say, but it is certain that any form of specific treatment must be based on a knowledge of the nature of the infection.

In conclusion, I desire to express my indebtedness to Dr. Martha Wollstein, pathologist of the Babies' Hospital, and to Dr. Josephine Hemenway, resident physician, for their invaluable assistance in the observations recorded in this paper.

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THE NEGRO AS A HEALTH PROBLEM *

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In the South, regardless of hair-splitting dictionary or legal definitions, it is customary to regard as negro any person who is known to have any negro blood in his veins; this despite the fact that the Supreme Court of Louisiana has lately handed down a decision restricting the term "negro" to those having a greater proportion of negro blood than would occur in an octoroon. This decision, however much it may be law, has not been the custom.

It may not be commonly known in the North that prior to the war it was the custom in the South among the better class of slave owners to give the very best care and attention to the slaves—to the house-servants as well as every other class of laborer generally. Of course, while due credit must be given to the humane motive at the bottom of this, it must be acknowledged that the economic consideration was also largely influential, as each negro, old, or young, possessed considerable cash value. Hence it was decidedly to the interest of the property owner to take care of his investment.

The natural result of this was a higher standard of physical health among negro children than has ever

been attained since the emancipation, for among other unfortunate sequelæ following this perfectly righteous step was the handing over of the lives and care of negro progeny to their more or less fatalistic parents, who, removed from the control of intelligent direction, soon lapsed into their African condition of irresponsibility. The unfortunate creatures (as the negro race has done in all history) then reverted, in a large measure, to aboriginal conditions.

The negro, due to his heredity and environment, is essentially a fatalist, and when moved at all it is by his emotions, and not by judgment.

It must be understood, however, that for the first ten or fifteen years following the war many negroes, especially those who had been most closely associated with the white people, that is to say, the house-servants, continued to follow the training and habits which had been ingrained during their more intimate association. To those of us who have been born and raised in the South, it requires but a few moments' contact with the individual darkey to judge of his earlier training.

That negroes are devoid of love and affection for their offspring is not true, yet I have been repeatedly struck by the fact that they can and do yield a greater degree of affection, solieitude, and attention to white people than they will continuously accord their own family. Mark well the use of the word "continuously," for it is this phase of the problem which is curious from the psychologic standpoint. A striking illustration of this is the devotion so markedly shown by slaves to their owner's family while the master was at the front during the war.

These preliminary remarks are essential to the study of this question, for it must be borne in mind that among intelligent people who have had training in sanitary laws a degree of exemption from infectious diseases among their children may be looked for, whereas this seldom applies to the negro. Exemption is practically a result of unconsidered cause, such, for example, as might apply to the power of resistance as exhibited in heredity, environment, habits, etc. As further proof of this statement there may be noted the well-known fact that in those diseases to which negroes are more immune than whites, this immunity lessens in a marked degree as the negro blood is proportionally diluted by white; as an example of which may be cited the fact that among the blacks there is a relatively larger degree of immunity to malaria, typhoid, intestinal diseases, tonsillitis, mumps, influenza and yellow fever.

Mulattoes, octoroons and quadroons are much more susceptible to the infectious diseases and are especially more susceptible to the ravages of syphilis and gonorrhæa than are their more deeply tinted brethren. Negroes of all shades are extremely susceptible to tuberculosis, and also to measles. In my experience extending over a period of nearly twenty years, I do not recall having seen a case of scarlet fever, diphtheria, mumps or tonsillitis in black negroes, and since beginning this paper I have made inquiries of all the physicians with whom I have come in contact and have received practically the same answer as to the immunity of the pure-blooded negro from these diseases.

Mulattoes, quadroons, and octoroons are decidedly more susceptible to scarlet fever, diphtheria, mumps and tonsillitis, but with rather large experience among the different shades of negro people, I can recall at this moment but very few instances of these diseases among them.

2. Reference has already been made to the fact that in the spring of 1909 our influenza infections disappeared after about May 20. Precisely the same thing happened this year. Thus of 48 cultures taken between May 1 and 19, influenza was found in 19; of 19 cultures made between May 19 and 31, influenza was found but once, on May 23. At autopsy the *B. influenza* was found in cultures from the lungs but once after May 19, this being in a patient who was admitted two weeks previously.

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

It might not be out of place at this point to call attention to the fact that mulattoes, quadroons, and octoroons, as they are at present in the South, are mostly descendants of their own type of people, and not the result of crossing of white and black bloods; in other words, mulatto man and woman have as progeny mulattoes; quadroons present the same as themselves, as also do octoroons. There is, however, a marked tendency toward a decrease in the number of children born to these light-colored negroes and the nearer they approach to pure white blood the fewer the children they have, as a rule.

Within the past ten years there has been a marked improvement in the South, both among the whites and negroes, in educational conditions and in the mode of living. Nearly all classes and conditions of people have better houses, better food, and have paid a larger degree of attention to matters of hygiene. Poverty makes for all the ills of life, but with greater returns for cotton during the past ten years the result has been a vast improvement among all Southern people, and as the white man benefits so also does his shadow, the negro.

One of the gravest problems confronting the whites in the South, however, is trying to find means of preventing tuberculosis among the negroes of all shades and degrees. When it is remembered that practically all household service in the South is rendered by negroes it can be seen how necessary it is that the white people guard themselves against this evil which the negro race carries with it.

Bearing in mind the fatalistic tendency of the darkey, one should easily understand why it is difficult to get them to abandon their habit of carelessly spitting around the house, and the injurious practice of hermetically sealing their sleeping apartments, as nearly all do. Those who have directed much attention to health matters know how difficult it is to get any class of people to fear dangers that they cannot see or realize, and it is a thousand times more difficult to get the negroes to grasp the idea that there may exist anything in microscopic life that could be a menace to their health.

With a population of approximately 10,000,000 negroes living in the South, with every disease-carrying possibility and proclivity, as may be instanced in tuberculosis, uncinariasis and amebiasis, it may be seen that the problem before us is not alone political, but one striking at the vitality of the race. I protest against any attempt made toward keeping these poor unfortunate creatures from being educated. Education in any degree never hurt any race and instead of ceasing the attempt to educate negroes, they should be taught their duty to their neighbor as well as to themselves. It was my privilege and pleasure to advocate ten or fifteen years ago the teaching in the public schools of the natural history of disease and the inculcation of the idea that it is far better to prevent disease than to attempt its cure when once acquired. Hospitals are a great blessing, as are also any other humanitarian projects, but it is infinitely a better and wiser plan to prevent diseases than it is to wait to cure them.

No better place than here can be found to emphasize the sad fact that the negro race, including all shades, is, in this country, at least, an immoral people. There are, of course, exceptions, though generally speaking this statement is correct, and to prove it we have the striking testimony and evidence of one of their own race in the person of William Hannibal Thomas of Massachusetts, who in his "American Negro" says:

My study and questioning of the average negro as he exists in the United States to-day, has convinced me that he is bestial by nature, that he holds in no regard whatever such virtues as may be present in the mothers, daughters, wives, and sisters among them. They revel in lewd conversation, erotic practices, and unlimited sensual pursuits. Especially do they delight in encouraging the approaches of whites among the women of their kind. That such licentiousness is prevalent is not surprising when we reflect that animal impulse is the sole master to which both sexes yield unquestioning obedience.

As illustrating the contradictory nature of the negro, the same writer avers:

While imputations of immorality are resented by the known impure, there is a common disposition to question each other's morals, and rarely is either male or female accorded a clean bill of approval. . . . Marital immoralities are not confined to the poor, the ignorant and the degraded among the freed people, but are equally common among those who presume to be educated and refined.

To one who is a southerner born and bred it is a source of the greatest pride to know that in the South to-day there is found a proportionately larger number of the pure Anglo-Celtic type of people, with fixed determination to prevent that miscegenation which would Africanize this country. As an American who loves his native land from the Atlantic to the Pacific and from the Canada line to the Gulf of Mexico, and as a medical man, I warn the white people of this country against this insidious evil which to-day is sapping the very foundation of that Aryan blood which stands for the republican form of government and the highest type of civilization.

Miscegenation in the North is certainly at this day more in evidence than it is in the South, and if decided steps are not taken against this curse by the white people of that part of the country, they are creating for their descendants a Frankenstein monster indeed. In the South this phase of the question is practically settled. A white man to-day who wilfully lives with a negro woman, be she black or yellow, is ostracized, and in nearly all our southern states severely punished. But from the standpoint of a national menace the negro question is so glaringly in evidence that it is along these lines that this paper is presented.

Howard and Reynoir Streets.

HEMIPLEGIA FOLLOWING ACUTE INFECTIONS *

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The cerebral palsies of childhood have received considerable attention in certain rather elaborate treatises; such as those of McNutt, Lovett, Osler, Sachs and Spiller in this country, and of several writers abroad, but aside from these not much has appeared on the subject. Thus, even in the most elaborate systems of medicine, paralysis of central origin in diphtheria is given the briefest consideration, or else is not mentioned at all. These facts are thought to justify the publication of the following reports of cases.

CASE I.—*History*.—The patient, a schoolgirl, aged 9, was seen at the University Free Dispensary Feb. 8, 1908. Her

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

father was living at 38 and well except that he was nervous; her mother was living and well at 36. She had had two miscarriages, both at about three months. Two brothers and one sister were living and well. A paternal aunt was paralyzed at 24, following labor. Another paternal aunt was extremely nervous. Otherwise the family history is negative. The patient's general health had been good. She was the second child. There was no trouble at her birth. She had croup in early childhood; had never had convulsions, but when a child had a habit of holding her breath when crying. She walked and talked at the usual age, and did as well in school as others. She was never seriously ill up to her attack of diphtheria, and was never seriously injured.

Present Illness.—In September, 1906, she had a severe attack of diphtheria with membrane in her throat and nose. She was given 12,000 units of antitoxin and seemed to progress ordinarily well until the middle of her attack when she developed darting pains in the right arm and leg. They were spasmodic, and each one lasted only two or three minutes. For four days the pain grew steadily worse and finally was very severe. It then began to decline and at the end of the week was practically gone. When present, the pain was worse in the arm than in the leg. There was no tenderness to touch between the attacks, so far as the mother recalled. The mother thought that even during the pain the arm and leg were rigid, and certainly they were so afterward. There was diplopia and some trouble in articulation for a short time following this attack. During the intervening two and one-half years up to the present time there had not been much change. The right arm was spastic with frequent more or less spasmodic contractions. The leg had been less spastic, but was still noticeably stiff, and the patient had slight trouble in walking, and considerable trouble in running. Attention always made the condition worse.

Physical Examination.—The patient was a moderately well-developed, well-nourished girl. The temperature was normal, the pulse 86. The forehead was somewhat low and narrow. The eyes and ears were normal, except for a slight tubercle on the right ear. The vault of the hard palate was high and narrow and very irregular. The teeth were set very irregularly. The arteries were soft. The apex-beat of the heart was in the mid-clavicular line. Otherwise the heart examination was negative. The right leg seemed slightly smaller than the left. The right arm was very firm and muscular and, evidently, better developed than the left. The measurements were as follows: The right forearm, a little below the elbow, 17 cm.; the left forearm, a little below the elbow, 16.75 cm.; the right calf 22.75 cm., and the left calf 23.5 cm. The patient was subject to frequent attacks in the right hand and arm of an athetoid character. The attack started in the hand with hyper-extension of the hand and flexion of the wrist. The hand was rotated until the palm was turned completely outward, when there was a flexion in turn of the second, third and fourth fingers. The arm was then rotated in the opposite direction until the palm pointed inward. The entire right arm and leg became spastic during these maneuvers. There was no pain associated with them. The patient had increased kneejerks, especially on the right side, but there was no ankle-clonus. There was a possible faint right Babinski. She seemed to feel cheerful and happy and was always active, although at times she said she was unusually tired. She had a little frontal headache occasionally.

Course of Disease.—Directly after coming to the dispensary the patient was placed on thyroid extract, 5 grains twice a day, and within a few days her arm and leg had made a very striking improvement—so much so that her parents were convinced of her complete recovery at an early date. The cause of this improvement was not easy to determine, but it was probably not due to the use of the thyroid extract, especially since, after three weeks, there was no further improvement, and within a short time there was a complete relapse to her former condition. She continued coming to the dispensary at more or less long intervals up to about the end of 1908. At that time there was no permanent improvement, but there had been several short periods of temporary benefit. On Dec. 19, 1908, when waked in the morning, she appeared un-

usually drowsy. When eating her breakfast she said that her face on the right side felt numb and later that it felt as if needles were pricking it. After a little time this feeling went to her right hand also. Finally, all the right side felt the same way. This condition of affairs lasted until 10:30 a. m., when the feeling began to go slowly away, but the patient was very sleepy for some time afterward. After the feeling had partially gone, the mother noticed that the hand and arm had lost their spasticity and were scarcely up to normal so far as tonus was concerned. There was also some lack of power in the hand and arm. On the afternoon of the first day of the numbness the patient was brought to our office at 3:30. She was then a little dull and heavy mentally, and there was still some feeling of numbness in the right side. The reflexes were about normal on both sides. The right arm hung rather limply by her side. There was absolutely no trace of spasticity or athetosis and all movements of the right upper extremity were performed with less power than those of the opposite side. There was some headache on the first day, and in the evening this became very severe. The next day she was stupid and weak, but when seen on the following day she seemed as well as ever, except that the condition of spasticity on the right side had returned. Shortly after this time she disappeared from observation and we have not been able to learn anything of her since.

CASE 2.—History.—The patient is a single woman, aged 22. The father is living and well at 51; at times drinks to excess. The mother is living at 47 and has heart trouble and tuberculosis. One sister died of diphtheria. One sister and four brothers are all well. There is no other nervous or mental trouble in the family, but a number of the mother's family have died of tuberculosis. The patient was always delicate but up to 12 years of age was never seriously ill. She had measles in childhood, but never had rheumatism. She walked and talked at the usual age. There was no trouble at her birth. She was uncommonly bright up to the present attack.

Present Illness.—At 12 years of age she had "black diphtheria." She lived twenty miles in the country and had no physician until after her paralysis appeared, and no antitoxin at any time. Three or four weeks after her attack of diphtheria she suddenly developed a right hemiplegia, including the face, arm and leg. There was a complete loss of motor power, including speech. Apparently there was no sensory involvement. The condition lasted one day, when she appeared to entirely recover and remained well for one week, at the end of which time there was a second attack with very much the same symptoms and lasting two days. At the end of two weeks she had still a third attack, following which she was in bed for six weeks. As this history is given by the mother from her recollection, it is not certain that all the facts are accurately stated, including especially the complete recovery between the attacks. The mother says that the patient was not unconscious at any time, but that her mind after the third attack was "just like a baby's," by which she probably referred to the fact that the patient found it necessary to relearn speech. At the end of twelve days she could move her foot a little, and at the end of seventeen days spoke the word "Henry." The mother thinks that at this time she could understand spoken, but not written words. As time passed she gradually acquired control of the right side, first in the face, then in the leg, and later in the hand and arm. Her face apparently recovered completely. There has always been a slight stiffness in the right leg, and the right hand and arm are distinctly spastic. She was a long time in learning to speak, but finally reached the point at which she had very little trouble, though even at present she cannot always recall words as she wishes to. She went to school after recovering from her paralysis and learned readily. She is always cheerful and happy in disposition.

Physical Examination.—The patient is a well-developed and well-nourished young woman. There are no evidences of degeneracy. The pupils are equal and react normally to light and distance. The ocular movements are normal and there is no nystagmus. Vision is good, but the patient says that occasionally when looking suddenly to one side she has double vision. Smell and taste are normal. There is no involvement

of the fifth or eighth nerves, but there is a slight defect in the right lower seventh. Her tongue is normal in appearance and is protruded straight. There is no trouble in swallowing. The heart and lung examination is negative, except for a faint blowing mitral murmur. The arteries are soft. The urine examination is negative. The deep reflexes of the left arm are normal; those of the right are much increased. The right patellar and Achilles reactions are very active, the left patellar and Achilles are normal. There is no ankle-clonus, but there is a faint Babinski reaction on the right side. The patient walks and runs well, but complains of slight stiffness in the right toes in movement, and there is a marked degree of spasticity in the entire right upper extremity. Grip in the right hand measures 17 and in the left hand 27. Muscular power in the right biceps and triceps is fair, but not so good as in the left. The middle finger and the thumb of the right hand are the most difficult to move. The first and little fingers are the easiest to move. The right forearm at its largest point measures 21.25 cm., and the left at a corresponding point measures 22.75 cm. Nothing unusual is noted in the patient's mental condition, except that, contrary to her mother's statement, she does not appear to be a particularly bright girl. Her speech is normal, except that she occasionally has some difficulty in finding the proper word.

CASE 3.—History.—The patient is a boy, aged 4. The father is living at 38; well and temperate; mother living at 37, well. There are no brothers or sisters. There is no tuberculosis, cancer or nervous or mental trouble in the family. There was no special trouble at the patient's birth and instruments were not used. The patient was breast-fed. His general health has been good, except that he has had croup every winter. At two and one-half years he had measles, and one year ago had diphtheria, but was not very ill with either. His appetite has been good, and his bowels regular.

Present Trouble.—On Dec. 28, 1909, the patient became ill with lobar pneumonia involving one lung. He was very ill and his temperature was above 103 for nine days. Three days after his temperature went down he developed a right hemiplegia. At noon he was noticed to have some weakness in the right hand. This slowly increased, and by the next day his hand and arm were completely paralyzed. Later in the same day the leg and foot of the same side also became paralyzed and there was motor aphasia. The face was not affected then or later. There was no sensory disturbance noticed and no disturbance of the sensorium. Thirteen days after the paralysis appeared he began to move the hand and arm, and speech power began to return, and in a few days he could put the hand on top of his head. He now uses the hand as well as ever, and his enunciation is good. A few days after power of movement appeared in the arm he began to use the leg, but improvement was slow, and even now use of this limb is decidedly impaired. There were no eye symptoms at any time. Three days after the paralysis appeared he developed a left middle-ear abscess which broke spontaneously and is now quite healed.

Physical Examination.—The patient is a well-developed and well-nourished boy. His head is well formed and there are no scars or evidences of degeneracy. The temperature is normal, the pulse 94, strong and regular. The examination of the heart, arteries and lungs shows nothing abnormal. The tongue is clean and is protruded straight to the front. The abdomen is protuberant. The pupils are equal and react normally for light and distance. The ocular movements are normal, and there is no nystagnus. Sight and hearing are good. Muscular power in the right arm seems normal. The patient limps slightly with the right leg, but examination shows no muscular weakness of any consequence. The circumference of the right thigh and calf is slightly less than at the same point on the other side. The reflexes in the left arm are normal, in the right moderately increased. The left patellar and Achilles reflexes are greatly increased. There is a slight ankle-clonus and Babinski on the right side. The abdominal and cremasteric reflexes are active on both sides. Sensation is normal everywhere, so far as can be determined. The right fingers are a very little stiff. The right leg and foot are mod-

erately stiff. There is a very slight ataxia in the right hand. Speech and mental condition are normal.

CASE 4.—History.—The patient, a girl of 11, is one of ten children. The family history is good in all respects. The patient has always been considered well and strong, though not large for her age. There is no mention of any of the ordinary children's diseases. Since 5 years of age, she has attended school and has done well there.

Present Illness.—The trouble is dated from Jan. 4, 1910, though the patient had not been quite natural for the two preceding weeks and had seemed to want to be alone and undisturbed. On Jan. 4, 1910, in the afternoon, she suddenly fell over on her side or back. She was unconscious at the time, but remained so for a few minutes only. The same afternoon she was able to walk, but the right hand and arm were almost paralyzed. She attempted to speak, but was unable to do so. She seemed to understand what was said to her, and appeared perfectly conscious. There was no muscular twitching and no pain. At about 8 p. m. she began to talk and her speech was entirely normal, until the next morning at 8 a. m. when there was again the loss of speech power without the other manifestations of trouble. For three days and nights this alternating loss and return of speech power continued, since when she has been unable to utter a word, except "papa" and "mamma." From the date of the onset of her trouble to February 1 she was about the house most of the time. Her mind seemed clear and she comprehended all that was said to her. She attempted to play with the other children, but could not speak. During this time, however, she had occasional "sinking spells" when she would fall, always toward the right side. She always attempted to protect herself in the fall. She was not unconscious, and there were no symptoms resembling convulsions. She slept well at night; had no rash or other sign of illness. During all this time, except the first three days, her mental condition was good. Her appetite was poor. There was no involvement of the right leg at any time, and up to January 29 the improvement in the hand and arm was so marked that she could sweep a room with very little difficulty. The parents noticed no disturbance in the eyes or face. On February 2 at 1 p. m. clonic spasms developed in the right side, involving, at first, the face, shoulder, arm and hand, and toward evening the right lower extremity. Each attack lasted two or three minutes, and was followed by a short period of drowsiness, and then by another attack. The parents think she was unconscious during these attacks, but not during the interval. During the afternoon and night of February 2 and all day of February 3 she was never long free from a convulsion. Toward evening the attacks became a little milder and a little less frequent, but on February 4 she had convulsions about every ten minutes. She complained of no pain, and gave no signs of distress. She could swallow, but apparently had no desire for food. She had little, if any, fever (parents' statement).

She was admitted to the University Hospital February 4 at 8 p. m. Her temperature was then 100.6, pulse 120 and respiration 24. When first seen by one of us the following morning she was lying asleep. There was nothing unusual in her attitude or appearance, except that the right corner of the mouth drooped a little, and there was some fullness of the right upper eyelid. Directly after being awakened a convulsion began, starting in the right face. The eyelids then began to twitch, the right more than the left. The right eyelids during the convulsion were closed and the left about half open. The convulsion then extended to the right arm and then to the right leg. The whole attack lasted about one and one-half minutes. During the next thirty minutes six more attacks occurred, four being general and two limited to the face only. Subsequently they occurred in about the same order of frequency up to the time of her operation. Both facial attacks lasted fifty seconds.

In all the attacks, both eyes were drawn strongly to the right. The pupils were dilated and did not react to light in the midst of the most severe attacks, but did so in the lighter spasms, and toward the end of the more severe convulsions.

All the attacks began in the face save one, which commenced in the right arm. Usually the order was face, arm

leg, and cessation of movement was in the reverse order. She was probably conscious throughout the light attacks and at the end of the more severe ones, but in the midst of a severe convulsion, sharp pricking of a pin produced no response. During the severe attacks the right rectus abdominis muscle was very hard, the left only slightly contracted. The convulsion never spread to the left side, except that the left eyelids twitched decidedly and in the most severe attacks the left arm and leg contracted slightly.

The reflexes varied decidedly. After a severe convulsion no reaction could be obtained in the right arm or leg. This included the plantar reflex, which could not be demonstrated at any time in the right foot during the examination. In the interval between attacks the facial and abdominal reflexes appeared about normal. The deep arm and leg reflexes were somewhat increased, and, though varying considerably from period to period, there was no striking inequality in the two sides, except directly after the convulsion. There was no evident voluntary movement at the time of the examination in the right arm or leg, but on the day preceding the patient was observed on one occasion to move the right arm slightly.

In speaking or swallowing there was no movement in the right face. On request the patient closed the eyes and wrinkled the brows normally. A subsequent careful examination showed very slight response to light in the pupils in the midst of a fairly severe attack. A possible slight Babinski was obtained on the right side. As far as could be told there was no sensory disturbance. She swallowed well.

At times the patient spoke the words "yes" and "no" quite distinctly. She occasionally called the word "nurse" and said "good" for food that pleased her. She never used a complete sentence. She probably comprehended what was said to her and sometimes attended to requests and sometimes did not. She displayed a childish interest in a tie-pin; at times asked for a bed-pan. She screamed repeatedly as if in severe pain.

Dr. Baker, the resident physician, had observed double deviation of the eyes, and had repeatedly seen elevation of one eyeball and depression of the other, with frequent variation and, toward the end of a convulsion, a peculiar oscillatory movement most marked in the right eye.

Urinary examination previous to the operation showed nothing of consequence, except specific gravity of 1036 and a few cylindroids. Two days after the operation a trace of albumin, but no cylindroids or casts, was found. A few days later even the albumin had disappeared. Previous to the operation the leukocyte count was six thousand. The temperature was variable, but frequently up to 103.

Operation.—On February 7 an operation was done by Dr. J. E. Moore under ether anesthesia. A large bone flap was removed from over the left motor area. When exposed the cortex showed some congestion and slight bulging of the brain substance. Beyond this, in a careful examination, nothing was found. The flap was replaced and the skin sutured.

Postoperative History.—On February 10 there was no movement of the right hand or arm, but a very slight movement in the right foot on deep pricking. Sensation seemed greatly lessened in the right leg and foot, but was probably not wholly absent. The mental condition was much better than it was preceding the operation. At 7 p. m. following the operation, the patient had a convulsion lasting two minutes. At 8:15 there was another, very slight, lasting only a few seconds. In the next hour there were two slight convulsions, but at one time she was conscious and answered when spoken to. Up to 7 the next morning, however, there were forty-five convulsions but all much milder and of much shorter duration than previously. The convulsions continued to 8 p. m. February 9, gradually growing less severe and less frequent. Early on the morning of the 10th the patient again had several slight convulsions, but none afterward. When she was sufficiently recovered from the operation it was found that she had a partial sensory aphasia and also visual amnesia.

The wound did nicely until February 16, when the patient pulled her dressing off and infected it, which greatly delayed its healing. Otherwise her surgical convalescence was uneventful, and the return of motor and sensory power in the right side was fairly rapid. No culture was made at the time of

the operation, but when suppuration appeared in the wound the *Staphylococcus pyogenes aureus* was obtained from it.

On March 4 the patient moved her right leg very well; movements of her hand and fingers were also much improved, and she was able to pick up an orange with this hand. On March 16 she was up and walked about. March 23 she walked quite well, except that the right leg was rather spastic. The right arm was greatly improved, but the grip in the hand was feeble. All movements with this arm were performed slowly and were both spastic and ataxic. There was no special atrophy of hand, arm or leg. Sensation for touch, pressure and pain was apparently normal in the tongue, face and extremities. In speaking and laughing the right face behaved about the same as the left. At this time she was also beginning to speak and write a few words and could understand the name of most objects handed her and tell the names of some.

She was discharged April 2, very much improved.

On May 17 she was reported by her home physician as being able to use her leg as well as ever. She had again become able to use her right hand in writing, but the fingers were a little stiff. Her vocabulary was fair, but not so good as before her illness. In all other respects she seemed perfectly well.

CASE 5.—For permission to publish this case we are indebted to Dr. S. Marx White, of Minneapolis, with whom one of us saw the patient in consultation, and to whom we are indebted for many of the notes referring to the case.

History.—Since 1901 the patient, a married man aged 54, had suffered from a bladder obstruction which annoyed and disturbed him to such a degree that, on April 6, 1902, a prostatectomy was done by Dr. J. E. Moore. This relieved the immediate difficulty. Up to about January 12 of the following year the patient was fairly well, but on this date the right epididymis was opened. On Oct. 17, 1905, the right epididymis was opened and removed.

During the year 1906 the patient was obliged to give up one-half of each day for rest. During this time also the urine became cloudy and was found to contain colon bacilli and staphylococci. There were no casts. Some small polypoid granulations sprang up at the margin of a blind pocket or partially closed sinus in the prostatic urethra, with intermittent obstruction to the flow of the urine. It was necessary occasionally to remove the granulations and irrigate the bladder.

In February, 1907, the obstruction became more pronounced and the use of the catheter began. In April, 1908, the patient went to St. Mary's Hospital in Rochester and Dr. C. H. Mayo performed a suprapubic cystotomy. The removal of a V-shaped portion of the fold of mucous membrane relieved the obstruction temporarily and there was some increase in the general strength. Hexamethylenamin (urotrophin) and the catheter with bladder irrigation made up the treatment employed. Occasionally the suprapubic scar would open and drain for a few days. As an illustration it opened spontaneously June 30 and closed July 3, 1909. In spite of the treatment employed, however, the patient's general condition gradually failed. On July 6, 1909, he had a painless contraction of his left forearm, which lasted about an hour. The sinus opened July 19, 1909, and drained to Aug. 4, 1909, and on the last day mentioned, August 4, the patient complained of a peculiar numbness, which extended over his left hand, wrist and forearm, as if a tight glove were drawn over the parts. He did not speak much of this feeling, but would attempt to shake it off.

On August 5, his business partner sent an automobile to the house to take the patient for a ride and he seemed in every way normal mentally. In the afternoon of the same day, about 5 p. m., his wife suggested that he call up his partner and express his thanks. He was unable to recall the name until prompted, but telephoned in the usual manner and expressed his pleasure at the use of the car. A few moments later he turned to his wife and made an irrelevant and irrational remark, and within five minutes had a left-sided convulsion. Dr. White saw him at 6:30 p. m. The convulsions were being frequently repeated, and at the consultation at 8 p. m. the attacks were persistently evident in the left face and arm, while both legs were rigid.

No convulsions occurred except on the left side, but they continued at frequent intervals during the days and nights of August 6, 7, 8 and 9, and were uniform in character. There would develop suddenly a quick, violent, muscular movement of the left face and arm and occasionally of the left leg. The patient was able to talk at times, but his utterance was incoherent. His temperature began to rise with the onset of the convulsions and ranged from 99.8 to 103 F. On August 9, 1909, after a consultation including Drs. Moore, Tibbets, White and Jones, a diagnosis of acute septic encephalitis was made and an operation was advised for exploration and possible relief.

Operation.—The family having assumed the responsibility, on the following day, Dr. Moore removed a large osteoplastic flap from the right parietal region and exposed a large, very much congested and inflamed area in the motor cortex. No gross breaking down of the brain substance was noted, except in the center of the area where a softening process had begun. This area was incised and temporary drainage inserted.

Postoperative History.—There were no further severe convulsions, but slight and abortive seizures continued up to the time of death. The man became stuporous and died sixty hours after the operation. There was no autopsy.

The exact cause of the paralysis in the above cases it is quite impossible to give, and a consideration of the known facts concerning infantile hemiplegia does not serve to clarify the situation wholly.

Hemiplegia due to thrombosis and embolism was established pathologically by Virchow in 1846. In 1876, Huguenin was able anatomically to distinguish clearly between encephalomalacia and encephalitis; and in 1884 Strümpell's article on "Acute Encephalitis of Children" brought out the fact that many of the cases of infantile hemiplegia are due to encephalitis of the motor area and this paper aroused special interest in the subject. In recent years much attention has been given to the histology and bacteriology of encephalitis, including especially in this country the valuable work of Councilman, Mallory and Wright, and of Southard, and his co-workers, Sims, Keene, Stratton and Richards. But up to the present it has been impossible to clinically distinguish the different groups of infantile hemiplegia according to their etiology (Southard), though the work of Openheim, Taylor and Southard will doubtless stimulate our activity and increase our capacity in this direction.

The deleterious influence of the diphtheria toxin on the nervous system has been long and widely known and both clinical and pathologic evidence combine to show that the nerves are much more subject to this influence than the ganglion cells of the cord and cortex. Peripheral paralysis occurs in diphtheria in as high as 5 to 15 per cent. of the cases, while out of 800 diphtheria patients in the Berlin Charity Hospital only three developed hemiplegia and out of Wallenberg's 190 cases of infantile hemiplegia only three were of diphtheritic origin, while of Osler's 120 cases not one was attributed to this cause. The histologic study of material from post-mortem cases of diphtheria shows that changes in the ganglion cells are uncommon, and some authors record their entire absence. A few, however, insist on certain changes in the ganglion cells, though mostly of a light character, and in the small number of recorded post-mortem examinations the paralysis has usually been found to be due to embolus or thrombus. Taylor states that the causes of infantile hemiplegia in order of frequency are: acute encephalitis, thrombosis (arterial or venous), hemorrhage, and embolism. Very rarely a case has been reported in which the paralysis was believed to be partly of central and partly of peripheral origin.

Of the two cases of paralysis following diphtheria, here reported, there was undoubtedly a central lesion in both, but it may be that in Case 1 there was both a central and a peripheral lesion. Whether the cause was acute encephalitis, or one of the other conditions mentioned above, would have been difficult to determine at the time and is quite impossible with the history now at hand, though the prolongation of the symptoms previous to the development of the final and complete paralysis in both cases and the tendency of the symptoms to increase in intensity over a period of some days in one case would suggest encephalitis rather than one of the vascular conditions, which usually develop their symptoms comparatively rapidly.

Contrary to the opinion of the laity, paralysis in diphtheria is not due to the use of antitoxin, though the use of antitoxin does not appear to have lessened the number of cases of paralysis, either of central or peripheral origin.

Paralysis, either of central or of peripheral origin, in the course of pneumonia, is very infrequent. Thus Vanysek, in reporting a case of peripheral neuritis, states that neuritis and polyneuritis after croupous pneumonia is a very rare disease. Enouf reported a case of paralysis of his own and collected five others. In two of these cases, which came to autopsy, one had a meningeal hemorrhage and one a spinal cord softening. The other cases were of uncertain variety, including one case of paralysis of both legs and one arm. All four patients recovered after a duration of some hours to some weeks. Though there is no reason apparent why paralysis of central origin in pneumonia might not be due to true encephalitis, I do not know of a positive case in literature, except in connection with meningitis. There has been so little work done on the subject, however, that definite conclusions cannot yet be reached. As regards the nature of Case 4, in particular, no positive statement can be made. It was looked on previous to the operation as an instance of cerebral tumor or encephalitis. The operation and subsequent course make the diagnosis of tumor impossible and the diagnosis of encephalitis correspondingly more probable. In Case 5 the diagnosis of septic encephalitis seems justifiable.

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ABSTRACT OF DISCUSSION

DR. M. L. PERRY, Parsons, Kan.: This question of infantile hemiplegia is one on which there has been division of opinion, especially as to the pathogenesis. When the paper on this subject was presented by Strümpell (in 1874, I believe), in which he took the position that the lesion in these cases was an encephalitis similar to or identical with the process found in anterior poliomyelitis, there were many, especially among the foreign men, who accepted the theory. It has not been accepted as fully in America and I think the weight of opinion among the men in this country has been until recently that these cases were of vascular origin. Dr. Southard, of Boston, has recently done some work that has thrown considerable light on this subject. He has found that the majority of these cases are due to an encephalitis, but the process is a different one from that found in the cord in anterior poliomyelitis. He has made rather extensive bacteriologic studies in such cases and has found that there is no one constant organism. I have myself been of the opinion that a large number of such cases were of vascular origin, until this work of Dr. Southard has convinced me that I have been mistaken. Viewed from a clinical standpoint the subject is of the greatest possible importance from the fact that a large number of such patients develop epilepsy later on. In a study of some nine hundred cases of epilepsy I have been much impressed with the frequency with

which we find a history of attacks, similar to those described by the doctor in his paper, occurring as a precursor of epilepsy. In fact, as a result of a careful study of this subject I am convinced that the brain lesions causing infantile cerebral palsies may be ranked as one of the most important and frequent causes of epilepsy.

DR. SANGER BROWN, Chicago: It is a little doubtful whether these cases admit properly of a classification that would enable them all to be discussed together. According to the essayists the diphtheritic paralysis and encephalitis are adduced as the cause of the hemiplegia. I think the pathology of diphtheritic paralysis is pretty well defined to be a peripheral paralysis, and due to the effect of the toxin of diphtheria acting on the peripheral motor neurons, some being more sensitive than others, but in severe cases all being affected. There are various evidences, such as the usual impairment or loss of the reflexes in the parts concerned. Now I do not think in either of the two cases referred to by the essayists, even though signs of diphtheritic paralysis appeared before hemiplegia, that is, in the paralysis of the palate, or in the power of convergence, or the pupillary condition, even though that had occurred, and afterward hemiplegia occurred, it would be proper to regard the hemiplegia as being caused by the diphtheritic paralysis. It would be, I think, fair to assume that it was due to the general infection, as it might occur in any of the infectious diseases, and as Dr. Sachs has pointed out, or contended for very ably, the hemiplegia would be due to a vascular disturbance, due to the infectious disease, and not to the toxin acting on the peripheral neurons. I would strongly take the view that these two conditions were merely coincident, and I do not think it would be at all proper to regard the hemiplegia as a form of diphtheritic paralysis. Now, I think each case should be considered separately. The only other point that struck me was in the case of the child with the paralytic and sensory attacks in which there was no fever. The symptoms were described, and from the subsequent history I should strongly suspect interstitial sclerosis.

DR. L. H. METTLER, Chicago: I would like to ask Dr. Perry or Dr. Hamilton how they differentiate, aside from the mere difference in location, between the pathology of acute hemorrhagic encephalitis and acute hemorrhagic anterior poliomyelitis. The theory propounded by Strümpell, wherein he classified certain forms of infantile encephalitis, nuclear inflammation, and anterior poliomyelitis as one and the same pathological process, differing only clinically by reason of the different localization of the lesion—a functional more than a pathologic differentiation—has always been more popular in Europe than in America. If Strümpell's condition is the true one, it seems to me that it offers us a distinct advantage in the practical consideration of these affections. Clinical differentiations between diseases, along easily observed lines of function, render the diagnosis and management of diseases easier and more accurate than when those differentiations depend on minute post-mortem pathologic findings. I, for one, would like to be more minutely informed on this matter. As I feel now, it is not the nature of the lesion so much as it is the location of it, that marks the distinction between these inflammatory troubles of the central nervous system, especially its gray matter. I think Starr takes emphatically the same position in his recent work on diseases of the nervous system. If these infantile palsies, cerebral, nuclear, and spinal, are absolutely distinct and dissimilar disease processes, I think the differences, apart from mere location of the lesion, ought to be brought out more clearly by our teachers of pathology. Sarcoma of the brain and sarcoma of the cord are not regarded as essentially different diseases.

In this connection, while speaking of localization differences being made the basis of nosology in the absence of any real pathologic differences, I desire to speak of another matter not wholly irrelevant to the subject of the paper. Until the present time we have been talking a great deal about multiple neuritis, of the alcoholic and infectious types, as though it were a distinct, unique, and *sui generis* disease-process. Many pathologists now, however, are modifying their views, and are inclining to adopt more and more the teachings of Charcot, for which he long ago contended so earnestly and for which he

received so much adverse criticism, namely, that these alcoholic intoxications and infections, when studied under the guise of multiple neuritis, represented mere localization differentiations and not essential diseases. Other organs were always more or less also involved, and the alcoholism or infection was the essential basis on which the cases in practice were to be classified. Present investigations show that in alcoholic polyneuritis, for instance, the degenerative process may be traced up through the nervous system to the very cortex. I cite this as a parallel instance somewhat to the question in hand, and to point out that we must not be too narrow in our conceptions of disease. We must be careful not to refer to clinical manifestations, which represent merely a functional localization, as special diseases.

Therefore, I would like to be informed wherein pathologically, not functionally, hemorrhagic poliomyelitis differs so much from hemorrhagic poliomyelitis as to warrant the consideration of these two maladies as wholly distinct and separate diseases. It is the end and aim of all science to generalize, if possible, to reduce to small groups many related phenomena, and to harmonize apparent discrepancies. It certainly is not the end and aim of science to merely enumerate a vast mass of minute and particular observations that may be closely interrelated.

DR. W. A. JONES, Minneapolis: The object of this paper was to provoke a discussion as to the influence and effect of infections on the central nervous system. The description of the three supposedly diphtheritic cases means that infection is not only peripheral, but of central origin, and not infrequently destructive or inflammatory lesions are found in these so-called peripheral paralyzes. If encephalitis and poliomyelitis are due to infections, I do not see how we can differentiate between these various diseases and their onset.

The two last cases reported, to my mind, are the most important, because they both show a central localized infective and inflammatory process in the cortex, and both cases, which were operated, seemed to confirm the work of Dr. Southard.

The third case, that of the child, was particularly interesting, but we were not able to determine the beginning of the infective process. The lesion was a characteristic one, if we can judge from gross appearances, and the inflammation involved mainly the cortex and did not extend into the white substance extensively. She made a prompt recovery from her peculiar epileptiform attacks and practically complete recovery from the hemiplegia following operation. The character of the epileptiform attacks in the third and fourth cases was distinctive in that the attacks were sudden, violent, repeated muscular contractions without paralysis between the seizures; that they were irritative and cortical I think is undisputed, particularly with our findings.

TUBERCULOSIS IN MARKET MILK OF CHICAGO *

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During the summer of 1909, a series of examinations of market milk was undertaken in Chicago, at the instigation of the Commissioner of Health, Dr. W. A. Evans. Several similar investigations have been reported in other localities in the United States during the past two years, the results of which bring out clearly the high incidence of tubercle bacilli in milk-supplies and the consequent importance of milk control from the standpoint of public health. It is believed that the results herein recorded, inasmuch as they give insight into the milk situation of one of the large municipalities of the country, will be of interest as adding to the general fund of knowledge on the subject.

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

The work was undertaken during the months of July and August, 1909, and carried out partly in the Bacteriological Department of the University of Chicago under the direction of Dr. P. G. Heineman of that institution, and partly in the Municipal Laboratory of the Department of Health, City of Chicago. The results of the work in both laboratories will be reported jointly, in order that from the larger number of samples thus available for study a more accurate idea of the extent to which the general supply was effected may be obtained. In addition to the reporting of results, it is my purpose to discuss briefly a few of the considerations which naturally arise in connection with the choice of the remedy to be applied.

The samples were collected by health department inspectors, and were brought in partly in original containers and partly in sterilized bottles furnished by the Municipal Laboratory. The effort was made, as far as possible, to deliver the samples to one of the laboratories within a few hours of the time of collection. It was arranged that the dairy inspectors working in the neighboring country districts should submit samples from the country shippers to the Municipal Laboratory. In addition, a milk inspector was detailed within the city limits for collection of market samples from depots, stores, wagons, etc., with the idea of covering, in as representative a manner as possible, all types of places in which milk is sold in Chicago. Samples collected within the city limits were delivered to the Bacteriologic Laboratory of the University of Chicago.

The technic employed in the laboratory at the University of Chicago was as follows: Three hundred c.c. of the sample were centrifugalized for thirty minutes at a speed of about 1,200 revolutions per minute. The layer between the cream and the sediment was then removed by means of a sterile pipette and the sediment and cream thoroughly mixed. This mixture was diluted with sterile saline solution to an amount sufficient for the injection of three guinea-pigs, using from 1 c.c. to 2 c.c. for each injection. All inoculations were made subcutaneously in the abdominal wall, the syringe being cleaned and sterilized by heat after the injection of each specimen of milk. The pigs were kept in clean cages and observed for a period of three months. Animals showing glands at the end of six weeks were separated from the others. Tuberculosis was determined by the gross lesions and by smears prepared from the affected organs. The same general method was followed at the Municipal Laboratory of the health department with no essential differences in detail, except that one animal instead of three was used for each specimen. In the Municipal Laboratory the gross autopsy findings were confirmed by demonstration of the tubercle bacilli in stained sections of the organs, the slides of which are now on file in the health department. It is to be noted, however, that, inasmuch as the clinically negative animals were not subjected to autopsy, but in both laboratories were allowed to live and be used for other purposes, the results of the series must be reported as minimum findings only. No cultural studies were attempted to determine the presence of human and bovine types of the organism.

From a strictly scientific point of view, it is to be regretted that cultures were not made from the organs to exclude the possible presence of Rabinovitsch butter bacillus. It so happened that the autopsies fell due at a time when the laboratories were flooded with other work, and therefore it was necessary to omit this detail for lack of available time. Practically, however, it is

our belief that the positive findings here reported may be considered tuberculosis. The autopsies were in every case well marked and typical, and the findings agree well with the results of observers in other cities in the United States.

Incidentally in connection with the autopsy of the animals, it was decided to mount a few of the guinea-pigs by the Kaiserling method for purposes of exhibition. The value of such exhibits in the fight for purer milk soon became evident, and I believe, should not pass without mention, inasmuch as the suggestion may be of use to others who may contemplate the institution of a similar educational campaign. In the conduct of such a campaign, it is very necessary to have at one's command arguments which are convincing to laymen, many of whom are still doubtful as to the existence of bacteria, and most of whom find it difficult to understand how milk, which is perfectly sweet and pure to all appearances, may still be unfit for use and dangerous to health. In this connection it is hard to conceive of a more concrete object-lesson for the milk-dealer or legislator than to present for his inspection a guinea-pig which has been killed by the milk he is feeding to his children. A normal guinea-pig should also be mounted for comparison, in order that the marks of the disease in the tuberculous specimens may be clearly apparent to any observer.

The total number of milk samples examined in the two laboratories was 163. Of these, fifty-one caused the death of all the animals injected from acute infections within three weeks, before diagnosis of tuberculosis was possible. Eliminating these as lost, there remain one hundred and twelve available for the series, of which ten, or 8.9 per cent., proved tuberculous. Of 144 samples of raw milk, forty-nine were lost within three weeks, leaving ninety-six available for consideration. Of these, ten specimens, or 10.5 per cent., were found tuberculous. Of nineteen pasteurized samples, two were eliminated, leaving seventeen for consideration. None of the pasteurized samples caused tuberculosis in the animals injected.

	No. Samples.	All Animals Died in Three Weeks.	Available for Series.	Per Cent. Found Tuberculous.
Total	163	51	112	8.9
Raw	144	49	95	10.5
Pasteurized	19	2	17	0

With regard to results of other observers, up to the year 1908, a very complete report has been published by Trask¹ of the U. S. Public Health and Marine-Hospital Service, covering chiefly the work of European experimenters. More recently the results of several American observers have been added to the list. Hess,² in 1909, examined 107 samples of market milk in New York City with the result that seventeen, or 16 per cent., were found to contain tubercle bacilli; Anderson³ examined 223 samples taken in the city of Washington and reported sixteen, or 6.72 per cent., as positive. Mohler⁴ has examined seventy-three samples with positive findings in two cases, or 2.7 per cent. The Bureau of Animal Industry⁵ reports two positive out of thirty-six examined, or 5.5 per cent. Goler⁶ reports about 5 per cent. of the milk-supply of Rochester, N. Y., infected,

1. Trask, J. W.: Milk and Its Relation to Infectious Diseases, THE JOURNAL A. M. A., Oct. 31, 1908, p. 1491.
 2. Hess, A. F.: The Incidence of Tubercle Bacilli in New York City Milk, THE JOURNAL A. M. A., March 27, 1909, p. 1011.
 3. Anderson: Jour. Infect. Dis., 1908, v, No. 2, p. 107.
 4. Mohler: Bull. Hyg. Lab., U. S. P. H. and M. H. S., No. 11, p. 493.
 5. Hyg. Lab., U. S. P. H. and M. H. S., No. 56, p. 551.
 6. Goler: Jour. Am. Pub. Health Assn., 1910, xx, 95.

but does not state the number of samples examined. The incidence of tubercle bacilli in the milk-supplies of American cities, as far as obtainable, is therefore represented by the following figures, which include the results reported in this paper: Total number of samples examined, 551; total found positive, forty-six; per cent. positive, 8.3.

Without entering into the question of the relative prevalence in human subjects of the human and bovine types of infection, which has been extensively discussed in recent literature,⁷ I believe it is safe to say that the problem of tuberculosis in milk-supplies is of sufficient importance to warrant immediate steps for its eradication. Obviously it is desirable and in many instances has been proved practicable to eliminate tuberculous animals from dairy herds by means of the tuberculin test, followed by strict isolation or slaughter of the reacting animals, but this process requires time and also strict legislative support. The difficulties of its accomplishment increase enormously with the size of the community affected and the extent of the dairy districts involved. It has not as yet been proved practical in connection with milk-supplies of large municipalities. But granting its desirability and practicability, it is obvious that the public is entitled to protection during the interim required for obtaining the necessary legislation and enforcing such measures when obtained, both of which must necessarily be slow processes. Briefly stated, there is need of immediate protection of milk-supplies, while the more ideal, but necessarily slowly operating measures are being carried out. Such an immediate safeguard is to be had in compulsory pasteurization.

In Chicago the situation is being met in the following manner: The ordinance of Jan. 1, 1909, provides that all milk sold in Chicago, beginning Jan. 1, 1914, shall be obtained from tuberculin-tested cows. During the interim of five years between Jan. 1, 1909, and January 1, 1914, milk not obtained from tuberculin-tested cows may be sold, provided the said milk is pasteurized according to the rules and regulations of the department of health. Under this ordinance about 54 per cent. of the milk sold in Chicago is now pasteurized and 24 per cent. is tuberculin tested. Before the close of the present season, if existing plans are carried out, the remaining 22 per cent. will be pasteurized, and also much of the tuberculin tested product will be pasteurized. During the summer of 1909, when about 30 per cent. only of the milk was pasteurized, strict enforcement of the ordinance being at that time impossible because of administrative difficulties involved, a decrease of 521 was noted in the deaths reported among children under one year from diarrheal diseases. The average bacterial count of raw milk in 1909 was 5,547,502 per c.c.: of pasteurized samples taken from plants, less than 200,000; of pasteurized samples taken from all sources including the output of plants not yet under satisfactory control, and also street samples, many of which had been kept in stores over night, was 944,000 per cubic centimeter. Results in 1910, so far as obtainable, show a greater difference in favor of pasteurized milk, and seem to indicate that the control of pasteurization is becoming more effective. There is still the problem of preventing the practice prevailing in some retail establishments of selling left-over samples from the previous day's delivery. In my opinion this one detail is responsible for

most of the high counts obtained in pasteurized milk and tends to hold the average bacterial counts far above what they would otherwise be. The correction of this error is the next important problem which must be undertaken in the control of the situation.

It may be well to add a word as to the special applicability of pasteurization as an immediate safeguard to the milk-supplies of large cities. That it is effective in the prevention of milk-borne tuberculosis is fully conceded, but the milk situation in large cities involves so many other factors that tuberculosis of necessity comes to be regarded as only one among many sources of danger, several of which are more important from a public health standpoint. In a large city there must always be present the element of distance between the producer and consumer. Contingent on this necessary condition are the thousand and one sources of contamination occurring as a result of multiplicity of handling, time consumed in transit, improper cooling during transit, etc., all of which factors tend to multiply enormously the common polluting agencies to which milk is subject. The final product, which reaches the consumer, may therefore be dangerous from the standpoint of five or six groups of diseases, of which tuberculosis is probably not the most important. In order of their importance I should enumerate these as follows: First, and by far the most deserving of attention, is the group of infantile diarrheal diseases, which are responsible for about one-third of the death-rate among children under 2 years in our large cities. As to the bacteriology of these conditions we have little satisfactory knowledge, but the evidence furnished by vital statistics is convincing in establishing the important relation of milk thereto. Second is typhoid fever, the relation of which to milk-supplies is now well understood. Third in rank is tuberculosis. Fourth is scarlet fever. Fifth is diphtheria. Sixth is a group of miscellaneous affections not particularly important in this country, such as cholera, foot-and-mouth disease, milk-sickness and others.

As tuberculosis may be eradicated by strict application of the tuberculin test, so may these other infections be eradicated by the strict observance of sanitary rules in the production and handling of milk. But the enforcement of such observance, as in the case of elimination of tuberculosis from herds, is a time-consuming proposition, involving an educational campaign and the development of an adequate inspection system. The public is entitled to immediate protection, while the process is going on, and for this immediate protection we must turn again to pasteurization. There is certainly no one other agency of purification of milk-supplies which is of such wide applicability. That compulsory pasteurization is practicable for towns and cities under proper supervision by health authorities will, I think, soon be established and generally recognized from the experience of the City of Chicago during the past eighteen months.

ABSTRACT OF DISCUSSION

DR. F. O. TONNEY, Chicago: In reply to a question that has been asked: The bacterial counts here reported were all made on plates which had been incubated at 20 degrees C. for five days. As has been pointed out by Dr. P. G. Heinemann of the University of Chicago in a recent publication, this method gives higher bacterial counts in milk than does the method more commonly used in which the temperature of incubation is 37 C. and the time of incubation 48 hours. For

7. An excellent summary by Moss: Bull. Johns Hopkins Hosp., February, 1909, xx, No. 215; Park: Tuberculosis Congress, Washington, D. C., 1910.

this reason the count of 200,000 probably represents a higher result than would have been obtained by the less rigorous method in more general use. The figure of 200,000 per c.c. represents an average of all plants inspected, and of course includes counts made on the product of pasteurizing plants not yet under satisfactory control, the purpose of the inspection being primarily to correct any errors noted in the management of the establishment.

I think, therefore, bearing in mind the two points above mentioned, that we may consider 200,000 per c.c. a very good figure, especially in view of the great difficulty involved in the enforcement of such an ordinance so soon after its passage. I do not wish to be interpreted as saying that a bacterial count of 200,000 per c.c. on an individual sample indicates a safe product, but I believe that this figure, representing as it does an average on samples from all plants both good and bad, is a satisfactory figure for the first year of the life of the ordinance. Probably the average for the second year will show improvement.

DR. W. A. EVANS, Chicago: There is but one way to answer that question; and that is, that 200,000 at the pasteurizer's side is not a satisfactory bacterial count. The usual bacterial count at the pasteurizer's side was around say a thousand—somewhere in there. A great many pasteurizers just started up last summer; and some of them run high. You see how one of them that would run quite high, would pull up the average. Whatever method of counting was employed, 200,000 would be an unsatisfactory count.

PATHOLOGY AND TREATMENT OF ALVEOLAR ABSCESS

AND A PLASTIC OPERATION TO CLOSE NASO-ORAL FISTULA AND A NEW OPERATION FOR MANDIBULAR NECROSIS *

STEWART L. McCURDY, M.D.
PITTSBURG, PA.

The capital operation of dentistry is devitalizing pulp and filling of the root canals, as an abdominal section or the opening of an important joint is the capital operation of surgery.

If the peritoneal cavity or synovial membrane is infected during an operation, serious and dangerous inflammatory processes follow; infections of the former in many instances result in death, and infections of the latter result in ankylosis and even amputation. It is

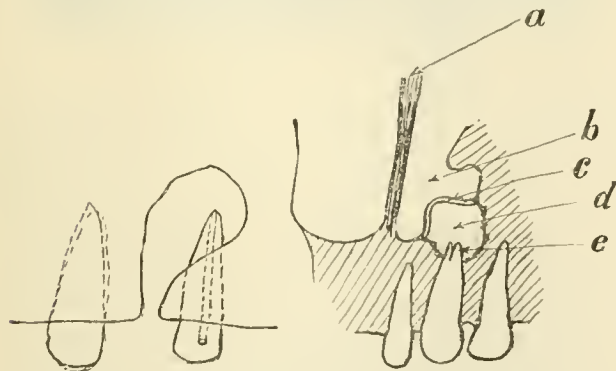


Fig. 1.—The most common alveolar fistula of the maxilla. Usually persists for years until the tooth is extracted.

Fig. 2.—This represents the method of establishment of naso-oral fistula; a, nasal septum; b, nasal cavity; c, membranous floor; d, abscess cavity; e, denuded root of tooth.

possible for the general surgeon to perform the operations without mortality only because of the great care exercised by him preparatory to and during the opera-

* Read in the Section on Stomatology of the American Medical Association, at the Sixty-first Annual Session, at St. Louis, June, 1910.

tion. On the other hand, the most delicate operation in dentistry, requiring the most technical skill as well as demanding perfect asepsis in its practice, is the devitalizing and extracting of pulps and filling these cavities. If infection occurs on account of carelessness on the part of the dentist, the too common alveolar abscess is the result. Alveolar abscess, or the so-called pus sac so frequently found on the apex of a tooth after extraction, is the forerunner of 90 per cent. of all the destructive diseases of the maxillary bones.

SERIOUS CONSEQUENCES OF ALVEOLAR ABSCESS

The pathologic changes which occur in the so-called alveolar abscess begin at the apex of the root of a tooth. The first change is quite small, beginning in the form of

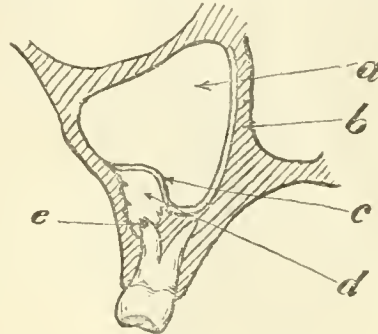


Fig. 3.—Abscess; a, antral cavity; b, naso-antral septum; c, membranous floor of the antrum; d, abscess cavity ready to rupture into the antrum; e, root of tooth denuded and cause of disease.

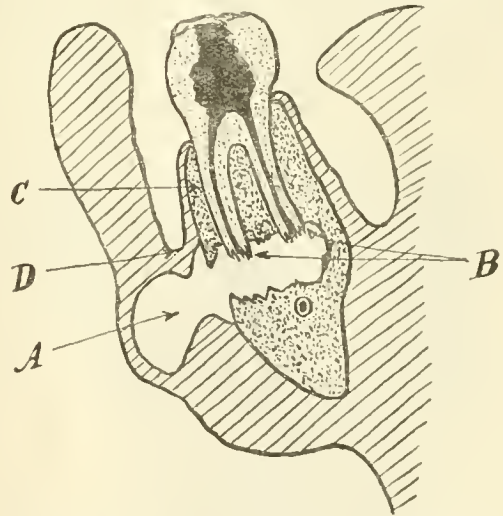


Fig. 4.—Alveolar abscess of the mandible; A, abscess cavity; B, roots of tooth; C, external alveolar plate to be removed with tooth; D, point of incision.

an infiltrate, which later liquefies. This change involves the tissues immediately around the apex of the root either destroying or promoting the absorption of the bone. The process of the destruction is in the direction of the least resistance from the root involved, which experience demonstrates to be smaller on the buccal side of the alveolar process. The destruction continues to the surface of the bone when the external manifestation of the abscess is present, namely, a fluctuating infestation on the external surface of the bone. This continues to destroy tissue in proportion to its activity, which depends on the variety of germ responsible for the disease.

The symptoms are well known to every dentist. Pain is in proportion to the rapidity of the course and, as a rule, is not prominent, a slight ache of the face being the most common characteristic.

If the root of the tooth affected is in proximity to the maxillary sinus, this cavity will be infected, resulting in antral disease. Occasionally when the disease is in

because the membranous floor is still intact. If the distention of the abscess cavity is great or if it continues for a considerable length of time, the nasal or antral cavity will be entered and in the former instance the antrum becomes infected, and in the latter instance a nasal fistula established.

When a fistulous opening is established from one of these abscesses, the orifice may be through the alveolus, the external or internal surface of the bone. In cases of fistulas communicating with a cavity in which there was the root of a tooth denuded of its periosteum and apical circulation I have not seen the opening close

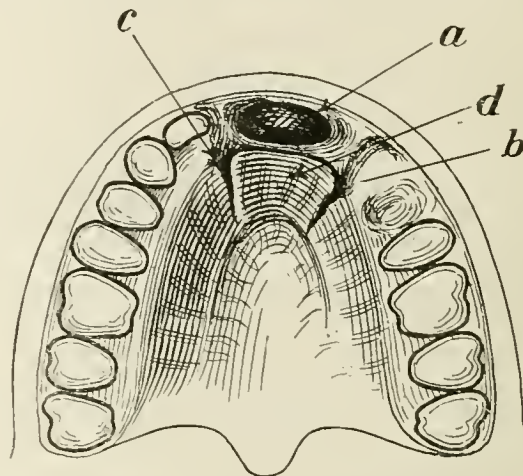
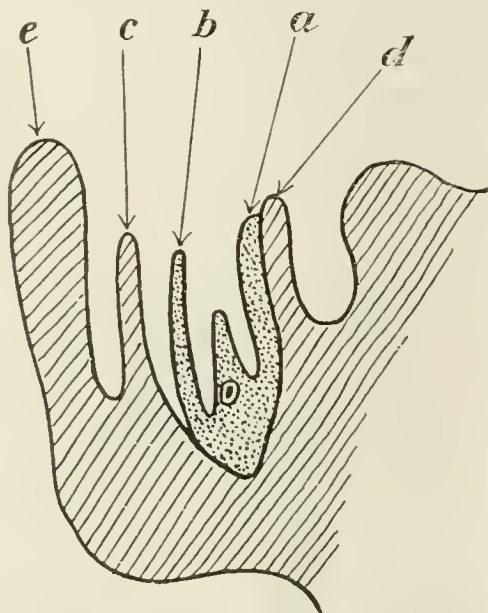


Fig. 5.—The above illustration represents Case 1 described in the text; a and b, alveolar process on two sides of tooth; b, denuded; c, detached gingival tissues; d, lingual gingival tissues; e, lip.

Fig. 7.—The above illustration represents method of closing naso-oral fistula; a, opening into nose; b and c, incisions; d, flap to be turned upward and outward over a.

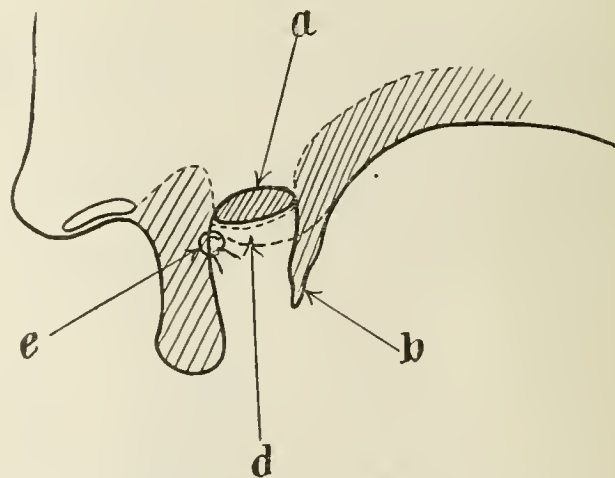
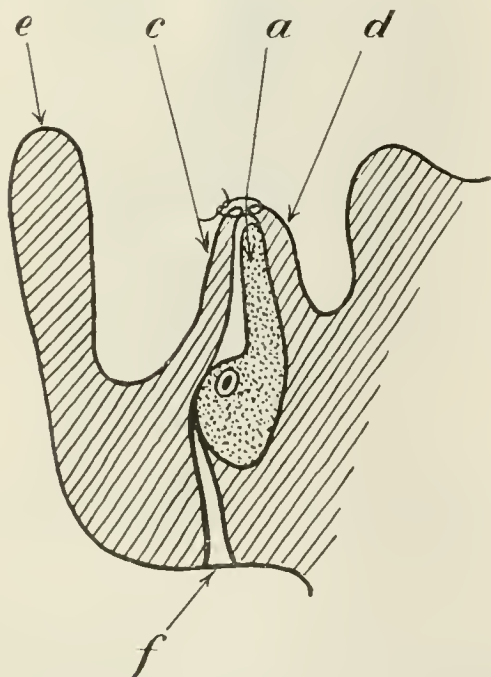


Fig. 6.—The above illustration shows method of obliteration of a, alveolar cavity; a and b, alveolar process; b, bone has been removed; c and d, approximated and sutured; e, lip; f, external drainage.

Fig. 8.—Completed operation; a, fistula with flap over it; d, flap in new position; e, sutures.

the mandible in proximity to the central canal a great portion of the bone will become involved before the surface is reached and the ordinary fluctuating cyst described above is not found.

In many of these abscesses the bony floor of the antrum is destroyed, yet the antral cavity is not entered

without the extraction of the tooth. This applies to chronic openings persisting for three or more months.

An alveolar abscess of the mandible is rather common. It is usual, also, for the abscess to break through the cheek rather than into the oral cavity. It is all a question of dependent drainage. The reason that alveolar abscesses of the superior bone repair better than those below is that the drainage above is superior.

The second serious consequence of alveolar abscess is a more grave variety of destruction of the maxillary bone, when the nasal floor, membranous and osseous, is destroyed, leaving a naso-oral fistula. In this condition we have a very troublesome complication, making it necessary for the patient to keep the opening packed con-

stantly, requiring removal after meals and withal leaving the mouth in a very unsanitary condition.

The underlying factor in nearly all of these cases is syphilis and, after the constitutional treatment has been pushed until all granulating surfaces have repaired, it is very desirable to close the opening permanently.

OPERATION AND CASE REPORTS

An operation which I have done in several instances and which has accomplished this purpose may be described as follows: Assuming that the labial gingival structures are completely destroyed and that the lingual periosteum and mucous membrane extend well down to the normal line, two incisions are made through the lateral structure, either with scissors or knife, back up to the orifice of the fistula and far enough back on the two sides to make the tongue wide enough to cover the opening. The margin of the flap thus made is freshened and the corners made round. The next step is to freshen the orifice of the fistula, denuding well the internal surface of the lip for a distance equal to the



Fig. 9.—Taken after operation in Case 1.

thickness of the flap. The flap is now turned up over the orifice of the fistula and sutured there with silkworm gut. In the three cases in which the operation has been performed (two of which are described below) the results have been perfectly satisfactory.

CASE 1.—Patient.—A man, aged 50, with infection of the mandible. He had lost all of his lower teeth but three, and the cavity included practically all of the mandible on its external surface, the bone being bare throughout. The alveolar process, on its external margin, including the cavities left by the extracted teeth, stood out perfectly nude in the floor of the mouth. It had required just a month for the ease to advance to the condition described.

Operation.—This included a complete removal of the external half of the mandible from the second molar on the right side to the second bicuspids on the left, through the roots of the teeth and to external inferior margin of the bone. This left the internal alveolar plate intact throughout with the periosteum undisturbed. The cavity was mopped out with pure tincture of iodine. The usual method of procedure would doubtless have been to pack the entire cavity, with the hope that the bone would heal by being granulated over from later approximation of the external periosteum. It was decided,

however, that such an extensive cavity should be immediately obliterated. Dependent drainage was absolutely necessary if this was to be accomplished; hence an incision was made from the lowest part of the cavity in the median line through the skin under the chin large enough to admit a rubber drain the size of a lead-pencil. The next step was to stitch together with catgut the labial and buccal gingival margins, thus closing off the field of operation entirely from the oral cavity.

Postoperative History. To my intense gratification the two gingival margins did completely unite and not a drop of pus was ever found in the oral cavity. The drainage established from below was quite sufficient to carry off the small quantity of reparative lymph and detritus and the patient was practically well in ten days after his operation.

CASE 2.—Patient.—A man, aged 30, had extensive infection of the mandible beginning from an infected tooth. Seven or eight teeth had been extracted and the entire external surface of the mandible was bare. The oral cavity was welling full of pus from the extensive suppurating area. The disease had developed rapidly and was running an acute course.

Operation.—This was practically the same as that performed on the above case. After the removal of the external half of the bone and disinfection of the wound, drainage was established through the skin under the chin. The gingival margins were approximated by catgut sutures.

Postoperative History.—The openings did not unite throughout as in the former case; two or three openings communicated with the mouth. This case was no doubt syphilitic and constitutional treatment was administered before the disease could be controlled. It was several months before the system was impressed with the medication and the wound closed.

CONCLUSIONS

1. Dentists should realize the seriousness of the most frequent operation they perform, namely, that of devitalizing and extracting pulps, since infection and serious bone destruction originate from this cause.
2. Destruction of the bony floor of the antrum does not necessarily mean perforation of the membranous floor or infection.
3. An alveolar fistula leading into a cavity where a considerable portion of a tooth is exposed requires extraction of this tooth before complete recovery can be expected.
4. Persistent headaches and general reduction in health are frequently caused by very insidious alveolar abscesses.
5. In destruction of the mandible, requiring removal of bone, it is advisable to establish drainage through the chin and approximate the gingival margins with sutures so as to shut off a pus cavity from the oral cavity.
6. Naso-oral fistula may be closed by a membranous flap from the roof of the mouth.
7. In all suppurative conditions of the mouth pure tincture of iodine should be used as a disinfectant.

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ABSTRACT OF DISCUSSION

DR. G. V. L. BROWN, Milwaukee: Dr. McCurdy, being a skillful surgeon, has simply applied correct surgical plastic methods to oral operations, and that, I am sorry to say, is something which is not always done in this work. The way Nature is obliged to help out in the closure of openings by granulation and that sort of thing is a matter to be deprecated, and in a corresponding way any suggestions leading to correct surgical closure are in the right direction.

DR. WILLIAM C. FISHER, New York: In this synopsis a statement is made that probably one-half the cases of necrosis of the maxillary bones are due to syphilis. I think probably one thing is lost sight of, and that is that the administration of mercury for syphilis very often starts up symptoms for

which the disease is blamed. We can get the very same symptoms from the administration of mercury that are caused by syphilis.

DR. JAMES E. POWER, Providence, R. I.: To me it seems unnecessary to make an incision such as described by the essayist. As I understand the operation, the doctor draws the flap across the opening at the top, within the oral cavity, and then makes an incision below and on the external surface for drainage. I do not think that one is justified in making an external incision on the face, and surely not in a case like the one described. I do not quite see any disadvantage in proper drainage through the mouth, even in view of the fact that there may be bacteria present which are capable of causing trouble in the alimentary canal. With the external incision, even if he gets union within the oral cavity by first intention, some days will elapse before he gets a sufficiently strong union to prevent back drainage. I believe that the term syphilis is getting to be used in the medical profession about the same as neuralgia in the dental profession. It seems that about every condition which is beyond the diagnostic capabilities of the practitioner is pronounced syphilis. I am conscious of the prevalence of syphilis, but I believe that many mistakes are made. From my experience I would not care to accept the statement in the matter as final, that over one-half the cases of necrosis of the superior maxilla were due to syphilitic conditions. A good many times the argument for the diagnosis of syphilis is simply that the condition improved under potassium iodid. We all know that many conditions will improve under potassium iodid. Without a good history the only true test is the Wassermann reaction, and that is very seldom resorted to by the general practitioner because it is a complex process and requires the skill of a laboratory expert. Dr. Fisher says that he believes that many of the cases of para-syphilitic conditions are due to the drugs. I believe, however, that all conditions that come from treated syphilis are from the disease and not from the drug. We might get a profuse flow of saliva from too much mercury, but I do not believe that we get necrosis of bone, gummata and other pathologic manifestations which are associated with syphilis and which are erroneously attributed to the use of the drug. I believe 100 of the para-syphilitic conditions are due to the disease where but one is due to mercury. My authority for this statement is Dr. Charles M. Whitney of Boston. I am speaking of cases properly treated. Of course, if a practitioner continues to use mercury after symptoms show that the drug should be suspended he is likely to be confronted with serious conditions. Salivation was used as the indicator in the early days of the treatment of this disease, but that day has passed. They are treating syphilis more scientifically to-day. It is seldom if ever that a syphilologist will permit a patient to reach the stage of profuse salivation.

DR. EUGENE TALBOT, Chicago: I have failed to see in any work the proper pathology of alveolar abscess. While I may not be correct, I have an idea of the process taking place and I may be able to add some point which has not yet been recorded, and I have made a number of drawings on the board to give a general idea of what I intend to present. Most individuals who have alveolar abscesses are run down. In case of syphilis, mercurial, or any other drug poisonings, there is a want of tonicity of the nervous system, in all cases, we may say, due to irritation. When irritation takes place the peri-dental membrane becomes involved and inflammation is set up, which causes pressure pain around the root of the tooth. With this pressure, inflammation is set up in the arteries of the bone, the Haversian canals and in the vessels of von Ebner. That inflammation causes absorption of the bone proper, leaving the fibrous tissue (trabeculae) as you see it in the diagram on the board. This might be likened to the plastering on the side of a building. If it were not for the lathing the plastering would not stick. If the lathing (trabeculae) be removed, then the alveolar tissue or bone cannot be restored. The extent of formation of this abscess depends entirely on the amount of irritation and also on the weakened condition of the patient. It may go on, extending down into the bone tissue through these canals,

and the bone proper (that is, the bone-cells which are held together by fibrous tissue) is absorbed, leaving the fibrous tissue intact. This fibrous tissue becomes organized and forms the sac of the abscess. The inflammation extends through these Haversian canals and produces absorption outward, just as when pebbles are thrown into a small lake, the waves enlarge and spread outward, and if you throw several pebbles into the lake at different localities these waves extend until they coalesce. The principle of bone absorption is the same. Absorption goes on around each Haversian canal until the entire area is involved, and we not only have absorption going on in the Haversian canals, but the vessels of von Ebner become involved. These are not so large as the Haversian canals, so the process of absorption takes longer, but the principle is the same. It burrows right through the bone.

DR. FREDERICK NOYES, Chicago: The absorption of bone under the conditions just stated may be considered as a response to a mechanical condition of pressure, which is the result of the exudate which comes from the inflammation, and the absorption occurs in all the spaces of the bone in the neighborhood of the inflammation.

DR. C. W. HARNED, Iowa City, Iowa: There is just one word I would like to say as to closing of these wounds. I think anyone who has made a practice of closing wounds to prevent secretions of the mouth getting into them will never give it up. I never fail to close up a cavity if possible, after removing all necrotic tissue. I think such wounds will seal in 36 hours, so that no saliva will get into the wound. Pus is rarely present after all the necrotic tissue has been removed. I want to commend the essayist for making this point in the matter of drainage.

DR. JAMES E. POWER, Providence, R. I.: The last speaker states that in his antral diseases he cleans the antrum and then closes the opening through which he operated. In all the antral cases which I have treated I have been obliged to follow the curretage treatment with irrigation. I would like to know how he irrigates if he closes the opening, or what procedure he follows.

DR. C. W. HARNED, Iowa City, Iowa: I prefer going in above the bicuspid, when I think disease involves the antrum. Thorough ventilation as well as drainage through the nose on that side is important. I make an opening through the internal wall of the antral cavity into the meatus, after the antrum is cleansed. Close up the mucous membrane on the outside after you have packed. Remove packing the next day through the nostril. Always close mucous membrane on the outside immediately, and irrigate as little as possible. I find that when I irrigate the least the patients get along the best. If all the pus and necrotic tissue is removed, and the cavity sterilized, very little irrigation will be found necessary.

AN IMPROVED METHOD OF GENERAL ANESTHESIA IN HEAD-SURGERY BY MEANS OF GLASS NASAL TUBES *

JOSEPH E. LUMBARD, M.D.

Anesthetist to the Harlem Hospital, the General Memorial Hospital and the Lying-in Hospital; Fellow New York Academy of Medicine, etc.

NEW YORK

Anesthesia for head-surgery certainly presents difficulties for the anesthetist. In order to insure greater safety to the patient and less interference of the anesthetist with the surgeon during an operation on the head, many inhalers have been produced. Nasal tubes for such purposes of anesthesia were introduced in 1908 by Dr. Edwin Pynchon of Chicago and Dr. Stuart B. Blakely of New York independently. Since one of these instruments allows the entrance of too much air

* Demonstrated before the Harlem Medical Association, May 14, 1910, and the Valentine Mott Medical Society, May 24, 1910.

and the other does not provide sufficient air. I have devised an instrument which experience has proved to be more practical than any other on the market.

My apparatus consists of two glass tubes (Fig. 1, A and B) so bent that each will properly fit a nostril. These tips are connected with the mechanism which supplies the anesthetic vapor by means of two soft rubber tubes (Fig. 1, C), joined together at the supply end by a glass Y, which also connects them with the supply tube (C) itself. They are furnished in three different sizes in order to make the apparatus adapted to nostrils of different shapes.

Furthermore, the apparatus which I use for continuing the anesthesia is different from that employed by either Dr. Pynchon or Dr. Blakely. I induce anesthesia in the usual way and then introduce the glass

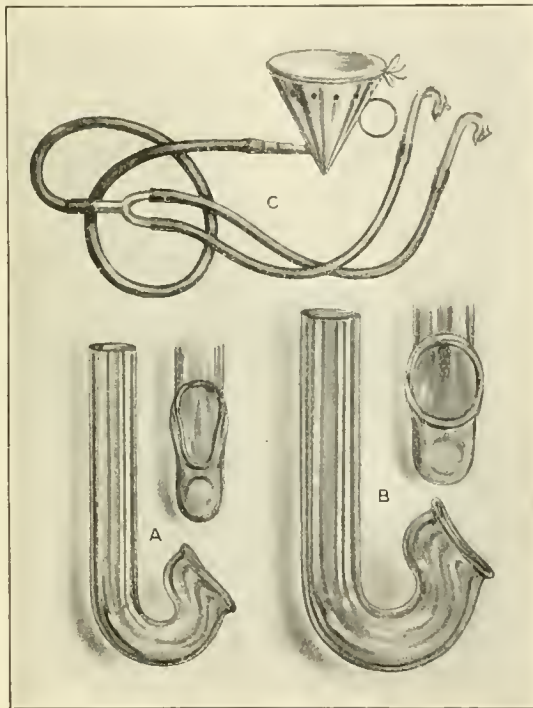


Fig. 1.—Glass nasal tubes for general anesthesia in head-surgery (A and B); connected with supply tube (C).

nasal tips into the nose. For convenience these may be held in position by means of a small piece of adhesive plaster placed across them transversely on the forehead (Fig. 2). The anesthesia is then continued by supplying the vapor in one of four ways: first, by the Crile method, that is, by the use of a funnel and tube (Fig. 1, C), on the stretched gauze of which ether is dropped; second, by the one-bottle Junker apparatus, as used so commonly in England for head-surgery; third, by the two-bottle modification of the Junker apparatus, as used by Dr. T. W. Brophy of Chicago for work on cleft palates; fourth, by the Gwathmey three-bottle modification of the Junker apparatus. By each of the Junker methods anesthesia vapor is pumped into the nostrils by means of suitable bulbs.

I much prefer the Gwathmey apparatus, as it allows the use of both ether and chloroform, either singly or combined in any proportion, with the greatest safety and ease.

The following are some of the advantages of the glass nasal tips over the long rubber tubes which have been in common use:

1. They are more safely and easily introduced into the nose.
2. They allow the anesthetic vapor on its way to the lungs to become warmed by the nose.
3. Successful use of the instrument is in no way interfered with by a deformed nasal septum or exostosis.
4. They do not cause nasal hemorrhage.
5. They cannot become obstructed with blood and mucus.
6. They remain in position much better than rubber tubes.
7. They are easier to clean and sterilize.

A method very similar to mine has been successfully employed at Roosevelt Hospital in New York City,

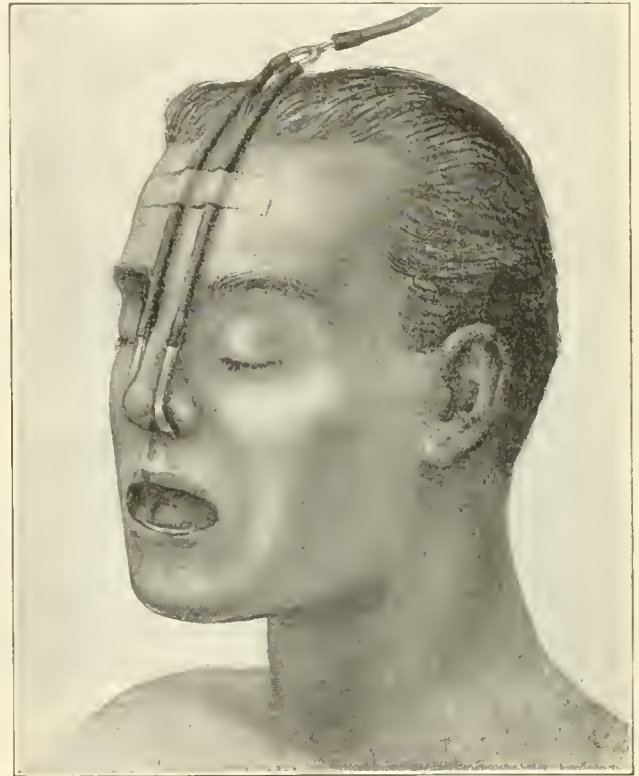


Fig. 2.—Glass nasal tubes for anesthesia in use.

where it is now entirely used for head-surgery in place of rectal anesthesia.

The glass nasal tips, as above illustrated, are certainly a most excellent means of producing a safe and continuous anesthesia in head-surgery, not interfering with the surgeon.

1925 Seventh Avenue.

REPORT OF A CASE OF MIDDLE MENINGEAL HEMORRHAGE ACCOMPANIED BY ACTUAL HEMIPLEGIA: OPERATION, RECOVERY

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The occurrence of middle meningeal hemorrhage, unless accompanied with severe depressed and compound fractures of the skull, is not so frequent but that the following case may be of interest:

History.—About midnight of April 4, 1909, I was called to see a workman who, I was told, was suffering from a

scalp wound inflicted by means of a bricklayer's spirit-level, in the hands of a fellow-workman. On arriving at the scene of the trouble about half an hour later, I found the patient lying on the floor in an unconscious condition. His breath had a very strong odor of alcohol.

Examination.—There was a contused scalp wound about three inches long in the left temporal and parietal regions, which was bleeding profusely. The pupils were equal and reacted to light. On further examination I concluded that the patient was suffering from concussion of the brain and acute alcoholism. I was informed that the man had been drinking heavily before the trouble occurred. The wound involved the skin of the scalp and the superficial fascia. The occipito-frontalis muscle was contused but not divided. Superficial examination presented no local evidence of depressed or other fracture of the skull at the site of injury. In about one-half hour the patient began to show indications of returning consciousness—he had begun to move both legs and arms, but was unable to sit up. He groaned considerably but was unable to speak. I was at first tempted to suture the scalp wound and await development of symptoms, but after reconsidering I decided to explore the bone at the site of the injury for evidence of fracture. This was done, without an anesthetic, about one hour after the occurrence of the injury.

On exploring the bone a fissured fracture involving the left parietal and temporal bones was found. There was some slight oozing of blood from the line of fracture. As there



Patient operated on for middle meningeal hemorrhage, accompanied by actual hemiplegia; from photographs taken on the seventeenth day after operation.

did not appear to be any depression of the bones or evidences of compression, it was decided to close the scalp wound and await development of possible pressure symptoms. As the line of this fissured fracture crossed the branches of the middle meningeal artery, arterial extravasation was feared. The patient vomited several times after being put to bed, and voided urine involuntarily several times during the night. At 8 o'clock the next morning the temperature was 99.2 F.; pulse 76, full, regular and strong; respirations 22. The patient was in a semi-conscious condition, could not speak, but would groan occasionally. Breathing was rather stertorous. The patient moved the left arm and leg occasionally. There was actual hemiplegia of the right side of the body, leg, arm and face. When the arm and leg in question were raised they dropped lifeless. The paralysis of the right side of the face was well marked. The condition of the left side of the face was confusing; the left facial nerve was believed to be involved, as it was afterward found that the line of fracture extended to the base of the middle fossa, and that the facial nerve was probably implicated in the fracture. No twitching of the muscles of the right side of the body was observed, neither were there any epileptiform attacks. The pupils were equal, moderately dilated, and reacted sluggishly to light. The tongue could not be protruded. The patient could not take any nourishment; voided urine involuntarily. He did not appear to understand anything said to him. As the focal symptoms were typical of

an extravasation from the branches of the left meningeal artery, it was decided to operate on him at once.

Operation.—Under chloroform anesthesia an incision was made enlarging the scalp wound, and the anterior branch and trunk of the middle meningeal artery, left side, were exposed by trephining. On removing the button of bone, a blood clot immediately bulged into the wound. This was cleaned out gently, and there at once occurred profuse bleeding from the anterior branch of the artery, which was controlled with considerable difficulty. It was necessary to open the dura, pass a grooved director into the opening and ligate the artery by means of a small, curved needle and fine catgut. The trephine opening was extended by means of a rongeur forceps to the posterior branch of the artery, where there was also considerable bleeding. A large amount of blood-clot was removed. The dura had been found intact, and was compressed inward, with the cerebral cortex, for about two inches. When the dura was opened the cerebrospinal fluid was found to be clear. The cerebral cortex presented no macroscopic evidence of injury beyond compression. There was no evidence of subdural hemorrhage. The dura was closed with fine catgut sutures. The clot covered the dura over the entire motor area of the cerebral cortex of the left side. The wound was irrigated with hot physiologic salt solution until all of the clot had been removed. Soon the brain began to expand, and gradually assumed its normal condition again. The patient's respiration and pulse improved greatly as soon as the blood-clot was removed. As the patient had lost considerable blood, a liter of physiologic salt solution was given at this time intravenously which greatly improved the pulse. The line of fracture was found to extend downward to the base of the middle fossa of the skull. The wound was closed with silkworm gut sutures. Several strands of silkworm gut was the only drainage employed. Only enough chloroform to keep the patient barely under was given, and this was stopped as soon as possible. While the wound was being sutured the patient began to regain consciousness, and moved the arm and leg which had been previously paralyzed.

Postoperative History.—About midnight of the same day the patient regained complete consciousness and spoke for the first time since the injury. He had complete use of his paralyzed side, although the muscles were slightly weaker for about five days than those of the sound side. The patient made an uneventful recovery. Wound healed completely and he was discharged from the hospital seventeen days from the time he was injured. The photographs were taken the day of discharge from hospital. I told him not to go back to work for about one month, and was surprised to find him engaged at his trade of bricklaying on one of the buildings about one week after his discharge from hospital. I heard from him about five months after the injury and he had had no further trouble.

This case is of special interest on account of the actual hemiplegia which occurred. To show that this is not a frequent occurrence I quote from "Surgery of the Head," by Dr. Cushing, in Keen's "System of Surgery:"

Instances of actual hemiplegia from an extradural hemorrhage have also been recorded, but they must be rare, since the centers for the lower extremity lie so far away from the part at which an extravasation of this sort is likely to arise, that a clot large enough to implicate the upper ridge of the hemisphere would in all probability either lead to such deep coma that symptoms of hemiplegia could not be appreciated, or else would cause death before they were appreciated.

Kinds of Nystagmus.—Each canal produces a nystagmus in its own plane and to its own side. As there are three canals, there are three kinds of nystagmus, or nystagmus in three different planes, horizontal, superior and posterior.—J. S. DeMuth, in *Journal of Ophthalmology and Oto-Laryngology*.

THE ETIOLOGY OF ACTINOMYCOSIS

THE PRESENCE OF ACTINOMYCETES IN THE CONTENTS OF
CARIOUS TEETH AND THE TONSILLAR CRYPTS OF
PATIENTS WITHOUT ACTINOMYCOSIS*

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As I have noted in a previous publication on the etiology of actinomycosis,¹ the failure of true actinomyces to grow at other than body temperature, the lack of any convincing evidence that actinomycosis is a contagious disease and the prevailing location of the affection about the jaws and neck suggest that infection arises from within the individual and probably from the mouth.

As a result of the investigation of material from the teeth, it was shown that organisms having the morphology and staining reaction of actinomyces could be constantly demonstrated in smear preparations (eleven cases) and in serial sections (five cases) of the contents of carious teeth in patients without actinomycosis. They

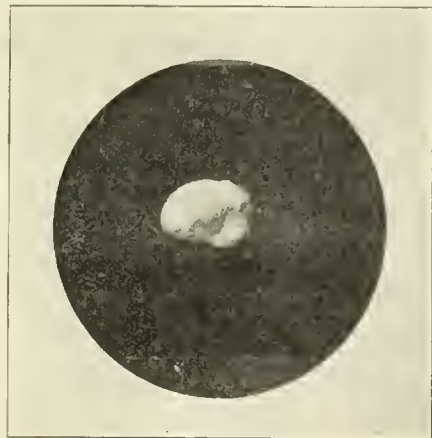


Fig. 1.—Case 9. Actinomycosis of the omentum in a guinea-pig, fifteen days after intraperitoneal inoculation with material from tonsillar crypts. Nodular tumor attached to the stomach (actual size).

are so abundant as to suggest that they play a fundamental part in dental caries. The intraperitoneal inoculation of guinea-pigs with material from carious teeth gave rise to omental tumors histologically identical with actinomycotic tissue and containing typical club-bearing actinomyces granules in three (60 per cent.) of five animals.

Following the demonstration of actinomyces in the contents of carious teeth, material from tonsillar crypts was investigated.

I. INVESTIGATION OF THE CONTENTS OF TONSILLAR CRYPTS

1. *Method.*—No patients with the lesions of actinomycosis were studied. The investigated material consisted of yellowish, hard or soft masses extracted by means of the platinum loop from the tonsillar crypts of seven

patients. The masses were placed in sterile test-tubes and sent to the laboratory. In addition, material expressed from the crypts of enlarged tonsils, removed by operation, was examined in six cases. These tonsils showed no other lesion than hypertrophy. All instruments used in the manipulations were previously sterilized. The method of animal inoculation, of imbedding and staining the fresh specimens and the tissue obtained from the inoculated animals was the same as in the investigation of the contents of carious teeth.

2. *Serial Sections of the Fresh Material.*—Serial sections of a part of the hard or soft, yellowish masses from the crypts of the tonsils were made in four cases (Cases 6, 8, 10 and M. L.²). Filaments resembling actinomyces in morphology and staining reaction and similar to those in the contents of carious teeth were present in large numbers in all. They appear as an interlacing network or as colonies composed of a dense mass of organisms with radiating peripheral filaments. Club-formation was not observed. The filaments are much mixed with other bacteria. In consideration of the tendency of actinomyces to produce wide-spread connective tissue formation in the typical lesions of the dis-

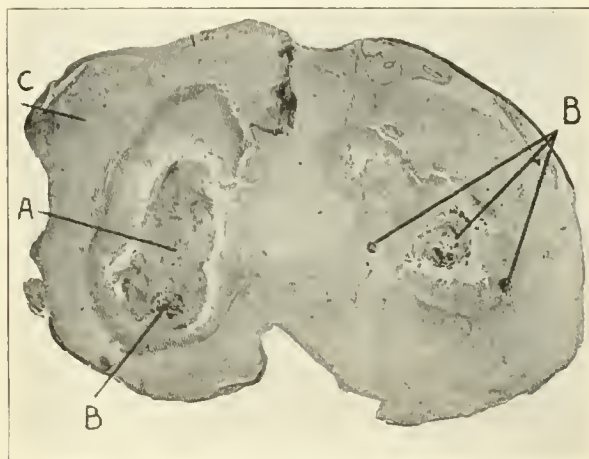


Fig. 2.—Case 9. Section through two fused nodules showing abscess formation; (A) necrotic pus cells, actinomyces filaments and bacteria; (B) actinomyces granules without "clubs;" (C) connective tissue. In other parts of the tumor (not shown in the photograph) typical club-bearing actinomyces colonies are found. (× 7 app.).

ease, it is suggested that their toxin production is a cause of hypertrophy of the tonsils.

3. *Animal Inoculation.*—Guinea-pigs were inoculated intraperitoneally with material from thirteen cases. Three animals died of general peritonitis within twenty-four hours and are excluded, thus leaving ten cases for further consideration.

Negative Cases: Of these ten animals, post-mortem examination of three (Cases 1, 2 and 3), twenty-one days after inoculation with fluid material expressed from the excised tonsils, showed only slight omental thickening in places and serial sections were negative. A fourth animal (Case 4) inoculated with yellowish, soft material extracted from the tonsil by means of the platinum loop, showed numerous adhesions and three small nodules, one of which contained a small amount of pus. Serial sections were negative.

*This investigation was undertaken under a grant from the Proctor Fund of the Harvard Medical School.

1. Lord, F. T.: A Contribution to the Etiology of Actinomycosis: Experimental Production of Actinomycosis in Guinea-Pigs Inoculated with the Contents of Carious Teeth, Boston Med. and Surg. Jour., July 21, 1910.

2. M. L., aged 25, female. Diagnosis enlarged tonsils and chronic arthritis. Tonsils received July 28. Guinea-pig inoculated with expressed material died within twenty-four hours of general peritonitis.

Positive Cases: The six remaining animals, including one (Case 5) inoculated with fluid material expressed from the excised tonsils and five (Cases 6, 7, 8, 9 and 10) receiving injections of more solid material extracted from the crypts by means of the platinum loop, were killed within from thirteen to forty-five days after inoculation. Post-mortem examination of these animals showed from one to three grayish-white or reddish omental tumors varying in greatest diameter from 1 mm. to 1 and 0.5 cm. Serial sections of one or more of the tumors showed from one to six colonies of branching filamentous Gram-staining organisms, surrounded by a zone of pus cells of variable width, beyond which there was connective tissue in different stages of development. Radially disposed, peripheral, club-bearing filaments were demonstrated about some of the colonies in all the positive cases. In their histologic appearance, the tumors are identical with actinomycotic tissue and with the experimental lesions similarly obtained with the contents of carious teeth. The colonies of branching, filamentous organisms are typical actinomyces granules. Bacteria and foreign bodies were also found in the lesions. Moderate enlargement of the intra-abdominal

a small nodule adherent to pylorus. Serial sections of adhesions and nodules show no colonies of actinomyces.

GROUP II: POSITIVE CASES

A. Animal inoculated with fluid material expressed from crypts of excised tonsils.

CASE 5.—L.H.S., male, aged 27. Hosp. No. 154522. Diagnosis, enlarged tonsils. Guinea-pig inoculated July 28. Killed after fourteen days. Omentum shows three reddish nodules one 3 x 2 mm., the others somewhat smaller. Serial sections show one colony of actinomyces in each nodule. "Clubs" are found about one of the three colonies.

B. Animals inoculated with yellowish, hard or soft material extracted from the tonsillar crypts by means of platinum loop.

CASE 6.—Dr. T., male, aged 25. Office patient. Diagnosis, functional cardiac murmur. Small amount of yellowish, hard material obtained from tonsillar crypts. Tonsils slightly enlarged. Guinea-pig inoculated July 21. Killed after eighteen days. Omentum shows a nodule 2 by 1 mm., containing one colony of actinomyces and two smaller nodules containing foreign bodies. Swollen and at times bulbous filaments project in a radiate manner from the colony. A few club-bearing filaments are found.

CASE 7.—C.J.T., male, aged 24. Hosp. No. 154675. Diagnosis, acute tonsillitis. Small, hard, yellowish mass extracted from one of the crypts of an enlarged right

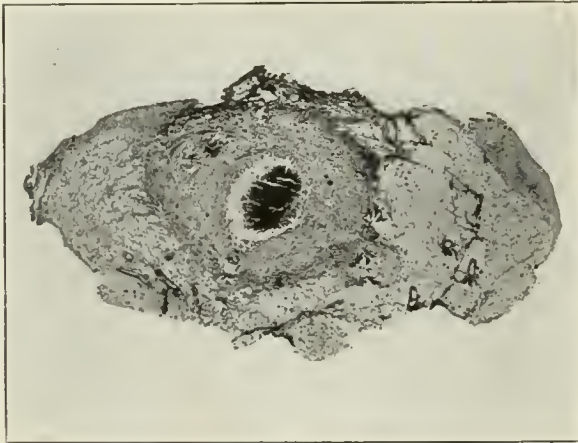


Fig. 3.—Case 7. Actinomycosis of the omentum in a guinea-pig, seventeen days after intraperitoneal inoculation with material from a tonsillar crypt. Colony of actinomyces surrounded by a narrow zone of connective tissue. ($\times 20$ app.).



Fig. 4.—Case 10. Actinomycosis of the omentum in a guinea-pig, fifteen days after inoculation with material from tonsillar crypts. Only one colony of actinomyces is deeply stained. Colonies in dense connective tissue. ($\times 15$ app.).

glands was frequently noted, but serial sections of these glands failed to show actinomyces.

A brief account of the inoculation experiments in the ten cases is as follows:

GROUP I: NEGATIVE CASES

A. Animals inoculated with fluid material expressed from the crypts of excised tonsils. Killed after twenty-one days. Omentum showed only slight localized thickening. Serial sections showed connective tissue about foreign bodies, but no actinomyces.

CASE 1.—F.M.R., female, aged 12. Hosp. No. 152875. Diagnosis, enlarged tonsils and adenoids.

CASE 2.—V.S.W., female, aged 12. Hosp. No. 11698. Diagnosis, enlarged tonsils.

CASE 3.—R.S., female, aged 12. Hosp. No. 48016. Diagnosis, enlarged tonsils.

B. Animal inoculated with yellowish soft material extracted from two crypts of a slightly enlarged tonsil by means of platinum loop.

CASE 4.—M.T.C., female, aged 35. Hosp. No. 154861. Diagnosis, pelvic adhesions. Guinea-pig inoculated August 1. Died after 13 days with symptoms of arthritis. Autopsy showed adhesions of omentum to liver and intestines. Omentum contains three nodules, the largest 3 mm. in greatest diameter. A small amount of pus expressed from

tonsil. Guinea-pig inoculated July 30. Killed after seventeen days. Omentum shows a nodule 1 and 0.5 mm. in greatest diameter, containing a colony of actinomyces and a foreign body (Fig. 3). The width of the colony at the center of the nodule is more than half the width of the nodule. Club-formation is well marked.

CASE 8.—A.S., male, aged 18. Hosp. No. 152742. Diagnosis, enlarged tonsils. Two yellowish masses, one 3 mm. in diameter, hard and gritty, the other 1 mm. in diameter and soft, extracted from the crypts. Two guinea-pigs inoculated August 2. One animal killed after thirteen days. On the anterior wall of the stomach, a hard, grayish, elongated tumor, 1 and 0.5 cm. in greatest diameter and somewhat constricted toward one end. It is composed of two fused nodules. Omentum adherent to liver by a band of fibrous tissue, between which and the liver is a white nodule 3 mm. in greatest diameter. Sections of the larger mass show six colonies of actinomyces in the larger and two in the smaller nodule. Club-formation is well marked about all the colonies. The second animal was killed after forty-five days. Similar omental tumors containing club-bearing colonies (Fig. 5) were found.

CASE 9.—L.P.W., female, aged 13. Hosp. No. 151963. Diagnosis, enlarged tonsils and adenoids. Two yellowish masses about 1 mm. in diameter extracted from the ton

sillar crypts. Guinea-pig inoculated August 4. Killed after fifteen days. Adherent to the stomach along omental attachment is a hard, grayish-white, nodular tumor, 1 and 0.5 cm. long, 12 mm. wide and 8 mm. high (Fig. 1). Omentum adherent to left kidney between which and spleen is an oval, grayish nodule 5 mm. in greatest diameter. Sections of the larger of the two masses show abscess formation occupying about a half of the diameter of the fused nodules composing the mass. The abscesses are surrounded by connective tissue (Fig. 2). They contain pus cells, actinomyces filaments and bacteria in varying proportion in different parts of the sections. In regions where the bacteria are most abundant, there are necrotic pus cells and numerous isolated and clustered actinomyces filaments with radiating peripheral filaments without "clubs." In parts of the tissue (not shown in the photograph) where bacteria are relatively few in number, typical club-bearing colonies of actinomyces are found. These colonies are surrounded by a narrow zone of well-preserved pus cells beyond which is fibrous tissue. The appearance suggests that the great abundance of bacteria in the larger abscesses has prevented the formation of typical actinomyces granules.³

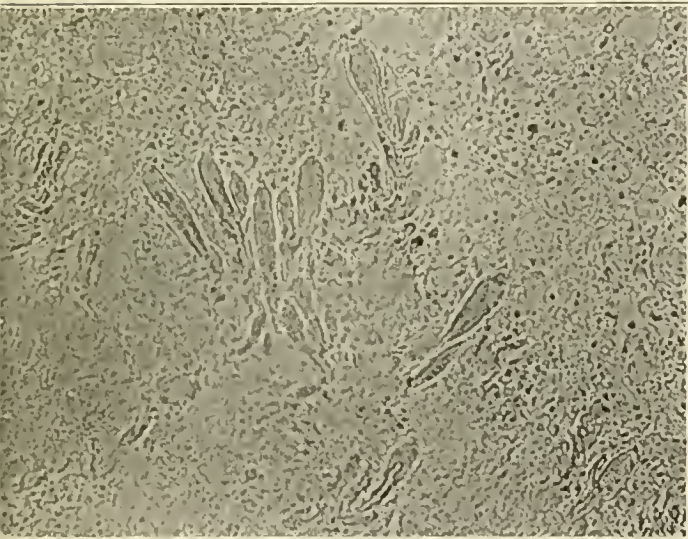


Fig. 5.—Case 8. Actinomycosis of the omentum in a guinea-pig forty-five days after intraperitoneal inoculation with material from tonsillar crypts. Margin of a colony of actinomyces showing "clubs," some with central filaments and with branches. Fresh specimen. (× 750.)

CASE 10.—A.H., female, aged 7. Hosp. No. 67593. Diagnosis, enlarged tonsils and adenoids. One foul, yellowish mass about 3 mm. in diameter and several smaller masses, extracted from the tonsillar crypts. Guinea-pig inoculated August 4. Killed after fifteen days. In a mass of adhesions, between stomach, liver and several loops of intestine is a grayish-yellow nodule of an oval shape and 8 mm. in greatest diameter. Sections show five colonies of actinomyces (Fig. 4). Only one colony is deeply stained in this section. Club-formation is well marked.

II. SUMMARY

From the investigation of the teeth and the tonsils, it may be stated that organisms having the morphology and staining reaction of actinomyces have been constantly found in smears (eleven cases) and serial sections (five cases) from the contents of carious teeth and in serial sections (four cases) of yellowish, hard or soft material

3. A similar admixture of bacteria and organisms resembling actinomyces, with the formation of multiple abscesses was observed in an animal inoculated with the contents of carious teeth. No typical club-bearing actinomyces granules were found.

from the tonsillar crypts of patients without actinomycosis.

Following the intraperitoneal inoculation of guinea-pigs with the contents of carious teeth (five cases) and the tonsillar crypts (ten cases) omental tumors histologically identical with actinomycotic tissue and containing typical club-bearing actinomyces granules have been produced in 60 per cent. of the inoculations in both instances.

III. BEARING OF THE FINDINGS ON THE ETIOLOGY OF ACTINOMYCOSIS

The constancy with which actinomyces can be demonstrated in the contents of carious teeth and the crypts of the tonsil in patients without actinomycosis indicates the buccal cavity as a source of the disease. Imperfect drainage of a carious tooth, whether arising spontaneously or as the result of filling an incompletely sterilized tooth, may be regarded as favorable to the production of the disease about the jaws or neck, the root canal of the tooth being the channel of infection. Organisms derived from the teeth or the tonsil may also be implanted in neighboring tissues or find lodgment in more remote parts of the body by way of the respiratory tract or the alimentary canal. Actinomyces have been known to penetrate the lymphatic system only in very rare instances and extension from the tonsil by way of the lymph channels is improbable.

In explanation of the infrequency of the disease compared with the numberless chances for infection, it may be noted that in five negative inoculation experiments with the contents of carious teeth,⁴ organisms resembling actinomyces were present in smears from the extracted material and it may be assumed that actinomyces were also present in the injected material, but failed to multiply in the body of the animal. Here, as in other infections, the varying numbers and vitality of the seed and fertility of the soil doubtless determine the result in large measure.

Another factor of probable importance is the number and virulence of the organisms occurring as a mixed infection with actinomyces. As suggested by the findings in one inoculated animal (Case 9) the infrequency of actinomycosis of the jaw compared with simple alveolar abscess may be due to rapid multiplication of pyogenic organisms at the site of infection, thus preventing actinomyces from taking root in the tissue and developing typical club-bearing colonies.

This investigation was carried out in the Clinico-Pathological Laboratory of the Massachusetts General Hospital. I am indebted to Dr. J. H. Wright for his encouraging interest and to Drs. J. L. Goodale, D. C. Green and W. F. Knowles, of the Throat Department, for their kindness in placing material at my disposal. The photographs were made by Mr. L. S. Brown.

305 Beacon Street.

Paget's Disease of the Nipple.—E. Jonas (*Interstate Medical Journal*) states that, according to recent investigations, Paget's disease of the nipple is cancerous from the very first, rapidly involving the skin and the breast itself. This disease demands the same prompt attention and radical surgical interference as is accorded all other cancers of the breast. There is a striking parallelism, he declares, between Paget's disease of the nipple and leukoplakia in cancer of the tongue; and also an analogy with cancers of the scrotum and penis, occurring in certain working classes.

4. Two previously reported and three of four additional cases.

COMPLEMENT FIXATION WITH AN ANTI-
GENIC CRYSTAL OBTAINED FROM
LUETIC LIVER*

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Since the observation by Wassermann, Neisser, and Bruck¹ of the value of the complement fixation test in lues, the exact nature of the antigenic substance or substances contained in extracts from luetic and normal tissues has received a great deal of attention, and the re-

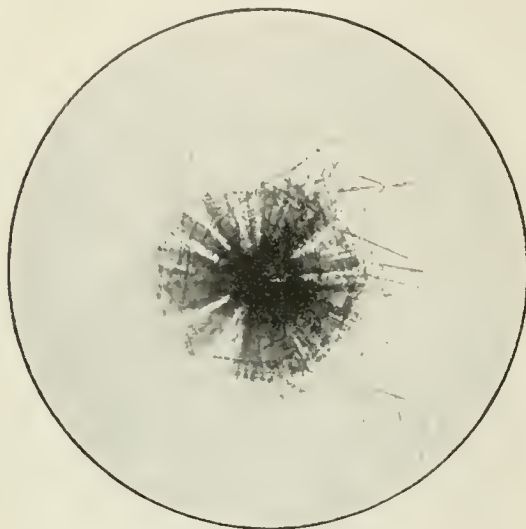


Fig. 1.—Antigenic crystals $\times 372$.



Fig. 2.—Antigenic crystals $\times 750$.

sults appear to show that more than one substance, capable of acting as an antigen, is contained in these extracts. It is the purpose of this contribution to describe briefly a crystal obtained from an alcoholic extract of luetic liver which acts as a very efficient antigen when dissolved in alcohol, and which has not, to my knowledge, been

heretofore obtained from such extracts. I regret to state that at the present writing the exact chemical nature of this crystal has not been ascertained, the most that can be said concerning it being that it may belong to the group of crystals which may be obtained from the bile salts.

It is probable that in an alcoholic extract of luetic liver, containing, as it does, a mixture of numerous organic and inorganic substances, there occur chemical bodies which may react one on another, giving rise to modifications resulting in the production of antigenic substances not demonstrable in the fluid until these reactions have occurred. It would appear that the crystal under discussion originates in this manner, as it does not occur in the fresh extract, but only after the extract has been kept for several weeks.

It has been proved that several substances may be separated from animal tissue which, when used alone, may act as antigens. Landsteiner, Müller, and Potzl², as well as Porges and Meier³, found that lecithin acts as an antigen and Noguchi⁴ has confirmed their results, but

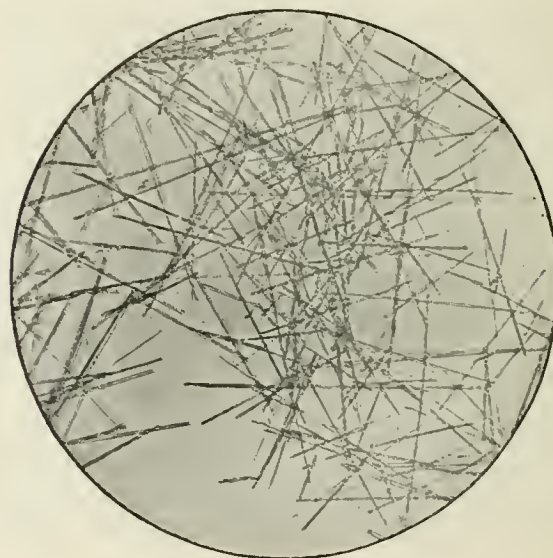


Fig. 3.—Antigenic crystals $\times 1560$.

lecithin alone is unsatisfactory in practice, on account of its variability in this respect. Noguchi states that while lipoids are undoubtedly active agents in complement fixation it has not been ascertained just which lipoids are concerned, but his acetone-insoluble lipid antigen is an excellent illustration of the fact that these substances, at least, are capable of acting as most efficient antigens. Cholesterin has been claimed by Fleischmann⁵ to be antigenic, but Noguchi only obtained negative results with this substance. However, the recent work of Browning, Cruickshank, and McKenzie⁶ has shown that when cholesterin is added to an alcoholic solution of lecithin to the point of saturation, the complement-binding power of the solution is greatly augmented, and an antigen is obtained which they say "is a very efficient substitute for the crude organ extract in the Wassermann test, and is probably superior to the crude extract."

2. Landsteiner, Müller and Potzl: *Wien klin. Wchnschr.*, 1907, xx, 1421; *ibid.*, 1565.

3. Porges and Meier: *Berl. klin. Wchnschr.*, 1908, xiv, 731.

4. Noguchi: *Jour. Exper. Med.*, 1909, xi, 84.

5. Fleischmann: *Berl. klin. Wchnschr.*, 1908, p. 490.

6. Browning, Cruickshank and McKenzie: *Jour. Path. and Bact.*, 1910, xiv, 484.

* From the Laboratory of the Surgeon-General's Office, Washington, D. C.

1. Wassermann, Neisser and Bruck: *Deutsch. med. Wchnschr.*, 1906, xxxi, 745.

The artificial antigen of Sachs and Rondoni⁷, composed of an alcoholic solution of lecithin, oleate of soda, and oleic acid, has received both favorable and unfavorable comment, and is not generally accepted as being as reliable as the crude extract. Of the soaps, oleate of soda has been used as an antigen by Sachs and Altmann⁸, while the salts of the bile acids, sodium taurocholate and sodium glycocholate were proven to be antigenic by Levaditi and Yamanouchi⁹, their work being confirmed by Noguchi⁴, who also found that sodium cholate acts as an antigen.

I have found that sodium taurocholate is absolutely useless in practice, for, while possessing antigenic properties, it is very weak in this respect, and different samples vary exceedingly. My observations confirm those of Noguchi, who found that the bile salts were greatly inferior to the lipoids as antigens.

The antigenic crystal described in this paper is as efficient, when absolute alcohol is saturated with it, as is the crude extract from which it was obtained, but while this is so, I do not consider that this crystal is the only antigenic substance present in the crude extract, or even that it is necessarily the most important in this respect, for to admit this would be to contradict the great antigenic value of other substances obtained from tissue extracts and which bear no resemblance to it in morphology or chemistry.

The important fact determined by observations on the antigenic value of this crystal is that it is practically as efficient, in antigenic strength, as the whole extract, and that a saturated alcoholic solution of these crystals may be substituted for the crude extract with identical results, so far as clinical diagnosis is concerned.

METHOD OF OBTAINING THE CRYSTALS

The crystals under discussion were obtained from an extract of luetic liver made in December, 1909. The liver was macerated in 10 volumes of absolute alcohol for 10 days, the mixture being kept in the incubator at 37° C. and shaken several times a day during that period. The resulting mixture was then filtered and the filtrate at once evaporated to one-third its volume by means of an electric fan, at room temperature. When titrated it was found that 1 drop from a capillary pipette was sufficient to cause total inhibition of 1 c.c. of a 1 per cent. suspension of human corpuscles in the presence of luetic serum (Noguchi's modification of the Wassermann test being used) so that this extract may be said to have been strong in antigenic substances.

A portion of the extract was allowed to remain undisturbed in the ice-box until early in April (about four months) when it was observed that a snow-white precipitate had formed. On microscopic examination this was found to consist of long, needle-like crystals, small coarsely granular masses, and prismatic crystals. On filtering and adding the precipitate to a sufficient amount of absolute alcohol, the granular matter and the prismatic crystals dissolved, leaving the needle-like crystals apparently intact. In order to obtain these crystals in as pure a condition as possible, they were washed from eight to ten times in absolute alcohol and preserved in a small amount of the latter.

CHARACTERISTICS OF THE CRYSTALS

The crystals are long, needle-shaped bodies, having a fractured extremity, and are well illustrated in the photomicrographs (Figures 1, 2 and 3). They are colorless when viewed singly, but *en masse* form a snow-white collection at the bottom of the container. When shaken in alcohol the resulting mixture has a peculiar silky appearance due to the multitude of very delicate crystals suspended in the fluid. The exact chemical nature of the crystals has not been definitely ascertained. They give a positive Pettenkofer's reaction, thus indicating that they belong to the bile salts. I have compared them with taurocholic and glycocholic acids, and sodium taurocholate and glycocholate and find that they differ markedly in appearance and in solubility. While, from the method of preparation, it cannot be proved that the crystals are chemically pure, the great differences that show in solubility and the fact that they are so strongly inhibitory would appear to prove that they are not identical with any of the substances so far investigated. In appearance, they resemble glycocholic acid most closely and because of this I have compared them very carefully with this substance, with the following results:

The sample of glycocholic acid was prepared by Kaulbaum, and was found to be very soluble in absolute alcohol and acetic acid, soluble with difficulty in cold water (300 parts); soluble in acetone and slightly soluble in ether. The antigenic crystal is very slightly soluble in absolute alcohol and very soluble in acetic acid, exceedingly soluble in cold water; insoluble in acetone and ether. The saturated solution of glycocholic acid in absolute alcohol is yellow in color, while the solution of the antigenic crystal in this fluid is colorless. The melting point of glycocholic acid lies between 138 and 140 degrees C.; that of the antigenic crystal is 235 degrees C.

It will be observed that the antigenic crystal differs greatly from glycocholic acid in solubility in different reagents and the melting point, and in addition I have determined that glycocholic acid cannot act as an antigen. If placed under the same conditions as the antigenic crystal, *i. e.* in saturated alcoholic solution, one drop, when added to 1 c.c. of a 1 per cent. suspension of human corpuscles, will cause total hemolysis in a few moments without the addition of complement, while larger doses cause a dirty-gray precipitate. If diluted, in any strength, the acid is unable to cause inhibition, dilutions from 1 to 50 up to 1 to 1,000,000 having been tested. It is therefore my opinion that these crystals are not glycocholic acid or any of the bile salts which have been mentioned.

The very small amount of these crystals which is soluble in absolute alcohol is remarkable, a very minute quantity of the crystals being sufficient to make a large amount of efficient antigen. That the crystals are very slowly soluble is proved by the following observations: A small quantity of the crystals was washed eight times in absolute alcohol, the alcohol being saved after each washing. The washing was done with a centrifuge and it was found, by titration with a known positive luetic serum, that each washing was weakly antigenic. After the last washing the crystals were allowed to remain in a test tube, with a quantity of absolute alcohol, for 24 hours, in the ice-box; the alcohol was then titrated and found to be much greater in antigenic power than the alcohol used in washing. Another titration at the end of 72 hours proved that after this period the alcohol possessed twice the antigenic power that it did at the end

7. Sachs and Rondoni: Ztschr. f. Immunitätsforsch., 1909, 4, 132.

8. Sachs and Altmann: Berl. klin. Wehnschr., 1908, xiv, 494; *Ibid.*, 1908, xiv, 699.

9. Levaditi and Yamanouchi: Compt. rend. Soc. de Biol., 1907, lxiii, 740.

of 24 hours, and that it was as efficient as the crude extract in this respect. No increase in antigenic value was noted after 72 hours.

Owing to the slight solubility of these crystals and the fact that even the small quantity that is dissolved is sufficient to cause absolute inhibition of hemolysis in the presence of luetic serum, it is possible with a small quantity of the crystals to prepare a large amount of antigenic solution. From the very small amount of crystals originally obtained from the crude extract, an amount which was not weighed, but was certainly not over a few centigrams, I have already prepared over a liter of antigen as strong in antigenic properties as the whole extract, and have enough remaining to prepare almost as much more. The original amount of crude extract was 250 c.c.

I mention this in order to show how little of the material is soluble in absolute alcohol, yet is efficient as an antigen. As soon as the alcohol is saturated it possesses practically the same antigenic strength as the whole extract, and in the same amount does not possess either hemolytic or inhibitory properties when used with normal serum. If added in too large an amount it will inhibit hemolysis, as will almost every antigenic substance if used in too large a dose, and if the crystals be added directly to a blood suspension they produce hemolysis. They are very soluble in salt solution and if dissolved in this medium in large amount they produce hemolysis, so that they should not be used in this manner. The amount soluble in absolute alcohol is never sufficient to produce hemolysis and, for practical use, the crystals have to be used in alcoholic solution.

COMPLEMENT FIXATION

The method used in testing the antigenic properties of the crystals has been the same as is used in making the Wassermann test in this laboratory, *i. e.*, Noguchi's modification; and it has been my practice since May, 1910, to run parallel tests of each serum, so far as possible, using the whole alcoholic extract as antigen in one set, and the saturated alcoholic solution of the crystal in the other. It will be understood, then, that the methods of titration, and of performing the tests, are those recommended by Noguchi, and that identical conditions were present in both sets of tests with the exception of the antigenic solution.

The first titration of the original whole extract and of the saturated alcoholic solution of the antigenic crystal resulted in showing that both were practically the same in antigenic strength, the crystal antigen being slightly the weaker of the two, requiring 0.025 c.c. instead of 0.02 c.c. to produce inhibition under similar conditions. The titration was made in May and since then both the crude extract and the crystal antigen have grown gradually weaker, at present 0.06 c.c. of the extract being required to produce inhibition and 0.08 c.c. of the alcoholic solution of the crystal. From this it is evident that neither the crude extract or the crystal antigen are permanent, so that it is necessary to titrate both at intervals. Since May, I have made comparative tests of 160 different sera with both antigens and in every case the results have been practically the same. The sera examined were from patients suffering from primary, secondary, tertiary, and latent lues and from other diseases, and in no instance was a positive reaction given by the whole extract and a negative by the crystal, or *vice versa*. From a clinical standpoint the results may be

said to have been identical, but it was noticed in a few cases that the whole extract gave slightly more marked inhibition than the crystal antigen, while in a few others the crystal antigen gave a stronger reaction. These slight differences caused no confusion in reading the tests, but are interesting because they indicate that substances are present in the whole extract which caused differences in the reaction obtained. The variations were not confined to any one stage of lues or to any particular class of cases, as is illustrated in the following table giving the results in 15 cases, in 10 of which these slight differences in the strength of the reaction were detected. The signs +++ and +— are used to indicate the differences in the reactions, but they should not be interpreted to indicate such great differences as are usually meant by them when used to illustrate the varying degrees of inhibition in the Wassermann test, as in all of the positive cases inhibition was practically complete and the tests were undoubtedly positive with both antigens:

Case.	Diagnosis.	Whole Extract.	Crystal Antigen.
1.	Primary lues.....	+++	++
2.	Primary lues.....	+++	++
3.	Primary lues.....	++	+—
4.	Secondary lues.....	++	+
5.	Secondary lues.....	+++	+++
6.	Secondary lues.....	+++	+—
7.	Secondary lues.....	+	++
8.	Tertiary lues.....	+++	+++
9.	Tertiary lues.....	+—	++
10.	Tertiary lues.....	++	+++
11.	Tertiary lues.....	+	++
12.	Latent lues.....	+	+++
13.	Latent lues.....	+++	+
14.	Latent lues.....	+++	+
15.	Latent lues.....	+	+

It will be observed that in some cases the crystal antigen gave a stronger reaction than the whole extract, while in other instances the opposite is true. In the majority of the sera tested, however, the results were identical, and in none was there any disagreement as to a positive or negative result. The explanation of the slight differences noted is difficult, but they apparently depend on differences in the sera tested, some body or bodies being present having slight inhibitory power over the antigenic action of one or the other antigen. I believe that the whole extract gave slightly better results in the majority of cases, but the crystal antigen gave results which were as dependable as those given by the whole extract and as clinically useful.

The practically identical results obtained with the whole extract and the antigenic crystal, the practically identical titration of both, and the gradual loss in antigenic strength in both as determined by titration would apparently prove that the crystal represents the only active antigenic substance present in the crude extract, but such an opinion is hardly justifiable, for other substances are present in alcoholic extracts of luetic liver which have antigenic properties and which do not appear to be identical with these crystals. I have been unable to obtain the crystals in one lot of acetone-insoluble lipoid antigen, prepared according to Noguchi, and no work has yet been done to determine whether they occur in alcoholic extracts of normal tissues which have been found to have antigenic properties. The crystals are not obtained in every alcoholic extract of luetic liver, for in one such extract, made in the manner described, and now seven months old, the crystals have not appeared. It is interesting to note that this particular extract is very weak in antigenic property, and that it is rapidly losing strength. Of course it is possible that in the original extract from which the crystals were obtained, some con-

dition not usually found was present, or that some particular step in the preparation favored the formation of the crystals, but I believe that further research will demonstrate that they are present in the majority of alcoholic extracts of luetic liver prepared in the manner mentioned. If these crystals can be obtained in most alcoholic extracts of luetic liver, or other tissues, as easily as they were in the extract here described, it will greatly simplify the preparation of antigenic solutions, as so small a quantity of the crystal is needed to make a large amount of efficient solution. It may be found possible, also, to keep the crystals in a dry state, and thus enable us to make up small amounts of antigenic solution as needed.

Until the exact nature of these crystals is determined it is idle to speculate on the relation which these observations bear to the present theories regarding the mechanism of complement fixation in lues, but they would appear to indicate that the purely chemical nature of the process should be more fully investigated, and that the preparation of a reliable artificial antigen may be hoped for in the future.

The most important result of these observations is the isolation of an apparently pure crystalline substance from an alcoholic extract of luetic liver which possesses practically the same antigenic strength as the original whole extract and which can be used with practically identical results in the complement fixation test for lues.

I desire to express my thanks to Dr. Noguchi for helpful suggestions, and to Prof. Frank P. Underhill, of Yale University, for valuable aid in the investigation of the nature of the crystal. Owing to the small amount of material I was able to furnish for this purpose a definite conclusion could not be reached regarding this question.

THE PATHOLOGY AND PROGNOSIS OF INTERNAL EAR COMPLICATIONS RESULT- ING FROM INFLAMMATORY MIDDLE- EAR DISEASES*

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In 1907 a paper appeared by Dr. C. J. Blake of Boston under the above heading, as a part of a symposium on suppuration of the labyrinth. Our knowledge of the pathology of suppuration of the labyrinth has been increased since then by a number of valuable contributions, but, as in 1907, the volume of the literature on the clinical part of the subject is out of all proportion more extensive than on the pathologic. This is explained by the great technical and scientific difficulties of pathologic investigation of the labyrinth. The large amount of clinical literature, based on this comparatively small foundation of pathology, creates the impression that the whole structure of our teachings of suppuration of the labyrinth is somewhat top-heavy, and the inevitable consequence will be that our views on some of our clinical teachings, as for example concerning the indications for operation, will probably, sooner or later, have to be modified.

In sketching the pathology and the prognosis of internal ear complications, resulting from inflammatory

middle-ear diseases, I shall try to give a general survey of the status of the subject, only indicating some of the open questions rather than attempting to answer many of the questions, which, to a great extent, can be done correctly only by future careful and patient observation of the living and of the post-mortem material.

Bacteriology will be of little use, as even the differentiation of tuberculous labyrinthitis (which differs in many respects from all other forms of labyrinthitis) is made from pathologic and not from bacteriologic criteria.

Statistics also are admissible only conditionally, since Goerke, for example, puts acute suppurations of the labyrinth and acute exacerbations of chronic suppurations in the same category, drawing therefrom the conclusion that suppurations of the labyrinth in acute suppurations of the middle ear are nearly as frequent as those in chronic suppurations. There is another question which must be decided before we can make use of statistics. If a labyrinth sequestrum is found twenty years after a patient had scarlet fever, during which time the ear had suppurated, this certainly would seem to be a chronic suppuration of the middle ear and labyrinth. But the real course of the disease was probably as follows: The patient was very sick after the scarlet fever, had little power of resistance, and acute scarlet otitis set in which invaded the labyrinth. Thrombosis of one of the large arteries destroyed a part of the labyrinth, so that the so-called chronic suppuration was simply caused by the process of demarcation of the sequestrum, and finally by the sequestrum itself, which induced suppuration, acting as a foreign body. Clinically as well as pathologically such a case is an acute panofitis and cannot be put on a parallel with cases of cholesteatoma, in which one part of the labyrinth is destroyed while the other still shows function. Our position in this matter is not strengthened by the assertion made by some careful and experienced observers, namely, that they never saw a sequester develop in a case that was treated properly from the beginning. It is evident that at present it is too early to give statistics, and only as an apology do I repeat the well-known statement that, according to Hinsberg, there is one suppuration of the labyrinth to every one hundred acute and chronic suppurations of the middle ear.

The best division of my subject, having also clinical value, is the following:

- I. Serous labyrinthitis.
- II. Labyrinthitis in connection with acute otitis media, including scarlet fever, diphtheria and otitis, leading to formation of sequestrum.
- III. Chronic labyrinthitis in consequence of cholesteatoma.
 - A. Circumscribed labyrinthitis.
 - B. General labyrinthitis, earies, necrosis.
- IV. Tuberculous labyrinthitis.

I shall try to give a short description of each of these different forms.

I. SEROUS LABYRINTHITIS

Serous labyrinthitis was first described by Professor Siebenmann and his assistant Dr. Nager in connection with cholesteatoma and tuberculosis of the middle ear. Some of their original specimens from a patient who suffered from tuberculosis of the middle ear show no perforation into the labyrinth. Nevertheless, there are crescent-shaped, slightly opaque parts on the same side of each whorl of the cochlea. Their only explanation is this: In the preparation of the normal specimen the

* Read in the Section on Laryngology and Otology of the American Medical Association, at the Sixty-first Annual Session held at St. Louis, June, 1910.

labyrinthine fluid is lost, and the cavity of the cochlea is empty when seen under the microscope, but this transudation, being of an inflammatory nature, has coagulated. It was compared to the hypopyon in the eye, which is also a gathering of sterile seropus in a cavity close to an inflammatory focus, not in direct connection with the focus, but separated from it by some more or less healthy tissue, such as the cornea in one, and bone and membranous labyrinth in the other locality. Reissner's membrane, the sensory epithelia, Corti's organ, etc., are not very much changed, but they certainly have suffered somewhat.

This form of inflammation may heal by simple absorption of the fluid and consequently the hearing, which is lost during the inflammation, may be more or less completely restored; or it may become organized, and by formation of scars, in the course of time crush out the life of some of the important cell groups, which otherwise might, to some extent, have recovered. Siebmann attributes certain forms of deaf-mutism existing at birth to intra-uterine labyrinthitis of this form.

II. LABYRINTHITIS IN CONNECTION WITH ACUTE OTITIS MEDIA.

The labyrinthitis in connection with acute otitis media is usually the avenue by which the disease advances to a fatal meningitis in those fortunately not frequent cases in which death occurs a few days after the beginning of an acute otitis media. The port of entrance is usually the round or the oval window, or else, though rarely, some defect or dehiscence in the bony wall of the labyrinth. The infection at once invades the whole labyrinth, the cochlea as well as the vestibular apparatus. From the labyrinth the infection has two avenues to the meninges, one along the auditory nerve, the other through the aqueductus vestibuli and the endolymphatic duct. The possibility can certainly not be disputed that, in making a paracentesis, the stapes may be injured and the entrance of infection facilitated, or that instillations of peroxid may force infected material through the highly inflamed and, therefore, brittle membranes of the windows. A short sketch of the history of a case which first drew my attention to this possibility is the following:

A man, 35 years old, was seen at a hospital in an unconscious condition on a Monday evening in November, 1902. There was seropurulent discharge from the right ear, hard pulse and stiffness of the neck. His friend told me that he had developed earache the Friday evening previous. Saturday a paracentesis had been made and in the evening the patient went to bed on account of dizziness. Sunday severe headache and vomiting set in. Monday he became unconscious, and was brought to the hospital, where he died during the night. At the post-mortem examination the base of the brain showed pus along the blood-vessels. The pus was thickest in the locality of the right cerebellum, which corresponded to the place on the posterior surface of the pyramid, where in the reddish dura, the sacculus endolymphaticus was visible as a flabby yellow bag filled with pus. All spaces of the labyrinth contained pus; the crura of the stapes were severed from the foot-plate, surrounded with pus. The oval window was open.

The round window does not become a port of entrance of infection as frequently as does the oval window. Several authors attribute this to the more protected position of the round window. It is difficult to understand from what it is protected, unless it is from direct injury, since hydraulic pressure of the pus will act against the round window in the same way as it does against the oval win-

dow. The perforation of both windows takes place in some cases. Some authors assert that the swollen mucous membrane or granulations in the niches of the windows form a protection of the membranes of the windows; others assert the opposite, and show that a perforation occurred where the granulations caused a retention of the secretion.

Other ports of entrance, dehiscences and newly formed perforations, are much more rarely the cause of acute suppurations of the middle-ear spreading to the labyrinth. The location of the perforation is alone responsible for the course the disease takes. Cases are reported by Yoshii and Goerke of perforation from the Eustachian tube into the top of the cochlea. In these rare instances the suppuration remained confined to one coil.

The forms of otitis media after scarlet fever, diphtheria and measles, leading to labyrinthitis and finally to the formation of sequestrum, seem really to belong to this category, because the initial lesion is an acute otitis media, which, on account of the weak general condition of the patient, is followed by a slow and more or less general labyrinthitis. Lange and Goerke explain that "the cause for necrosis and the formation of a sequester of the whole labyrinth must be sought in the interior of the labyrinth." The demarcation and sometimes spontaneous elimination of a sequester of the labyrinth is usually a very slow process lasting for years, and during all this time it is associated with suppuration from the ear. But it is by no means a unique process, since the formation of large or smaller sequestrations in the mastoid process is not at all rare. The peculiarity of the process is the fact that encasement of new bone is not formed in the labyrinth and in the mastoid, as around sequestrations of, *e. g.*, the tibia.

III. CHOLESTEATOMA

Whenever during a suppuration there is a destruction of a large part of the lining of the middle ear, the defect can be remedied only by a scar and covered by epidermis; or when the tympanic membrane has become adherent to the inner-wall of the middle ear or aditus ad antrum, from long contact caused by being drawn inward, the result in both cases is a displacement of the normal lining of the middle ear by a cholesteatoma membrane. Underneath this membrane the bone becomes gradually absorbed. If this process takes place on the medial wall of the middle ear and antrum, it will lead to absorption of the capsule of the labyrinth. The result is a fistula of the labyrinth, which, however, is still covered by the cholesteatoma membrane. This membrane is often reduced to a simple layer of epidermis. It is important to remember that this process is often combined with suppuration in other parts of the middle ear, but it may also occur without even a trace of inflammation or suppuration or granulation being present. In the antrum and aditus it leads to a fistula of the horizontal or superior semicircular canal. The bone around it is ivory-like, white, and shows either a fine hole, a groove, or two separate holes, according to whether the semicircular canal is just opened or its wall has been partially or entirely worn away by the absorbing process. A protecting wall of granulations often, but by no means always, protects the remainder of the labyrinth. The result may be as follows:

1. Circumscribed labyrinthitis, which is usually confined to one or two semicircular canals. Other peripheral parts of the labyrinth are rarely affected. Herzog

stated that the first step in a circumscribed labyrinthitis is always a general serous labyrinthitis, and in this way he explains a number of symptoms, while others contradict him.

2. General labyrinthitis. A labyrinthitis is likely to remain local and circumscribed only if it concerns peripheral parts. Whenever the perforation takes place in the vestibulum the result is general labyrinthitis. This leads to destruction of all the important parts of the organ and therefore leads to total deafness. The process may be acute or chronic. An acute general labyrinthitis in connection with cholesteatoma is often connected with some therapeutic means, syringing or operation, whereby the cholesteatoma masses are forced through a fistula, or one of the windows is injured. The result is usually complete destruction of all important parts of the labyrinth and is often a stepping-stone to meningitis. In exceptional cases small circumscribed parts of the cochlea may recover.

Labyrinthitis in connection with cholesteatoma of the middle ear is by far the most frequent form of labyrinthitis associated with suppuration of the middle ear. Aside from the simple absorption of the capsule, the process may invade the labyrinth by caries, that is, destruction by granulations or by necrosis. In long-standing cases both processes take place side by side, and it is usually difficult or impossible, even under the microscope, to decide which of the two is the more prominent.

IV. TUBERCULOUS LABYRINTHITIS

Tuberculous labyrinthitis was investigated by Bezold, Scheibe, Siehenmann, and Nager. They found that its chief characteristic is the absence of all attempts at regeneration, as the disease occurs in patients who are in poor general condition, owing to the advanced stages of the disease of the lungs. A great resemblance was found between these processes and those in scarlet fever, in which, as was seen before, the disease attacks individuals whose power of resistance is greatly reduced. The most harmless form of disease of the labyrinth is the infiltration of the annular ligament of the oval window, or of the membrane of the round window combined with a few granulations on the inner surface of the ligament, and a serous labyrinthitis. It occurs in scarlet fever as well as in tuberculous otitis. The sensory epithelium is comparatively slightly affected and recovery with little loss of function is therefore possible, if the general condition improves. The more serious forms are clinically, as well as pathologically, even more interesting. In looking over the reports of Dr. Heinrich Herzog, we find deafness usually very pronounced, but the other labyrinth symptoms, dizziness, vomiting, nystagmus, etc., are rarely mentioned by the patients. The pathologic changes, on the contrary, are very extensive. Tuberculous processes usually enter through the windows into the labyrinth. The labyrinth fluid is changed, and contains many cast-off cells, the membranous labyrinth is destroyed, the sensory epithelium is swollen and cast off or changed to unrecognizable heaps of cells, and the nerves are atrophied and extensively infiltrated. But the process does not spread beyond the boundaries of the labyrinth, and death from meningitis rarely occurs in tuberculous labyrinthitis.

PROGNOSIS OF INTERNAL EAR COMPLICATIONS

The prognosis of internal ear complications, resulting from inflammatory middle-ear diseases, consists of the prognosis concerning the hearing, and the prognosis con-

cerning the life of the patient. In serous labyrinthitis the life of the patient will rarely be jeopardized, nor will the hearing. Much more dangerous, in fact the most dangerous of all forms of labyrinthitis, is the labyrinthitis in connection with acute otitis media. The so-called acute panotitis usually terminates fatally, as the meninges are invaded almost simultaneously. An operation in these rare cases can scarcely ever be premature, provided the diagnosis of labyrinthitis is certain, since the process, if left to itself, is liable to end fatally after a very few days. Scarlet fever and diphtheria otitis, complicated with labyrinthitis, progress more slowly, owing to the poor general health of the patient, and, therefore, the life of the patient is often spared, though the hearing of the ear involved is destroyed.

The prognosis of labyrinthitis in consequence of cholesteatoma of the middle ear is best given in Dr. Karl Grünberg's words: "Pathology teaches us that the suppurative inflammation of the labyrinth has a pronounced tendency to heal, provided life is not extinguished by other complications. After the acute stage has passed the exudations become organized and form a scar." The final result as to hearing depends on the extension of the destruction and the extremely varying power of restitution. Goerke, in connection with a case of perforation of a cholesteatoma through the annular ligament, is even more sanguine. "The number of cases of labyrinthitis which heal in this way cannot be estimated, hardly can they be suspected, if we consider how many ears of deaf-mutes show similar changes. It must be repeated over and over again that the most serious forms of labyrinthitis show attempts at recovery which—and this is important—really give the protection which we expect of them."

In view of these quotations taken from some of the most modern writers, the large death-rate in connection with operations on the labyrinth is rather surprising. It is now known that many lives have been sacrificed on account of the lack of knowledge of pathology, lack of experience on the cadaver, and lack of clinical experience. Recognizing this fact, it is evident that operations on the labyrinth ought to be performed only by qualified operators. This restriction must be extended beyond the labyrinth operations proper, as it is beyond question that many a death, after a simple mastoid operation, finds its explanation in the curetting of a few granulations on the medial wall of the antrum, aditus or middle ear. These granulations often cover a fistula in the labyrinth and their removal opens the avenue for infection of the whole labyrinth and the meninges. Trained assistance also is important, since an incompetent handling of a retractor may, by luxating the stapes, lead to the same consequences.

Pathology has shown that Nature is able to cope with a suppuration of the labyrinth, provided she has sufficient time to throw out her safeguards.

109 Randolph Street.

Treatment of Nervous Diseases.—The first essential for the successful treatment of any disease is a correct diagnosis; the second is a full recognition of the source from which the disease has flowed; and the third is a clear conception of what we desire to accomplish. Given this information, curable nervous diseases may be shaped toward recovery by such physical measures as rest, occupation, and exercise; by water, electricity and massage; by exhortation, persuasion and explanation, and by medicines.—J. Collins, in *Interstate Medical Journal*.

DISCUSSION OF THE SYMPTOMS AND DIAGNOSIS OF INFECTION OF THE LABYRINTH RESULTING FROM SUPPURATIVE OTITIS MEDIA *

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Infections of the labyrinth from suppurative otitis media may be classified as (1) circumscribed, (2) diffuse, (a) manifest (circumscribed or diffuse), (b) latent (diffuse), (3) perilabyrinthitis.

Circumscribed labyrinthitis is qualified thus: with erosion, fistula or stapes subluxation, or without either.

Diffuse labyrinthitis is qualified as suppurative, serous or hyperemic.

By manifest labyrinthitis is meant an inflammatory disease of the labyrinth, showing characteristic spontaneous symptoms.

Latent labyrinthitis signifies a like disease, showing no characteristic manifest spontaneous symptoms.

Perilabyrinthitis is an inflammatory disease of the cellular bone surrounding the labyrinth capsule. It can cause suppurative, serous and hyperemic labyrinthitis, or necrosis with sequestration of a part or the whole of the cochlea.

This cellular bone may be either diploetic or pneumatic. When pneumatic the cells have a mucous lining and communicate with the antrum and mastoid cells. A pneumatic structure must be frequent, as Wales¹ speaks of the membranous lining as being constant.

In those cases of chronic suppurative otitis media which progress to infection of the labyrinth, the otoscopic pictures which I have seen are as follows: The drum is perforated, usually below Shrapnell's membrane. If the perforation is central, granulations may be observed springing from the promontory or from around the oval or round windows, or from all of these points at the same time. Some part of these granulations may pass through the drum perforation, even filling most of the external canal. Their attachment can then be determined only by the probe. If the whole drum has been destroyed or the perforation is marginal, cholesteatoma will be seen, especially in the neighborhood of the windows and antrum, provided the exudate is not great enough to wash away the epidermal cells, of which the cholesteatoma is largely composed. The third picture shows the inferior portion of the drum attached to the lateral labyrinth wall and the perforation, which was central, thus made marginal. Cholesteatoma either will be seen or may be washed out. In these cases a fistula through the posterior-superior part of the external auditory canal will sometimes be seen, which communicates with the antrum.

The symptom-complex is changed according to routes of infection, of which there are three:

1. Through some part of the lateral labyrinth wall (usually circumscribed labyrinthitis).
2. Through the blood-vessels (usually diffuse suppurative labyrinthitis).
3. Through the perilabyrinthine bone cells (usually diffuse serous labyrinthitis).

CIRCUMSCRIBED LABYRINTHITIS

Circumscribed labyrinthitis is characterized by the following symptoms: defective hearing, even to total

deafness, or no defect of hearing referable to the cochlea; tinnitus, with or without cochlear impairment of hearing; cochlear impairment of hearing with or without tinnitus; vertigo coming in attacks, of which Barany says there are two types.

The first comes without outward cause, while the patient is quiet or even during sleep. The attacks are severe and of long duration, lasting from half an hour to several hours, and are more frequent than those of the second type. They are accompanied by nausea and vomiting, almost always, and by disturbances of equilibrium and spontaneous vestibular nystagmus. The nystagmus is rotary or compound, horizontal and rotary; directed as a rule to the diseased side only, but sometimes to the sound side also, but strongest to the diseased side.

Such attacks are probably due to hyperemia, as I have noticed marked impairment of hearing during attacks of this character. It is probable that diffuse hyperemic labyrinthitis occurs only in the course of circumscribed and perilabyrinthitis and acute suppurative otitis media.

The second type comes from without, especially from rapid movement of the head, arising from bed, looking upward, bending forward, etc., and going from a hot to a cold room, and *vice versa*. They are not severe or of long duration, lasting from a few seconds to some minutes only. Nausea and vomiting are wanting. Spontaneous nystagmus and disturbances of equilibrium are always present.

In both kinds of vertigo the fistula symptom and cochlear symptoms may be found. Between attacks these patients frequently feel quite well and have no manifest symptoms. If examined between attacks the reaction to both the turning and the caloric tests are quite normal, as a rule. Exceptionally when the caloric test is normal the rotary nystagmus from turning lasts longer than the horizontal. This never occurs in the perfectly healthy; it is, therefore, pathologic. When the reactions between attacks are normal the spontaneous nystagmus during attacks is strong and directed to the diseased side only. When the reaction is subnormal the spontaneous nystagmus may be strong and directed to both sides when the eyes are in the corresponding lateral position, though strongest to the diseased side. It is compound, as a rule, rotary and horizontal. Between attacks throwing the head backward causes vertigo and rotary nystagmus to the diseased side for fifteen seconds. This procedure cannot be repeated for ten minutes. Inclining the head to the shoulder of the diseased side causes strong rotary nystagmus to the diseased side. The same procedure to the well side seldom causes nystagmus. When it does occur it is weak, rotary and directed to the sound side. The fistula symptom can often be demonstrated. Failure to find it does not preclude the presence of fistula, because cholesteatoma over or granulations around the fistula sometimes prevent compression and aspiration of the membranous canal. To be certain that eye movements are a reflex response to artificial opening in the labyrinth wall the examination must be made by placing in the auditory meatus a Siegel otoscope or a perforated olive tip, with rubber tubing and bulb attached and then making compression and aspiration without removal of the tip. If a slow eye movement occurs in one direction by compression, and in the opposite direction by aspiration, fistula may be confidently diagnosed. A quick eye movement in the opposite direction to the slow, constituting nystagmus, is not essential. If the Eustachian tube is

* Read in the Section on Laryngology and Otology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Baurnbill and Wales: *Modern Otology*.

open it must be closed, if possible, with a plug of cotton, otherwise the cavity will not be air-tight and the test will fail.

When the reaction to the turning and caloric tests are subnormal the eye movement is very small, requiring the closest inspection, at times, to detect it. The quick component, that is to say, nystagmus, does not occur in response to the compression and aspiration test. Ten turnings right and left give the following pathologic results: The after-nystagmus to the diseased side lasts half as long as that to the good side. This symptom alone cannot be considered pathologic unless the difference is at least as two to one. This is the typical subnormal reaction to turning.

When patients are in bed during severe attacks of vertigo they lie on the diseased side because in looking at objects in the room they look away from the quick component of the nystagmus, thus lessening its activity.

MANIFEST DIFFUSE LABYRINTHITIS

Manifest diffuse labyrinthitis is ushered in by the circumscribed becoming diffuse through intratympanic operation or acute exacerbation of the otitis media; (first route) by direct infection through the blood current; (second route) or by the perilyabyrinthine route. It is of first importance to distinguish between the suppurative on the one hand and serous and hyperemic on the other. In the suppurative the cochlear symptoms are absolutely negative, and hearing is quickly and completely lost. In the serous and hyperemic some hearing remains, the small a_1 Bézold fork will, at least, be heard. Spontaneous recovery of hearing takes place in serous and hyperemic labyrinthitis. From our present knowledge all cases in which hearing is recovered belong to these types. The vestibular symptoms are exceedingly stormy. Vertigo is so marked that frequently the patients are unable to stand. Objects within the visual field seem to move to the sound side; when the eyes are closed the body of the sufferer seems to him to rotate to the sound side. Nausea and vomiting nearly always accompany the vertigo. Horizontal and rotary nystagmus (compound) is marked. If the disease is left-sided, the nystagmus is to the right; if right-sided, the nystagmus is to the left, especially when the patient is looking in these directions. When he is looking straight ahead or to the opposite side to the quick component the nystagmus is invariably present, but weaker. Looking to the sound side and movement of the head increases the nystagmus. The position in bed is directly the reverse of that in severe attacks during circumscribed labyrinthitis. They lie in the sound side. The caloric test of the diseased ear is negative. Cold irrigation of the sound side stops the spontaneous nystagmus to this side and causes rotary nystagmus to the diseased side for a few seconds. Hot irrigation of the good ear increases the spontaneous nystagmus and the severity of the accompanying symptoms. The spontaneous nystagmus can also be increased by turning, head erect, to the diseased side. It is lessened or stopped for a few seconds by turning toward the good side. Turning with the head 90 degrees forward produces corresponding results. In either case the increase lasts just twice as long as the reduction.

Vestibular ataxia or reactionary body movements are the same as in experimental physiologic nystagmus, namely, always in the opposite direction to the quick component of the nystagmus. For instance, a patient with spontaneous, rotary nystagmus, that is, nystagmus in the frontal plane, to the left; standing facing for-

ward, head erect, feet together and eyes closed will fall to the right. With head rotated to left shoulder the nystagmus is directed backward and the falling is forward. With head rotated to the right shoulder the nystagmus is directed forward and falling is backward. With the head inclined 90 degrees forward the nystagmus is horizontal with relation to the earth. Falling cannot take place in this plane, therefore the reactionary movement is rotation around the vertical axis to the right, very unsteady and staggering. These reactions occur in 50 per cent. of cases. Practically all neurasthenics react, but not by the above rule. They usually continue to fall in the same direction or sink to the floor, irrespective of change of direction of the nystagmus. Their reaction does not characterize the nystagmus but does characterize the neurasthenic. The nystagmus known as horizontal causes no reactionary body movement.

LATENT LABYRINTHITIS

In latent labyrinthitis the history is of the utmost importance, as these patients must have had repeated attacks of vertigo and nystagmus or one storm of long duration, or both. Either total deafness exists or rest of hearing only will be found. The spontaneous nystagmus is small and weak and is directed to both sides when looking in these directions. There is none when looking straight ahead, unless opaque glasses are used so that fixation of vision cannot occur. In such a case it is minimal and directed to the sound side. Fistula and caloric tests are negative. Movements of the head have no effect. The utmost care should be exercised in the diagnosis of these cases, because they may be mistaken for acoustic neuritis of long standing. Ten turnings give the same pathologic results as in circumscribed labyrinthitis. The ataxic symptoms are very slight when present.

To diagnose latent labyrinthitis all tests must be made. The negative are quite as important as the positive. The latter are usually under the normal.

PERILABYRINTHITIS

Perilyabyrinthitis is most frequently associated with acute suppurative otitis media, but not infrequently with acute exacerbations of chronic middle-ear suppuration. The mastoid is always, and probably first involved. Systemic diseases, especially diabetes mellitus, predispose to it. When the process is acute the endolabyrinthitis is hyperemic, as is shown by rapid recovery of hearing following the simple mastoid or radical operation. When the perilyabyrinthitis is of longer standing the type of endolabyrinthitis is more apt to be serous. The recovery of hearing in the serous type is relatively slow, depending largely on drainage of the perilyabyrinthine spaces. Suppurative endolabyrinthitis can occur and does, especially in the course of diabetic mellitus. Sequestration is then most liable to follow. Otherwise this type can be differentiated from that occurring by other routes only by the history or post-mortem.

The above are for the most part late diagnostic symptoms. The earlier symptoms are those of mastoiditis and the middle ear, plus the following, which may be grouped as positive and negative.

POSITIVE

Slower gradual onset of diffuse endolabyrinthitis.

Recurrent deafness with manifest vestibular symptoms accompanying acute exacerbations of chronic middle-ear suppuration.

Pain on pressure located particularly over superior part of mastoid process.

Frequency of associated facial paralysis.

Weber test localized in the diseased ear, as pointed out by Neumann.

NEGATIVE

Absence of the fistula symptom or attacks of vertigo such as occur in circumscribed labyrinthitis.

Infrequency of intracranial complications.

It is difficult to diagnose perilabyrinthitis really early. The importance of the diagnosis relates particularly to operative interference; that is, to the kind of operation.

Perilabyrinthitis is an extension of mastoiditis into cells which communicate directly with the mastoid cells. A typical theoretic case is as follows:

Spontaneous nystagmus first directed to the diseased side probably in the frontal plane, accompanied or not by nausea and vomiting. Reactionary falling backward, forward or side-ward—progressive rather quick loss of hearing, but not absolute. In the meantime change of plane of the nystagmus to compound horizontal and rotary and directed to both sides but strongest to one side; finally rotary and directed to the good side only, with reactionary movements characteristic of rotary nystagmus. Absence of fistula symptom, probable absence of intracranial complications, unless it is of tuberculous origin; facial paralysis coming on late in the disease. Weber test localized in bad ear. Frequent association with systemic disease. Probable recovery of hearing after simple mastoid or radical operation. Possible recovery of facial palsy in the course of a year after radical operation if the systemic disease, when present, is cured or improved.

This is a new subject and I advance this picture for what it may be worth to those who may have opportunity to observe cases frequently from the very beginning. Acute severe cases of mastoiditis are very promising for such observations. In conclusion, for the sake of brevity I will say only that the conclusion arrived at is that the study of symptoms set forth enables us to make an earlier and more exact diagnosis.

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THE PRESENT STATUS OF VERTIGO CONSIDERED FROM A DIAGNOSTIC STANDPOINT*

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In the discussion of suppurative labyrinthitis before this section at the Chicago meeting in June, 1908, it was my privilege and good fortune to present the first paper to appear in the medical literature of this country, reporting the recent progress made in the diagnosis and treatment of labyrinthine diseases, as taught in the Vienna schools. Since then the literature on this subject has been added to very materially, notably by Mackenzie¹ of Philadelphia, Fridenberg,² and Richards³ of New York, and Mr. Scott⁴ of London, the last contributing some valuable new research data relating to the functions of the semicircular canals.⁵

* Read in the Section on Laryngology and Otology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Mackenzie: *Homeop. Eye, Ear and Throat Jour.*, 1909, xv, 17.

2. Fridenberg: *Ann. Otol., Rhinol. and Laryngol.*, St. Louis, 1908, xvii, 670.

3. Richards: *Ann. Otol., Rhinol. and Laryngol.*, St. Louis, 1907, xvi, 561.

4. Scott: *Proc. Roy. Soc. Med., Otol. Sec.*, p. 41, 1909.

5. From Scott's most excellent paper on "The Problems of Vertigo, etc." (*Proc. Roy. Soc. Med.*, April, 1909.) I have quoted freely and adopted his tables, showing the detailed results of his research illustrating the three main types of labyrinthine nystagmus and comparing the hypotheses of convection currents and momentum currents.

My first contribution was rather a foreword, very briefly outlining the methods of functional tests of the semicircular canal system developed by the researches of Barany, Alexander and Neumann of Vienna. The basis of these tests was founded on the fact that stimulation of the peripheral end-organs of the eighth nerve produces vertigo, nystagmus, and disturbances of equilibrium. It is in the interest of the solution of the mechanism of these several manifestations, when dependent on pathologic conditions, that the present discussion is undertaken.

For a correct interpretation of vertigo, a phenomenon ubiquitous in extent and protean in type, it is necessary, first of all, to have a clear conception of the term. Equilibration, or the adjustment of the individual to space, and orientation, or the recognition of that adjustment, are very complex functions.

ORIENTATION

The faculty of orientation is exercised through the central and peripheral sense organs and any marked or sudden disturbance of this function, induced experimentally or pathologically, creates that disagreeable sensation of confusion, known as vertigo, due to a false conception of one's relative position to space or motion, and relatively its concomitant sensation of disturbance of equilibrium. It is self-evident that vertigo and disequilibration are made manifest through the same sense organs as are equilibration and orientation. For convenience of discussion these peripheral sense organs may be classified into three subdivisions: (1) the static labyrinth, the special equilibrium sense organ; (2) the eyes, or visual sense organs; (3) the deep muscles, joints, viscera, etc., the kinesthetic sense organs.

It is a well-recognized fact that the impulses conveyed by these several peripheral sense organs and their centripetal tracts are correlated in the cerebellum, by which the function of equilibration is established and maintained. It is a further well-recognized fact that a perversion of this function, when occasioned by a permanent lesion in one of these three sets of sense organs, will eventually be corrected by the other two, perhaps not absolutely but sufficiently for all practical purposes. It follows also that with a loss of the function of two sets of these sense organs there will be a relative increase in disturbances of equilibration and orientation.

This paper will be chiefly concerned with the type of vertigo (rotatory) which results from stimulation or irritation of the static labyrinth, the special sense organ of equilibration. Since pathologic phenomena are better comprehended when we have a clear conception of the physiologic functions and anatomic structure and arrangement of the particular organs or tissues involved, perhaps it were well, from a diagnostic standpoint, to make a brief reference to this phase of the subject—particularly as to the arrangement of the semicircular canals and the origin and distribution of the nerve and blood supply to the same. As regards the blood supply to the labyrinth the works of Shambaugh, Siebenmann, Schwalbe and Eichler should be consulted, and a most excellent paper by Shambaugh⁶ treating this subject from a clinical standpoint, is worthy of consideration in this connection.

The geometrical arrangement of the semicircular canals in three principal directions of space gave rise to the original theory as to the functions of the labyrinth. At first the assumption was that the canals were asso-

6. Shambaugh: *Arch. Otol.*, New York, 1906, xxxv, 11.

ciated with audition, and they were supposed to mediate sensations of sound coming in any of the three main directions corresponding to their axes, or to analyze atypical sound directions by a proportional representation in the three dimensions.

Later investigations, from the time of Purkinje to Barany, by careful experiments on animals and man, developed the theory of a specific equilibristic function of the labyrinth. In analyzing the mechanism of this function it is important to bear in mind the anatomic structure, arrangement and relation of the labyrinth, and to remember we have to do with a bilateral, symmetrical structure; that each canal of a side corresponds in the same plane to a canal of the opposite side; the two external canals in the horizontal plane, the anterior or superior canal of one side with the posterior canal of the other side; that the ampullary bulbs of corresponding canals are at opposite ends; the ampulla of the right horizontal canal being on the right, while that of the contralateral canal is on the left; the ampulla of the right superior canal being in front, above and beyond that of its synergist, the left inferior being behind and below.

The anatomic structure, and the relations of the membranous labyrinth to its corresponding bony container, the osseous labyrinth, may be had by reference to the texts, and I will not discuss this phase of the subject more than to call attention briefly to the origin and communications of the eighth nerve. We shall appreciate the fundamental significance of this when we undertake to differentiate the manifestations or impulses due to stimulation or irritation of the static labyrinth, or the special equilibrium sense organ, from correlated manifestations or impulses originating from stimulation of the visual sense organs, the eyes, and the kinesthetic sense organs, the deep muscles, joints, etc.

The auditory nerve really consists of two nerves, the cochlear and vestibular, and has its origin from three roots situated in the medulla. The cochlear division has its origin from the accessory nucleus and is distributed to the cochlea. The vestibular division has its origin from the chief nucleus and Deiter's nucleus and is distributed to the vestibule and semicircular canals. The peculiar arrangement of the distribution of the labyrinthine nerve end-organs, or the hair cells, in the maculae of the utricle and saccule and ampullae of the semicircular canals, bears a basic relation to the mechanism of the phenomena of vertigo, nystagmus and disturbances of equilibrium. The last two manifestations can be readily understood when we remember that the portion of the vestibular nerve which arises in Deiter's nucleus communicates fibers to the nucleus of the motor nerves of the eye muscles and to the motor nucleus of the spinal cord on either side. Nystagmus is caused by impulses conveyed to the former, and disturbances of equilibrium by impulses conveyed by the latter.

THE TYPE OF VERTIGO AND THE VARIETIES OF NYSTAGMUS RESULTING FROM LABYRINTHINE STIMULATION

Labyrinthine vertigo, whether produced experimentally or pathologically, is always rotatory.

Labyrinthine vertigo is always associated either with nystagmus, or disturbances of equilibrium. The reverse of these phenomena does not hold, however, as disturbances of equilibrium may occur without vertigo.

All forms of vertigo may be associated with nystagmus, but some forms of vertigo may not be associated

with nystagmus; that is, the ocular and kinesthetic forms.

Moreover, while rotatory vertigo associated with nystagmus is characteristic of labyrinthine irritation or lesion, it is not pathognomonic of it, for, as pointed out by Stewart⁷ and Panse,⁸ and verified by other observers, we may have rotatory vertigo and nystagmus during convalescence in cases of paresis of the eye muscles. In the latter instance the mechanism of the vertigo and nystagmus may be plausibly explained by assuming that the labyrinth is reflexly influenced by the stimulation resulting from the innervation of the eighth nerve communicated through Deiter's nucleus to the oculomotor muscles. The nystagmus occurs when the patient endeavors to turn the eyes attentively in the direction of the partly paralyzed muscle's action. I have recently observed a case with this rotatory type of nystagmus occurring during convalescence following paralysis of the left abducens muscle.

LABYRINTHINE NYSTAGMUS

We may conveniently divide labyrinthine nystagmus into three main types according to the direction of the excursive movements; however, there may be subdivisions as a resultant of a combination or association of the main types.

The three main types are designated, respectively, as horizontal, vertical and rotatory, according to the planes of direction of the nystagmus. A combination of the horizontal and vertical types results in a compromise between the two, or oblique nystagmus, or frequently we find the horizontal and vertical associated but not combined.

In discussing the directions of the planes of excursive ocular movements reference is had in relation not to space but to the planes of the orbit or eyeball. Thus in horizontal nystagmus the plane of oscillation is horizontal in relation to the horizontal plane of the orbit; in vertical nystagmus the plane of the oscillation is in relation to the vertical plane of the orbit; whereas in rotatory nystagmus the plane of oscillation is in the meridian of the eyeball at right angles to the antero-posterior axis.

Labyrinthine nystagmus is characterized by rhythmic movements and consists of a rapid and slow component. The direction of the nystagmus corresponds to the direction of the quick component. Thus we designate horizontal nystagmus as horizontal nystagmus to the right or left, according to the direction of the rapid movement. Similarly in regard to the vertical nystagmus according to the direction of the rapid movement up or down we designate it as vertical nystagmus upward or downward. The same rule applies to rotatory nystagmus.

The rapid movement is usually referred to as the major movement; however, the slower movement is the primary movement, or the true labyrinthine reflex, while the rapid movement is secondary or voluntary.

MECHANISM OF NYSTAGMUS

"Stimulation of only one ampulla produces a simple, primary reflex deviation of the eyes in one direction without nystagmus. If now the endeavor is made to turn the eyes in the opposite direction a sequence of fleeting images sweeps across the retina in the opposite direction and the eyes are jerked in rapid pursuit of the

7. Stewart: *Dentsch. med. Ztg.*, 1895, p. 511.

8. Panse: *Arch. Otol.*, 1902, xxxi, 467.

seemingly moving object which is momentarily fixed; but instantly the primary labyrinthine movement again gains control, a repetition of the fleeting images across the retina occurs, followed by the secondary rapid or major movement of pursuit, and thus continues until the stimulation is annulled and the nystagmus ceases."⁵ We have an illustration of this in the phenomenon *déviaton conjuguée*, which represents a true reflex phase of nystagmus produced by unilateral irritation in the semicircular canals, vestibular nerve, or Deiter's nucleus. This may be demonstrated by placing the patient with a rhythmic nystagmus under general anesthesia, or may be observed sometimes in the comatose stages of cerebral abscess complicating labyrinthine suppuration. In both instances we have deviation of the eyes in the direction of the slow movement, proving that it is the primary or unconscious reflex movement, occurring during the unconscious state, while the quick movement, though the rapid and more intense, is the secondary or voluntary movement occurring during the conscious state. Therefore, the slower movement represents the vestibular reflex, while, on the other hand, the rapid movement represents the voluntary or cortical one. The maximum intensity is experienced when the eyes are turned in the direction of the quick component, and *vice versa*.

With ocular vertigo and nystagmus, closure of the eyes affords marked relief, but in the rotatory or vestibular form it has no influence; whereas in the kinesthetic form both the vertigo and the disturbance of equilibrium are exaggerated. This is a most important differential diagnostic test in the several forms of nystagmus.

Before discussing the pathologic forms of labyrinthine nystagmus let us get a physiologic view by analyzing the mechanism of some of the functional tests in developing experimental nystagmus: (1) thermal tests; (2) momentum tests.

The physical effects of the thermal stimulus depend on the variations in density of the watery solutions at different temperatures. According to well-known physical laws, when water cools the density of the cooler particles increases and they fall, and conversely, when water is heated the density of the heated particles is decreased and they rise. If we cool the surface of a bowl of water we get a descending convection current, and if we heat it we get an ascending convection current. The walls of the labyrinth and the fluid therein—the perilymph and the endolymph—are no exception to this rule. By cooling or heating the middle ear and outer wall of the labyrinth we get descending or ascending convection currents passing through the ampullæ of the superior and external semicircular canals, respectively, depending on the position of the head; through the former when the head is erect and through the latter when the face is directed upward or downward. On account of the depth of the ampullæ of the posterior semicircular canal the thermal tests are not practicable. The intensity of the convection currents, and reactions (vertigo, nystagmus and disturbances of equilibrium) resulting therefrom, depends on the suddenness, degree and duration of the alteration of the temperature of the outer wall of the labyrinth and the fluid adjacent thereto.

The momentum tests have a wider field of application than the thermal tests. The character of the physical effects of momentum depends on the direction of the motion, either in curved lines and circles or in more or less straight lines, vertically, antero-posteriorly, or laterally; also on the position of the head.

In case of the circular motion or rotation the semicircular canals, with their ampullæ, are affected, and the intensity and extent of this effect depends on the angular velocity, tangential speed and duration of rotation. As observed by Scott:⁵

Viewing the matter physically in order to estimate the momentum set up by rotation we must pay regard to the angular velocity, tangential speed and duration of rotation. The angular velocity is determined by computing the time of one complete revolution of 360°, and stated as so many degrees per second. If we adopt a uniform angular velocity of, say, 360° in five seconds, the approximate tangential speed varies directly with the distance between the semicircular canals and the axis of rotation; this distance can be obtained by measuring the radius of the curve of revolution described by the external auditory meatus, which will give the approximate relative position of each set of the semicircular canals. It will be obvious that when the patient reclines on the turntable with the head half a meter from the axis of rotation, and the table is turned at the uniform angular velocity of 360° per five seconds, the tangential speed of the head, and therefore the labyrinth and of the endolymph, will be greater than when the head is only a quarter of a meter from the axis of rotation. Similarly, if the patient be seated over the axis of rotation with the labyrinths equidistant from the axis of rotation, the tangential speed will be equal in the two labyrinths.

The theory most accepted now as to the effects of thermal stimulus and rotation on the semicircular canal system is that they cause currents of endolymph through the canals, either from the canal through the ampulla to the utricle or from the utricle through the ampulla to the canal. These currents, pressing or dragging on the hair cells in the ampullæ, stimulate the cells and provoke nystagmus, vertigo and disturbances of equilibrium. Owing to the observation that it requires greater effort to provoke nystagmus by rotation in one direction than by rotation in the opposite direction, particularly if the labyrinth on one side is destroyed or not functioning, the theory has been advanced that the several ampullary nerves have a principal and subordinate function. The more plausible assumption is, considering the marked inequality of the sectional areas of the semicircular canal and its ampulla, the ratio being about 1 to 25, that it requires more effort and time by rotating the head in one direction to establish a current from the ampulla to the canal—that is, from a broad to a narrow channel—than when rotating the head in an opposite direction to establish a current from the canal to the ampulla—from a narrow to a broad channel.

In case of motion in more or less straight lines the semicircular canals and ampullæ are not affected, but the utricle and saccule and their contents, i. e., the endolymph and the sensory hair cells of the maculae of the utricle and saccule. In this instance the intensity and extent of the effect depends on the suddenness, speed and duration of the motion. We may cite as an illustration the nystagmus and vertigo of *mal de mer* or sea-sickness. Ordinarily the arc described by the rolling and pitching of a ship is too small and the angle of velocity and tangential speed too slow to occasion momentum currents in circles as in the semicircular canals, but such currents as are established are in more or less straight lines in the sacs of the utricle and saccule, corresponding to the direction of the lines of the motion of the ship but opposite in direction, and the vertigo, nystagmus, etc., is due to the irritation occasioned by the increase or diminution of weight on or dragging of the hair cells of the two maculae.

The following tables from Scott illustrate the methods of provoking the three main types of labyrinthine nystagmus and indicate the direction of the deflection of the three sets of fibrillae which would be produced in accordance with the laws of convection and momentum considered in relation with known anatomic structure:

TABLE 1.—ROTATORY (COUNTER-CLOCKWISE) NYSTAGMUS OBSERVABLE DURING ATTENTIVE DEVIATION AND FIXATION OF THE EYES TO THE RIGHT *

BY THERMAL METHODS		
Cold water irrigation.....	Left ear.....	Head erect
Hot water irrigation.....	Right ear.....	Head erect
Hot water irrigation.....	Left ear.....	Head inverted
Cold water irrigation.....	Right ear.....	Head inverted

BY ROTATION AROUND A VERTICAL AXIS		
Rotation counter-clockwise.....	Face directed downward	
Rotation clockwise.....	Face directed upward	

* For an account of technic adopted by Barany see Thomas Guthrie's digest (Brain, 1906, p. 383); also Mackenzie's abridged translation (Jour. Laryngol., Rhinol. and Otol., xxiv, No. 2). The present series of observations was carried out by methods evolved independently of Barany's, though essentially similar. The conclusions were also formulated before the results of Breuer's investigations were studied.

TABLE 2.—ROTATORY (CLOCKWISE) NYSTAGMUS OBSERVABLE DURING ATTENTIVE DEVIATION AND FIXATION OF THE EYES TO THE LEFT *

BY THERMAL METHODS		
Cold water irrigation.....	Right ear.....	Head erect
Hot water irrigation.....	Left ear.....	Head erect
Hot water irrigation.....	Right ear.....	Head inverted
Cold water irrigation.....	Left ear.....	Head inverted

BY ROTATION AROUND A VERTICAL AXIS		
Rotation clockwise.....	Face directed downward	
Rotation counter-clockwise.....	Face directed upward	

* The effect of rotation on the eye-movements depends on the angular velocity and tangential speed. A certain minimum velocity is necessary, and this varies somewhat in different persons. Given the appropriate angular velocity and appropriate tangential speed, one finds that rotation will induce the same type of nystagmus with the same directional characters whether both labyrinths are functional or whether one labyrinth had become defunctive.

TABLE 3.—HORIZONTAL NYSTAGMUS OBSERVABLE DURING ATTENTIVE DEVIATION AND FIXATION OF THE EYES TO THE RIGHT *

BY THERMAL METHODS		
Cold water irrigation.....	Right ear.....	Face downward
Hot water irrigation.....	Left ear.....	Face downward
Hot water irrigation.....	Right ear.....	Face upward
Cold water irrigation.....	Left ear.....	Face upward

BY ROTATION AROUND A VERTICAL AXIS		
Rotation counter-clockwise.....	Head erect	
Rotation clockwise.....	Head inverted	

* Inversion of the head was conveniently obtained by complete backward extension of the head over the end of a special rotating table, so that the head was about 10 in. from the axis of rotation.

TABLE 4.—HORIZONTAL NYSTAGMUS OBSERVABLE DURING ATTENTIVE DEVIATION AND FIXATION OF THE EYES TO THE LEFT

BY THERMAL METHODS		
Cold water irrigation.....	Left ear.....	Face downward
Hot water irrigation.....	Right ear.....	Face downward
Hot water irrigation.....	Left ear.....	Face upward
Cold water irrigation.....	Right ear.....	Face upward

BY ROTATION AROUND A VERTICAL AXIS		
Rotation clockwise.....	Head erect	
Rotation counter-clockwise.....	Head inverted	

TABLE 5.—VERTICAL NYSTAGMUS OBSERVABLE DURING ATTENTIVE DEVIATION AND FIXATION OF THE EYES UPWARDS (IN RELATION TO THE ORBIT)

BY ROTATION METHODS		
Rotation counter-clockwise.....	Right side of head downward	
Rotation clockwise.....	Left side of head downward	

TABLE 6.—VERTICAL NYSTAGMUS OBSERVABLE DURING ATTENTIVE DEVIATION AND FIXATION OF THE EYES DOWNWARD

Rotation clockwise.....	Right side of head downward	
Rotation counter-clockwise.....	Left side of head downward	

TABLE 7.—DEFLECTION OF THE FIBRILLE OF THE SUPERIOR SEMICIRCULAR CANAL ON ONE SIDE *

BY THERMAL METHODS				
Direction of Deflection of Superior Fibrillae.	Produced By	Position of Head.	Resulting Type of Nystagmus.	Direction of Maximum Intensity.
From canal to utricle.	Cold.	Erect.	Rotatory.	Non-stimulated side
From canal to utricle.	Hot.	Inverted.	Rotatory.	Non-stimulated side
From utricle to canal.	Hot.	Erect.	Rotatory.	Stimulated side
From utricle to canal.	Cold.	Inverted.	Rotatory.	Stimulated side

* No reactions are obtained where the method is applied to a defunct labyrinth.

TABLE 8.—DEFLECTION OF THE FIBRILLE OF ONLY ONE SUPERIOR SEMICIRCULAR CANAL BY ROTATION WHEN ONLY THE RIGHT LABYRINTH IS FUNCTIONAL, THE LEFT BEING COMPLETELY DEFUNCT

Direction of deflection of superior fibrillae in right side.	Direction of rotation.	Position of head.	Type of nystagmus.	Direction of maximum intensity.
From canal to utricle.	Clockwise.....	Face downward.	Rotatory.	Left
From canal to utricle.	Counter-clockwise.	Face upward.	Rotatory.	Left
From utricle to canal.	Counter-clockwise.	Face downward.	Rotatory.	Right
From utricle to canal.	Clockwise.....	Face upward.	Rotatory.	Right

TABLE 9.—DEFLECTION OF THE FIBRILLE OF ONLY ONE SUPERIOR SEMICIRCULAR CANAL BY ROTATION WHEN ONLY THE LEFT LABYRINTH IS FUNCTIONAL, THE RIGHT BEING COMPLETELY DEFUNCT *

Direction of deflection of superior fibrillae in left side.	Direction of rotation.	Position of head.	Type of nystagmus.	Direction of maximum intensity.
From utricle to canal.	Clockwise.....	Face downward.	Rotatory.	Left
From utricle to canal.	Counter-clockwise.	Face upward.	Rotatory.	Left
From canal to utricle.	Clockwise.....	Face downward.	Rotatory.	Right
From canal to utricle.	Counter-clockwise.	Face upward.	Rotatory.	Right

* Deflection of the fibrillae of both superior semicircular canals simultaneously. The nystagmus evoked by rotation clockwise and counter-clockwise with the face upward and face downward is precisely the same in type and directional characters when both labyrinths are intact as when only one is functional.

TABLE 10.—DEFLECTION OF THE FIBRILLE OF THE EXTERNAL SEMICIRCULAR CANAL, EITHER SIDE SINGLY

BY THERMAL METHOD				
Direction of Deflection of External Fibrillae.	Produced By	Position of Head.	Resulting Type of Nystagmus.	Direction of Maximum Intensity.
From canal to utricle.	Cold water.....	Face downward.	Horizontal.	Stimulated side.
From canal to utricle.	Hot water.....	Face upward.	Horizontal.	Stimulated side.
From utricle to canal.	Hot water.....	Face downward.	Horizontal.	Non-stimulated side.
From utricle to canal.	Cold water.....	Face upward.	Horizontal.	Non-stimulated side.

TABLE 11.—DEFLECTION OF THE FIBRILLE OF ONLY ONE EXTERNAL SEMICIRCULAR CANAL BY ROTATION WHEN ONLY THE RIGHT LABYRINTH IS FUNCTIONAL, THE LEFT BEING COMPLETELY DEFUNCT *

Deflection of the External Fibrillae.	Direction of Rotation.	Position of Head.	Type of Nystagmus.	Direction of Maximum Intensity.
From canal to utricle.	Counter-clockwise.	Erect.	Horizontal.	Right
From utricle to canal.	Clockwise.....	Erect.	Horizontal.	Left

* The corresponding reactions are reversed when the rotation is made with the head inverted

TABLE 12.—DEFLECTION OF THE FIBRILLÆ OF ONLY ONE EXTERNAL CANAL BY ROTATION WHEN ONLY THE LEFT LABYRINTH IS FUNCTIONAL, THE RIGHT BEING COMPLETELY DEFUNCT *

Deflection of the External Fibrillæ.	Direction of Rotation.	Position of Head.	Type of Nystagmus.	Direction of Maximum Intensity.
From utricle to canal.	Counter-clockwise.	Erect.	Horizontal.	Right
From canal to utricle.	Clockwise.	Erect.	Horizontal.	Left

* The corresponding reactions are reversed when the head is inverted. Deflection of the fibrillæ of both external semicircular canals simultaneously when both labyrinths are functional. The nystagmus produced by rotation clockwise and counter-clockwise with the head erect or with the head inverted is precisely the same in type and directional characters when both labyrinths are intact as it is when only one labyrinth is functional.

TABLE 13.—DEFLECTION OF THE FIBRILLÆ OF THE POSTERIOR SEMICIRCULAR CANAL, EITHER SIDE SINGLY, THE ONE BEING DEFUNCT, OR BOTH SIDES SIMULTANEOUSLY, BOTH LABYRINTHS BEING FUNCTIONAL

Direction of Deflection of the Inferior Fibrillæ, i. e., of Posterior Canal.	Direction of Rotation.	Position of Head.	Type of Nystagmus.	Direction of Maximum Intensity.
From utricle to canal.	Clockwise.	Right side downward.	Vertical.	Downward
From utricle to canal.	Counter-clockwise.	Left side downward.	Vertical.	Downward
From canal to utricle.	Clockwise.	Left side downward.	Vertical.	Upward
From canal to utricle.	Counter-clockwise.	Right side downward.	Vertical.	Upward

DEDUCTIONS FROM THE TABLES

Study of the accompanying tables reveals that stimulation of the ampullæ of the horizontal and posterior semicircular canals or deflection of the fibrillæ from utricle to canal, or *vice versa*, imparts similar impulses, provoking deviation of the eyes in attentive fixation, and, when the stimulation is sufficiently intense, nystagmus in the direction of the deflection of the fibrillæ. With stimulation of the ampullæ of the superior semicircular canals the conditions are reversed: the nystagmus provoked takes place in the direction opposite to the deflection of the fibrillæ. Thus in the former instances of the horizontal and posterior canals, deflection of the ampullary fibrillæ from the utricle to the canal produces nystagmus toward the opposite side or in the direction of the deflection of the fibrillæ; but in the latter instance of the superior canal, deflection of the fibrillæ from the utricle to the canal produces nystagmus to the same side, or in the opposite direction to the deflection of the fibrillæ.

The diagnostic importance of this observation is evident from a clinical viewpoint. Thus spontaneous horizontal nystagmus to the left would indicate some probable lesion in the right vestibule, while rotatory nystagmus to the left would indicate some lesion in the left vestibule. A combination of horizontal nystagmus to the left and rotatory nystagmus to the right would be stronger evidence still of some lesion of the right vestibule. Again, rotatory nystagmus to the right, associated with oblique nystagmus downward and to the left (the latter being a combination of horizontal and vertical nystagmus), would indicate some irritation or lesion in the right vestibule. Similarly other deductions may be drawn from a study of the directional character of nystagmus. We must be careful in our analyses, however. For instance, in a case of spontaneous nystagmus associated with labyrinthine fistula outside the vestibule (say the fistula is situated in the right osseous horizontal canal), provided the membranous canal and ampulla are intact, thermal and momentum tests will give the

normal reaction (see tables); but in this case should spontaneous nystagmus be present it would be horizontal in character and directed to the right or to the same side as the lesion, whereas usually with spontaneous horizontal nystagmus to one side we would infer vestibular lesion on the opposite side. The confusion occasioned in such cases, particularly if bilateral middle-ear suppuration or involvement exists, is strikingly illustrated in a similar case cited by Scott. In such a condition, however, if the osseous fistula happens not to be protected by cholesteatomatous masses, etc., meatal air compression will elicit horizontal vertigo to the same side and clear the diagnosis. The mechanism of spontaneous nystagmus in this case, according to the above tables, Ewald's experiments and other clinical observers, is due to the impulse proceeding from the canal to the ampulla. Scott explains the mechanism of the nystagmus in these cases by assuming that the impulse is produced by the vascular granulation tissues situated at the seat of the fistula. Should the fistula be situated in the superior canal under like conditions (vascular granulation, and ampullæ functioning), if spontaneous nystagmus occurred it would be rotatory, but to the opposite side. With the fistula situated in the vestibule, under like conditions, the presence of spontaneous nystagmus would be rotatory to the same side and horizontal to the opposite side.

Furthermore, functional tests, in cases of normal labyrinths, have shown that if the stimulation be the same on either side no nystagmus results, however intense the stimulation. This may be demonstrated by the thermal test, by using hot or cold water from the same container, to which is attached two tubes, one tube being inserted in either ear, and the injections made simultaneously. In other words, to produce vertigo, nystagmus and disturbances of equilibrium, there must be a preponderance of stimulation on one side sufficiently intense to imbalance the function of the mediating sensory organs and cause a perversion or misinterpretation of the impulses produced by said stimulation.

This brings us to the consideration of a new hypothesis promulgated by an eminent London authority in explanation of unilateral ablation nystagmus.

ABLATION NYSTAGMUS

Preliminary to an analysis of this hypothesis attention may be called to some of the characteristics of ablation nystagmus. It is well known that spontaneous nystagmus does not occur after removal of the labyrinth in children, rarely after ablation in adults of 35 or 40 years of age who have normal vascular systems, but that it is more or less frequent for a limited period following destruction of the labyrinth in persons over the latter age—provided the remaining labyrinth is functioning. The character of the nystagmus may be rotatory, horizontal or oblique, or a combination of these, and vary in intensity and duration. If there is but one of the types present it is usually the rotatory, and directed toward the sound side; if two types are present they are the rotatory and horizontal, the rotatory directed to the sound side and the horizontal to the side of the ablation; if all three types are present the horizontal and vertical are usually combined into the oblique.

As time lapses the sensory end organs of the sound labyrinth become inured to one-sided stimulation and gradually acquire a disregard of the disproportionate unilateral impulses, and then the nystagmus begins to

lapse also. If the three types are present the vertical element disappears first, the horizontal next and the rotatory last.

An analysis of the characteristics, directional and otherwise, of ablation nystagmus (see tables) shows that it corresponds to the type of nystagmus resulting from vestibular stimuli causing a simultaneous deflection of the ampullary fibrillæ of a normal labyrinth (from the utricle toward the superior, horizontal and posterior semicircular canals respectively); the deflection being upward in the superior ampulla, and backward and downward in the horizontal and posterior ampulla. Hence the question arises, Whence the origin of the stimuli or impulses provoking ablation nystagmus? Scott attributes the source of these stimuli, in many instances, to the influence of carotid pulsation. On account of the relation of the internal carotid artery to the labyrinth, in its passage through the petrous portion of the temporal bone, particularly where it bends sharply forward and upward in front of the cochlea, the assumption is that the force of the heart-beat transmits impact waves to the walls of the vestibule, and that the direction of such waves is chiefly upward and backward, being reflected from the convex arch of the carotid artery. Should such impaction waves occur they would be directed upward and backward and therefore cause deflection of the fibrillæ of the superior ampulla upwards, and of the fibrillæ of the horizontal and posterior ampullæ backwards, associated with the type of nystagmus such deflection would produce (see tables) rotatory nystagmus to the stimulated side, horizontal and vertical nystagmus (or combination of the last two—oblique nystagmus) to the non-stimulated side. And we would naturally infer that the intensity of the nystagmus would be proportionately exaggerated the stronger the impulse wave thus transmitted; and *vice versa*, the weaker the impulse waves, the less pronounced the nystagmus. Clinical observations and experiments have abundantly confirmed this deduction and furnished the foundation for Scott's hypothesis of impaction waves causing spontaneous nystagmus. In corroboration of the approximate correctness of this hypothesis he cites cases in which the spontaneous nystagmus following unilateral labyrinth destruction was enhanced when the force of the circulation was increased by bodily exercise and violent muscular exertion, and a diminution or cessation of nystagmus when the body was put at rest. But especially convincing was the report of the influence of the carotid pulsation on the spontaneous ablation nystagmus in eight consecutive cases. On compression of the common carotid on the side of the destroyed labyrinth no effect was noted, whereas non-compression of the common carotid on the side of the normal labyrinth showed a complete arrest of the nystagmus in each case, continuing as long as compression was maintained and returning when the compression was stopped. The direction of the nystagmus was toward the side of the destroyed labyrinth.

Furthermore, corroborative evidence of a negative character is furnished in cases where a unilateral defunct labyrinth is of long standing. In such cases the cessation of the nystagmus results from the ampullary end-organ becoming accustomed to or acquiring a disregard of the impulses conveyed by the impaction waves, which in the beginning deflected the fibrillæ from the ampullæ toward the canal. Latterly, after the cessation of the nystagmus, if we compress the carotid on the side

of the normal labyrinth, by obviating the impaction wave, we create an impulse in the opposite direction or a relative deflection of the fibrillæ from the canals toward the vestibule. In this instance we should have rotatory nystagmus toward the negatively stimulated side or the side of the destroyed labyrinth, or in the direction opposite to the deflection of the fibrillæ. We find this so in practice.

Other evidence in favor of this theory is the occurrence of spontaneous nystagmus comparatively only after the age of beginning hardening or loss of elasticity of the arteries, whereby the force of the impaction waves is increased and correspondingly the intensity of the nystagmus. Mr. Scott's hypothesis of the impaction wave causing unilateral ablation nystagmus, considered from a physiologic, anatomic and experimental viewpoint and supported by evidence of a collateral nature, is plausible, and the greatest step in advance made in the solution of the problem of vertigo and the explanation of the mechanism of nystagmus since the contributions to the subject by Barany and Alexander.

CONCLUSIONS

The internal ears are the special sense organs of equilibrium. With the internal ears we recognize (orientation) and maintain our relations to space (equilibration).

The visual sense organs (the eyes), and the kinesthetic sense organs, (the muscles, etc.), are accessory sense organs of equilibrium and are coordinated with the special sense organs of equilibrium (the internal ears), through the mediation of the cerebellum.

The two special sense organs of equilibrium (the internal ear of either side), are normally symmetrical in structure and function, and any factor whatever, whether it be physiologic, experimental or pathologic, which innervates, stimulates or irritates one of these twin organs in excess of the other (or on the other hand accomplishes the same thing through enervation, depression or destruction of one in excess of the other), in that measure tends to or creates proportionately a disturbance of their joint functions—equilibration. If the disturbance of equilibration is sufficiently marked or intense we also get nystagmus and that unpleasant and complex phenomenon termed vertigo.

Finally, it must be acknowledged that not yet unravelled is the mystic arcanum of the mechanism of the complex labyrinthine function of equilibration and orientation, or the mechanism of the perversion or disturbance of that function as manifested by vertigo, nystagmus and disequilibration; but the great interest in research work now being directed along these paths augurs a satisfactory solution soon.

50 West Thirty-Seventh Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. HOINGER, FLECHER AND DAVIS

DR. A. B. DUEL, New York: I have watched with keen interest the rapid advances which have been made during the past few years in this branch of our specialty. From an unknown and unexplored field, surgery of the labyrinth is rapidly developing into a well-known and well managed one. This is due to the fact that this small and difficult field harbors the end-organs of two most delicate special senses, viz., those of hearing and orientation. By perfection of methods of examining these functions and careful observation of the alterations in them produced by various diseases affecting the

labyrinth we have learned to fix accurately the position and extension of these lesions. We are able to say with much certainty, this patient has a perilyabyrinthitis; this, an acute circumscribed suppurative labyrinthitis; this, an acute diffuse suppurative labyrinthitis; this, a manifest lesion; this, a latent one; this patient has a fistula; this probably has not a fistula.

Operative indications have been laid down in a most dogmatic way, depending on the presence or absence of certain definite indications. It needs no wise man to predict that these indications, exact as they may seem at present, will, when matured by long experience, be somewhat modified. We are too prone to be satisfied with a few rules which may be easily observed without knowing the reasons why these rules were made. Too many cases of patients operated on after observation of certain symptoms are being reported by men who have not given sufficient attention to the more difficult question of why these symptoms appeared. The phenomena of vertigo, nystagmus, ataxia, for instance, bear the same relation to the lesion or irritation in the vestibular apparatus as the absent patellar reflex and spastic gait of locomotor ataxia do to pathologic lesions in the cord causing it. No one would contend that he understood tabes because he recognized these characteristic symptoms, and likewise he should not feel that he understands suppurative labyrinthitis because he observes certain prominent features of the disease.

The function of orientation is a nice sense presided over by the vestibular apparatus; it is intimately associated with equilibration and brings this about by impressions through Deiters' nucleus, to the oculomotor centers on one hand, and to the motor neurones of the cord on the other. To accomplish this with perfect accuracy a double system is essential, just as binocular vision is necessary for judging distance, and binocular hearing for judging direction. In other words, angulation is necessary to nicety in sight, hearing, or orientation.

If the position of the semicircular canals be carefully observed, it will be noticed that the superior verticals lie at right angles to each other, the direction of their planes being from behind, forward and outward in either direction. The posterior verticals, at a lower level, are at right angles to the superiors on the same side and to each other, the direction of their planes being from before, backward and outward. The horizontals are so arranged that movements sidewise produce a current by the same movement, in one toward the ampulla, in the other away from it. As a result the canals work in pairs, and it becomes impossible to think of experiments by movements of the head, or whirling of the individual, which do not influence more than one canal at the same time. In fact, in the normal individual all forward and backward movements of the head must produce impressions from all four vertical canals at the same time and all coordinate movements of the eyes and muscles are the resultant of all these impressions. Now all impressions of motion in space resulting normally from orientation (the vestibular sense), come from currents set up in the endolymph by these motions. This impression results reflexly in movements of the eyes and a certain tension in the muscles to maintain equilibrium. Any upset in this delicate sense will result in subjective sensation of motion and reflex efforts to compensate for them, thus bringing about the phenomena of acute vestibular irritation—vertigo, nausea, vomiting, nystagmus—the direction and character depending on the nature and extent of the irritation.

Equilibration can soon be accomplished by practice, without orientation, by compensation, by means of vision and muscle sense. Hence the phenomena of acute vestibular irritation soon disappear and altered reflex phenomena have to be sought after and brought about by the special tests, as you have heard.

The man with only one labyrinth learns to do without the missing labyrinth just as he would without one eye or one ear, and he does without both just as he would without both eyes or ears. He learns to equilibrate without orientation. Is he just as well off? Certainly not; he feels the need of the faculty in any new environment or situation. Try a man

who has just lost one labyrinth and acute symptoms have disappeared—vertigo, nystagmus, ataxia, in ordinary situations—ask him to walk up or down an incline. He will be unable to do it at first, but by repeated trials he will soon learn. He has, in other words, learned to equilibrate with faulty orientation. After he has learned to do these things in the light, try him in the dark. He will fail again, but will learn with practice. His education in compensation for lack of sense of orientation will be analogous to that of a blind man learning to walk with confidence and just as difficult. We have only touched the outside edge of the subject of labyrinthine phenomena, although we have already learned to interpret them sufficiently to recognize danger signals and have grown so bold as to invade the domain of the labyrinth with impunity.

PROF. HOLGER MYGIND, Copenhagen, Denmark: So far as etiology is concerned, there is one point which I do not think has been brought out, and that is the traumatic cause—suppuration produced through operation, and especially due to radical operation. I have seen a considerable number of these cases, and I think that the labyrinthine suppuration caused by radical operation is much more frequent than most of us think. These cases that occur after radical operations have a very different course. I may divide them into three groups:

1. The very light cases in which no symptoms at all are observed by the patient or by the medical man. Even if such patients are asked if they feel at all ill after operation, they often reply, "No, I did not notice anything at all." As Dr. Fletcher pointed out, there is no proof that labyrinthine symptoms have not been present, only they have been overlooked, and the physician observes that there has been labyrinthine involvement; perhaps a week or more after operation he discovers that the patient is totally deaf in that ear and if the function of the labyrinth be examined it is found that it is lost. These cases, I think, teach a great deal; especially that we should be careful with our indications for radical operation. My experience is that our indications for simple mastoid operation ought to be very wide, for I believe the risk we run in acute cases is very small considering the risk the patient runs when he is not operated on. On the other hand, my indications for radical operation are very limited, so limited that in a discussion with Prof. Körner of Rostock I had even a more conservative view than he has, and he is very conservative on the whole. I think that when a patient with chronic suppuration of the middle ear has fairly good hearing we should be careful about performing the radical operation. If both ears are affected, we should be exceedingly careful and only do the operation when occasion demands it very strongly.

2. In postoperative labyrinthine suppurations in which there are distinct labyrinthine symptoms, the patient, shortly after operation, or sometime after, gets distinct labyrinthine symptoms—nausea, vomiting, noises in the ear, etc.—and in these cases one not infrequently sees paralysis of the facial nerve. What I say now it is not necessary to say to surgeons of great experience, but to the younger members here I say: After an operation, either radical or simple, if in the course of a few days a facial paralysis develops, look well to the labyrinth. It is often said that paralysis is due to blood-clot; pressure of the dressing, or something like that, but in my experience it is frequently caused by labyrinthine suppuration; and, of course, there is a close anatomic connection between the facial nerve and the labyrinth.

3. There is a group of cases of postoperative labyrinthitis, which is not so large, but which is very important; this is a class in which the labyrinthine suppuration develops explosively and leads to diffuse meningitis. The prognosis in these cases is very grave indeed; I have seen only one such patient recover. That was a boy of sixteen who had labyrinthine suppuration and diffuse leptomeningitis and recovered after craniotomy, excision of the dura, etc.

I consider an operation on the labyrinth a very difficult operation. One of the greatest difficulties is to avoid breaking down the bony wall of the Fallopian canal.

DR. GEORGE F. COTT, Buffalo: An interesting point raised by Professor Mygind is the question of traumatic cases, following the radical operation. Some operators have been luckier than others. In 10 years I have done 102 radical operations and have had only one patient die. How often do these cases occur?

There are not many reported in this country. In the last 3 or 4 years there have been some isolated cases, but I suspect that there are many more than have been reported. I have seen 8 or 9; 3 of these patients were operated on, and the labyrinth drained; and in 3 the radical operation was done; the others are still under observation with no operation. If that number occurs in a city of 450,000 why have not large numbers occurred in cities like Chicago and St. Louis? They no doubt do occur, but are overlooked. I do not know whether the otologists will be more conservative or not; I am afraid not. I think these patients will have to go to operation, although it is extremely difficult, or they will die. To wait until the patient is *in extremis* is bad policy. The physician must take the chance and so must the patient. Of course, everything must be thoroughly considered.

In this country we have not yet decided the question of time to operate. Jansen in Berlin two years ago read a paper in which he told of over 100 operations on the labyrinth which he had done with a death-rate of 29 per cent. In the next 100 cases he will have no such death-rate, because now we have more definite symptoms and the patient has a much better show.

As to the question of diagnosis, no man would think of operating on the labyrinth unless deafness were present. When deafness is complete and the other definite symptoms are present it is well to operate. The operation necessarily belongs to the otologist and not to the general surgeon, and I believe the general surgeon will never perform it as he does other operations about the ear, nose and throat.

Suppose a patient has caries of the middle ear, with a very long history; suppose he has had perilyabyrinthitis, and is in the latent condition in which the least irritation will set up further trouble—what are you going to do? If you operate radically the chances are ten to one that he will die unless the labyrinth is drained. Such cases have occurred and I do not doubt that they are the cases to which Professor Mygind refers in which the patient died after radical operation from involvement of the labyrinth.

Another point, as to the hearing after exfoliation of the cochlea in suppuration of the labyrinth: I find in Bezold's writings that he cites a number of cases in which a certain amount of hearing existed after the cochlea had been cast off. Politzer mentions that it may be possible for some hearing to exist without the labyrinth. Before Bezold's death I think he made the claim that it is absolutely impossible to hear anything after the labyrinth has been destroyed. In this country, Dench and some others have operated in a certain number of cases, drained the labyrinth, and after the patient has recovered found that there was a certain amount of hearing left. I take the stand that it is impossible to hear after destruction of the labyrinth. Bezold says that in the cases reported, bone conduction on the other side has been neglected.

DR. CULLEN F. WELTY, San Francisco: I wish to show a specimen of the complete labyrinth operation, and to call attention to the large amount of dura that is uncovered, giving free access to any operation of the cerebellum, also to call to attention the facial nerve in the canal; the cochlea and canals have been entirely destroyed. This operation is not so difficult as Prof. Mygind would have us believe. I have seen ten or twelve similar operations and have done three myself, and have not seen a case of facial paralysis. My patients are all well. Dr. Ducl hit the nail on the head when he said: "On the careful examination depends the whole condition." In the various ear hospitals it has been repeatedly demonstrated that there is a mortality of from 10 to 12 per cent. Prof. Mygind says that 65 per cent. of the cases of meningitis are infected by way of the labyrinth. When to operate and when not to operate is the all-absorbing question.

OPERATIVE CHART *

	Cochlea.	Excitability of Vestibular Apparatus	Fistula.	Spontaneous Nystagmus.	Operation.
I	+	+	+	+	No No
II	—	+	+	+	Eventual No
III	+	—	—	+	Operation Eventual
IV	+	—	—	—	Eventual Eventual
V	—	—	+	+	Operation Operation
VI	—	—	—	—	Operation Operation
VII	—	+	—	—	No No

* Neumann, Heinrich: Indikationen für die operative Eröffnung des Labyrinthis.

I here submit an operative chart. Grouped with the other a mistaken diagnosis is almost impossible. Use this last chart until you thoroughly master the situation from a pathologic standpoint and by that time it will be very clear indeed. There is a test that has not been spoken of; indeed, it is very important for those of us who will dare to operate without a proper examination, as I did in one case only recently. However, I operated under stress of circumstances that does not often happen. As I was completing my operation I found a good-sized fistula of the horizontal canal; besides, the facial nerve was uncovered, posteriorly. I had never seen the patient prior to operation and was leaving the following morning to attend the American Medical Association Session. By removing the anesthetic for a short time so that the patient might sufficiently recover for the reaction, a stream of cold water was directed into the ear. In a short time there was a steady pull of the whole eye to the opposite side; this is the reaction of functioning canals. This cleared the diagnosis wonderfully. Dr. Shambaugh says that a patient should not be operated on so long as there is hearing left. I am sure he has not thought of this in a serious way.

At the Otologic Congress at Budapest, Dr. Neumann reported a large number of cerebral complications showing conclusively that 75 per cent. of such cases were the result of acute exacerbation of chronic ear suppuration. Now should we follow Dr. Shambaugh's suggestion we should do the radical operation on patients with a latent labyrinth suppuration (patients who hear and do not react to the caloric test). As I have shown by Neumann's publication that the acute exacerbations are particularly dangerous, so it will be seen by this radical ear operation an acute exacerbation of the latent labyrinth suppuration is produced with possible fatal termination. According to the Vienna school of otology the labyrinth should be removed at the time the radical operation is done or left alone entirely. The disturbances of equilibrium and the *tinnitus* that one of the speakers refers to following the labyrinth operation are due to incomplete operation; in other words all other operations except Neumann's will be followed by more or less disturbance of equilibrium and by *tinnitus*—such as happened to me years ago! With more definite pathologic findings we are accorded the privilege of changing our conclusions in regard to various operations.

DR. G. E. SHAMBAUGH, Chicago: Several points have been brought up in this symposium which I should like to emphasize. In the first place, we must keep in mind that in suppurative otitis media a number of different types of internal ear complications may occur, all of which give rise to distinct labyrinth symptoms such as vertigo, nystagmus, *tinnitus* and deafness. It is important that we make a correct diagnosis of the type of complication in a particular case because the treatment is different for the several complications. In some of these complications giving rise to labyrinth symptoms, a simple mastoid operation is indicated; in others, the labyrinth itself should be opened up, and in still others nothing beyond the treatment of the otitis media by the ordinary measures is called for. Most important is it that we differentiate between cases of diffuse suppuration of the labyrinth and cases of labyrinth fistula, or the so-called circumscribed labyrinthitis, be-

case in the latter we do not open the labyrinth, whereas the opening of the labyrinth may be called for in the diffuse suppuration. The diagnosis between diffuse suppuration of the labyrinth and diffuse serous labyrinthitis is also important because it is not advisable to open the labyrinth in cases of serous involvement. We should never open the labyrinth when there is any function retained in the labyrinth such as a remnant of hearing or a vestibular apparatus that can be stimulated. It is a much graver mistake to open a labyrinth when no adequate indication exists than to neglect to open it when the diagnosis would seem to indicate an operation. Many of the patients with diffuse suppuration of the labyrinth will recover spontaneously without operation, whereas to open into a labyrinth not the seat of diffuse suppuration experience has shown to be of danger to the patient. It is not possible to interpret intelligently the various symptoms arising from the several complications of the labyrinth without a clear understanding of the physiology of the inner ear and without a clear idea of the pathology of these complications.

I cannot agree with Dr. Welty that the disturbances that occur after operation on the labyrinth occur because it has not been entirely destroyed. The function should be destroyed before we operate. If symptoms of labyrinth irritation occur after operation it means that we have operated when we should not have done so, because there was still function there.

In my experience I have not yet observed the condition which Professor Mygind points out, in which there is apparently after a radical operation a destruction of the labyrinthine function, without our being able to recognize it from the symptoms. He said we might recognize it perhaps weeks or months afterward. That it is possible for a patient to have a rapid destruction of the labyrinth without symptoms I have not observed. It would seem to me that such a case might be explained by the fact that before operation we did not go through the complete tests. There might have been destruction of the labyrinth without the patient being aware of it dating back perhaps many years.

DR. ROBERT BARCLAY, St. Louis: Whatever the condition of the ear—whether or not there be suppuration of the middle ear, with or without extension to the labyrinth—vertigo may arise from, and should be attributed to, another source. My attention was directed to this when the cause of vertigo was being discussed; and that it might be borne in mind in every case I thought it well to speak of the influence of the inferior cervical ganglion. From that ganglion arise not only the inferior cardiac nerve but also vasomotor fibers that control the contraction and dilatation of the vertebral artery, of which the labyrinthine artery is a branch, and from which alone the arterial supply of the labyrinth is drawn. The effect of tobacco, acute tobacco intoxication—especially in enfeebled persons or in young persons beginning to smoke—largely affects this very nerve center, the inferior cervical ganglion and its arterial and nervous distribution. Such an attack resembles the pure labyrinthine inflammatory invasion very closely; and I wish to call attention to it and emphasize the necessity for considering this possibility in all cases of vertigo.

DR. C. M. BROWN, Buffalo: I agree with Dr. Shambaugh that it is not wise to operate on the labyrinth so long as we have any function left there. The greatest problem is when to operate and when not. We are all doing mastoid work and I believe that it is not right to do it without first making an examination to find out if the semicircular canals and cochlea are functioning. We can all examine the internal ear. The caloric test is always at hand and should be used in every acute as well as in every chronic case of mastoiditis in which we are going to operate. It is a well-established fact that in syringing an ear with cold water one gets nystagmus to the opposite side if the labyrinth is functioning. Every patient can be so examined in order to ascertain if the labyrinth is functioning or not.

Recently I had a case of double otitis media in which there was a question concerning which side to operate on. Both sides were examined thoroughly; on one side the vestibular apparatus was not functioning at all—

no result on turning and no result with cold water. There was chronic suppuration on both sides following scarlet fever at the age of 2. I did not operate on the side that was not functioning. If I had I should have expected meningitis, if I had not at the same time removed the internal ear.

Do not operate in a mastoid case without testing the condition of the vestibule, and if you cannot do an operation on the internal ear leave that mastoid alone which has a non-functionating labyrinth. If the cochlea and vestibule are destroyed it may be well to remove both. We should not quibble too much on when to operate on the internal ear, but on when to leave it alone.

DR. LOUIS K. GUGGENHEIM, St. Louis: The statement was made by Dr. Fletcher that with a diffuse suppurative labyrinthitis, say of the right side, he got a spontaneous rotatory nystagmus to the left. On syringing the left ear with cold water this nystagmus is decreased, and if syringing is continued long enough we get a rotatory nystagmus to the right (diseased) side. A vestibular nystagmus to the diseased side in a case of diffuse suppurative labyrinthitis without an intracranial complication I believe to be impossible, for the following reason: Normally the two vestibular apparatuses exert a certain equal influence over the eye-muscle nerves through the vestibular nerves, Deiter's nucleus, the fasciculus longitudinalis posterior, and the nuclei of the abducens and oculomotor, and any disturbance in the equilibrium of this influence results in nystagmus. Now in a diffuse suppurative labyrinthitis of the right side the influence normally exerted by that side is lost, the left vestibular apparatus acts alone, the result being a vestibular nystagmus to the left side. If we now syringe the left side with cold water the influence exerted by the left vestibular apparatus is temporarily lessened by the paralyzing effect of the cold water. The result is a decreased nystagmus to this side. If the syringing is continued long enough, the stimuli which normally pass from this side to the eye muscles may be entirely lost. The result will be complete cessation of nystagmus. Now, no matter how long the syringing with cold water is continued, a vestibular nystagmus to the right (diseased) side is, I believe, impossible, for the simple reason that the right vestibular apparatus is no longer functioning. In other words, with the right vestibular apparatus destroyed by the diffuse suppuration and the left vestibular apparatus temporarily paralyzed by cold water, we again have vestibular equilibrium restored. Therefore, there can be no nystagmus of the vestibular variety, as this depends on a disturbance of vestibular equilibrium for its existence.

PROF. HILGER MYGIND, Copenhagen, Denmark: I think the difference of opinion between Dr. Welty and myself may be explained by the difference in our operations: I do the operation more radically. Dr. Welty has passed round a temporal bone on which he has made resection of the labyrinth. Now, I want to state that Dr. Welty has not opened the whole of the superior semicircular canal. That is just where the difficulty comes in. It is important to have a very small chisel and a very sharp one. To Dr. Shambaugh I would say, the reason the labyrinthine symptoms are overlooked is likely because these postoperative suppurations often come in the course of the first twenty-four hours after operation when the patient is still suffering from the effects of the anesthetic.

DR. ORTO GLOGAR, New York: A few years ago, when I was assistant to Professor Politzer in Vienna, Dr. Neumann said: "When you go to America tell them about this labyrinthine work; you will find that they do not know very much about it." A few months ago when Dr. Neumann was here he was astonished to find how much was known about it in this country. Three years ago I suggested that all cases of chronic suppuration of the middle ear be examined before radical mastoid or labyrinthine operation, as is done in Politzer's clinic, that is, by the so-called labyrinthine schema. I am in accord with Professor Mygind that we must be conservative in the radical operation, but we can only do this by following up the cases, every day making a new test and thus detecting labyrinthine symptoms at the very onset of the inner ear involvement. There is another disease which simulates lab-

yrinitis and is caused by pressure symptoms only. A retention of pus or cholesteatoma behind a fragment, adherent to the promontory, or behind a new membrane formed in place of the destroyed tympanic membrane may cause all the symptoms of labyrinthine suppuration; these will readily disappear, however, when the primary cause is treated properly. I consider Dr. Neumann's method of operating on the labyrinth the best.

DR. J. R. FLETCHER, Chicago: The fibrous connective tissue formations in the area of the oval window aid in the production of fistulas. In relation to the matter of operation on the labyrinth, the statement has been made that it is not difficult; my experience has been mainly on cadavers, and I opened the facial canal in many of them. I have made no report of operations on the living. Every test that is mentioned in this paper I have repeatedly confirmed, and I believe that I have not deceived myself. I think they are correct.

DR. G. E. DAVIS, New York: I do not know whether I understood Dr. Duclouet in regard to the loss of orientation with the destruction of one ear. I tried to make it clear in my paper that the ear serves the purpose of audition, orientation and equilibration. I also mentioned two other sets of accessory sense organs, the eyes and the muscles. It goes without saying that with the loss of one ear a man may have orientation and equilibration just as when one eye is lost he may have vision. With the loss of one set of these sense organs the other two sets in a short period will enable the individual to re-establish these functions. Orientation is the recognition of our position in space and equilibration is simply the faculty of assuming and maintaining position in space. With the loss of one ear, if a man can stand, he appreciates that he is standing, and if he reclines he appreciates that he is reclining, and that is the function of orientation. Maintaining that is equilibration. Now with the loss not only of one ear, but the visual organs also, a man soon learns to appreciate his position in space and to maintain it.

Dr. Shambaugh has, I think, fully answered Dr. Welty as to the destruction of the labyrinth. I wish to answer another point of Dr. Welty's in regard to his statement that the caloric test was negative after either the cochlea or semicircular canal system is out of commission. Now, if the cochlea is out of commission and the semicircular canals are in commission and the caloric test be made, a reaction is manifested by nystagmus, with nausea and vomiting, showing that the semicircular canals are still functioning.

FOIBLES IN SPECIALISM*

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One of the easiest tasks is to find fault with existing things, whether they be right or wrong. There is but one other thing as easy, and that is to go wrong, as nearly all the nations of the earth were tempted to depart from the paths of right, and thus prepare the way for their enemies to encompass their destruction. Even after a short season of right-doing the Israelites, as soon as Moses was out of their sight up the mountain, made them a golden calf and worshiped it. They were not the only ones who did this. Some of the most powerful nations of the earth, drunken with the wine of material success, became unmindful of their morals, and departing from the virtues of the fathers, indulged in riotous living, became vain and arrogant, and thus soon went to their destruction. As with nations, so with individuals. Their foibles are their ruin.

Thus it might fare with the foibles of specialism. Not that specialism is not a good thing; on the contrary, it is indispensable. The realms of knowledge are so large that it is no longer possible to follow the teachings of a Chesterfield: "to be a gentleman it is necessary to know a little of everything, and know all about some things." Science asks too much of us now to follow the above teaching. This is the era of specialism, and we must be content with a choice of careers. Medicine is but a branch of the natural sciences, namely, biology, and we are not able to learn all even of this one branch. We have found it needful to study more particularly some of the parts of medicine in order to do justice to our patients' needs. This leads us to medical specialism.

May I suggest that, if we could eliminate all pseudo-science, or else if we could establish a censorship of that part of our literature which masquerades as scientific, many of our burdens would be lightened and much of our precious time would be saved. Our library shelves groan under the weight of verbosity, prolixity, tautology, and literary dust, straw and chaff. This pseudo-science has begotten pseudo-specialism and specialism gone mad.

This paper is not to be construed as the usual diatribe of a generalist against specialism, as I am an admirer of true specialism, for I recognize it as an absolute necessity; but it is a warning against the foibles of the pretender and some of the better ones even, whose zeal has exceeded their discretion. The earnest and true scientific specialist also, at times, succumbs to the foibles of his class, which is an easy thing to do when off guard. For instance, it is very easy to fancy that all affections of man must fall under this or that particular branch of practice, so that, one might think, the other specialities do not amount to much. For example, I recently heard a man, who fancied he is a major surgeon and who does some creditable surgery, stigmatize some other men as finger-and-toe surgeons. You know, of course, what he meant to express, though there is some surgery about the fingers and toes that may tax the skill of the best of surgeons.

There are those in our own Section on Diseases of Children who act as if all there was to pediatrics was the artificial feeding of infants—as if all babies were fed out of bottles! Those inclined to mathematics want to reduce infant-feeding to algebraic or logarithmic formulas, the results of which, of course, agree with some children, the same as almost anything else would agree with them. Others, in writing of the management of the infant, would make us infer that all the babies they treat are the children of millionaires. They describe the duties of the first nurse, those of the second nurse, then that of the nursery maid. They then tell us when the child should spend its time in the nursery, when in the solarium, and when in the tent on the housetop, when it should have a ride in the grounds, when in Central Park, and when it should take a sea voyage. This makes us heave a sigh and exclaim "lucky dog."

I really think that the specialist spoke from his usual habit and daily practice; only he forgot that there were some mothers who do not have two nurses, no solarium except the back porch of the flat, no sea, except the mud puddle in the alley, no housetop where the little sufferer with pneumonia may be put in a tent, and no tent. The moral is obvious. It may not be amiss to say that in the rural districts most children are fed on the moth-

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

er's breast, and the artificially fed babies are given cow's milk, often augmented with cream, and they thrive. I do not mean by this that the rules for artificial feeding should be disregarded; but they receive too much emphasis on the floors of pediatric societies. What the majority of mothers need is such directions as they can follow and practically carry out in their homes, according to the dictates of common sense, and not according to the vaporings of a specialist of the ethereal cult, which, be they ever so valuable for the clinical laboratory of a multimillion-endowed hospital, are not within reach of the average mother's ability to execute.

Another foible is the idea that it is always necessary to give the history of the affection under discussion, its bibliography, pathology, etiology and antiseptic technic, how to wash the hands, etc., until the few grains of truth the author wishes to present are so mixed with chaff, straw, dust and debris that what would have been a modest book or paper, becomes a bulky mass that is scarcely worth while to peruse for the worth it may contain.

The history of disease, if worth the reading, can be found in special books; we also have works on antiseptics, pathology, etiology and the other trimmings, so that it is not only unnecessary to mention these things in every paper or book, but also a clumsy method of exhibiting one's exaggerated ego at the frightful expense of the money, time and bookshelves of the unfortunate reader.

Another foible of which the specialist should beware is considering the attendant who calls him an *ignoramus*. The consultant rightfully is supposed to have special knowledge in the case, else he would not have been called. But this does not by any means make the attendant an inferior man. The general internist is often the better man of the two, and, if the specialist were to measure up with the internist, he would find himself very often the smaller man. In his specialty he is assumed to be the better man, but that should not cause him to put on airs, become pompous, or otherwise conduct himself so as to disparage the attendant. Though some may question if this is ever done, it is almost as much the rule as the exception. Then the attendant gets tired, and softly swears to himself, "Never again."

Another foible very common and damaging to specialism is the too close application to specialism. It is almost as impossible to be a specialist without keeping informed in the cognate branches, as it is to keep well informed in the whole field of medicine. Yet a certain amount of general information must be kept up in order to be a specialist of the broad school, so as to be comprehensive, not narrow, as it is easier for a man to have a larger horizon from the top of a hill than from the bottom of a well. Now we all concede that specialism, as exhibited in the Section on Diseases of Children, is for the good of mankind, including the members of the Section, and that only the highest motives impel all of us to contribute what we do. Yet, lest we forget, I sound this note of warning to all who specialize, that things too highly specialized may exceed their sphere of usefulness, and become merely ornamental and ideal from an academic point of view, rather than useful and practical.

The physician must, in the larger number of cases, entrust his directions not to trained nurses, but to mothers of varying grades of intelligence, and hence he must

learn to give such instructions as any particular mother may be able to execute, so as to obtain the greatest good to her child. These instructions are simple when compared with those issued to a staff of nurses in one of our teaching hospitals, equipped with a clinical laboratory, yet it requires no great stretch of the imagination to see that the one may lead to better results when issued to a mother of average intelligence than the other. Here is where that peculiarly indefinable quality of the mind, called "common sense," makes itself especially felt. Not that I want to establish it on a throne above science, but I would place it on a level in conjunction with experience, one on the right, the other on the left of science, so as to make that glorious trinity the ally of the physician, which makes for success in the treatment of disease and puts to flight the bizarre and finicky vaporings of the evanescent etherealist.

No word has been more abused than the word "practical," unless it is the other word "specialist." When taken together in their larger sense they are scarcely susceptible of abuse, and for this I make a plea. And whether we prescribe for a sick baby, or write a book on the subject, let us not make it encyclopedic with the accumulated dust of the ages, but rather let us follow the authors of mathematical works, who do not insert the multiplication table into every book, but let it suffice to appear in one of the primary books of the series. For instance, the bacteriology of one part of the body is very similar to any other part; hence the antiseptics or asepsis of one is similar to that of any other part; so there is no need to mention these and their tedious details in everything medical that is read and published. The author's learning will be in evidence without these tiresome details, and our time may be spent more profitably in reading rather than hunting for the little new and instructive matter we seek and need. Of course, publishers must live, but they should serve us and not we them. I have a few small monographs in my library, less than half the size of the ponderous volumes we are now offered, that contain more solid meat than many a book three times their size. Then there is a system of four volumes with a ponderous 1100-page supplement two years later, which are so stuffed and padded with the history, bacteriology, case histories, aseptic technic, prescriptions, pharmacology, quotations from obsolete authors, parallel opinions from more modern authors, hazardous opinions not yet proved, long bibliographies, and doubtful statistics, that it takes endless time to find anything if it is wanted ever so much. These things are really not foibles but crimes, and should be punished, if it were possible.

My excuse for reading this paper in this Section is not its special fitness for the Section on Diseases of Children, but the fact that we have no section especially appropriate for the reading of such a paper unless it be appropriate for any section. We must read, not scientific papers only, but papers on anything that may be of benefit to the medical profession. The two divisions of the American Medical Association into legislative and scientific do not nearly cover the legitimate field of our activities. We should have a time and place in general session where such things as medical economies could be taken up and briefly discussed. I trust as we progress we may grow broader, and then we shall have fewer foibles in specialism as well as in all things medical.

1007 Fifth Street.

A CASE OF COLLOID CARCINOMA OF THE SKIN

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I report this case, first, because of its rare occurrence, as I am unable to find a similar condition reported in literature, and secondly because it emphasizes the importance of laboratory work in cases of obscure diagnosis.

History.—Miss C. G., unmarried, aged 35, a clerk, entered my service at the Cook County Hospital, June 8, 1910. She had always lived in Chicago and was apparently of good habits. Menstruation began at 14 years, was regular and of the twenty-eight-day type.

Present Illness.—The patient stated that two weeks before entering the hospital a blister appeared on the lower third of the right leg and that after a few days it opened, and an ulcer followed, for which she sought treatment. She denied having injured the leg or having applied any drug locally. With the exception of the ulcer she said she was in good health.

Past History.—She was well up to the present illness, except that her legs occasionally swelled, which condition a physician told her was due to nephritis. She had diseases of childhood and malaria ten years ago, but denied typhoid and all venereal infections. Family history was negative, except that the patient's mother died of heart disease.

Examination.—The patient was an obese white woman, quite nervous, but apparently having no pain; no cyanosis or icterus. The pupils were equal, reacted to light and accommodation; the mouth was negative, except for a few decayed teeth; there was no thyroid enlargement. The lungs were negative. The heart showed no enlargement; tones strong, regular, no murmurs. There were no ascites, no abdominal masses, no tenderness on palpation. The liver was not enlarged; the spleen not palpable. The lower half of the right leg was edematous. About 2 inches above the ankle was a superficial, irregularly shaped ulcer about 2 inches in diameter. The parts surrounding the ulcer were inflamed and tender. The femoral glands of the right leg were moderately enlarged; there was a slight varicosity of veins of both legs; pulsation of posterior tibial and dorsalis pedis was less marked on the right than on the left leg. The uterus was in good position and not tender; there were no masses or tenderness in pelvis. Knee-jerks were present; Romberg and Babinski absent. The urine was clear, amber, specific gravity 1020, acid, no albumin, sugar, casts, leukocytes or red-cells. Blood examination showed 15,000 leukocytes; no malarial parasites.

Course of the Disease.—On first examination I thought the condition was a dermatitis with infection and ulceration, and accordingly applied hot dressings, which failed to alleviate the symptoms. During the first three weeks in the hospital the patient ran an irregular temperature, ranging from 99 to 101 F., with no special evening rise. The ulcer gradually extended until it involved the entire anterior third of the leg and laid bare the tibia. It was very foul and sloughing. On the ninth day after admittance a bluish discoloration of the toes appeared which gradually increased in intensity and extension until there was a well demarcated gangrene of the entire foot and lower third of the leg on the twenty-second day. The leg was then amputated just below the knee. During the patient's entire stay in the hospital she had a severe diarrhea of greenish, liquid stools, containing small amounts of blood, but no parasites, and also continually lost weight. After the operation the patient grew steadily worse, the diarrhea becoming uncontrollable and the emaciation being very rapid. Three weeks after the operation she became irrational and very weak, and three days later, on the forty-sixth day after admittance, died. I was uncertain as to the cause of death and as no post-mortem examination was permitted I made the tentative diagnosis of tuberculous enteritis.

Pathologic Finding.—At the time of amputation I excised a piece of the involved tissue for examination, which the hospital pathologist diagnosed as colloid carcinoma.

As colloid carcinomas occur most frequently in the intestines it is most probable that the patient had a colloid carcinoma of the intestines with a secondary growth in the skin.

THE PATHOLOGY OF JOINT TUBERCULOSIS:
TUBERCULOUS SINUSES

LEONARD W. ELY, M.D.

DENVER

In numerous articles in the past I have called attention to the importance of avoiding secondary infection of the walls of tuberculous sinuses and abscesses by the germs of suppuration, and have pointed out the danger the patient incurs if this secondary infection take place. In this I have followed the teachings of others and my own experience, an experience gathered in treating many cases of joint tuberculosis. On the other hand, the custom of opening, scraping and packing tuberculous abscesses is still widespread, and those who practice it do so either from ignorance or because their experience teaches them that it is correct. Now, the experience of one man may be said to be as good as that of another, and until we can bring proof to sustain us we shall hardly convince our opponents. A very suggestive case of tarsal tuberculosis has recently furnished us with additional evidence of the truth of our contentions, and I shall quote it at length. Before doing so, however, I wish to call attention to one or two points in the pathology of joint tuberculosis.

Pure tuberculosis does not, possibly with very rare exceptions, attack ordinary connective tissues of low grade of organization. They must contain some peculiar cellular elements in addition.

The red or cellular marrow of bone and the cellular synovial membrane, tendon sheaths, lymph nodes, epithelial structures, etc., are vulnerable; but cartilage, ligaments, fatty or yellow marrow, fibrous connective tissue, etc., escape direct infection. If, however, a secondary infection by pus germs be added, tissues that were immune before, now are open to attack.¹ An ordinary tuberculous abscess, starting from a focus in a bone, making its way toward the surface along the fascial planes, travels along a path of ordinary fibrous tissue which is not open to attack. So long as these abscesses remain uninfected the patient does not suffer from constitutional involvement nor from other symptoms except possibly those due to pressure. If a secondary infection be added the entire picture is changed, and forthwith the constitutional symptoms of pain, fever, etc., become prominent, the danger to the patient is greatly increased and his chances for recovery are seriously impaired.

What is the reason for this? Why are these tracts once infected so difficult to heal? No matter how vigorous our method of drainage, their course is never that of a simple infected abscess. They may exist for years. One reason is that the secondary infection has changed what was a small localized tuberculous focus into a widespread tuberculous area, and has added a mixed infection. In an old tuberculous sinus tubercles may be seen under the microscope deep in the walls, inaccessible to any curette, but in an uninfected sinus no tuberculosis is present. In other words, the walls of an uninfected

1. Ely: Surg., Gynec., and Obst., July, 1910.

tuberculous sinus are not tuberculous; the walls of an infected tuberculous sinus are tuberculous. By permitting infection of a sinus with pus germs we are at the same time infecting it with tuberculosis. This fact, though not new, is not generally known. The following case illustrates it:

The patient was a man of forty-four years, a driver. He had suffered from pain and disability of his right foot for twenty months, and these symptoms had increased to such an extent that he was compelled to go about on crutches. He had been treated with plaster of Paris and strapping, and had never had any open sinuses. Examination showed moderate swelling over the dorsum of the foot, and considerable sensitiveness to pressure. The foot was in eversion. The lungs were involved. The evidences of the disease were so small that the wisdom of an amputation was doubted, but, acting on the theory that tarsal tuberculosis in the adult seldom if ever is cured without an amputation, and especially in view of the patient's pulmonary disease, this operation was decided on and was performed at the Roosevelt Hospital. During the performance of a Syme's amputation, the knife of the operator cut through a sinus on the dorsum of the foot, leading upward, but not communicating with the surface. From this sinus pus oozed.

By courtesy of the house staff I secured the specimen. On dissection it was found that the comparatively mild symptoms were caused by an extensive tarsal tuberculosis which had involved two of the tarsal joint cavities with their ramifications, and the talus, navicular and cuneiform bones. The cartilages were roughened, mottled and eroded at their periphery. The synovial membrane was thickened and inflamed, and showed under the microscope typical tuberculosis, but the walls of the sinus from this tuberculous lesion showed, not tuberculosis, but the ordinary evidences of inflammation—round cells, polymorphonuclears, edema, arterial thickening, dilated capillaries, etc.

If one will picture to himself this extensive bone tuberculosis penetrating the bones of the tarsus, covered up as it is by ligaments running in every direction, with numerous tendons passing over these, and with blood vessels and nerves added, he will appreciate the utter absurdity of an attempt by a partial operation to eradicate under all these a disease of whose extent he cannot possibly have any idea. Any other operation than an amputation would have been worse than useless.

440 Humboldt Street.

Special Article

TYPHOID FEVER IN DETROIT

BY THE SPECIAL COMMISSIONER OF THE JOURNAL

The reports of the municipal board of health show that in certain years typhoid fever has prevailed in Detroit to an extent that must be called excessive. The death-rates from this disease for 1887, 1888, 1892, 1893 and 1907 are so high that they might well have been the occasion for grave concern to the inhabitants of any modern civilized city. The facts are set forth in Tables 1, 2 and 3.

NATURE OF THE AVAILABLE STATISTICS

Other than these bare records of deaths, there is little to throw light on the extent, distribution and age incidence of typhoid fever in Detroit. The first report of the health department was published in 1882; so late as 1894 we find 83 deaths recorded under the head of "febris," and in a footnote these are said to include: "febris intermittens 8, perniciosa 1, puerperalis (!) 10,

remittens 4, typhoides 64, typho-malaria 6;" it was not till 1904 that typhoid fever was added to the list of diseases that must be reported to the health officer. Even now it is plain that only a small proportion of the typhoid fever cases are regularly reported to the authorities. In 1905-6, 70 deaths and only 87 cases were reported. It may be recorded in passing that the system of recording vital statistics on the basis of the fiscal year (July 1-July 1) rather than the calendar year does not facilitate comparison with conditions in other cities.

It must not be supposed that Detroit is peculiar in most of the practices above mentioned. Until recently few American cities have had a satisfactory system of nomenclature, and certainly very few have at the present time any adequate record of typhoid fever cases. Detroit can hardly be said to be much different in this respect from the average American city of its class.

An exception must here be noted to the aforesaid meagerness of record. One particularly severe outbreak

TABLE 1.—TYPHOID DEATH-RATES, DETROIT, 1886-1909

Year.	Population.*	No. Deaths.†	Deaths per 100,000 pop.‡
1886	170,061	67	39.4
1887	179,015	116	64.9
1888	187,986	86	45.9
1889	196,922	60	30.5
1890	205,876	39	19.0
1891	213,859	73	34.1
1892	221,842	208	93.8
1893	229,825	97	42.2
1894	237,808	67	28.2
1895	245,790	61	24.2
1896	253,773	57	22.5
1897	261,756	38	14.5
1898	269,739	58	21.5
1899	277,722	35	12.6
1900	285,704	50	17.5
1901	303,710	58	19.1
1902	321,716	60	18.6
1903	339,722	53	15.6
1904	357,728	58	16.2
1905	375,735	63	16.7
1906	393,741	80	20.3
1907	411,747	100	24.3
1908	429,753	87	20.2
1909	447,759	94	21.0

* Population of 1880, 1890, 1900, 1910, U. S. Census. Intervening years calculated by "arithmetical" method (Twelfth Census Bull., No. 135).

† Number of typhoid deaths recorded in reports of health department.

‡ Rates computed directly from populations and typhoid deaths given in this paper.

TABLE 2.—AVERAGE TYPHOID DEATH-RATES BY FIVE-YEAR PERIODS

1886-9	45.2	1900-4	17.4
1890-4	43.5	1905-9	20.5
1895-9	19.1		

of typhoid fever—in 1892—was made the object of special investigation by a competent observer,¹ and his conclusions were published in a supplement to the annual report of the Michigan State Board of Health, 1898.

THE CAUSE OF THE 1892 OUTBREAK

The extensive epidemic of the summer of 1892 carried the typhoid death-rate for that year to the highest figure known in the sanitary history of the city (93.8) and is one of the severest recorded in any American city during the last twenty-five years. Professor Williams' careful study of the distribution of the deaths and the age of the decedents, together with other data, led him to the belief that nothing but the public water-supply could be the general vehicle of infection. All the facts obtainable at the time pointed to this conclusion, and it is indeed difficult to explain so explosive an epidemic and one of such magnitude in any other way. The discussion that followed the reading of Professor Williams' paper in the sanitary convention at Detroit in December, 1897,

1. Gardner S. Williams, at the time civil engineer to the Board of Water Commissioners of Detroit.

showed that leading sanitarians were ready to accept the explanation of a water-borne origin.

The source of the unusually heavy water infection responsible for the epidemic of 1892 was made the object of special investigation in the study just cited. The conclusion was reached that the excessive numbers of typhoid bacilli in the Detroit water at that time had come from the sewers at Port Huron, the only city on the American watershed having a system of sewerage. Computations made from the best available data indicated that not more than twelve or less than six days would probably be required for the water to flow from Port Huron to Detroit. A fact thought to be of special significance was the circumstance that extensive dredging operations in the channel of the Black River, the small stream into which all the sewers of Port Huron emptied, had been conducted by the United States government in the spring of 1892 and, therefore, just prior to the outbreak in Detroit. The material excavated was loaded on scows and dumped in St. Clair River about a mile below Port Huron. It is supposed that the sewage deposit thus added to the water of the St. Clair contained typhoid bacilli which found their way in from

wide and 800 feet long, with an average capacity of about 30,000,000 gallons. The daily per capita consumption is estimated as averaging from about 160 to 180 gallons. The total amount pumped daily ranged during the year 1907-8 from about 59,000,000 to over 91,000,000 gallons, an amount equivalent to from two to three times the capacity of the settling-basin.

The character of the water-supply is tested at intervals by the city analyst and bacteriologist. The results in general appear to be satisfactory. In the report of the health board for 1907-8 we read: "The bacterial count varies from 96 per cubic centimeter to 720 per cubic centimeter, the latter count only existing for a day or so in the spring. At no time this year have colon bacilli, or other evidence of sewage contamination, been observed." No statement is made in the published reports as to quantities examined or methods employed in the attempt to detect sewage contamination.

On September 21 and 22 of the current year (1910) your commissioner examined specimens of the Detroit water-supply drawn from a tap in the business district of the city. On September 21 two 0.1 c.c. samples and two 1 c.c. samples did not show the presence of *B. coli*,

TABLE 3.—DEATHS BY MONTHS FROM TYPHOID, 1889-1909

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1889	5	1	3	1	6	3	5	7	8	9	11	0	60
1890	3	1	3	1	0	3	4	8	7	2	3	3	39
1891	2	2	0	2	6	3	1	1	19	15	16	3	73
1892	7	4	12	11	6	38	22	30	26	27	16	9	208
1893	6	3	8	10	6	3	7	12	14	14	11	5	97
1894	4	3	7	6	4	3	6	6	8	7	7	4	67
1895	3	1	5	4	4	3	3	8	9	11	11	3	61
1896	4	5	5	7	4	2	2	5	11	5	1	6	57
1897	1	0	0	1	0	1	3	10	16	5	7	4	38
1898	3	4	1	1	2	1	8	9	13	9	4	2	58
1899	6	0	1	0	1	3	3	3	3	10	4	2	35
1900	5	4	5	3	4	6	2	4	3	9	3	2	50
1901	4	3	6	2	4	5	2	6	6	11	5	4	58
1902	7	2	2	2	3	1	6	9	9	10	3	6	60
1903	1	2	3	3	6	3	3	8	4	6	10	5	53
1904	2	5	5	5	6	5	5	6	4	7	5	3	58
1905	2	2	4	3	1	3	5	11	10	8	6	8	63
1906	5	3	2	1	6	3	5	8	19	11	4	11	80
1907	9	5	8	6	9	5	4	7	13	14	10	10	100
1908	3	2	3	4	4	4	12	11	15	14	11	6	87
1909	6	3	3	6	4	4	8	12	21	14	5	5	97
1910	4	5	6	1	5	3	4	15	*	..	..	..	..

* Seventeen deaths reported up to September 26.

one to two weeks to the Detroit water intake. While this explanation leaves unaccounted for the large amount of typhoid fever in Detroit in March and April, 1892, and throughout the whole year 1893, the evidence in Professor Williams' paper must be studied in detail to be appreciated at its full value. It may be added that this instance of alleged long-distance water conveyance of typhoid bacilli was cited in the Chicago Drainage Canal case and was the subject of comment by witnesses on both sides of the controversy.

While it may be admitted that the precise origin of the Detroit epidemic of 1892 was not indisputably ascertained, there can be no doubt that in some way typhoid bacilli had gained access to the public water-supply in that year. There was no difference of opinion in regarding the water-supply at fault.

DESCRIPTION OF THE WATER-SUPPLY

The water-supply of Detroit is drawn from the American channel of the Detroit River at a point near the northeast corner of the island of Belle Isle (see diagram). There are three inlet pipes, one 1,000 feet and two 1,500 feet long, one 5 feet and the other two 6 feet in diameter. These run from the channel of the river to an open settling basin. The settling basin is 365 feet

but in a third 1-c.c. sample two *B. coli* organisms were present. On September 22 *B. coli* was not present either in two 0.1 c.c. or in three 1 c.c. samples examined. Litmus lactose agar was used as the isolating culture medium and the nature of the red colonies verified by sub-cultures. Four 1 c.c. samples taken direct from the settling-basin showed the presence of *B. coli* in one case.

These bacterial examinations do not afford any marked evidence of contamination at the time the samples were collected. On the other hand, their generally negative character does not necessarily imply that the water is at all times and under all conditions safe. A dangerous infection of such a water-supply as that of Detroit might exist for a day, or even a few hours, and remain undetected unless examination of the water was searching and frequent. It is noted above that in one sample of tap-water colon bacilli were demonstrably present.

A MENACE TO DETROIT'S WATER-SUPPLY

Reference to the topographical diagram shows a small stream known as Connor's Creek, which empties into the Detroit River on the American side a short distance above the water intake. This stream flows through a large cemetery and receives the drainage from a part

of Fairview (estimated to contain about 400 families at the time of its annexation to Detroit, in 1907). The situation thus created seems to have been a cause of anxiety to some of the Detroit authorities for a long period. In the discussion of the 1892 epidemic, already referred to, it is stated that as a rule the water of Connor's Creek does not mix sufficiently with the main current of the river to reach the intakes, but flows past nearer shore.² Even if this is the case, however, there is certainly danger from this source when an intake pipe nearer shore is used, as seems sometimes to be the case.³ There is some evidence, furthermore, that the water at the main intake crib may be affected. One observer⁴ is on record as follows: "When there is a flood in Connor's Creek basin the foul waters of the creek can be readily seen all the way from its mouth in the river to the opening of the city sewers. It is not unusual after heavy rainfalls and consequent floods of the creek basin to find the city water as drawn from the house faucets contaminated with quantities of organic matter."

officer of Detroit, Dr. Guy L. Kiefer. In the 1903-7 report the statement occurs that Detroit is "reaching a death-rate which will soon cast suspicion on our water-supply." In the same report an appropriation is urged "sufficient to carry the sewage of Fairview to a point in the river beyond the intake of Detroit's water-supply. This precaution is the least we can take . . ." Similar statements and recommendations are made in the 1908 report, and filtration of the public supply is again earnestly advocated.

THE PRESENT SITUATION

During the current year, particularly in the latter part of August and in early September, typhoid fever was said to be excessively prevalent in Detroit. It was estimated at one time (see Detroit daily papers of Aug. 30, 1910) that 900 cases of the disease existed in the city, and much concern was expressed over the outlook. An appeal for a more complete notification of cases was at that time issued, and as a result 240 cases were

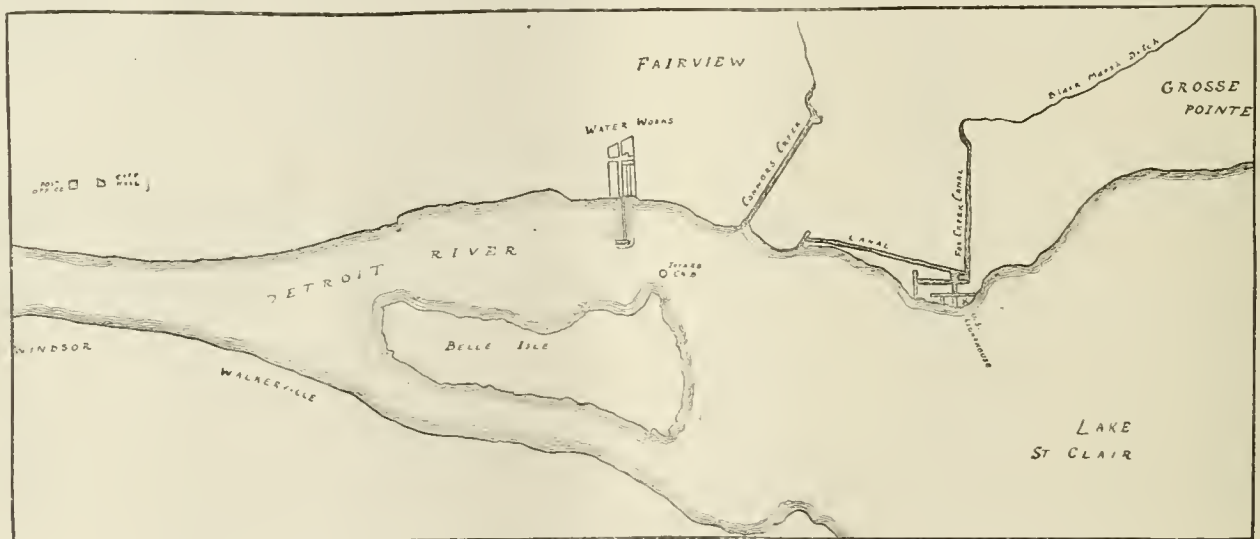


Diagram of Detroit to show the relation of water-supply and possible sources of contamination.

A recent visit to Connor's Creek by your commissioner shows that the stream at the present time is heavily laden with sewage. A hundred yards south of Jefferson Street, near the large manufacturing establishment of the Chalmers Motor Company, the conditions are substantially those of an open sewer. Grease and paper float on the surface and the bubbles of gas which are rising to the surface testify to the active decomposition of organic matter taking place on the bed of the stream. The current is in most places exceedingly sluggish, but rapid flushing out may occur after heavy rains. An examination of the water of Connor's Creek at its mouth was made by your commissioner, and showed respectively 12 and 11 organisms of the *B. coli* group in each of two 0.1 c.c. samples. Immediately below the mouth of the creek on Detroit River are several large ice-houses.

The recent growth of population in the vicinity of Connor's Creek naturally increases the danger of specific infection entering the water. The gravity of the situation has been clearly recognized by the present health

reported to the board of health up to September 10. Thus far the death-rate has not shown any striking increase over the figures for 1909 or 1908. At the present writing (end of September) there is little reason for believing that typhoid fever cases are relatively much more numerous than at this season for four or five years past.

All this does not mean that typhoid fever has not been and is not unduly high in the City of Detroit. While the rates for 1906-9 are not perhaps alarmingly high (Table 1), they are by no means so low that they can be contemplated with equanimity by any Detroit resident. In 1909, for example, there were 94 deaths from typhoid fever in Detroit, as compared with 45 in Cincinnati, a city that has recently purified its water-supply, or a rate of 24 compared with Cincinnati's rate of about 12.

Perhaps the most disquieting feature of the typhoid fever situation in Detroit is the failure of the disease to diminish in recent years or, to speak more correctly, its tendency to increase. In the face of a steadily lowering typhoid death-rate throughout the country generally, Detroit has shown an actual and substantial increase in the last five years as compared with the two preceding quinquennial periods (Table 2).

2. Williams, G. S.: Ann. Rep. Michigan State Board of Health, Supplement, p. 106.

3. See Detroit Times, Aug. 17, 1910.

4. Wyman, H. C.: In discussion of Williams' paper: Ann. Rep. Michigan State Board of Health, Supplement, p. 100.

As to the causes of typhoid fever in Detroit there seems every reason to consider the public water-supply responsible for some of the cases.

1. The general typhoid death-rate for the city is higher than would reasonably be expected in a city situated as is Detroit, but with a pure water-supply.

2. The typhoid rate in the city has risen in recent years, corresponding with the growth of population in the environs of the city, and the consequent increased pollution entering directly above the water intake. This increase in typhoid fever has occurred during a period when the disease has been decreasing in the country at large.

3. The deaths from typhoid fever tabulated by months (Table 3) show not only the general autumnal increase, but also seasonal irregularities which indicate water-borne infection. Such, for example, are the relatively large number of deaths in March and April, 1892 and 1893, in December, 1906, and January, 1907, in May, 1907, and in July, 1908. In 1904 almost as many deaths were recorded in the first half of the year (28) as in the second half (30).

4. The annual death-rates show marked fluctuations, far greater than would be expected in a city of this size if the water-supply were not exposed to irregular pollution. Instances are the rate of 19 in 1890, followed two years later by a rate of 93, and the rate of 21 in 1898, followed the next year by a rate of 12. Such fluctuations betoken varying degrees of pollution of the water-supply.

5. One extensive epidemic of typhoid fever in Detroit (1892) has been definitely traced to the public water-supply. The source of supply is now no better protected against occasional contamination than it was 18 years ago; as a matter of fact, the danger from near-by infection (Connor's Creek) is considerably greater.

6. The character of the watershed, with its considerable population draining into Lake St. Clair, the fact that large boats sometimes pass close to the intake crib, the existence of a small stream which discharges raw sewage a few hundred yards from the intake demonstrate the possibility of occasional water infection.

7. As could be anticipated from the environmental examination, the water-supply gives occasional bacterial evidences of contamination. If the analyst of the health board is correctly quoted,⁵ considerable variation occurs: "some days the water will be very poor, but on the next day following it improves."

It is obviously impossible to discover just what proportion of the typhoid fever cases in Detroit are due to water, to the milk supply (which, judging from the investigations of the health board, is now in bad condition), to contact or to other factors, without an intensive study of the situation such as that carried out in Washington and Pittsburg. There seems to be urgent need for such a study. A fuller notification of cases is a necessary preliminary to this inquiry and should be instituted at once. In the meantime the alleged use of an old intake pipe near the shore should be investigated. The Connor's Creek nuisance can hardly be done away with immediately, but some action looking to the speedy removal of this sword of Damocles would seem to be worth while. If the present conditions are allowed to govern Detroit's water-supply a much more serious outbreak of typhoid fever than that occurring this autumn is simply a question of time.

Therapeutics

EPILEPSY

Epilepsy shares with tuberculosis the distinction of being a common chronic disease which has received an unusual amount of study and investigation during the last decade or two. But, in spite of all that has been done, our practical knowledge of the disease is not much greater than it was fifty years ago. It is true that in connection with the phenomenal expansion of modern operative surgery, and of brain surgery in particular, some convulsive conditions, commonly designated as Jacksonian epilepsy, have become amenable to operative treatment. These cases, however, although commonly included in the category of epilepsy, might not unfairly be excluded from such a classification, as their phenomena, in spite of striking superficial resemblances, are considerably different from the usual cases of epilepsy, and their pathologic lesions differ in their gross characteristics from the almost speculative pathology of real epilepsy.

The most important thing which the modern study of epilepsy has taught is that some patients who have convulsive attacks may be cured by operative treatment, and to that end that it is obligatory to study every detail of the past history and present condition of each patient to decide whether he may be included in this operative class. Also, we are now able to class as epileptic (or at least to recognize the close resemblance to epilepsy) many patients who do not exhibit convulsive seizures at all.

This subject has been very carefully and exhaustively elucidated in the "Morison Lecture" on epilepsy, delivered before the Royal College of Physicians of Edinburgh by Dr. William Turner, physician of the King's College Hospital and of the National Hospital for the Paralyzed and Epileptic, London (*British Medical Journal*, March 26, April 2 and 9, 1910).

Turner divides the cases commonly called epilepsy into four classes:

First: The organic epilepsies, including (a) those due to "traumatic lesions of the skull, brain or membranes; (b) those associated with or sequential to focal organic disease of the brain, such as tumors or thrombosis."

Second: The early epilepsies, those of infancy and early childhood, characterized by "the marked degree of mental impairment, amounting to imbecility or even idiocy, found in most cases." Many of them are caused by "focal lesions, encephalitis, hemorrhage and thrombosis."

Third: The late epilepsies, including (a) "the epilepsy associated with degenerative cardiovascular disease;" (b) "the intoxication epilepsies, of which alcoholic epilepsy is most common;" (c) that occurring later in "dementing psychoses;" (d) that resulting from "clamptic conditions, such as uremia and puerperal eclampsia."

Fourth: Idiopathic epilepsy. Of this condition he gives the following definition: "Idiopathic or genuine epilepsy may be defined as a chronic disease of the brain characterized by the recurrence of seizures in which interference with consciousness is an essential feature, associated either with convulsions or transient psychical phenomena, occurring usually in persons with an hereditary neuropathic endowment and eventually leading to more or less permanent mental impairment and dementia."

5. Detroit Free Press, Aug. 26.

It is to a consideration of this idiopathic or genuine epilepsy that the three lectures are limited, and the entire third lecture is devoted to the treatment.

It is a curious circumstance that, although epilepsy is a common disease and the paroxysms usually occur not infrequently, physicians outside of institutions do not often see patients in the convulsive seizures, except in the more severe forms of the disease, distinguished as serial epilepsy and status epilepticus.

The question of what to do for a patient who is having an epileptic convulsion or fit is one which the physician must be prepared to answer without hesitation, as it certainly comes under the head of medical emergency. The most important thing to be done at once is to do such obvious things as will prevent the patient from being injured by the involuntary movements incidental to the convulsion.

This does not involve trying to limit forcibly the convulsive action by holding the limbs or trying to open the hands. Some have advised inserting a wooden plug between the jaws, so as to prevent the biting of the tongue, but this is a procedure of doubtful efficacy. It is not necessary to pour water on the patient, or into his face, or to slap or pinch him. Neither is it of advantage to give him inhalations of ammonia or nitrate of amyl, as ordinarily the convulsion soon ends. Hence it is generally unnecessary to telephone for an ambulance, as the patient can soon be taken home in a carriage.

In ordinary fits, after the convulsive action has ceased, the natural tendency of the patient to sleep should not be combatted, but he should be allowed to rest as comfortably and with as little disturbance as possible until his own inclination leads him to get up and move about. This rest undoubtedly allows the nervous system to recuperate, in at least some degree, from the serious perturbation to which it has been subjected. These suggestions are applicable to ordinary cases of epileptic fits which occur occasionally, not daily, in individuals who walk about the streets at their pleasure and are not in any sense confined or restrained.

In contrast to these must be discussed those cases in which a number of convulsive attacks occur during a short interval, distinguished as serial epilepsy, and that grave form of the disease in which the convulsive seizures follow each other at short intervals, during which, ultimately, consciousness is not regained and in which, after the convulsions cease, a condition of coma usually persists until death ensues. In this latter condition very active treatment is indicated. Turner advises larger doses of bromid, supplemented by chloral; for example, 20 grains (1.30 grams) of bromid of sodium with 10 grains (0.60 gram) of hydrated chlorid may be given every 2 or 3 hours. This is especially applicable to serial epilepsy and to the milder grades of status epilepticus. The chloral and bromid may be combined in one prescription, or two prescriptions may be written and the doses combined, as desired, as:

R	Gm. or c.c.	
Chlorali hydrati	5]	ʒiiss
Sodii bromidi	10]	ʒiij
Elixiris aromatiei	50] or	fl.ʒij
Aque	ad. 100]	ad. fl.ʒiv

M. et Sig.: As the physician directs.

[Each teaspoonful of the above, i. e., 5 c.c., represents 0.50 gram (7½ grains) of bromid and 0.25 gram (4 grains) of chloral.]

Or, if ordered separately:

R	Gm. or c.c.	
Chlorali hydrati	10]	ʒiij
Tinctura cardamomi comp	50]	or fl.ʒij
Aque	ad. 100]	ad. fl.ʒiv

M. et Sig.: As directed.

[Each teaspoonful, i. e., 5 c.c., represents 0.50 gram (7½ grains) of chloral.]

and

R	Gm. or c.c.	
Sodii bromidi	10]	aa. ʒiij
Potassii bromidi	10]	or fl.ʒij
Essentie pepsini (N.F.)	50]	ad. fl.ʒiv
Aque	ad. 100]	ad. fl.ʒiv

M. et Sig.: As directed.

[Each teaspoonful, i. e., 5 c.c., represents 0.50 gram (7½ grains) each of the sodium and potassium bromid.]

In the more serious forms of status epilepticus, morphin, either in combination with the bromid and chloral or by subcutaneous injection, is sometimes useful. If, in spite of these remedies, the convulsions continue severe and frequent, inhalations of chloroform must be given and continued until complete anesthesia is produced. The convulsions will thus be held in check temporarily. Turner has seen good results from the hypodermatic injection of from 1/75 to 1/100 of a grain of hydrobromid of hyoscin. There has also been recommended (Clark, Turner) the hypodermatic injection of 10 per cent. sterile solution of bromid, repeated until 60 or 100 grains have been administered. Also "injection of the bromids by means of lumbar puncture has been advised, in sterile solutions of 30 grains to the ounce, 10 or 15 c.c. of the cerebrospinal fluid being withdrawn before 10 c.c. of the bromid solution are injected."

In high temperature Spratling (*Modern Medicine*, vii, page 670) reports great benefit from the cold bath.

After the convulsions have ceased and while the patient is lying in a comatose condition the treatment should be of a supporting character. Ammonia, alcoholic stimulants and digitalis or strophanthin should be given in order to strengthen the action of the heart. Nutrient enemas of peptonized milk may be given until the patient regains the power of swallowing, after which easily digested liquid nourishment should be given regularly at not too long intervals.

Another important question in connection with the convulsive seizure is: Can anything be done to prevent the full development of the attack when its first premonitions, the aura, are felt by the patient? In other words, can the fit be arrested? On the assumption that the convulsion is directly due to a sudden temporary disturbance of the cerebral circulation, inhalations of nitrate of amyl have been recommended. They are believed to be especially efficacious when the warnings are of cephalic character, "and particularly in those with olfactory sensations (Gowers)." To facilitate this use of the drug it is furnished in small glass globules enclosed in silk and cotton, which can be quickly broken and the vapor inhaled without delay. When the warning sensation first appears in the hand, it was long ago suggested that the wrist be encircled with a band which should be quickly tightened when the first premonition is felt. Forced extension, rubbing of the limb and biting of the finger are expedients of perhaps occasional but usually of doubtful efficiency. In patients who have visceral aura, pressure on the epigastrium, drinking cold water, swallowing a few drops of ether, inhalation of ammonia and, finally, autosuggestion—"a strong determination to overcome the attack"—are expedients which are all

believed to have been proved efficacious in individual cases.

The next questions in the management of epilepsy are: What can be done to prevent the attack? And what is the treatment of idiopathic epilepsy?

During recent years there has been a strong movement in various parts of the country toward the establishment of colonies for epileptics. For those epileptics who are also imbeciles or idiots, and who at present are confined in jails, almshouses and in hospitals for the insane, this is a most praiseworthy and useful undertaking. But when these institutions are fully established and the busy and well-meaning but not very thoughtful or well-informed practitioner recommends every epileptic he finds to be sent to an institution, and when every family which includes an epileptic who occasionally has a fit, and who consequently has difficulty in securing steady work, eagerly seizes the opportunity to rid itself of the burden of feeding and watching its unfortunate member, incalculable harm will be done.

It would be presumption to attempt to teach the officers of these institutions how to manage their patients, but those physicians who have the care of epileptics who are retained in their own homes should have the following suggestions in mind:

First, the general hygienic surroundings of the unfortunate invalids should be looked after and made as good as possible. Many are able to undertake and are benefited by some manual occupation, preferably out of doors, such as farming or gardening. This exercises the brain and helps to keep it in more normal condition, and also exercises the body and promotes those metabolic changes which are so necessary to its welfare. Physical exercise increases the elimination of all of the eliminative organs and glands, and as a result prevents the accumulation in the body of the toxic products of metabolism which are believed to have some action in predisposing to epileptic convulsions. This out-of-door work is especially adapted to patients of robust constitution. Frail, delicate patients may do well at less strenuous, in-door occupations, such as bookkeeping or drawing.

If it is impracticable for an epileptic to work he should at least take out-door exercise, and Turner recommends "walking, running, tennis, golf, croquet and football" as especially suitable, while "bicycling, rowing, swimming and riding" should be avoided.

The patient should not be left alone, but should, so far as possible, always be in the company of some member of the family, a friend or an attendant, who understands his condition and who will not be greatly disturbed if the emergency arises demanding coolness and composure.

Bathing is a most desirable adjunct to work and exercise, strengthening the habitually sluggish circulation, promoting assimilation and nutrition and increasing elimination.

The diet of the epileptic is a subject concerning which a great deal has always been said and written. In considering this question Turner points out that "in any attempt to formulate the principle which ought to guide the physician in considering the dietetic treatment there ought to be kept in mind that nervous energy has its source chiefly in the albuminous and nitrogenized principles of food stuffs." Since nervous energy seems to be in excess in epilepsy it is not strange that many observers, including Turner, have found it desirable to exclude albuminous foods from the diet of epileptics. Or, to use

the more recent nomenclature, a "purin-free" dietary is advantageous in epilepsy. "A purin-free diet," writes Turner, "is made up of those foodstuffs in which the 'purin' or alloxur bodies are absent, or present only in such small quantities as to be negligible. Purin bodies exist in all forms of meat, both the white and the red, commonly used as food. They are present in large quantities in such substances as sweetbread, liver and beef-steak. They are not present in milk, eggs, bread, butter, cheese, the farinacea, most fruits and some vegetables. They exist to only a moderate degree in most forms of fish, peas, beans, lentils, tea, coffee and oat-meal."

Concerning the medicinal treatment it must be conceded that after more than fifty years of use, since its introduction by Laycock, no drug equals a bromid salt in general usefulness and efficacy. Turner's experience has been that in approximately half of the cases of epilepsy the bromids caused either arrest of the fits or a notable lessening of their frequency and severity, while in the other half they seemed to exert no influence at all. When they produce a favorable influence this is generally apparent within a comparatively short time after their administration is commenced.

Turner believes that too large doses are usually given. He finds that daily doses exceeding from 45 to 90 grains (from 3 to 6 grams) are rarely useful. The sodium salt is usually preferable to the others.

Rather recently it has been found that the bromids prove more efficacious in epilepsy if the amount of sodium chlorid in the food is reduced. Turner points out that, "Hoppe (*Neurol. Centrabl.*, 1906, p. 993) has shown that one-third of the chlorin of the blood serum has to be replaced by an equivalent amount of bromin before any therapeutic result is obtained." This diminution of sodium chlorid in the food has been found particularly useful in cases in which large doses of the bromids seemed to be necessary, and also in those instances in which the patients seemed to be especially susceptible to the toxic action of the bromid. It has been found that very much smaller doses of the bromids prove efficacious in connection with a "salt-free" or "salt-poor" diet. Turner has found that very substantial benefit has been derived from a combination of a "purin-free" diet with "salt-starvation."

It remains to consider only one final practical question. How long shall systematic administration of the bromids be continued? And it must be confessed that this question cannot be answered definitely. Some writers have advised that treatment should be continued for two years after the last fit. Others, like Turner, teach that this period, at least in some cases, is insufficient, some of his patients finding that even after years of freedom from fits, if the bromid is stopped, "a return of giddiness or of 'sensations'" indicates that there is still a liability of the more serious attacks to return. In all apparently cured patients the bromid should be discontinued only very gradually. It should never be stopped suddenly after it has been used for a long time. During the gradual withdrawal the patient should be carefully watched in order to detect, if possible, the earliest indication of a return of the fits. Finally it must be urged that for some epileptics it is wise to substitute a moderate dose of the sodium bromid for the usual amount of sodium chlorid in the food, even for many years after the occurrence of the last epileptic convulsion.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 DEARBORN AVENUE . . . CHICAGO, ILL.

Cable Address "Medic. Chicago"

Subscription price Five dollars per annum in advance

[For other information see second page following reading matter]

SATURDAY, OCTOBER 8, 1910

CULTIVATION OF THE LEPROSY BACILLUS

Although it is now nearly forty years since Hansen discovered in leprosy tissues the small rods which are now universally conceded to be the cause of leprosy, yet the cultivation of this bacillus has been an unattainable goal for the bacteriologist. On a number of occasions successful results have been reported, but none of these claims has been accepted, although it has always seemed possible that in this respect injustice may have been done, since it has not hitherto been impossible to prove the identity of any suspected acid-fast bacillus as *B. lepra* because there was no known susceptible animal on which its pathogenicity could be tested.

Two recent achievements in this problem have overcome some of the greatest obstacles, and taking advantage of them Duval¹ of New Orleans has succeeded, he believes, in securing pure cultures of the leprosy bacillus. The first of these discoveries was made by Clegg in the Philippines, who reported last year that he had succeeded in growing on artificial media an acid-fast bacillus obtained from leprosy tissue, by means of inoculating this tissue on culture media already inoculated with amebas and their symbiotic bacteria. Of necessity, in this case, the supposed leprosy bacilli were not in pure culture, and there were then available only morphologic means of identifying them. The latter deficiency has been supplied by Sugai, who found that the Japanese dancing mouse was susceptible to infection with leprosy bacilli coming from human tissues, the lesions showing the histologic characteristics of the typical leprosy lesion. Duval confirmed both these observations, and by means of special complex media has been able to obtain in pure culture, without the presence of either amebas or symbiotic bacteria, an organism with the morphologic and tinctorial characteristics of *B. lepra*, which when inoculated in pure culture into the Japanese dancing mouse produced typical lesions.

It is to be hoped that the correctness of Duval's claims will soon be established by other observers, for then the door will be opened to rational prophylactic and curative treatment of this historically incurable disease.

CAUSE AND EFFECT

There is a type of newspaper journalism which causes the thinking to grieve and the decent to shudder; it has neither conscience nor honor; it glorifies indecency and envelops immorality with sickly sentimentality and a maudlin moralizing; its advertising pages are open to anything that will go through the United States mails—and to many things that would not, if they were brought to the attention of the authorities. The habitat of such papers is confined to no locality; they are to be found in most of the large cities of this country. While what follows deals only with a California example, the subject-matter may easily fit any other of the same type.

A correspondent on the Pacific Coast recently sent to THE JOURNAL a clipping from a San Francisco paper of this kind, in which appeared the most shameless and openly worded abortion advertisements. One of these described how a "Dr. F. E. Grant" at 1293 Golden Gate Avenue was prepared to:

"GUARANTEE to cure the longest and most obstinate female cases in 24 hours by STRICTLY up-to-date, ANTISEPTIC, SAFE and PAINLESS methods, WITHOUT DELAY from home or work."

"TRAVELERS can be treated and return home the same day. We have never had a failure. Confinements and adoptions arranged."

And more of the same tenor. This, it should be remembered, was but one of many similar advertisements. These filthy, criminal and wicked notices are what this San Francisco paper serves up to its readers for the money there is in it. They constitute a *cause*; the *effect* follows:

San Francisco, within the past two weeks, has been shocked by the details of a crime which bids fair to outdo in gruesome details the Crippen tragedy. According to the reports, a young school-teacher who had loved not wisely but too well found herself pregnant and went to San Francisco to be relieved of the consequences of her indiscretion. She sees the Grant advertisement boldly offering to perform the criminal act she desires and she places herself in his hands. While on the operating table she expires and Grant, the police claim, to hide the consequences of his crime, dismembers the body, packs it in a trunk and, renting a house for a short time, buries the body (saturated with nitric acid) in the cellar. After a few months had elapsed—during which time the Grant advertisement and others similar to it continued to outrage decency—the crime is discovered and the San Francisco public is served with the details of the tragedy. Note what happens: The very paper, which by every moral law is, at least indirectly, responsible for the poor girl's death and is an accessory before the fact to the crime which has been committed, comes out with "scare heads", double-leaded type, and all the "yellow" accessories which go with this type of journalism. Page after page is devoted to the gory details of the crime—more than half a page being given to a picture of the murdered girl.

1. Duval, C. W.: Jour. Exp. Med., 1910, xii, 649

In the abortionists' column of the same issue of the paper in which these sickening particulars are printed, Dr. Grant's advertisement is missing, but the others—thirteen of them—are there. In the editorial columns, also of this issue, the editor thunders virtuously against those "who make their money by catering to depraved tastes and have no scruples against corrupting the young"!

How much longer will the American people permit the pages of the daily press to be thus prostituted and debauched? The trade of criminal abortion is vile enough at any time even when carried on in secret and hidden from the public gaze. When, however, this villainous traffic is exploited brazenly and openly through the columns of the daily press it is time for the decent element of society to take a hand, if only to protect the integrity of the social fabric itself.

THE USE OF BACTERIA TO KILL RATS

Under different names there are now offered for sale several preparations of living bacteria for the purpose of exterminating rats and mice. The bacteria in question are supposed to be highly virulent for these animals, and directions are given for spreading the infectious material about so that the animals may infect themselves and die. Aside from the question as to the effectiveness of this method of extermination—and it is still an open question—attention may be called to the fact that the method is far from being free from danger to human beings. In some cases at least the bacteria employed are paratyphoid bacilli or closely related thereto. This is the case with the so-called "ratin." According to the published statements¹ of the promoter of "ratin," the bacillus was first obtained from the urine of a child, 2½ years old, suffering with cystitis. When first isolated the bacillus had only slight virulence for rats, but mice died from feeding on material contaminated with it. On passage of the strain through rats, its virulence for these animals was increased, so that here also fatal infection would occur on feeding.

Naturally special efforts are made—at least one would think so—to maintain a high degree of virulence, but it seems that the various preparations on the market do not cause death of more than 50 or 60 per cent. among the wild rats exposed to infection. It is asserted that "ratin" has been ingested by human beings without injury. Absolute harmlessness to human beings has not been established, however, and hence special care should be taken in the use of this and other preparations of the same nature, especially because of the great danger of contamination of food substances and utensils used in the preparation of food. The following instance from recent British journals may be cited as suggestive of human infection from this rat virus:

Acute diarrhea attacked a number of persons who on a certain day had eaten dinner at the same place. On careful sanitary inspection of the premises, many dead mice were found, and it was also discovered that shortly before "ratin" had been spread about. We know that bacteria of the paratyphoid group may cause acute human infections and intoxications, and the above instance may well have been the result of food contamination with "ratin."

In view, therefore, of the reasonable doubt which exists both of the effectiveness and of the harmlessness for human beings of such viruses as the one mentioned, their indiscriminate employment is to be condemned. Indeed, it would seem self-evident that the first requisite of a virus to be used for the extermination of vermin which are capable of contaminating foodstuffs for human consumption, must be absolute lack of pathogenic power for man.

Current Comment

OSTEOPATHS AND VITAL STATISTICS

The *Springfield Republican* makes this remark in a recent issue: "The New York Supreme Court has denied the osteopaths the right to issue death certificates. They can cure patients; the regular physicians keep the monopoly of burying them." Since the *Republican* is recognized as one of the most ably edited newspapers of the country it would show a lack of the sense of humor if we failed to regard this as a joke, for the *Republican* must know why the court made this ruling. We may be excused, however, if we use the joke as a text for a preachment, since it presents the general conception of the reason for the issuance of death certificates. Laws requiring death certificates as a preliminary for the burial or removal of a body were not enacted and are not enforced for the benefit of the medical profession or for the persecution of osteopaths. It is of no advantage to a physician, and is frequently a decided annoyance to be required to fill out a death certificate setting forth the cause and manner of death. This is required, not for the benefit of the physician but as a safeguard to the community. As Professor Huxley long ago pointed out, it is necessary for the protection of the individual and of society at large that a record should be made of the manner and cause of death of each human being, as a means of preventing and detecting crime as well as to preserve records of causes of death. The value of such data is recognized in all civilized communities. The carelessness of Americans regarding birth and death records is looked on with astonishment by our European neighbors. Cattle, dogs and horses are carefully registered. The birth of even an Angora kitten is considered worthy of record, yet we have practically no birth records while, in nearly half of the United States, human beings die and are buried without any record being made of the fact. The properly educated physician recognizes the importance of death certificates and

1. Bahr: *Centralbl. f. Bakt.*, 1905, p. 263.

furnishes them without compensation, not as a privilege, but as one of his duties to the state. Such legal documents should be certified only by those properly qualified to determine the cause of death.

A LAYMAN'S ADVICE TO PROSPECTIVE MEDICAL STUDENTS

An excellent article on "How to Study Medicine," by Dr. Henry S. Pritchett, president of the Carnegie Foundation for the Advancement of Teaching, appears in last week's issue of *The Outlook*. It would be of undoubted advantage to medical education if many such articles could appear in lay periodicals. This article calls attention to the excessive number of medical schools, to the alluring advertisements of commercial medical colleges, to the generous educational opportunity now open to anyone, including the poor boy, and to the problem of sectarian medicine. President Pritchett refers particularly to the fact that medicine has been practically made over in the last twenty years; that its practice to-day rests on certain fundamental sciences, such as bacteriology, physiology, physiologic chemistry and the like, which were unknown, or scarcely touched on, twenty-five years ago, and that it is absolutely necessary for the physician of this generation to have a broader general and professional education than was formerly required. The student who is looking toward the medical profession, therefore, should secure, first of all, a good general education and then should obtain a medical course in a college which is sufficiently equipped and prepared to teach medicine in accordance with modern standards. Before deciding on the medical school he shall attend, President Pritchett urges the prospective student to seek advice from some well-informed practitioner in his neighborhood, one who is acquainted with the medical teaching of to-day, and not to allow himself to be misled by alluring advertisements. With the amazing confusion which surrounds medical education in this country to-day, the choice of a medical school is a serious problem, especially for the student who desires to do honest work. Such an article as that by President Pritchett, therefore, is to the prospective medical student as a compass to a sailor in a stormy sea.

STATE BOARD EXAMINATIONS IN MATERIA MEDICA

The National Confederation of State Medical Examining and Licensing Boards is to be congratulated on its action in advising the constituent boards to restrict examinations for licensure in materia medica and therapeutics to questions on the more important drugs. The confederation is also to be felicitated on its adoption of a list of these drugs.¹ While the list selected will hardly please everyone, just as Dr. Eliot's five feet of books failed to win universal approval, it is restricted to drugs in more or less common use, and was considered by the committees which had charge of this matter to meet the requirements. If the various examining boards should decide to follow the plan outlined by the confederation, they would be able to make fairer tests of

the knowledge of remedies possessed by applicants for license to practice, and students would be compelled to acquire a thorough and useful knowledge of essential drugs instead of the superficial familiarity with the action of preparations which are almost never used—a pseudo-knowledge which is not only useless but dangerous. This point is worthy of emphasis. The medical student, or even the physician, in trying to gain a knowledge of the ridiculously large and bewildering number of drugs on the market, is attempting the impossible. He acquires real practical knowledge of none. In consequence, his knowledge of the action and uses of even the most important drugs is often vague and imperfect, and he becomes a routine prescriptionist, copying his prescriptions from text-books and journals. If the recommendations of the confederation were adopted, the student could devote the time allotted to this study to the acquisition of a more thorough understanding and scientific application of the more important drugs, to the immense betterment of the practice of medicine in general. The practicing physician also would do well to ponder the subject, for this action of the confederation points the way to the salvation of therapeutics. Therapeutics can never be an exact science, but there is no reason why it should not be based on thorough knowledge, on exact and critical experimental and clinical observation, and on sound reasoning. The discriminating use of a few drugs, well-studied and thoroughly understood, will accomplish vastly more good than the indiscriminate abuse of the numberless drugs which have never been subjected to any real clinical investigation, and which, in many instances, differ but little from nostrums. It is gratifying to note that the confederation has officially recognized and endorsed this necessary reform. It now remains for the various state boards to give it practical effect.

EARLY HISTORY OF RENAL SURGERY

Ekehorn, who recently became professor of surgery in the university at Upsala, devotes his inaugural lecture¹ to an account of the early history of renal surgery. He follows its development back to the oldest civilization of which we have any record. While there is reason to believe that surgical operations of consequence were performed in Egypt and Babylonia during the height of culture in those ancient countries, no trace of any operations on the kidney has been discovered. The first historical record of renal surgery is found in the writings of Hippocrates (450-370 B. C.), who recommends well-indicated and rational operations in the regions of the kidneys and on the kidneys themselves. Then came a long and deep silence on this subject, which lasted until the end of the middle ages, when the interest in it again awakened, and yet the field of renal surgery remained practically the same as that marked out by Hippocrates until as late as 1869. In the latter part of the summer of that year, Simon, a Heidelberg surgeon, had as patient a woman, 46 years old, who had been subjected to ovariectomy, after which there developed a ureteral fistula which caused great suffering. After thorough prepara-

1. See report of the committee, page 1302

1. Upsala Läkaref. Förh., 1910, xv, 343.

tion by means of anatomic and experimental studies, he removed the corresponding kidney and thus restored the patient to perfect health. This operation marks the beginning of the new history of renal surgery.

ANTITUBERCULOSIS WORK IN MASSACHUSETTS

The work against tuberculosis is becoming well organized in many states and is being systematically carried out. The fifth annual report¹ of the Associated Committees of the Massachusetts Medical Society for the Prevention and Control of Tuberculosis is an interesting revelation of the sort of work that is being done. The report of the chairman states that the chief difficulty in obtaining control of the tuberculosis situation in Massachusetts (and this will apply to the work in other states as well) is that of getting hold of the patients early in the disease, and to overcome this the profession must render more assistance, and the use of visiting and school nurses must be extended. Employers of labor must also assist, and outdoor schools for puny children must be established. In the way of educating the public, pamphlets and school exhibits are employed, and employers have helped by distributing cards of caution and instruction with pay envelopes. Registration and disinfection of premises where patients have died are also measures to be encouraged. The pamphlet contains the report of the secretary and the detailed reports of the work done by the committees in the eighteen districts of the state.

Medical News

CALIFORNIA

Pay of Interns.—The supervisors of Los Angeles county have voted to pay interns of the County Hospital an annual salary of \$100.

Itinerant Practitioners Taxed.—A new license ordinance has been adopted by the city council of Porterville, by virtue of which itinerant doctors will be obliged to pay a license of \$50 per day.

First-Aid Boxes on Streets.—The chief of police of Berkeley has made requisition for twenty-five Red Cross, first-aid-to-the-injured boxes, to be placed near the police and fire alarm boxes. The bicycle policemen will also carry first-aid boxes on their bicycles.

Personal.—Dr. Francis M. Pottenger, medical director of the Pottenger Sanatorium, Monrovia, writes to deny the report which has been circulated to the effect that he is starting or contemplating starting a sanatorium for tuberculosis at Tucson, Ariz., as a branch of the Pottenger Sanatorium. —Dr. H. C. McLanahan, Belmont, who recently returned from Europe, has been elected associate to the chair of mental disease and legal medicine, and assistant in clinical neurology at Cooper Medical College, San Francisco. —Dr. Edwin H. Wiley, Los Angeles, surgeon on the Receiving Hospital staff for nearly three years, was tendered a farewell dinner by the staff of the hospital, September 9. Dr. Wiley has left for Hermosillo, Sonora, Mexico, to take charge of the hospital there. —Dr. Frank W. K. Kidder has been appointed assistant police surgeon of Los Angeles. —Dr. Edward E. Baumeister, Chico, has been commissioned assistant surgeon in the National Guard of California with rank of first lieutenant. —Dr. Ernest E. Thompson, Red Bluff, has succeeded Dr. A. P. Carter, Red Bluff, resigned, as health officer of Tehama county.

GEORGIA

Sanitarium Opened.—Dr. James N. Brawner, formerly head of the Pasteur Institute, Atlanta, has opened the Oak Grove Sanitarium near Smyrna, for the treatment of nervous and mental diseases, with accommodation for more than forty patients.

Medical College Opens.—The Atlanta School of Medicine opened for its fall term September 20. The dean, Dr. George H. Noble, presided, and addresses were made by Hooper Alexander, Ex-Governor Northen, and Drs. William S. Kendrick and E. C. Thrash.

Scholarships in Medical College Bestowed.—Under the law making the medical college of Augusta a branch of the state university, the governor made the following bestowals of beneficiary scholarships, September 9: The state at large, T. B. Brantley, Sylvania; W. W. Meadows, Helena; Ollie D. Thompson, Augusta, and Mark E. Perkins, Millen; First Congressional District—J. Felton Burkhalter, Daisy, and T. F. Grooms, Statesboro; Second Congressional District—Jack G. Standifer, Blakely, and T. P. Brown, Beachton; Third Congressional District—W. T. Lanier, Cordele, and C. C. Frederick, Wellston; Fourth Congressional District—J. E. Taylor, Newman, and Homer L. Barker, Franklin; Fifth Congressional District—C. Mell Smith, Monroe, and Erle Thornton Newsome, Union Point; Sixth Congressional District—C. B. Brookins, Milledgeville, and L. C. McAfee, Macon; Seventh Congressional District—Egbert M. T. Tilton, and M. A. Acree, Calhoun; Eighth Congressional District, E. F. Griffith, Eatonton, and James W. Payne, Monticello; Ninth Congressional District—T. L. Holcombe, Staham, and Howard Kennedy, Gainesville; Tenth Congressional District—John T. Logue, Augusta, and D. L. Murray, Lincolnton; and Eleventh Congressional District—Warren Hall, Nicholls, and W. B. DuVall, Homerville.

ILLINOIS

Chicago

Law Violators Fined.—In the United State District Court, September 23, the Semrad Chemical Company and Allen B. Wrisley Company, charged with misbranding and adulterating flavoring extracts, are said to have been found guilty and fined \$200 each. —J. Gartenstein, an "herb doctor," is said to have been found guilty on September 27, of practicing medicine without a license and fined \$100 and costs.

Personal.—Dr. Alexander H. Ferguson announces that he has sold his equity in the Chicago Hospital and henceforth will do his surgical work at St. Luke's Hospital on Tuesday and Thursday at 2 p. m. —Dr. Janet Gunn has been elected president of the Board of Managers of the Mary Thompson Hospital, vice Mrs. Charles Fitz Simons, who has been a member of the board for thirty years, but recently resigned on account of illness and who has been made president emeritus. —Dr. John S. Marshall, chief of the dental service of the United States Army, who has been in Manila for three years, is visiting in Chicago, en route to Columbus Barracks, his new station. —Dr. B. C. Corbus has returned from Europe, where he went to investigate Ehrlich's new specific for syphilis. He brought back a quantity of the substance.

INDIANA

New Hospitals.—At Columbus the sanatorium formerly occupied by Dr. A. P. Roope was opened October 3 as a City Hospital, with Dr. Roope as chief surgeon. —At Linton the county council has appropriated \$25,000 for a city hospital, which will take care of the numerous miners injured in the district.

Personal. Dr. J. A. Wooden, Gosport, was elected president of the National Association of Mexican War Veterans, September 6. —Dr. William Engle has resigned as house surgeon at the Wabash Railway Employees' Hospital at Peru, Ind., and has gone to Evansville to locate. —Dr. E. L. Swedener, formerly assistant physician at the Indiana State Reformatory, Jeffersonville, has returned from Nebraska and assumed his old position, succeeding Dr. Walter Levy, who resigned to engage in practice in New Albany.

State Association Meeting.—The annual meeting of the Indiana State Medical Association was held in Fort Wayne September 28-30. A state inebriate hospital was recommended, the creation of a national department of health was advised and the State Board of Health was endorsed in its fight on benzoate of soda. Indianapolis was selected as the meeting place for 1911. The following officers

¹ Paper, 46 pages, September, 1910, 3 Joy Street, Boston.

were elected; president, Dr. Frederic C. Heath, Indianapolis; vice-presidents, Drs. John N. Hurty, Indianapolis; Andrew S. Dickey, Tipton, and James P. Salb, Jasper; secretary, Dr. Charles N. Combs, Terre Haute; treasurer, Dr. David W. Stevenson, Richmond; and councilors—Third District, Dr. Walter J. Leach, New Albany; Sixth District, Dr. C. S. Hoagland, Milroy; Ninth District, Dr. William H. Williams, Lebanon, and Twelfth District, Dr. Budd Van Sweringen, Fort Wayne, and delegates to the American Medical Association, Drs. Miles Porter, Fort Wayne, and Frederick A. Tucker, Noblesville.

IOWA

Suggests Epileptic Colony.—Dr. Charles F. Applegate, superintendent of the State Hospital, Mount Pleasant, at a meeting of superintendents of state institutions in Des Moines, September 27, suggested the establishment of a colony for Iowa epileptics. He said there were 4,000 of these unfortunates in the state.

Medical College News.—A new medical building is to be erected during the year on the campus of Drake University, Des Moines. A number of changes have occurred in the faculty. Dr. John Hyren Peck has been made instructor in theory and practice of medicine; Dr. Walter Lawrence Biering, instructor in medicine; Dr. Arthur Steindler, professor of orthopedic surgery, and Dr. Alexander Roche Robinson, professor of pathology.

Elections.—The Iowa Public Health Association, at its meeting in Waterloo, September 21, elected the following officers: president, Dr. Fred Albert, Mason City; vice-president, Dr. Samuel Bailey, Mount Ayr, and secretary-treasurer, Dr. William G. Carhart, Marion.—The Des Moines Pathological Society, at its annual meeting, September 23, elected Dr. James Taggart Priestley, president; Dr. Francis A. Ely, vice-president; Dr. Lawrence P. Piper, secretary-treasurer, and Dr. Alva P. Stoner, member of the executive committee.

KENTUCKY

Antituberculosis Work in Schools.—The Louisville Antituberculosis Association has arranged by the employment of a trained nurse and with the permission of the school board to have lectures given throughout the school year in all of the public schools. The nurse will visit each room and lecture as to the manner of the spread of tuberculosis, its prevention and cure. The superintendent of the public schools has assured the association that every effort will be made to have an open-air school for tuberculous children.

Good Milk Campaign.—The illustrated Sunday supplement of the *Courier-Journal* of September 25 published ten photographs of dairies producing certified milk under the rules laid down by the commission of the Jefferson County Medical Society. Much prominence has been given the Edison moving picture film entitled: "The Man Who Learns," which is being shown at a local moving picture show under the auspices of the distributors of certified milk and the Babies' Milk Fund Association of Louisville, which distributes only certified milk to the babies under its care. This film is educational and contrasts the intolerable conditions prevailing in many dairies before certified milk methods became generally known, with the improvements after they cleaned up. In addition to this film are shown pictures of the adapted milk laboratory of the Babies' Milk Fund Association, a distributing station, with child being weighed and the picture of the baby who gained eight ounces a week while being fed by the Association.

Violators of Food and Drugs Act.—Fifty retail druggists of Louisville appeared before R. M. Allen, chief of the State Food and Drug Division of the Experiment Station to answer charges of alleged violations of the Kentucky Food and Drugs Act of 1908. There were about eighty cases heard, some of the druggists being charged with more than one violation of the act. Among the drugs alleged to have been sold in violation of the act are tincture of opium, camphor, liniment, essence of peppermint, lime water, spirits of niter, witch hazel and tincture of iodine. The department claims that these preparations were deficient in strength, ranging from 10 per cent. to 60 per cent. of the standard strength as prescribed in the United States Pharmacopoeia. In view of the fact that these were first offenses and that there were extenuating circumstances in many of the cases, it is likely that only three or four cases will be presented in the courts. Second violations of the act will not be excused and the violators will be prosecuted.

MARYLAND

New Hospitals.—Plans have been completed for the annex to the State Hospital for the Insane, Sykesville (Springfield Hospital). The new building is a two-story brick and stone structure, and is to be devoted to feeble-minded patients.—The Centerville Emergency Hospital, with accommodation for sixteen patients was opened October 1. It is in charge of Dr. Laura Redding, and is under the patronage of the Queen Anne's County Medical Society.

Baltimore

Colleges Open.—The College of Physicians and Surgeons opened October 3, for its annual session. The opening address was made by Dr. Emil Novak.—The Department of Medicine of the University of Maryland opened October 3, without formality.—The session of the Baltimore Medical College began with an address by Dr. Tilghman B. Marden, September 20.—The freshman class of Johns Hopkins Medical School contains fifteen women.

The Herter Foundation Lectures.—The fifth course of lectures of the Herter Foundation was delivered in the auditorium of the physiologic building of Johns Hopkins University by Dr. Hans Chiari, professor of physiologic anatomy in the University of Strassburg. The first lecture was delivered October 5, and was on "The Significance of the Amnion in the Origin of Human Monstrosities," the second on October 6, was on "Necrosis of the Pancreas," and the third on October 7, was on "Spondylolisthesis."

Free Tuberculosis Hospital Urged.—The report has been made to the Municipal Tuberculosis Commission urging a free hospital for tuberculosis patients to accommodate 300 patients, and to cost about \$300,000. The report also recommends that children suffering from tuberculosis be excluded from the public schools, that a colony for the care of tuberculous negroes be established, and that a separate ward building for the treatment of children with early tuberculosis be instituted at the Maryland State Sanatorium, Sabilla-ville. It is suggested that this hospital as well as the Municipal Tuberculosis Hospital, a department of the Almshouse, be placed under the care of the board of health. At present the provision for the care of the tuberculous consists of the Municipal Hospital, the Phipps Dispensary at Johns Hopkins Hospital, a special dispensary at the University of Maryland, and Christ Church.

MASSACHUSETTS

Antituberculosis Tag Day.—The Newburyport Antituberculosis Society netted about \$1,000 from a "tag day," September 14.

Ether Day.—The trustees of the Massachusetts General Hospital announce that the exercises of the sixty-fourth anniversary of Ether Day will be held, October 15. The principal address will be delivered by Dr. George W. Crile, Cleveland.

Hospital Opened.—Dr. Philemon E. Truesdale, at the opening of Highland Hospital, Fall River, for patients, September 7, entertained about sixty guests. The address of the occasion was delivered by Dr. J. Riddle Goffe, New York City, on "Modern Surgery." Dr. Goffe also held a clinic in the afternoon.

Personal.—Dr. Thomas F. Donoghue, Boston, has returned from Europe.—Dr. John F. Moore has been appointed police surgeon of Worcester.—Dr. Harry H. Nevers, Lawrence, was recently operated on for appendicitis.—Dr. Burdette L. Arms has been appointed director of the bacteriologic laboratory of the Boston Health Department, vice Dr. Francis H. Slack, who resigned to accept a position at the Kansas State Agricultural College.—Dr. Patrick J. Timmins, Boston, has returned from Europe.

MISSISSIPPI

Personal.—Dr. Richard M. Boyd, Houston, has moved to Aberdeen.—Dr. Edgar D. Craft, Laurel, has passed the examination and been admitted to the Medical Corps of the United States Army.—Dr. William G. Allen, Newton, has been appointed physician for the Rockefeller Fund for the counties of Newton, Neshoba, Lauderdale, and Jasper.

MISSOURI

Medical Journals Consolidated.—The *Kansas City Medical Index-Lanct*, after thirty-two years, has been consolidated with the *Medical Herald* of St. Joseph. The new editor-in-chief is Dr. Charles Wood Fassett, St. Joseph, and the editorial staff includes Drs. S. Grover Burnett, John Punton and Otto L. McKillip, all of Kansas City.

Baby-Farmers Convicted.—Dr. Joel B. McDaniel and Mrs. Mary Rail, Kansas City, tried by the municipal court September 24, on the charge of having operated a "baby farm" are said to have been found guilty. Dr. McDaniel, who, it is alleged, has failed to report the births of infants he had attended, was fined \$50, and Mrs. Rail was fined \$25 for keeping more than one infant under two years of age for pay.

Free Medical Services at University.—An announcement is made by the president of the University of Missouri that every student in attendance at the university this year will receive medical attendance free. Dr. Woodson Moss, Columbia, is to be university physician. Free care at the hospital is to be given to students, excepting those suffering from communicable diseases, who will be treated in their quarters or in suitable hospitals.

The State Tuberculosis Commission.—The Missouri Commission on Tuberculosis met at the Hotel Jefferson, September 24 and organized and elected Archbishop John J. Glennon, chairman; Dr. Edward W. Schaudler, Kansas City, vice-chairman; J. H. Lynch, secretary, and Dr. William A. Clark, Jefferson City, treasurer. The other members of the executive committee are Dr. George Homan, St. Louis; Mrs. Philip N. Moore, St. Louis; W. K. Bixby, St. Louis; A. A. Speer, Chamois, and Dr. Jacob Geiger, St. Louis. It was decided to make inquiry at once in every feasible manner to locate the extent of tuberculosis throughout the state, and investigate all the public institutions on this point, instituting searching physical examination of patients to determine the fact of the disease, and enlisting the aid of practicing physicians, health officers, registrars of vital statistics, editors of newspapers, etc., to get as complete information on this subject as possible. The funds for the purpose have been subscribed by private individuals. As the result of this it is expected that the public health service of Missouri will be placed in excellent condition. A report will be sent to the governor in December, on which it is expected he will base recommendations to the general assembly for new legislation.——Governor Hadley, on September 24, appointed a negro tuberculosis commission to investigate the prevalence of tuberculosis among the colored race. The members of the commission are Drs. J. T. Caston, Jefferson City; John E. Perry, Kansas City; William S. Carrion, St. Joseph, and George S. Jackson, St. Louis; S. P. Covington, St. Louis, and Mrs. Nevada Kenner, Marshall.

St. Louis

The New Barnes Hospital.—At the meeting of the American Hospital Association, held in St. Louis, September 20, plans for the new Robert A. Barnes Hospital were shown for the first time. The new hospital is to be erected on Kingshighway near Forest Park, and is to cost about \$1,500,000, the funds for which were bequeathed by the late Robert A. Barnes who died about fifteen years ago. The hospital buildings, consisting of ten in all, will consist of a children's hospital, the Barnes Hospital proper, a service building, pathology building, school building, nurse's training school, superintendent's residence, power house, and laundry. The other buildings of the group are those of the Medical Department of Washington University. The hospital will have twenty wards and many private apartments, and will accommodate 360 patients.

NEVADA

Personal. Dr. Charles E. Swezy has been appointed division surgeon of the Western Pacific Railroad with headquarters at Winnemucca.—Dr. Willis W. Stockham has purchased the Duckworth Hospital, Pioche, from Dr. Theophilus D. Duckworth, taking immediate possession.

State Medical Society Meeting.—The Nevada State Medical Association held its seventh annual convention at Lake Tahoe, September 19-21, and elected the following officers: President, Dr. Sidney K. Morrison, Reno; vice-presidents, Drs. William H. Hood, Reno, and Donald McLean, Carson City, and secretary, Dr. Martin A. Robinson, Reno.

NEW JERSEY

To Prevent the Tuberculous from Teaching.—The Camden Board of Education has adopted rules, which will make it impossible for a teacher, suffering from tuberculosis, to enter or to continue in the service of that city.

Personal.—Dr. George Cunningham has been appointed borough bacteriologist of Vineland.—Dr. Fred M. Corwin has succeeded Dr. Henry D. Abbott as medical inspector of public schools of Bayonne.—Dr. Alonzo L. Leach has been elected president of the board of health, and Dr. Virgie M. D'Marcy, health officer, of Cape May.

NEW YORK

Personal.—Dr. J. Clarence Sharp and Dr. and Mrs. Isador Abrahamson have sailed for Europe.—Dr. John W. Braman has returned from Europe.

School Out of Doors.—A portico is being built in connection with Public School 33 at Ninth Avenue and Twenty-Seventh Street where forty anemic school children will study out of doors this school year.

The Straus Milk Stations.—A committee consisting of Mr. Homer Folks, Dr. Abraham Jacobi, and Mr. V. Everit Macy, with Mrs. J. Bordeu Harriman as chairman, waited on Mr. Straus recently. He has consented to further discussion of the subject with the committee and will keep the milk stations open in the meantime.

For Charity.—It has been announced that \$6,000 was raised by the bazaar given in August for St. Joseph's Hospital, Far Rockaway.—Father John A. Keller, late rector of St. Gabriel's church, New Rochelle, N. Y., in his will bequeathed \$2,000 to St. Joseph's Hospital for consumptives and \$1,000 to St. Francis Hospital, N. Y.

Undersized Nursing Bottles.—At the Pure Food Show in Madison Square Garden, Dr. Reichmann recently produced a number of nursing bottles and showed that they were undersized and not correctly graduated. He stated that more than one-half of the bottles tested were found to be 26 per cent. short of the size for which they were sold, thus depriving the infant of more than one-fourth of the food it was supposed to get.

Crocker Bequest Held Up.—The Supreme Court has granted an injunction to the stepchildren of the late George Crocker, restraining the executors from selling property which was bequeathed to Columbia University, that the proceeds of the sale of this property might be used for a cancer research fund. The litigants claim that they were induced to make over their interest in the property to Mr. Crocker during his lifetime, and that he left their property to Columbia University.

The Truth About City's Milk Supply.—The Health Department is preparing an exhibit for the budget show that will tell as nearly as possible the exact truth in regard to the city's milk supply. Because of inadequate funds the department has not done all that should have been done to guard the supply. There are at present only 57 men employed for the purpose of inspecting 44,000 farms, 12,000 stores, 5,500 wagons, 1,100 shipping stations, 75 milk depots, and 15 receiving points. At least 125 men would be required to do the work satisfactorily.

Auto-Ambulance Service for Insanity Cases.—For the first time in the history of the hospital an automobile ambulance service for the handling of cases for the psychopathic ward has been installed at Bellevue Hospital. Hitherto insane patients have been brought to the hospital in patrol wagons by the police, but henceforth the police will have nothing to do with the handling of such cases. This innovation has been made at the suggestion of Dr. Minus S. Gregory, who has been in charge of the insane department at Bellevue for the past nine years.

Hospital Staff Resigns.—The seven doctors who constitute the staff of the Beth David Hospital, until recently known as the Yorkville Hospital, have resigned at the request of the board of directors, owing to a reorganization of the hospital which has come under the control of the Federation of Polish Jews. This organization has appointed a committee to look for a new site and contemplates building a hospital five times as large as the present one, which accommodates only thirty patients. It is said that resignations were asked for because the federation wishes to fill up the staff with its own physicians.

NORTH CAROLINA

Medical College Opens.—The eighteenth annual session of the North Carolina Medical College opened in Charlotte, September 14. Addresses were made by Rev. P. R. Law, D.D., Drs. John R. Irwin, Walter O. Nesbit, and the president and founder of the college, Dr. John P. Munroe.

Personal.—Dr. Charles L. Minor, Asheville, has gone to Europe.—Dr. William D. MacNider, Chapel Hill, has returned from Chicago and resumed his duties at the University Preparatory Medical School.—Dr. John C. Rodman has been appointed a member and chairman of the board of health and city physician of Washington.

Convicted of Abortion.—In the Guilford County Criminal Court, September 23, Dr. William L. Vestal, High Point, who was arrested July 3, charged with the death of Miss Bessie Thomason, Statesville, from criminal abortion, and charged with a like offense, but without fatal results, in the case of May Owen, Linwood, on advice of counsel is said to have pleaded guilty to manslaughter in the first case and to criminal abortion in the second, and to have been sentenced to ten years' hard labor in the state prison.

NORTH DAKOTA

Personal.—Dr. Thomas M. McLachlan, Bismark, has returned from Europe.—Dr. Louis B. Baldwin, superintendent of the State Hospital for the Insane, Jamestown, has been appointed superintendent of the new University Hospital, Minneapolis.

District Society Officers.—At the annual meeting of the Grand Forks District Medical Society, the following officers were elected: President, Dr. W. H. Bates, Grand Forks; vice-president, Dr. Benjamin D. Lemery, Inkster; secretary, Dr. William C. Wilson, Grand Forks; treasurer, Dr. George W. Williamson, Grand Forks, and censors, Drs. James Grassick and Gudmund J. Gislason, Grand Forks.

OHIO

Medical Society Meets.—The McDowell Medical Society, at its annual meeting in Cincinnati, September 15, elected the following officers: President, Dr. S. Cary Swartzel; vice-president, Dr. William L. Shollenbarger; secretary, Franz Miketta, and treasurer, Dr. Peter F. Kilgour.

Tuberculosis Hospital Opened.—As the result of a meeting in Urbana of the members of the joint hospital board, the district tuberculosis hospital, known as the Kinnane District Hospital, has been opened. This hospital is to accommodate tuberculosis patients from Champaign, Addison, and Clark counties.

OKLAHOMA

State Board Appointments.—Dr. George H. Truax, Stone-wall, has been appointed a member of the State Board of Medical Examiners, vice Dr. Joseph Hensley, Oklahoma City, and Dr. Harry L. Lott, Oklahoma City, has been appointed an alternate member of the board.

Medical College Opens.—The formal opening exercises of the Medical Department of the University of Oklahoma, Oklahoma City, were held September 15. Addresses were delivered by President A. Grant Evans of the university and Dr. Arch. K. West, dean of the medical school.

PENNSYLVANIA

Poliomyelitis Report.—County reports to the State Health Department show that since the first of July, 830 cases of infantile paralysis have been reported in the state. Of this number, Philadelphia showed 112 cases; Northampton, 130; Allegheny, 32; Lehigh, 11; Lancaster, 148; Berks, 15, and Westmoreland, 30.

Personal.—Dr. Jonathan C. Biddle, superintendent of the State Hospital for Injured Persons, Fountain Springs, was badly injured, October 1, when in endeavoring to avoid a boy his automobile went over an embankment.—Drs. Lawrence Litchfield, Irwin J. Moyer, John W. Boyce, Thomas D. Davis, and Percival J. Eaton have been appointed members of the examining board of the Civil Service Commission of Pittsburg.

Hospital Dedicated.—The St. Margaret's Memorial Hospital, Lawrenceville, Pittsburg, was opened for public inspection October 1. The hospital, which has been closed for ten years, has been newly equipped and can accommodate about eighty patients. The attending staff includes Drs. Percival J. Eaton, Elwood B. Haworth, Sidney A. Chalfant, Evan W. Meredith, William C. White, William W. Blair and William P. Barndollar.

Philadelphia

Veterans as Guests.—The next reception held by the Medical Club of Philadelphia at the Bellevue-Stratford, October 23, will be given in honor of the members of the profession throughout the state who have been graduated in medicine fifty years or more.

Trachoma Institute Report.—The report of the Trachoma Institute, 227 Pine Street, shows that 680 patients were treated for this disease during the month of August. Of these, 240 were new cases. This clinic is open daily and the treatment is free.

Officers Elected.—At the meeting of the Medical Society of the fifth censorial district, composed of Adams, Cumberland, Franklin, Fulton and New York counties, held at Hanover,

August 17, the following officers were elected for the ensuing year: President, Dr. Alexander C. Wentz, Hanover; vice-president, Dr. J. Burns Amberson, Waynesboro, and secretary and treasurer, Dr. George E. Holtzapple, York.

Personal.—Drs. J. William White, Arthur J. Brewe, and McCluney Radcliffe have returned from Europe.—Dr. Alan L. Diefenderfer was the guest of honor at a dinner given September 30 by the medical staff of the German Hospital to celebrate the completion of his term as intern in the hospital.—Drs. Cheney M. Stinson, Harry A. Streckert, and A. C. Luhr have been appointed to the gynecologic staff of Jefferson Hospital.—Dr. Adam Klemm sailed for Europe September 27.

TEXAS

Personal.—Dr. David J. Hardin, Kirk, was shot and seriously wounded at his home September 20.—Dr. Duren, Utopia, was seriously injured in a runaway accident in San Marcos, September 23.

New Society Organized.—It is announced that at a meeting of the City and County Health Officers of Texas, at Houston, a society known as the Tropical Disease Research Society was organized. Its membership consists of health officers and others interested in the study of tropical diseases.

WYOMING

Personal.—Dr. J. W. Garard has been appointed house surgeon of the State General Hospital, Sheridan. Dr. John B. Hynds, house physician at the hospital, has resigned.—Dr. Darwin E. Brown, Laramie, has succeeded Dr. Herman E. McCollum, Laramie, as physician of Albany county.

State Society Meeting.—At the twelfth annual meeting of the Wyoming State Medical Society, held in Casper, September 28 and 29, the following officers were elected: President, Dr. Albert G. Hamilton, Thermopolis; vice-presidents, Drs. T. A. Dean, Casper; William H. Roberts, Sheridan, and Samuel B. Miller, Laramie; secretary, Dr. Marshall C. Keith, Casper; treasurer, Dr. Neil D. Nelson, Shoshone, and editor of the Wyoming Department of the *Western Medical Review*, Dr. Fred W. Phifer, Wheatland. The next meeting will be held in Thermopolis.

GENERAL NEWS

Coming Fraternity Banquet.—The seventh annual banquet of the Nu Sigma Nu Alumni Association of New York will be held December 3, at the Yale Club, 30 West Forty-Fourth Street, New York City.

Personal.—General Health Officer J. S. B. Pratt, Honolulu, of the Territorial Board of Health of the Hawaiian Islands, is making a three months' visit to the United States.—The Department of State has selected the following delegates to the International Conference on Tuberculosis, to be held in Brussels: Dr. Hunt, Dr. Mazzyk P. Ravenel, Madison, Wis.; Dr. Arnold C. Klebs, Chicago, and C. H. Baldwin, Washington, D. C.

Advisory Board Called.—The gravity of the situation regarding the possible introduction of cholera from the infected sections of Europe has been made evident by the call issued for the Advisory Public Health Board of the Public Health and Marine-Hospital Service to meet in Washington, October 10. This board is composed of Drs. Simon Flexner, New York City, director of the Rockefeller Institute of Medical Research; Dr. William P. Sedgwick, Boston; Dr. Victor C. Vaughan, Ann Arbor, Mich., president of the Michigan State Board of Health; Dr. Frank F. Westbrook, Minneapolis, and Dr. William H. Welch, Baltimore.

FOREIGN NEWS

Personal.—Dr. Dawson Williams, London, editor of the *British Medical Journal*, who was seriously injured in an automobile accident July 9, is still disabled, but improving slowly.

Mexican Hygienic Exposition and Congress.—The exposition to show the progress of Mexico from a sanitary point of view, during the latter part of the last hundred years, was opened in the City of Mexico, September 2. Charts, models and photos of six of the larger cities and especially the City of Mexico, illustrate the progress made comparatively recently in supplying potable water and in draining large centers of population. A model modern hygienic hacienda building is one of the exhibits and has its walls covered with charts illustrating the progress made by Mexico in the last twenty-five years in fighting infectious diseases, such as typhus, scarlet fever, yellow fever, small-pox, consumption, etc. A

section of the exhibition shows the precautions taken against the introduction of foreign diseases and unhealthy immigrants, models of sanitary stations, the lodging houses for immigrants, etc. Another section shows models of rural hospitals in Mexico for the use of consumptive patients, and models of the general hospital in Mexico City and in Mexico, also models showing the evolution of baths, laundries, and dwelling houses from the most rudimentary conditions. Two large rooms are devoted to the exhibition of the progress which has been made in Mexico in the public schools, by photographs of the schools in the capital and in the cities and towns throughout the Republic.

Other Deaths in the Profession Abroad.—Aside from deaths mentioned by our foreign correspondents, we note the following: Marc Dufour, M.D., professor of ophthalmology at Lausanne, Switzerland, and a leading figure in specialist and medical circles and a public-spirited citizen, died recently, aged 67. He was an honorary member of numerous scientific societies at home and abroad and was president of the international ophthalmologic congress held at Lucerne in 1904. Two years later he took a trip around the world. For some years he has been the editor of the *Revue Médicale de la Suisse Romande*.—The chief of the medical service in the Swiss army, Dr. A. Mürset, recently succumbed to cerebral hemorrhage, at the age of 50, while on a vacation trip near home.—The death of A. A. Rubio, M.D., at an advanced age, is reported from Cuba. It is stated that all the public places of amusement in his city, Pinar del Rio, closed on the days of his death and funeral as a token of respect.—Italy has recently lost two prominent otolaryngologists, Drs. F. di Colo of Pisa and C. Seechi; also the director of the maternity at Verelli, G. Raineri, M.D., from infection during an operation; and P. Mantegazza, M.D., professor of anthropology at Florence and president of the Italian Ethnologic Society, formerly professor of general pathology at Pavia and author of numerous popular scientific works.—M. Dominguez, M.D., professor of therapeutics at the University of Mexico, died recently.—Mary A. Marshall, M.D., one of the oldest medical women in Western Europe, died at Cannes, aged 73.—E. Malzeva, a young Russian woman physician succumbed at Yskor to cholera, and the provincial authorities have founded a scholarship in her name at the Woman's Medical College at St. Petersburg in appreciation of her services during the epidemic.

Cholera in Europe.—An Italian exchange states that the daily papers in the department of Apulia announced that some of the district physicians there fled when cholera became epidemic. The national board of health has appointed a committee to investigate the matter. The president of the association is chairman of the committee, which includes, besides three other physicians, a representative from each of the two newspapers involved. In discussing the matter it was proposed that the district involved in an epidemic should temporarily insure the lives of non-medical men whom the authorities call on for medical services, and that better provision should be made for the families of sanitary officers dying at their posts in times of such epidemics. The Prussian government, by Robert Koch's advice, installed bacteriologic laboratories at the points where the Vistula and Memel rivers enter the country from Russia, and examine all the crews of boats and rafts passing down the river. Over 5,200 persons were thus examined during the five weeks after July 1, and three healthy germ-carriers were discovered by this means and rendered harmless. It is stated that there are over thirty institutes prepared to make bacteriologic examinations of the kind in Germany, all under the control of the national health authorities and the Berlin Institute for Infectious Diseases.—Free postgraduate courses on cholera have been organized at Vienna and elsewhere.—The last official reports from Russia place the number of cases of cholera at 170,353 with 77,466 deaths. A letter from Dr. A. Dworetzky of Moscow in the *Münchener med. Wochenschrift* just received, states that of the 1,082 cities throughout the Russian empire only 192 have a public water supply and only 38 a sewerage system. This includes 762 cities in European Russia; only 149 have a public water supply and 27 a sewerage system. He describes the features of the present epidemic of cholera and adds that he would hail with gratitude the carrying into effect of the suggestion mentioned in the Berlin Letter, page 1212, that the other European governments should bring pressure to bear on the Russian government to take more effectual measures against cholera, as the Russian epidemics are a perpetual menace to other lands.

MANILA LETTER

(From Our Regular Correspondent)

MANILA, Aug. 16, 1910.

The Civil Hospital

The famous "case of the Civil Hospital" has been disposed of at last. The Governor-General has said the final word in regard to an investigation of the management of the institution, and has let it be understood that the affair is to be considered disposed of. This case had its origin last May when a disgruntled American nurse resigned and made public severe charges against the institution. Others also who were more or less dissatisfied were induced to give their opinion. As the season was dull (the government bureaus being removed temporarily to the summer capital at Bagio) and the newspapers were short of news the incident was given much publicity, and became a topic of general conversation. In the absence of the Governor-General, the Secretary of the Interior and the Director of Health, the Assistant Director of Health ordered an investigation into the conditions and management of the hospital—a procedure which seems to have been irregular. The Civil Hospital is an institution maintained by the government for the benefit of its employees in Manila and the neighboring towns. Government employees and members of their families are given medical attention, prescriptions and medicines free of charge. Nor is there any charge for hospital and nursing services, other than the cost of meals served to patients. Some time ago, for the sake of economy and the efficiency of the service, it seemed desirable to make certain changes in the management and staff of the hospital, since, as in the opinion of the Governor-General, "there is no doubt whatever but that under the previous management of the hospital the care of government property and supplies was lax and there was greater consumption than the conditions justified, and that a change in the method of accounting for property was necessary. It is also found that some of the criticisms leveled against the new system which has been established are unjustified; that some of the nurses have purposely tried to make the new system unpopular and fail by not taking the trouble necessary to comply with the new regulations and then informing the patients that the resultant lack of facilities was due to the stinginess of the administration, a course which does not commend itself highly to fair-minded people. In the main, however, it is believed that the nurses of the Civil Hospital are high-minded, hard-working and faithful and that they may be depended on to cooperate in everything which is required of them for the good of the service and the success of their work. It is believed that the criticism of purposely trying to make the new system fail is one which can be leveled at so few individuals as to make it by no means a charge against the nursing force in general, and that repetition of such practices need not be apprehended for the future." It has been maintained by many that keeping competent American nurses in the Philippines will always be a difficult problem. Indeed, if American nurses were the only ones available this might prove a very serious drawback to hospital work and medical education in the islands, but the experiment of training the Filipina girls to be nurses has turned out so well that perhaps in the near future the services of very few American nurses will be required in the Philippines.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Sept. 24, 1910.

Fees for Insurance Examinations

The practice of some insurance companies of offering very low fees for the medical examinations of applicants for life insurance when the sum assured is small is a standing grievance and subject of controversy in the medical profession. It is pointed out that whether the sum assured be small or large the trouble is exactly the same if the examination is to be thorough, and all insurance companies desire this. The usual fee for examination paid by good companies, who generally insure for sums ranging from \$2,500 upward, is \$5, but in the case of the postoffice (which undertakes insurance for small amounts) and the companies which among the working classes insure for sums as low as \$500 or even less, the fees are as low as \$1, even \$0.50. The pressure of competition enables the companies to get examinations made for these very low fees, but practitioners in good position often decline the work, and there is strong feeling in the profession that they should be refused by everyone. The subject has again

come into prominence in consequence of the attempt of the Pearl Insurance Company to obtain medical examinations, and reports at the following rates: If the sum assured is \$125, \$0.75; if over, \$125, but not exceeding \$250, \$1; if over \$250, but not exceeding \$500, \$1.50. The temptation is held out that the number of proposers will be large, and therefore it will be worth while to undertake them. The scheme is strongly condemned by both the *Lancet* and the *British Medical Journal*. The former suggests that if it is not possible for actuarial reasons to pay larger fees, the company should ask only for a medical examination and carrying no responsibilities; the latter states that if such fees are accepted there will be tendency for the value of the reports and the amount paid for them to assimilate.

Decline of the Antivaccinationists

Though, as shown in previous letters, a lamentable decline has taken place in the number of children vaccinated in Great Britain in consequence of the reduction of the obstacles to those who obtain exemption for their children on the grounds of conscientious objection to vaccination, it is of some satisfaction to know that the militant antivaccinationists are a dwindling body. The income of the National Antivaccination League has so much declined that in the current year it was only \$100 a month. In 1909 the amount was 200; in 1908 over \$300 and in 1907 over \$400 a month. Other evidences of failure are shown in dissensions among the leaders and in the repeated withdrawals of odious charges against the profession in connection with vaccination which the official organ of the league, the *Vaccination Inquirer*, has been compelled to make.

New Methods of Treating Cancer

The ninth report of the cancer research laboratories of the Middlesex Hospital contains an account of the trial of new empirical methods of treating cancer in the cancer wards of the hospital. (This hospital alone among the general hospitals of London has special cancer wards and special cancer research laboratories.) The patients were all the subject of inoperable malignant disease. Seven cases were treated with arylars-onates—6 with soamin and 1 with atoxyl. The treatment was pushed until symptoms of arsenical poisoning were produced. In no case was there any benefit, not even relief of pain. Three patients were treated with the neoformans vaccine without any result than recurrent jaundice in 1 patient. Coley's fluid was used in 3 cases of sarcoma and in 1 of carcinoma. In the latter there was slight relief of pain; in 2 of the former there was no beneficial action, but in the third the result was remarkable. The patient was a healthy-looking girl, aged 20, who was admitted for a large primary sarcoma of the inguinal glands. It measured $5\frac{1}{2} \times 4 \times 4\frac{1}{4}$ inches. The margin was nodular and irregular. It was firmly fixed to Poupart's ligament and also adherent to the skin. She was given 28 injections of Coley's fluid, beginning with a dose of quarter of a minim, which was increased until 25 minims were reached. The injections produced recurring febrile attacks, which resulted in progressive anemia that threatened to be fatal, and therefore led to the stoppage of the treatment. On the other hand, the effect on the tumor was for a time remarkable. Within a fortnight from the commencement of the treatment there was distinct diminution in size in all its diameters. At the end of a month the improvement reached a maximum. The tumor was mobile and free from the skin and had diminished to one-fourteenth of its former cubic content. The overlying skin was white, soft and supple. Enlarged glands, previously incorporated in its margins, gradually separated from its retracting borders and were found mobile and discrete on either side. By this time, however, 25 minims of the fluid were required to produce any reaction at all and the general toxemia was marked. The injections, which at first were painless, caused great suffering and were often followed by local suppuration. Further treatment was abandoned at the patient's request. The growth again rapidly enlarged, ulcerated through the skin and caused death 3 months later. The necropsy showed primary glandular sarcoma and metastases in the portal mesenteric, bronchial and cervical glands.

Pitchblende (from which radium is extracted and which consists mainly of uranium oxid) was used in 14 cases. In some beneficial results but no cures were obtained. The pitchblende diminished concomitant acute inflammatory reaction and appeared to encourage fibrosis of the tumor. If pain was due to infiltration of skin it gave great relief. Its effect on enlarged cervical glands causing pressure symptoms seemed

worthy of further trial, but was less hopeful. Pain due to pressure on deeper structures was not relieved. Hence there was no marked relief in cases of uterine cancer, for the pain is mainly due to infiltration and pressure on the pelvic nerves and viscera at a distance from the primary growth. In rectal cancer, in which the growth usually becomes annular and the pain is due to fecal obstruction and resulting proctitis, the pain was relieved and the obstruction diminished.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Sept. 23, 1910.

Metallic Radium

Up to the present, the substances known under the name of radium have been in reality only salts of that metal, such as radium bromid and chlorid. In one of the last sessions of the Académie des Sciences, Mme. P. Curie made a report from which it appears that, in collaboration with M. A. Debierne, she has succeeded in obtaining pure radium. For this purpose, 106 mg. of radium chlorid were electrolyzed with an anode formed of 10 gm. of mercury. The radium amalgam thus obtained is unstable in air; it decomposes in water. After having been dried it is rapidly introduced into an iron combustion boat, previously reduced in pure hydrogen. The boat is then placed in a quartz tube and a vacuum is immediately produced in the apparatus. Distilling is done in a hydrogen atmosphere and under a pressure superior to the pressure of mercury vapor. The radium thus obtained presents the form of a white, brilliant metal, adhering strongly to the iron of the boat. This metal makes a blackened mark like a burn on paper. It decomposes in water energetically, becoming completely dissolved, especially on the addition of a very little hydrochloric acid. Mme. Curie intends to study the radioactive qualities of metallic radium.

Monument to Professor Cornil

At Cusset, near Vichy, the native city of Dr. Victor Cornil, former professor of pathologic anatomy at the Paris college of medicine, who died April, 1908, a monument has just been dedicated to his memory. The monument represents Professor Cornil standing with a book in his right hand and a microscope in his left. Bas-reliefs represent the professor teaching. The dedication ceremony was presided over by M. Doumergue, minister of public instruction.

The Stage of Undergraduate Pharmacists

The new organization of studies leading to the diploma of pharmacist has introduced important modifications into the conditions under which the *stage* of students in pharmacy has been taken. Under the regulations hitherto in force the *stage* has lasted three years; hereafter it will be only one year long. Up to the present it has been possible to take it in any laboratory whatever, hereafter it can be taken only in laboratories designated by the rectors of the universities on the recommendation of the superior schools or the mixed colleges of medicine and pharmacy. The *stagiaire* will be obliged to keep a record of the *stage* endorsed by the secretary of the school or the recording clerk of the justice of the peace at the time of entrance and at every change from one laboratory to another.

For Uniform Methods of Analysis of Potent Drugs

The tenth International Congress of Pharmacists, which has just been held at Brussels, and to which official delegates were sent from the United States, France, Italy, Spain, Russia, Sweden, Norway, Denmark, Hungary, Holland, Greece, Japan, China, Argentina, Chili, etc., has made a request of the Belgian government to invite other governments as soon as possible to an international conference for the uniformity of methods of analysis of potent drugs. Following the example of the International Congress of Medical Sciences held at Budapest last year, the International Congress of Pharmacists decided to form a permanent international association, the seat of which shall be the Hague.

Prize of the Society for Infantile Hygiene

The Société d'hygiène de l'enfance has announced a competition for 1910, the subject of which is "The Temporary Sojourn of Children Away from the Family in France or in Foreign Countries." Memoirs should be addressed to the president of the Société d'hygiène de l'enfance, at 10 rue Saint Antoine, Paris, and should be received before Dec. 31, 1910.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Sept. 15, 1910.

Personal

The fiftieth anniversary of his professional career was celebrated Sept. 14 by the eminent physiologist, Professor Hering of Leipsic, who is still an active member of the university faculty. He was presented by his pupils and friends with a *Festschrift* on the occasion of his jubilee.

Sterilization of Street Clothing in the Public Hospitals

The municipal authorities of Berlin, after investigation of the subject in other hospitals in the country, have issued the following regulations in regard to the clothes worn to the hospital by the patients: 1. On admittance all articles of clothing infested with vermin are to be sterilized, also the clothing from persons with contagious disease or coming from a family or close environment in which contagious disease is known to prevail. 2. The clothes and linen are to be sterilized with steam, except leather, rubber and fur articles and hats, which are to be sterilized with formaldehyde. 3. The clothing is to be kept hung up, enclosed in a separate clothing bag; the linen and shoes are to be wrapped separately and placed inside the other bag. 4. The body linen is not to be washed unless especially soiled. 5. The clothing is not to be ironed before being returned to the patient.

Health in the German Navy

According to the recently published sanitary report for the German navy from October, 1907 to October, 1908, the number of sick out of about 50,000 men were, on board ship, 15,000 or 501 per thousand, and on land 13,500, that is, 672 per thousand. The largest number of admissions was on ships in East Africa, 961 per thousand. Fully 816 per thousand of all those treated were dismissed as fit for duty, 1.5 per thousand died (0.88 per thousand of the entire force); 2,144 men (45.4 per thousand of the entire force), were dismissed as unfit for service. Among the diseases which led to dismissal on account of an affection already present before treatment, the first place was taken by heart disease, 9.75 per thousand; 18 committed suicide, and 58 died by accident. The largest number of deaths from disease were due to appendicitis, 11; next to tuberculosis of the air passages, 10, and pneumonia, 7. Death by accident ensued most frequently from drink, 28, and explosion, 20. The mortality of the entire force amounted to 3.1 per thousand, which was smaller than in the English navy for 1908 (3.37 per thousand) and in the American 5.76 per thousand. Among individual diseases those of the digestive tract were the most marked. The morbidity figure for gonorrhoea (26.4 per thousand), and that for syphilis (17.3 per thousand), was greater than in the previous year. The number treated on account of mechanical injuries was 4,078 (92.2 per thousand); 339 were attacked with appendicitis (6.8 per thousand) and 3,414 with affections of the respiratory organs (68.3 per thousand).

The Berlin System of Prompt Aid for the Sick and Injured

The organization of the system of prompt aid for the injured has now been completed at Berlin. Besides the 13 emergency stations in the large hospitals, there are 17 auxiliary stations and a central information and record bureau to supply information as to vacant beds in the various hospitals, to which the sick and injured can be referred, and also to centralize all the sanitary emergency work, including the lifesaving stations along the river, etc. The assistant to the mayor, the *weiter Bürgermeister*, is in charge of the whole system and the executive details are in the hands of the *Magistratssekretäre*, who is in constant local and telephone control of all the stations at any moment, day and night. The auxiliary stations are designated by uniform signs, and about 12,000 metal signs have been posted throughout the city, giving the location of the nearest emergency station, and transparent signs for the same purpose have been installed on the lamp-posts at numerous points in the more crowded streets. In connection with this first-aid work, uniform provisions have also been made in case that many are injured at one time; the central station in the city hall is to be the organized center for all the single and collective rescue work. The police and fire department have all received instructions to this effect. The importance of the organization is shown by the constant demands made on the various stations. For example, last month the auxiliary emergency stations cared for 5,000 cases, thus about 166 every day.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Sept. 20, 1910.

Suicides in Vienna

The statistical report of the board of health of this city cites, among other interesting items, the figures on suicides. It appears that the numbers are constantly increasing at a higher rate than the average increase of the population, for 1,203 persons attempted to take their lives in 1907; in 1908, the figure was 1,236, and in 1909, it was 1,373. Of the last number 520 succeeded. Eight hundred and fifty-eight men and 515 women tried to kill themselves, but only 378 men and 146 women attained their object. The oldest candidate for suicide was 88 years old, the youngest only 12. Seven hundred and eighty-four persons hanged themselves, this being the favorite method of suicide in this city. One hundred and twenty-two shot themselves; three persons attempted self-destruction by pouring oil, spirits or gasoline on the clothes and setting fire to them. The motives were generally, in the order of frequency, misfortune in love, incurable disease or poverty. It is interesting to note that the frequency of attempts at suicide lessens in winter (in December only 30 cases), while it increases in summer, and is at its height in autumn (in October 50 cases).

The Cholera in Hungary

In spite of every active and energetic measure, the outbreak of sporadic cholera could not be prevented in Hungary nor in Austria. Vienna has so far had 7 cases, which were dealt with accordingly, and there is every reason to hope that that will be the last of it. In Hungary the opinion of nearly all epidemiologists favors the idea that the Danube is the means of distribution of the disease. In a certain mining district in Mohacs, the center of infection has been found, and thence it was conveyed by the coal to the Danube ships, which in turn brought it to Vienna and Budapest. The majority of the cases—hitherto 99—have been found amongst the coal miners. Naturally prophylaxis and quarantine interfere greatly with the normal course of business life. The majority of the Hungarian population is agricultural, which makes prophylactic measures very difficult. Just now the harvest of fruit and grapes causes often gastro-intestinal troubles, and as every such case is brought invariably to the hospital for the sake of diagnosis and eventual isolation, much unpleasantness has been caused. But altogether, there is no reason to regard the country as infected, since the sporadic cases have been well controlled, and the other districts where suspicious cases have appeared are very few in number. Instructions have been issued to inform the people officially of the necessity of calling in a medical man at the earliest symptoms of trouble of the alimentary canal.

Marriages

HARRIS GOLDMAN, M.D., to Miss Lena Goldstein, both of Baltimore, August 21.

FREDERICK F. ZELLE, M.D., to Miss Amelia E. Maunder, both of St. Louis, September 28.

J. C. S. BROWN, M.D., to Miss M. Ethel Hunter, both of Sutherland, Sask., September 21.

HOWARD DAVIS LEWIS, M.D., Baltimore, to Miss Floride Lewis, at Baltimore, September 22.

JOSIAH H. HOLLAND, M.D., U. S. Army, to Miss Margaret Clark of Evanston, Wyo., September 22.

ARTHUR HOWARD DOUGE, M.D., U. S. Navy, to Miss Eleanor Creason, at San Francisco, September 6.

JAMES GOLDEN STEWART, M.D., to Miss Dorothy Jane Sedgwick, both of Grover, Colo., September 21.

WILLIAM RAVINE, M.D., to Miss Hannah C. Shilt, both of Cincinnati, at Long Island, N. Y., September 21.

GEORGE G. GANDY, M.D., to Miss Clemantine Rousek, both of Humboldt, Neb., at London, England, September 5.

EDWARD TOPHAM, M.D., San Francisco, to Miss Cecil Belle McLellan of Beresford, Cal., at Richmond, Cal., September 15.

LUCIUS AUGUSTINE FARNHAM, M.D., to Miss Edwina Daniell, both of Calumet, Mich., at London, England, September 20.

WILLIAM HENRY WALSH, M.D., Philadelphia, to Miss Eugenia Gray McIntosh, at Longwood, near Glenwood, Md., September 22.

Deaths

Joseph Gilman Jarrell, M.D. Tulane University, New Orleans, 1892; a member of the Medical Association of Georgia; for several terms president of the Georgia Medical Society, and vice-president at the time of his death; consulting physician to St. Joseph's Hospital, Savannah; assistant surgeon of the First Georgia Infantry, U. S. V., during the Spanish-American War, with service in Porto Rico; later major and surgeon of the First Infantry Georgia National Guard; and chief surgeon of the hospital corps of the Savannah Volunteer Guards; for one term a member of the city council; died in Savannah Hospital, September 20, from septicemia, due to an operation wound, aged 42.

Carey Kennedy Fleming, M.D. Northwestern University Medical School, Chicago, 1886; a member of the American Medical Association; and formerly president of the Denver Clinical and Pathological Society; secretary of the Colorado State Board of Medical Examiners; major and surgeon, N. G., Colo.; professor of obstetrics and gynecology in Gross Medical College, and later professor of abdominal surgery in the Denver and Gross Medical College; gynecologist to St. Anthony's, Mercy and St. Luke's hospitals, and the Herman Strauss Free Clinic, Denver; died suddenly at his home, September 24, from cerebral hemorrhage, aged 46.

Charles Augustus Rahter, M.D. Long Island College Hospital, Brooklyn, 1864; of Harrisburg, Pa.; a member of the American Medical Association; some time president of the Dauphin County Medical Society; vice-president of the Medical Society of the State of Pennsylvania, and president of the Harrisburg Academy of Medicine; acting assistant surgeon in the Army during the Civil War, and surgeon in the German army during the Franco-Prussian War; United States pension examiner, and president of the Harrisburg board from 1885 to 1889; died in Atlantic City, September 21, from cerebral hemorrhage, aged 71.

James A. Young, M.D. Eclectic Medical College of Pennsylvania, Philadelphia, 1868; a member of the Kentucky State Medical Association; for one session adjunct professor of theory and practice of medicine in the St. Louis Homeopathic College; and assistant professor of diseases of children in the Southwestern Homeopathic College, Louisville; died at his home in Hopkinsville, September 24, from tuberculosis, aged 64.

William Gibbons Daggett, M.D. University of Pennsylvania, Philadelphia, 1884; a member of the American Medical Association; lecturer on bacteriology and later on clinical medicine in Yale Medical School; attending physician to the New Haven Hospital, and secretary of the New Haven General Hospital Society; died in the New Haven Hospital, September 18, a week after an operation for appendicitis, aged 50.

David Arthur Fletcher, M.D. State University, College of Homeopathic Medicine, Iowa City, 1895; died at his home in Hartley, Iowa, August 19, from the effects of carbolic acid, believed to have been self-administered with suicidal intent while suffering from mental aberration, aged 37.

C. J. Christensen, M.D. University of Nebraska, Omaha, 1902; of Broken Bow, Neb.; a member of the Nebraska State Medical Association; who had started for the Pacific coast six weeks before on account of ill health; died in Portland, Ore., September 15, from heart disease, aged 35.

Frederick L. Gage, M.D. Long Island College Hospital, Brooklyn, 1876; a member of the Ohio State Medical Association; health officer of Delaware, Ohio, in 1907 and 1909, and coroner of Delaware county since 1904; died at his home September 19, from arteriosclerosis, aged 63.

Annie Marie Selee, M.D. Boston University School of Medicine, 1882; one of the founders of the Boston Homeopathic Hospital; at one time a member of the Melrose school board; died at her home in that city, September 24, from injuries received in a fall ten days before, aged 77.

Norman A. MacNab, M.D. McGill University, Montreal, 1907; a surgeon of the Grand Trunk Pacific Railway in its construction work west of Edmonton, Alberta; died at Mile Forty-two Hospital on that line, near Edmonton, September 16, from typhoid fever, aged 24.

Anthony Romig Finck, M.D. University of Pennsylvania, Philadelphia, 1871; for many years supreme medical examiner of the Shield of Honor; and for more than half a century a practitioner of Philadelphia; died at his home September 19, from pleuropneumonia, aged 77.

John H. Cowles, M.D. Castleton (Vt.) Medical College, 1862; a surgeon of New York Volunteers during the Civil War; and a pioneer practitioner of Furnas County, Neb.; died at his home in Weeping Water, Neb., March 23, from cerebral hemorrhage, aged 78.

Orlando Logan, M.D. University of Buffalo, 1882; a member of the American Medical Association; for fifty-four years a practitioner; surgeon in the Army during the Civil War; died at his home in Girard, Pa., August 20, from chronic heart disease, aged 81.

Joseph Chamberlain Caldwell, M.D. Medical School of Maine, Brunswick, 1870; a member of the Maine Medical Association; of Buckfield; died while making a professional call on a patient at East Sumner, June 17, from heart disease, aged 67.

Thomas C. Green, M.D. Medical College of Indiana, Indianapolis, 1882; a veteran of the Civil War; and formerly a practitioner of Albion, Ind.; died at the home of his son in Fort Wayne, September 15, from abscess of the lung, aged 65.

John Philip Phillips, M.D. New York Medical College, New York City, 1859; surgeon of the Eleventh New York Volunteer Infantry during the Civil War; died at his home in New Haven, Conn., September 20, from senile debility, aged 77.

William C. Dodds (license, years of practice, Iowa, 1887); for sixty years a practitioner of medicine and for fifty years of that time a resident of Cedar Bluffs, Iowa; died at the home of his son near that place, September 15, aged 88.

Hugh P. Credille (years of practice, Texas); a member of the State Medical Association of Texas; for more than thirty-five years a practitioner of Commerce; died at his home in that city, February 21, from nephritis, aged about 60.

Francis A. Bryant, M.D. Worcester (Mass.) Eclectic Medical College, 1856; for fifty-two years a practitioner of Cedar Falls, Iowa, and three times mayor of the city; died at his home, September 4, from senile debility, aged 84.

Oren Newton Dages, M.D. Harvard Medical School, 1910; an intern in Massachusetts General Hospital, Boston, was drowned September 21, in Lake Magog, N. H., in an attempt to rescue two girls who were drowning, aged 25.

John A. Fuson (license, Tenn., 1889); of Dowelltown; for more than half a century a practitioner of DeKalb County, Tenn., and twice a member of the state legislature; died at the home of his son in Liberty, April 19, aged 74.

Horatius Latto, M.D. Long Island College Hospital, Brooklyn, 1890; formerly a member of the Medical Society of the County of Kings; died in Brooklyn Hospital, April 18, from cerebral hemorrhage, aged 50.

Elijah G. Tracy (license, Bedford County, Ind., years of practice); a member of the Medical Society of the State of Pennsylvania; died at his home in Sylvania, August 30, from senile debility, aged 85.

James W. Ferguson (license, Kansas, 1901); formerly of Thayer and Stafford, Kan.; a pioneer physician of Neo-ho county; died at the home of his son in Chamite, September 16, from cancer, aged 62.

Joseph Thomas Dupuy, M.D. Jefferson Medical College, 1861; a member of the Medical Society of Virginia; of Laurel Hill; died in Memorial Hospital, Richmond, September 7, from dysentery, aged 75.

Percy Benton, M.D. University of Louisville, Ky., 1882; a member of the Kentucky State Medical Society; formerly of Brodhead; died at his home in Mount Vernon, Ky., May 28, 1909, aged 47.

James Mostyn McCarter, M.D. University of Toronto, 1896; of Verona, Ont.; died in the Kingston General Hospital, September 15, four days after an operation for appendicitis, aged 37.

Edward A. Wilcox, M.D. Rush Medical College, 1857; who served his district as representative and senator in the state legislature; died at his home in Minouk, Ill., September 23, aged 80.

Thomas F. Phillips, M.D. University of Nashville, 1874; a member of Bradley County (Tenn.) Medical Society; died at his home, September 5, from the effects of the kick of a horse, aged 63.

John Beverly Crowell, M.D. College of Physicians and Surgeons, New York City, 1873; died suddenly at his home in East Orange, N. J., September 21, from heart disease, aged 60.

William G. Lloyd, M.D. University of Tennessee, Nashville, 1890; formerly of Kingston, Ark.; died at his home in Rocky, Okla., August 3, from ptomain poisoning, aged 48.

Pharmacology

YONKERMAN'S "TUBERCULOZYNE"

International Quackery—A Comparison of the Protection That is Accorded the British and the American Publics

Time was when the United States was the dumping ground for the British quack and nostrum vender. The absence of medical practice acts, or the inadequacy of such as existed, made many of the states a fertile field for the quack from across the water or for the discredited British physician. The lack of enforcement of such state food and drug laws as existed and the absence of any federal law on the subject left the American people at the mercy of as heartless a gang of quacks and "patent medicine" exploiters as ever plied their disreputable trade.

This influx of quacks and nostrum makers from over seas has been largely diminished since the advent of the Federal Food and Drugs Act. In fact the current has set in the other direction and now instead of the American public being fleeced by the English medical fakers the American quack is fleeing the English public "good pickings."

It is surprising to those who have kept in close touch with the "patent medicine" question, how many medical and medicinal frauds of American origin are now being vigorously exploited in Great Britain.

The reason for this improved state of affairs is to be found in the activities of the federal, and to a certain extent the state, authorities in this country, in prosecuting various

Great Britain, on the other hand, has a Food and Drugs Act that is neither as broad nor as specific as our own. The British courts, too, have shown a decided tendency to treat the "patent medicine" faker with a leniency that is compatible neither with good sense nor public policy.


That this attitude is largely due to a lack of appreciation on the part of the judiciary of the evils inherent to the nostrum traffic is evident from the remarks made by the judge before whom was tried the case of the British agents for that cocain-containing nostrum, "Tucker's Asthma Cure," *versus* the *Lancet*. It may be recalled that this leading legal light in referring to the cocain habit made the following statement: "Surely, it must be infrequent. I thought it was chiefly to be found among the Indians of South America." The indiscriminate sale of habit-forming "patent medicines" is not likely to be very greatly restricted in the British Isles while such monumental ignorance exists in high places.

An interesting example of the greater laxity on the part of the authorities in Great Britain in controlling quackery may be found by comparing the "literature" issued by Derk P. Yonkerman of Kalamazoo, Mich., and London, England, for use on opposite sides of the Atlantic. Yonkerman runs a "consumption cure" of the usual quack type, consisting chiefly of a potassium bromid mixture and a full set of "follow-up" letters and other "literary" accessories in the way of testimonials, etc.

Free samples of the nostrum are sent out by both the American and English branches of this fake and a comparison of the respective labels is interesting:

Page 11

Consumption Can be Cured



Dr. Derk P. Yonkerman, Who Has Discovered a Wonderful Cure for Consumption.

At last a positive cure for Consumption has been found! A wonderful specific has been produced which destroys the tubercle bacilli—the germ of Consumption—without injury to even the most delicate constitution. This remarkable discovery has already been tested in countless cases with such marvelous success that Consumption can no longer be considered an incurable disease. Consumption in its advanced stages, aggravated cases of bronchitis, asthma, and catarrh have been quickly cured by this new treatment, even after a change of climate and the use of emollients and all the usual remedies brought no relief whatever.

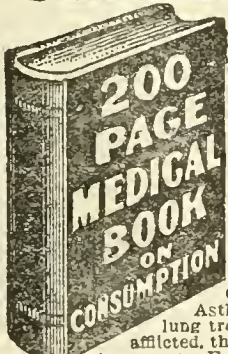
In order to place this treatment in the hands of every sufferer, both rich and poor, the discoverer has organized a distributing company. Through this company he has arranged to supply a generous

FREE TRIAL TREATMENT

only to those having Consumption or any other Consumption of the Lungs.

Fig. 2—A much reduced photographic reproduction of a typical British advertisement of Yonkerman's "Tuberculozyne." From the London *Daily Mirror*.

Consumption Book



FREE

This valuable medical book tells in plain, simple language how Consumption can be cured in your own home. If you know of any one suffering from Consumption, Catarrh, Bronchitis, Asthma or any throat or lung trouble, or are yourself afflicted, this book will help you to a cure. Even if you are in the advanced stage of the disease and feel there is no hope, this book will show you how others have cured themselves after all remedies they had tried failed, and they believed their case hopeless.

Write at once to the Yonkerman Consumption Remedy Co., 4195 Water Street, Kalamazoo, Mich., and they will gladly send you the book by return mail free and also a generous supply of the New Treatment, absolutely free, for they want every sufferer to have this wonderful remedy before it is too late. Don't wait—write today. It may mean the saving of your life.

Fig. 1—Photographic reproduction of a Yonkerman advertisement typical of those appearing in the cheaper magazines and the less particular newspapers of this country. From *Happy Hours*.

fraudulent medical concerns. This, coupled with the campaign of enlightenment against the great American fraud that has been consistently carried on by the American Medical Association for the past few years through THE JOURNAL, the Association laboratory, and the Council on Pharmacy and Chemistry has resulted in a steadily narrowing field of operations for the quack and the nostrum seller in the United States.

ENGLISH LABEL

AMERICAN LABEL

Tuberculozyne Yonkerman.	Tuberculozyne (Yonkerman)
The New Remedy for Consumption.	The New Remedy for Consumption.
The Only Known Remedy for all forms of Consumption.	Not a Patent Medicine.
An Antitoxin Acting Agent of the Greatest Therapeutic Value.	

It will be noticed that the statement "The Only Known Remedy for all Forms of Consumption" which is to be found on the English labels, is absent from the labels on the American samples. The reason is plain. The American Food and Drugs Act declares that lying on the label is illegal—and as the statement in question is a palpable falsehood, the company, doubtless, will not risk a possible prosecution by putting it on the American product. Probably for the same reason the other untruth, viz., "An Antitoxin Acting Agent of the Greatest Therapeutic Value" is also omitted from the American labels.

Fear of the postoffice fraud-order is doubtless responsible for the generous pruning of the "literature" sent out by this

concern from its Kalamazoo office, resulting in a corresponding protection to the American public. For instance, a booklet is sent out purporting to describe "Tuberculozyne" and its use in consumption; in England this brochure bears the title:

"TUBERCULOZYNE (YONKERMAN) CURES CONSUMPTION"

This, of course, is an untruth as vicious as it is cruel. The expurgated American edition, therefore, goes through the mails with this title

"CONSUMPTION, ITS DIAGNOSIS, TREATMENT AND CURE"

Many other little twists, omissions and modifications are found that indicate the value of the American postoffice fraud-order.

ENGLISH EDITION

AMERICAN EDITION

"There have been found *cures* for small-pox . . ."

"There have been found *safe precautions, such as vaccination*, against smallpox . . ."

"Consumption remained as *mysterious* and deadly as ever."

". . . consumption has remained as *insidious* and deadly as ever."

"Tuberculozyne (Yonkerman) the most wonderful and marvellous medical discovery of the age, cures consumption."

[Not in the American edition.]

". . . the Tuberculozyne treatment introduces copper into the blood . . ."

[No mention is made, in the American edition, of the "copper salts" said, in the English edition, to be the essential element of the "cure." The omission is probably due to the fact that copper is present at all in this fake exists in such infinitesimal quantities as to have no appreciable therapeutic action.]

"Tuberculozyne is a combination of certain salts of copper . . ."

"Tuberculozyne — the Copper Cure for Consumption" . . ."

There are numerous other details in the American edition of the Tuberculozyne booklet that have been toned down from the English version so as more nearly to correspond, if not with the facts, at least with probabilities. In giving the "life history of Dr. Derk P. Yonkerman," for example, we find that Englishmen are asked to believe that Yonkerman

". . . won prizes for proficiency in every study in the curriculum."

Americans, fortunately, do not have their credulity strained to the same degree for in the United States edition we read that Yonkerman merely

". . . won many prizes for proficiency in his studies."

Whether this modification is a tribute to the natural skepticism of the American public or to the stricter postal laws that obtain on this side of the water is not known. That modesty had anything to do with it is unthinkable. Many other equally interesting differences between the claims made on opposite sides of the Atlantic might be quoted but the whole matter can be summed up by saying that in England the style of the Tuberculozyne booklet is that of "the Lie Direct," while in the United States it approximates "the Lie with Circumstance."

A word in closing regarding the composition of this fake. The nostrum comes in two solutions which have been analyzed in this country by Dr. L. F. Kebler of the Bureau of Chemistry, U. S. Department of Agriculture, in Australia by the Board of Health of Sydney, N. S. W., and in Great Britain both by the public analyst and by the British Medical Association. Like every nostrum, the formula seems to vary at the whim of its exploiter. We give the latest analysis, that made for the British Medical Association and published in "Secret Remedies."

"No. 1 was a bright red liquid; analysis showed it to contain in 100 fluid parts, 3.4 parts of potassium bromid,

12 parts of glycerin, a trace of a pungent substance, sufficient oil of cinnamon (or oil of cassia) to give a flavor, a very small quantity of alcohol, and cochineal coloring matter darkened with a trace of alkali; no copper was present. The following formula gave an exactly similar liquid:

Potassium bromid	3.4	parts
Glycerin	12.0	parts
Oil of cassia	0.1	part
Tincture of capsicum	0.17	part
Cochineal coloring	q. s.	
Caustic soda	0.06	part
Water to	100	fluid parts

"No. 2 was a brown liquid, one specimen being bright and another containing a little sediment. Analysis showed it to contain in 100 fluid parts, 18 parts of glycerin, sufficient essential oil of almonds to give a flavor, and a coloring matter which appeared to be burnt sugar. No copper was found in the small free sample, but the larger bottle of No. 2 contained 0.01 per cent. of copper, and a trace of sulphate; this quantity of copper is equivalent to 1/48 grain of crystallized copper sulphate in each fluid dram. As regards the other ingredients the following formula gave an exactly similar liquid:

Glycerin	18.0	parts
Essential oil of almond	0.1	part
Burnt sugar	q. s.	
Water to	100	fluid parts

"The estimated cost of ingredients for No. 1 and No. 2 together is 2½ d." (5 cents).

Yonkerman has two prices for his "Tuberculozyne;" in England he asks £2 10s. 0d. (\$12) while his own countrymen get the same thing for \$10. Not altogether the same, either, as the "literature" sent out in Great Britain is typographically more elaborate and, as has been shown, the claims are more preposterous.

Tuberculozyne, we are told, is sold, "at a very moderate advance above actual cost." If selling 5 cents worth of drugs for \$10 or \$12 is Yonkerman's idea of "a very moderate" profit, we shudder to think what might have happened if instead of electing to follow quackery as a trade he had turned his talents toward the field of "high finance."

SIMPLIFICATION OF MATERIA MEDICA EXAMINATIONS

Report of the Committees on Materia Medica of the National Confederation of State Medical Examining and Licensing Boards and of the Council on Medical Education of the American Medical Association

With a view to fostering a more thorough knowledge of the really important drugs, the National Confederation of State Medical Examining and Licensing Boards, at its last meeting in Atlantic City, June, 1909, authorized the appointment of "a committee of three, to confer with the Council on Medical Education of the American Medical Association and to compile and to report to this Confederation a list of the more important drugs and their preparations, to which the examinations of the constituent boards may be confined, this list to be published in THE JOURNAL of the American Medical Association as with the approval and endorsement of the confederation."

In accordance with these instructions, the two committees have conferred by correspondence, and herewith submit a list as requested. Since the instructions of the committee of the Council on Medical Education applied only to the drugs generally used by the profession, it was not deemed advisable to prepare at this time an official list for examinations in homeopathic materia medica.

In presenting to you the official list of drugs for state board examinations in materia medica, we wish to emphasize the fact that it will accomplish its purpose most effectively if the individual state boards will publicly record their inten-

tion of confining their examinations to this list. The chairman of either committee will be glad to receive such assurance.

For the Confederation:

M. G. MOTTER, *Chairman*,
J. C. GUERNSEY,
GEORGE MACDONALD.

For the Council on Medical Education:

TORALD SOLLMANN, *Chairman*,
BERNARD FANTUS,
EGBERT LE FEVRE.

OFFICIAL LIST OF DRUGS FOR STATE BOARD EXAMINATIONS IN
MATERIA MEDICA

The following list has been framed with the view of including only those drugs which are commonly conceded to be practically indispensable in the general practice of medicine and as many preparations as are needed to bring these into play.

It does not aim to contain all the drugs which are of some interest or even of some importance, but, as has been said, only those which are indispensable. The others can scarcely be deemed fair subjects for license examinations. Their selection, for purposes of instruction, may be safely left to the individual teachers, who, if they wish, can obtain suggestions in the list of the Committee of One Hundred of the Council on Medical Education of the American Medical Association.

The drugs marked with an asterisk (*) are introduced for their toxicologic importance.

LIST OF DRUGS AND PREPARATIONS

FLAVORS:

Syrupus
Syrupus Glycyrrhizæ
Aqua Menthæ Piperitæ
Elixir Aromaticum
Spiritus Menthæ Piperitæ

LOCAL IRRITANTS:

Sulphur Lotum
Ichthyolum
Tinctura Iodii
Liquor Iodii Compositus
Iodoformum
Aqua Hydrogenii Dioxidii
Acidum Tannicum
Oleum Terbinthinæ
Copaiba
Oleum Santali
Ceratum Cantharidis
Aloe and Aloinum

PURGERS, VEGETABLE CATHARTICS AND

Tinct. Gentiana Comp.
Syrup Rhei Aromaticus Fldext
and Arom. Fldext. Rhamni
Purshiana
Santonium
Thymol
Resina Podophylli
Pulvis Jalapæ Comp.
Oleum Ricini
Oleum Tiglii
Oleo-resina Aspidii
Pelletierinæ Tannas

EMOLLIENTS AND PROTECTIVES:

Oleum Olivæ
Glycerinum
Petrolatum (also Album and
Liquidum)
Oleum Theobromatis
Adeps Benzoinatus
Adeps Lanae Hydrosus
Acacia (and mucilage)
Collodium flexile
Oleum Morrhuæ (and
Emulsum)
Pepsinum

ALKALOIDAL DRUGS:

Strychnina Sulphas
Tinctura and Extr. Nucis Vomice
Caffeina Citrata
Theobromina Sodio-Salicylas
Opii, Pulvis, Extr., Tinct., and
Tinct. Campb.
Pulvis Ipecac. et Opii
Morphina Hydrochloridum
Codaina Phosphas
Cocaina Hydrochloridum
Fldext., Extr., and Tinct. Bella-
donna
Atropina Sulphas
Scopolamina Hydrobromidum
*Nicotina
Homatropina Hydrobromi-
dum
Pilocarpina Hydrobromi-
dum.
Physostigmina Salicylas
Apomorphina Hydrochlori-
dum
Ipecacuanina, Pulvis, Fld-
ext. and Syrupus
Aconiti Tinctura and
Aconitine
Quinina Hydrochloras and
Sulphas
Tincture Cinchona Comp.
Fldext. and Ext. Colchici
Colchicin

RENZOI DERIVATIVES:

Acetphenetidinum
Acetanilidum
Sodii Salicylas
Phenol and Phenol Liquefactum
Phenylis Salicylas
Resorcinol
Creosotum

BIOLOGIC PRODUCTS:

Epinephrin
Gland. Thyroidea Siccæ
Serum Antidiphtheriticum
Serum Antitetanicum
Vaccina Variolæ

HYDROCARBON NARCOTICS:

Alcohol (and Sp. Frumenti and
Sp. Vini Gallici)
Ether
Chloroformum
Nitrogen Monoxid
*Carbon Monoxid
Chloralum Hydratum
Sulphonmetbanum
Liquor Formaldehydi
Hexamethylenamina

NEUTRAL PRINCIPLES:

Digitalis, Pulv., Infus. and Tinct.
Strophanthi Tinct.
Strophanthinum
Ereofa, Fluidextr. and
Ext.

SUNDRY:

Spir. Camphoræ (and Linim.)
*Acid. Hydrocyanic. Dil.
Spir. Glycerilis Nitratiss
Amylis Nitris
Oxygen
*Carbon Monoxid

SALINES:

Sodii Chloridum
Magnesii Sulphas
Liquor Magnesii Citratiss
Sodii Phosphas
Saccharum Lactis
Ammonii Chloridum
Calcii Chloridum
Potassii Bromidum and
Sodii Bromidum
Potassii Iodidum
Potassii Acetas
Potassii Chloras
Potassii Permanganas
Sodii Boras

ALKALIES AND ACIDS:

Aqua Ammonia (and Aromatic
Spiritt)
Ammonii Carbonas
Sodii Bicarbonas
Creta Preparata
Liquor Calcis (and Lin.)
Acid Hydrochloricum Dil.
Acidum Boricum

METALS:

Arseni Trioxidum
Liquor Pot. Arsenitis
Antimonii et Potas. Tart.
Bismuthi Subcarbonas and Sub-
nitri.
Ferrum Reductum
Pil. and Massa Ferri Carbonatis
Syr. Ferri Iodidi
Tinct. Ferri Chloridi
Alumen
Argentii Nitras
Cupri Sulphas
Plumbi Acetas
Phosphorus
Zinci Sulphas
Ung. Zinci Oxidi
Hydrargyri Massa and Unga-
ment.
Hydrargyrum cum Creta
Hydrargyrum Ammonia-
tum
Hydrargyri Oxidum Flavum
Hydrargyri Chloridum
Corrosivum
Hydrargyri Chloridum
Mite
Hydrargyri Iodidum Flava-
um and Rubrum

Correspondence

Postgraduate Study of Pediatrics in Vienna

To the Editor:—The fact that we find so few American physicians who are interested in the diseases of children, studying in the medical centers of Europe, makes it seem probable that the opportunities for work in Europe along the line of pediatrics are not fully understood in America. This fact, taken in connection with the effect produced on me by a very discouraging editorial in THE JOURNAL (July 25, 1908, li, 320), has made me think it possible that a few words from one who has recently been on the ground are not wholly uncalled for. I feel this the more strongly in view of the difficulties I myself experienced in my efforts to obtain information about European work in children's diseases before starting on my trip. The reason for this was twofold: the men who had recently come back had worked along lines other than my own, whereas the men who had worked in pediatrics had been away so long that their details were, in the main, hazy and indefinite. I can speak, at first hand, only of Vienna and conditions there; for there I spent most of the short time at my disposal. What I shall have to say, also, will be entirely from the point of view of the man who desires, primarily, pediatrics. Furthermore, I naturally look at things through the eyes of a "short-term" man.

First, a word as to the general system of graduate work in Vienna. The American Medical Association of Vienna may

well be likened to a graduate college in connection with a large university. It boasts a floating membership of one hundred students, graduates in medicine, chiefly Americans; arranges for courses by university professors, docents, instructors and assistants; and through the dean of the University of Vienna grants a *Zeugniss*, or certificate, for work done and courses taken.

The courses, embracing all the branches of medicine and surgery, general and special, are posted on a bulletin board at the Café Klinik, which serves as headquarters and general rendezvous for the American physicians in the city; and membership in these courses, up to the number of vacancies announced, is, with a few unimportant exceptions, granted in the order in which applicants have signed their names to the announcing slips. The courses run, as a rule, for one month, starting generally on the first. They cost from \$10 to \$20 a month, and occupy from one to two and a half hours a day, five or six days in the week. They may be taken for a month single, or as often as desired, the changing clinical material doing away with any danger of tiresome repetition.

And now for the work especially in children's diseases. Professor Escherich of the University of Vienna has gathered around him a coterie of young men, of whom Professor von Pirquet, until very lately of Vienna, now of Johns Hopkins University, is perhaps the most widely known. These men give courses in pediatric diagnosis, infant-feeding, laboratory methods especially applicable to children, etc., and hold themselves in readiness to give courses in any special work that may be desired. Special work in the dispensary, where two men handle the actual work, with and constantly under the instruction of the assistant, has been considered by many men one of the best courses in Vienna, and must usually be spoken for one, two, three or even more months in advance. When I say that I have seen more than a hundred patients (children under 12 and infants) treated in the two small dispensary rooms of the Heilige Anna Kinderspital, of an afternoon, after a morning's work of similar proportions, and add that the wards are rich in feeding cases, infectious diseases and the usual line of the diseases of older children, it will be seen that (thanks to the Austrian social system that sends so many cases to the hospital and the dispensary that with us would go to private physicians) these men have no lack of material to demonstrate. I feel that it would not be fair to speak specially of Docent Hamburger, whose never-failing courtesy and good nature were even more notable than his excellent, idiomatic English, without acknowledging as well a debt of gratitude to Messrs. Schick, Reuss and Sperck, who were never too busy to stop their most important work in order to clear up a doubtful point or to show an interesting case, no matter how long past the hour for closing it chanced to be. Docent Knöpfelmaier's course, at his own Karolinen Kinderspital, must also be mentioned here, as well as the very valuable short courses in tracheotomy and intubation—theory, manikin and actual practice—which are to be had with any one of several of the assistants.

Hardly less important, to the man fresh from his hospital, but lamentably "stale" as to his memory of the specialties which he "learned" (save the mark!) in the six-weeks courses of his fourth year in medical school, are the opportunities given for reviewing these often slighted, because too little understood, branches of medicine. Skin and ear especially, eye, nose and throat perhaps to a less degree, orthopedics most of all, are very important "minors" for the man who has chosen pediatrics as his "major." The opportunities for a casual or more thorough review of any or all of these subjects are many and valuable. I need not say cheap, when a little calculation, on the basis of some statements made above, will show the prevailing rate for such courses to be from 40 to 60 cents an hour! (See catalogues of some of the post-graduate schools in this country, or of the medical schools that give graduate summer courses, for comparison!)

As to what can be found in other cities, I can only say, from a very short experience in Berlin and from the conversation of men I have met who have worked there, that the "course" system is not so fully developed in the German capital as it is in the Austrian; and that at the latter center

it is much easier to fill up one's schedule for the entire day than it is at the former. Munich, a delightful city to live in, has the "course" system not at all; but work can easily be arranged for there to the extent of the clinical material available; and Professor Pfaundler's kindness to Americans leaves nothing to be desired.

Board and room in Vienna can be obtained for \$1.20 a day up, or down, if one can prevail on an Austrian friend to act as his business agent, and can prevail on himself to put up with the lack of some of the things that most Americans insist on having. The more one knows of German, the more valuable, naturally, will be one's experience here; but not a few men in Vienna to-day speak no German, but what they have learned since leaving home—and that, in more instances than one, is woefully little!

Perhaps more men than we realize have the opportunity of taking a few months of study abroad after leaving their hospitals and before settling down to practice, but are deterred from a feeling that nothing of value can be obtained in so short a time. Of course, this a matter that every man must decide for himself; and yet, to my mind, the mental broadening, the inspiration, the refreshing brushing away of intellectual cobwebs that one gets in a few months or even weeks in a foreign city, leave no shadow of doubt that the short-term man is well repaid for any sacrifice that he may have to make in order to gain his short time abroad.

F. H. RICHARDSON, M.D., Brooklyn.

Registration of Foreign Physicians

To the Editor:—Kindly allow me a few words in final answer to Dr. Nathan, who is laboring under some delusion. I regret very much the personal tone this matter has taken, but for the sake of an understanding by Dr. Nathan let me say:

First, I never alluded to Canadians or their registration.

Second, I never wrote about practicing in Canada nor of the difficulty American physicians find in qualifying to practice in that country.

Third, I alluded solely to the difficulty South-African-born medical men have in obtaining the right to practice in South Africa. German, French and Russian physicians of the highest standing were forced, after years of practice in South Africa, to proceed to London (directly after British occupation) to obtain the British certificate to continue practice. Surely the egotism of British physicians is not so great as to suppose that all physicians except those of British colleges are poorly informed and trained. I knew whereof I spoke, and would refer Dr. Nathan to my only communication in THE JOURNAL September 3. If Dr. Nathan re-reads the various communications that have appeared in THE JOURNAL during the last six weeks I think he will find that he has been answering an article which I did not write.

JAMES A. HONELL.

[COMMENT: We have received a number of other communications on this subject, some of them decidedly personal in character, and for this reason we think it best to close the discussion. No objection can reasonably be raised to the requirements fixed for the right to practice medicine in any country unless there is a clear discrimination against the physician of other countries. The requirements in Germany, although severe, are apparently equally enforced for all applicants, whether they are educated in Germany or elsewhere. Likewise in Great Britain the requirements seem to be the same for all candidates regardless of nationality. A country may be slow to recognize foreign educational institutions, but this is justifiable owing to the greater difficulty of securing accurate information regarding them. It is worthy of note, however, that in Great Britain the diplomas of no less than twenty medical colleges in the United States are now recognized. It is true that the requirements to practice medicine in most foreign countries are more severe than they are in the United States, but the reason is that in many of our states the requirements are ridiculously low or are not prop-

erly enforced. The requirements to practice medicine in most of our states should be made more thorough, not for the purpose of preventing foreign physicians from obtaining licenses, but to protect the public from illiterate and untrained doctors no matter where they come from.—Ed.]

A Visit to Ehrlich

BERLIN, GERMANY, Sept. 13, 1910.

To the Editor:—Not since the announcement of Koch's tuberculin has there been such an onslaught of medical men on Germany.

Going down on the train from Berlin to Frankfort with me there were no less than five physicians, all eager to be the first to see Professor Ehrlich and to obtain a supply of the now famous "606."

To those who are fortunate enough to become acquainted with Dr. Marks, the first assistant, the task of seeing Professor Ehrlich is not difficult. But without his good services one would have to wait at least three or four days, for the waiting list daily is from thirty to forty physicians. These men, coming from all parts of the globe, think that Professor Ehrlich should receive each one personally, and at once give him a supply of the new specific. On his refusal to do so, they at first entreat and later become indignant, and some have become little short of violent. It is no wonder one finds the little man nervous and distracted; but notwithstanding, he treats all visitors who are gentlemen with the greatest courtesy and consideration.

As the substance is given out entirely for experimental purposes, Professor Ehrlich is exceedingly careful into whose hands it goes, feeling that the only persons competent to use it are trained syphilographers with laboratory affiliations.

Professor Ehrlich was greatly disturbed by the numberless letters and cablegrams which poured in from all over the world, some of them from men who were not in the least qualified to administer the new remedy. He asked me, in consequence, to cable you to advise all American doctors to stay at home and not write, as the drug would be on the market in due time.

Ehrlich is a little disturbed over the accusation that he is about to make a fortune out of this new substance, for such is not at all the case.

This specific, as well as all others that have been invented in the laboratory under the direction of Ehrlich, was patented, not from any selfish motive, but to protect his discovery.

Around Ehrlich in Frankfort are a large number of chemical factories which hold many valuable patents on some of our well-known preparations. So if Ehrlich soon after discovering the true nature of atoxyl, and after having made his first three substitute products, had not secured patents on these, which are but the initial steps to three distinct fields of chemical possibilities, these factories would have obtained patent rights which would forever have closed this field of research to Ehrlich, and there would have been no "606."

Ehrlich personally is not to profit at all from the discovery. Before he was positive of the result of his work, he arranged that should it be a success 55 per cent. of the proceeds should go to his laboratory (which is sorely in need of funds) to continue along in this research work, and that the other 45 per cent. should go to the manufacturer.

By the patenting of the remedy we are assured of the following: first, the substance will be made with great care and with absolute uniformity, guaranteed by Ehrlich. Second, he has assured me that the substance will be put on the American market at exactly the same price for which it is sold by the European trade, plus the duty.

The amount of clinical work seen in Frankfort is limited to Herxheimer's clinic, where it is most thoroughly done, though on a small scale.

It might be interesting to you to know that the representative of *McClure's Magazine* was in Frankfort very recently, and that an article will appear in the November and

December issues treating syphilis in all its phases from a layman's standpoint, and that the lay press here in Frankfort, as well as in Berlin, keep the public informed from time to time on the results of this discovery; and further, that it is a common occurrence for a patient infected with the disease to come to a clinic and ask to have the new remedy administered to him.

In Berlin at the Virchow Krankenhaus, Wechselmann's clinic at the present writing offers the largest amount of material for observation. Here over 900 cases have been treated, and the results are on the whole most gratifying.

At this clinic one can see treated syphilis in every form, from babies 10 days old to an old man in his eighty-fifth year, who was so unfortunate as to contract a specific primary lesion at this late date.

Most brilliant are the results which are obtained in tertiary lesions. In these, gummatous distinctive processes begin to heal at once, but in order to continue this improvement it has sometimes been necessary to repeat the injection, and in one instance the injection was given three times.

The work of Lesser and Citron, while not conducted on such a large scale, is equally interesting, and the reports that come from their clinic should be most valuable.

In regard to the administration of diamido-arsenobenzol, Ehrlich is most particular that no patient who has any retinal changes, cardiac lesions or kidney disease shall receive any of the substance.

The modes of administration are numerous, as every clinician is trying to attach his name to Ehrlich by the application of his own special technic. These different methods will have to be tried out, and the fittest will be the longest survivor.

A word in regard to the Wassermann reaction for diagnosis. In all cases that have been previously treated with mercury the test still holds good, but in cases that have been treated with "606," the test, for a short while after the injection, has no value, as some report an early negative reaction and some the contrary. It will be a long time before any statistics on this point will be available, so until then we shall have to wait.

In general, one would say:

First, "606" is a specific agent against spirochetes.

Second, one injection will not cure every case of syphilis, but it seems possible to destroy the spirochetes by one injection, if it be given sufficiently early.

Third, it is absolutely contraindicated to administer "606" without first having made a positive diagnosis, by finding spirochetes or by the serum diagnosis of Wassermann.

B. C. CORBET, Chicago.

Cholera Among British Troops During Indian Mutiny

To the Editor:—Your notices of the rise of Asiatic cholera to epidemic proportions in certain parts of Europe, with comments on the means by which it is spread, recall a fact mentioned by a British officer in a new book which gives an account of the siege of Delhi, as it came within his personal observation. The officer, Griffiths, says that the British troops employed in the siege were scourged by cholera, and that the camps were plagued by myriad swarms of flies, this fact being regarded as a coincidence merely. The mortality from cholera exceeded the losses caused by the ferocious fighting at the front, which continued many weeks between combatants maddened by racial hates and wrongs and under a midsummer sun, neither side giving or asking quarter.

With our present knowledge it would appear only too plainly that the relation between the flies and cholera was not a coincidence, but rather cause and effect. A hint is given as to the food supply of the British by the story the officer tells, that when the city was finally taken, after days of severe street fighting, he was returning to quarters one morning through avenues cumbered with torn and rotting bodies. He asked his servant what there was for breakfast and was told "fried liver." This was the last straw, and it was only after some weeks that he was able to return to duty.

He also mentions, as an eye-witness, the peculiar psychic and physical effects attending the blowing of men from the muzzles of cannon, a form of military execution employed at that time to punish Sepoy mutineers.

GEORGE HOMAN, M.D., St. Louis.

"The Stomach Whistle: Who Blew It First?"

To the Editor:—The question of priority discussed in THE JOURNAL, September 3, p. 879, by Drs. Spivak and Kemp, recalls to my mind that as early as 1884 Dr. S. J. Meltzer of New York, in connection with his studies of the deglutition sounds, carried on experiments with a stomach tube having a whistle at one end and a balloon for blowing in air at the other end. One incident remained vivid in my mind. At his request I introduced such a tube into his esophagus. On one occasion the procedure brought on an alarming attack of spasm of the glottis which Dr. Meltzer relieved by swallowing sips of water in rapid succession, a method of treatment described by him a few years previously. I am not delegated by Dr. Meltzer to claim any priority for him; I simply wish to record the fact and thus contribute to the history of the invention of the stomach whistle.

JUSTIN WOLFFARTH, M.D., Asheville, N. C.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SIMPLE GOITER AND ITS TREATMENT

To the Editor:—Has the recent advancement in knowledge regarding the functions of the thyroid thrown any light on the subject of simple goiter? Just how are the iodids used in what has been called the "interrupted method?" Having used iodin externally and sodium iodid internally for three months without improvement, would it be wise to continue the treatment, and if not, does this exhaust our armamentarium? The patient is a young girl of fourteen with a small, simple goiter affecting mainly the right lobe and isthmus. She is otherwise normal. J. A. R.

ANSWER:—Recent studies of the thyroid and its functions seem to indicate that enlargement of the gland up to a certain point is a compensatory process. On account of an increased demand of the system for thyroid secretion the glandular elements proliferate. A moderate amount of hyperthyroidism, due to sexual development, is not infrequent in girls at puberty. This is often true also of the normal thyroid during pregnancy. At such times there is a hypertrophy of the gland which may be called a goiter but which is only physiologic and will subside of itself within a shorter or longer period. In cases in which the enlargement persists or increases, it is probably in the beginning a compensatory process, as stated, the increase beyond a doubling of the size of the gland being probably due, according to Dr. C. H. Mayo, to the fact that portions of the hypertrophied gland lose their function, the latter being taken up by the more newly formed gland tissue. In case this hypertrophy extends beyond the point of compensation and too much secretion is taken up by the system, the symptoms of hyperthyroidism or exophthalmic goiter may be produced; the condition is no longer a simple goiter. Thus there may be a distinct relation between simple goiter and the exophthalmic form. Wilson says that from the clinical standpoint exophthalmic goiter is caused by an enlargement of the gland with hypersecretion, while a simple goiter is enlargement of the gland without symptoms of hypersecretion, and that if a patient lives long enough every case of exophthalmic goiter will become a case of simple goiter. It must be remembered, however, that the case may be one of exophthalmic goiter or Graves' disease apparently from the beginning, and that there may be scarcely any noticeable enlargement of the gland; also that the enlargement may be due to a cystic condition and not to hypertrophy of gland tissue. The etiology of the condition which induces the enlargement has not been definitely determined, but in certain portions of the mountainous country of Europe, where goiters are unusually frequent, it is attributed to the water.

It seems to be the opinion of many authors that the iodids are the best agents for the condition, though a number of other drugs and measures are employed. We understand by the "interrupted method" of using the iodids the giving of the proper dosage of

some iodid three times a day, for a period, for instance, of three months, and then allowing a rest of a week, or two weeks, or even a month before resuming the treatment. While most physicians do not believe in the use of external applications, some recommend them, as for instance, the use of an ointment of the red iodid of mercury, iodin, etc. In view of the possible etiologic relation of water the patient may be directed to drink only boiled water. Ergot and belladonna have been given, and electrolysis by means of needles plunged into the substance of the gland, the tapping of cysts, incisions of the isthmus, ligation of arteries, partial thyroidectomy and the administration of the thymus of sheep, are measures that have been employed. Thyroid extract or thyroid feeding is also effective in some cases of simple goiter.

In the case mentioned by our correspondent, while the enlargement on one side might seem to indicate that the gland may be cystic, yet it may only be a case of physiologic hypertrophy due to the advent of puberty, and measures directed to the establishment of normal menstruation by the administration of iron, and by other roborant treatment, with the lapse of a little time, may be all that is necessary to effect a cure.

BISMUTH-VASELIN PASTE

To the Editor:—Please inform me where I can procure literature on the history, success and merit of the bismuth-vaselin paste treatment, more particularly when applied to suppurating sinuses.

GEORGE L. BATES, M.D., Morrisville, Vt.

ANSWER:—The following are a few of the many articles on this subject:

- Beck, E. G.: *Fistulous Tracts, Tuberculous Sinuses and Abscess Cavities*. THE JOURNAL, March 14, 1908, p. 868.
- Harris, H. H.: *Bismuth-Vaselin Paste Injections*, *Lancet-Clinic*, Sept. 26, 1908.
- Discussion on Bismuth Treatment of Tuberculous Sinuses at meeting of American Orthopedic Association, reported in THE JOURNAL, July 25, 1908, p. 342.
- Beck, J.: *Bismuth Paste in Treatment of Suppuration of the Ear, Nose and Throat*, THE JOURNAL, Jan. 9, 1909.
- Swindt, J. K.: *Bismuth Paste Diagnosis and Treatment of Fistulous Tracts*, *South California Pract.*, January, 1909.
- Robitschek, E. E.: *Beck's Bismuth Paste Treatment, with Report of Nine Cases*, *Jour. Minn. Med. Assn.*, Feb. 15, 1909.
- David, V. C. and Kauffman, J. R.: *Bismuth Poisoning Following Injection of Bismuth-Vaselin Paste*, THE JOURNAL, March 27, 1909, p. 1035.
- Bacus, V. J.: *Bismuth Poisoning*, THE JOURNAL, April 17, 1909, p. 1273.
- Stern, W. G.: *Bismuth Injections for Treating Old and Secreting Fistulas*, *Cleveland Med. Jour.*, April, 1909.
- Ridlon, J., and Blanchard, W.: *Bismuth Paste Treatment of Tuberculous Sinuses*, paper read before American Orthopedic Association; abstr. in THE JOURNAL, Aug. 7, 1909, p. 478.
- Baer, W. S.: *Results of the Injection of Beck's Bismuth Paste in Treatment of Tuberculous Sinuses*, *Bull. Johns Hopkins Hosp.*, October, 1909.
- Anderson, A. B.: *Poisoning by Bismuth Subnitrate in Bismuth Paste*, *West. Med. Rev.*, January, 1910.
- Shober, J. S.: *Treatment of Tuberculous Sinuses by Beck's Bismuth-Vaselin Paste Injections*, *Ann. Surg.*, May, 1910.

LIST OF PRIZES OPEN TO COMPETITION

To the Editor:—A list of prizes to be competed for by physicians during the next twelve months would doubtless prove of interest to those of your readers who are carrying on investigations.

PHYSICIAN.

ANSWER:—We gave a list of prizes in THE JOURNAL, Feb. 19, 1910, page 636. We did our best to make that list as complete as possible and since we specified which prizes are for annual award, the list ought to be still good for reference. Competition is not in all cases limited to physicians.

The Public Service

Medical Department, U. S. Army

Changes for the week ended October 1, 1910.

- Wheate, J. M., M.R.C., Sept. 19, ordered to proceed from Fort Lincoln, N. D., to Fort Yellowstone, Wyoming, for temporary duty.
- Marshall, John S., E.S. and D.S., Sept. 20, reports on three months leave of absence.
- Pyles, Will L., capt., Sept. 23, on expiration of his present leave of absence, ordered to Fort Mackenzie, Wyoming, for duty.
- O'Connor, R. P., major, Sept. 23, granted 5 days leave of absence.
- McCord, Donald P., M.R.C., Sept. 23, granted 3 months leave of absence about Oct. 1, 1910.

McIntyre, Henry B., capt., Sept. 23, granted leave of absence from date of his relief from duty in San Francisco, to and including Oct. 25, 1910.

Hoffenger, A. C., C.S., Sept. 24, granted 14 days leave of absence. Pidd, Peter C., capt., Sept. 26, left Fort Slocum, N. Y., with recruits en route to Fort McDowell, California.

The following named first lieutenants, Medical Reserve Corps, will report Oct. 1, 1910, to Col. Louis A. La Garde, Medical Corps, President, Army Medical School, for a course of instruction at that school: Robert H. Gantt, Henry P. Carter, Francis X. Strong, Hatley J. Hallett.

Slater, Ernest F., M.R.C., Sept. 24, is honorably discharged from the service of the United States, to take effect Oct. 13, 1910, his services being no longer required.

Weed, Mark D., lieutenant, Sept. 24, ordered to proceed to West Point, N. Y., for temporary duty.

La Garde, Louis A., colonel, Crosby, Wm. D., lieutenant-col., and Keifer, Frank R., lieutenant-col., Sept. 24, 1910, appointed members of a board for the examination of medical officers for promotion.

Bailey, Edward, M.R.C., Sept. 24, relieved from duty at Fort George Wright, Washington, and report in person to the Med. Supt., Army Trans. Service, at that place, for duty, with station at Seattle, Washington, relieving 1st Lieut. James E. Maloney, M.R.C., from duty on the transport *Burnside*.

Maloney, James E., M.R.C., Sept. 24, will, on being relieved from duty on the trans. *Burnside*, proceed to Fort George Wright, Washington, for duty.

Lamb, Wm. P., M.R.C., Sept. 27, 1910, honorably discharged from the service of the United States, his services being no longer required.

Roberts, Ernest E., M.R.C., Sept. 16, ordered to accompany Battery C, First Field Artillery from Fort Sill, Oklahoma, to San Francisco.

Davis, A. O., lieutenant, Sept. 27, left Fort Oglethorpe, Georgia, with 11th Cavalry on 21 days practice march.

Wheate, J. M., M.R.C., Sept. 27, left Fort Lincoln, N. D., en route to Fort Yellowstone, Wyoming, for temp. duty.

Gridis, F. C., M.R.C., Sept. 20, left Fort D. A. Russell, Wyoming, with the 9th Cavalry on practice march.

Trinder, John H., M.R.C., Sept. 28, orders directing him to report on Oct. 1, 1910, at Army Med. School, Wash., D. C., for a course of instruction at that school, revoked.

Willcox, Charles, major, Sept. 28, ordered to report at Washington, D. C., for examination for promotion on Oct. 18, 1910.

Bustion, Joseph E., lieutenant, Sept. 28, granted 30 days leave of absence.

Kierulff, H. Newton, M.R.C., Sept. 28, 1910, is honorably discharged from the service of the United States, to take effect Oct. 29, 1910, his services being no longer required.

Carswell, R. L., capt., Sept. 29, relieved from duty at the Army General Hospital, San Francisco, ordered to Manila, P. I., for assignment to duty on the transport sailing from San Francisco, December 5, 1910.

Miltenberger, Val E., M.R.C., Sept. 29, relieved from duty at Fort Riley, Kansas, and ordered to Manila, P. I., for assignment to duty on transport sailing from San Francisco, Dec. 5, 1910.

Barney, F. M., M.R.C., Sept. 29, relieved from duty at Fort Clark, Texas, and will proceed home. Lieut. Barney is relieved from active duty in the M.R.C., to take effect on the expiration of leave of absence granted him this date, for one month and seven days.

De Witt, Wallace, major, Sept. 29, relieved from duty at Fort Yellowstone, Wyoming, and ordered to Schofield Bks., H. T., for duty.

Leslie, S. H., D.S., Sept. 23, ordered to proceed from Fort Leavenworth, Kansas, to Fort Meade, S. D., Robinson, Nebraska, and Fort Mackenzie, Wyoming, for temporary duty.

Medical Corps, U. S. Navy

Changes during the week ended Oct. 1, 1910.

Wentworth, A. R., medical inspector, detached from the Naval Academy and ordered to the navy yard, New York.

Lung, G. A., surgeon, detached from the navy yard, New York, and ordered to duty on board the *Connecticut* as fleet surgeon of the Atlantic fleet.

McCormick, A. M., surgeon, detached from duty on board the *Connecticut* as fleet surgeon of the Atlantic fleet and ordered to the Naval Academy.

Hayden, R., P. A. surgeon, detached from the naval proving ground, Indian Head, Md., and ordered to duty at the naval hospital, Norfolk, Va.

Stratton, R. J., P. A. surgeon, detached from the Naval Medical School Hospital, Washington, D. C., and ordered to the naval proving ground, Indian Head, Md.

Lane, H. H., asst.-surgeon, detached from the naval station, Hawaii, and ordered to duty at the naval hospital, Canacao, P. I.

Acting Assistant Surgeons E. E. Woodland, R. B. Pratt, A. L. Jacoby, J. J. Lynch, O. J. Miller, W. H. Halsey, W. E. Eaton, L. P. Pratt, C. C. Hightower, J. V. Howard, J. G. Omelvina and E. P. Halton, ordered to instruction at the Naval Medical School, Washington, D. C.

Grow, E. J., surgeon, detached from the Naval Medical School, Washington, D. C., and ordered to the *Solace*.

Rennie, W. H., P. A. surgeon, ordered to duty at the naval hospital, Annapolis, Md.

Baker, M. W., P. A. surgeon, detached from the *Connecticut* and ordered home to wait orders.

Steadman, W. G., P. A. surgeon, detached from the naval recruiting station, Hartford, Conn., and ordered to the *Dirie*.

Smith, H. W., P. A. surgeon, detached from the Naval Academy and ordered to the *Connecticut*.

Stuart, M. A., P. A. surgeon, commissioned passed assistant surgeon from May 4, 1910.

Curtis, E. E., P. A. surgeon, commissioned passed assistant surgeon from July 12, 1910.

Hermesch, H. R., P. A. surgeon, detached from duty at Knoxville, Tenn., and ordered to the naval recruiting station, Minneapolis.

Trible, G. B., asst.-surgeon, ordered to duty at the naval hospital, Norfolk, Va.

Olson, G. M., asst.-surgeon, detached from the naval recruiting station, Minneapolis, and directed to wait orders.

Lynch, J. J., acting asst.-surgeon, resignation accepted to take effect Oct. 1, 1910.

U. S. Public Health and Marine-Hospital Service

Changes for the week ended Sept. 28, 1910:

Williams, L. L., surgeon, leave of absence for 7 days from Sept. 19, 1910, amended to read 3 days.

Gardner, C. H., surgeon, leave of absence for 1 month from Sept. 1, 1910, amended to read 22 days from Sept. 1, 1910.

Sprague, E. K., surgeon, granted 1 month's leave of absence from Sept. 28, 1910.

Rucker, W. C., P. A. surgeon, relieved from duty in connection with the suppression of plague in California, and detailed for temporary duty in the Bureau, effective Sept. 22, 1910.

Creel, R. H., P. A. surgeon, detached from U. S. R. C., *Tahoma*, and ordered on shore duty at Unalaska, as fleet surgeon, Aug. 9, 1910.

Guthrie, M. C., P. A. surgeon, granted 1 month's leave of absence from Oct. 1, 1910.

Hunt, Reid, Professor, Chief Division of Pharmacology, Hygienic Laboratory. Detailed to attend the Second International Conference for the Study of Cancer to be held in Paris, Oct. 1-5, 1910, and the Conference of the International Antituberculosis Association to be held in Brussels, Oct. 5-8, 1910.

Porter, Joseph Y., Quarantine Inspector, granted 30 days' leave of absence from Sept. 20, 1910.

Barnes, W., acting asst.-surgeon, granted 30 days' leave of absence from Oct. 5, 1910, with pay, and 1 month's leave of absence from Nov. 5, 1910, without pay.

Clark, E. S., acting asst.-surgeon, granted 30 days' leave of absence from Sept. 13, 1910.

Clerborne, A. B., acting asst.-surgeon, granted 7 days' leave of absence from Sept. 24, 1910. Paragraph 210 Service Regulations.

Gill, S. G., acting asst.-surgeon, granted 1 day's leave of absence Sept. 17, 1910. Paragraph 210 Service Regulations.

Kimmel, W. A., acting asst.-surgeon, granted 30 days' leave of absence from Sept. 25, 1910.

Rnsh, John O., acting asst.-surgeon, granted 10 days' leave of absence from Sept. 24, 1910, without pay.

Schuster, B. L., acting asst.-surgeon, granted 1 day's leave of absence Sept. 10, 1910.

Stuart, A. F., acting asst.-surgeon, granted 30 days' leave of absence from Oct. 1, 1910.

Wakefield, H. C., acting asst.-surgeon, granted 14 days' leave of absence from Oct. 10, 1910.

Society Proceedings

COMING MEETINGS

- Am. Ass'n. for Study and Prev. Infant Mort., Baltimore, Nov. 9-11.
- American Association of Railway Surgeons, Chicago, October 19-21.
- Colorado State Med. Soc., Colorado Springs, October 11.
- Delaware State Med. Soc., Wilmington, October 11.
- Hawaiian Territorial Med. Assn., Honolulu, November 26-28.
- Medical Association of the Southwest, Wichita, Kan., Oct. 11-12.
- Ohio Valley Med. Assn., Evansville, Ind., Nov. 9-10.
- Southern Medical Assn., Nashville, November 8-10.
- Vermont State Medical Society, St. Albans, October 13-14.
- Virginia, Medical Society of, Norfolk, October 25-28.

KENTUCKY STATE MEDICAL ASSOCIATION

Fifty-fifth Annual Meeting, held at Lexington, Sept. 27-29, 1910

The President, DR. JOSEPH E. WELLS, Cynthiaana, in the Chair

Diagnostic Significance of Headache to the Internist

DR. J. W. KINCAID, Catlettsburg: Pain is a subjective symptom and headache is an attack of diffuse pain, affecting different parts of the head and not confined to a particular nerve. Headaches must be considered in connection with the patient's personal and family history, and this should be obtained as a matter of routine, like making a physical examination. The number of lives sacrificed, owing to cerebral syphilis and nephritis untreated, except by "patent medicines" and headache tablets, until the crisis comes like a thunder-clap out of a clear sky, will never be known. History of migraine or epilepsy is very suggestive; as is also a previous history of a weak nervous system. One should never fail to inquire about a former luetic infection and also regarding the use of alcohol and drugs. The duration of the headache, its periodicity, the character of the ache, and accompanying symptoms during an attack and the presence of cardiac pulmonary, renal or gastro intestinal systems must be investigated. Another point is the hour that the headache occurs.

In the physical examination the first point is to exclude the neuralgia and migraine. Neuralgic pain is distinguished by

sharp pain referred to certain points along the course of the nerve with sensitiveness of the epicranial structures to which these nerves are distributed. The patient will often state that the pain is relieved by hot applications.

Examination of the urine is most important, headache being a frequent early symptom of nephritis; the headaches of uremia are easy to diagnose. Nephritic headaches are often associated with symptoms of arteriosclerosis, with the addition of nausea, vomiting and possibly somnolence. Headache in the pregnant woman should excite suspicion at once and demands an immediate examination of the urine. It is often a premonitory symptom of an approaching eclampsia, which may be forestalled by vigorous eliminative treatment.

Examination of the nervous system is, perhaps, the most important of all. Collins says that 40 per cent. or more of all headaches are due to neurasthenia. Headache is of common occurrence in the early stages of infectious diseases. As an initial symptom of typhoid it is often so severe and persistent as to demand opiates for its relief.

Diagnostic Significance of Headache to the Surgeon

DR. A. DAVID WILLMOTH, Louisville: In headache we are called on to minister to one of three conditions, the aim of all surgery: to relieve suffering, to restore function and to save life. Every case of frequently recurring headache calls for very careful and painstaking examination, not only of every organ in the body, but of the urine, blood and blood-pressure as well. The reflexes, sensations and other nervous functions must be tested out either by the surgeon himself, or, better, by a competent neurologist. An accurate history should be obtained and a continued series of observations made, this being necessitated by the loss of memory that frequently accompanies headache. Surgical headaches may be divided into two classes as regards cause: those in which the pathology is located in the brain, membranes, skull or scalp; and those in which the lesion is located elsewhere in the body and the head symptoms are secondary, the so-called reflex headaches. Headaches must also be classified as to the character of pain experienced by the patient, and, last, they must be divided as to their location on the head.

Patients recognize five kinds of pain: (1) Pulsating and throbbing; (2) dull and burning; (3) constricting, squeezing and pressing; (4) hot and burning; (5) sharp and boring. Under the first head come the vasomotor troubles, such as migraine; to the second belongs the toxic and dyspeptic headache; to the third the neurotic; to the fourth the rheumatic and the anemic, and to the fifth the hysterical and epileptic.

The pain may be frontal, occipital, parietal, vertical, diffuse, or combinations of any of these. Localized pain, with tenderness on pressure, suggests strongly that the pathology is superficial, and that the bones or membranes are affected. If all the branches of the fifth nerve are affected, it is strong presumptive evidence that the trouble is intracranial, while, when only one branch is affected, it is generally extracranial. If headache be accompanied by epileptiform phenomena, disturbances of speech and facial paralysis, at or near the period of adolescence, we probably have to do with organic disease. The correctness of the diagnosis is enhanced if there is vomiting and inability to retain food, in the absence of gastric symptoms, and certainly if the vomiting is projectile in character. The following points of significance should be attached to vomiting due to organic brain disease: (1) the influence of the position of the head, the vomiting being frequently arrested in the horizontal and recurring in the erect position; (2) the absence of premonitory nausea; (3) the peculiar character of the vomiting, the contents being ejected without strain of retching, just as in babies at the breast; (4) the irregularity of the radial and cardiac pulse which will be augmented by the vomiting. It may be said, however, that vomiting is only to be looked for in the early stages.

In organic disease the pain is generally constant; there are rarely periods of perfect freedom. At times the patient will shriek from the suffering. This may be said of migraine, but in migraine the paroxysms are separated by days or weeks of freedom, comparative or complete. The pain of organic disease persists during the night, preventing sleep

or arousing the sufferer. Functional headaches rarely prevent sleep, which indeed often ends the attack. If sleeplessness is a symptom, optic neuritis, vertigo and vomiting should be looked for. If the three constitutional states, marked anemia, kidney disease and lead poisoning can be excluded, optic neuritis with headache is almost pathognomonic of organic disease. Much can be done for patients with headaches found by exclusion to be entirely surgical. If due to adhesions, or any of the conditions not cancerous, relief can be promised. I have found that, if the brain is dealt with gently, it lends itself kindly to almost any amount of handling.

The Diagnostic Significance of Headache to the Specialist in Eye, Ear, Nose and Throat

DR. M. C. DUNN, Henderson: The two most important facts to keep in mind in endeavoring to interpret the significance of headache are, first, that it is an important symptom of a number of functional and organic diseases; and second, that the location, character and duration of the pains are often the means of suggesting the condition or disease on which it depends. We have much yet to learn respecting headache and the remote effect of a disturbed nervous equilibrium on the organs of the chest and abdomen. We also have much to unlearn, many inherent prejudices to overcome and many clinical conclusions to discard before our patients can derive the full benefit of our own advancement.

Discussion on Headaches

DR. D. M. GRIFFITH, Owensboro: Eyestrain as a cause of headache is now universally accepted by the profession, but the credit of intelligently and persistently bringing the subject before the profession is largely due to S. Weir Mitchell. In persistent headache in a patient under 40 in whom there is no assignable cause, the refraction and muscular balance of the eye should be carefully inquired into by a competent oculist and with the use of a cycloplegic. In my experience the small errors of refraction are those that produce the reflex we call headache, because Nature keeps up a persistent effort to overcome this small error in order to secure good vision, while with a large error she abandons herself to poor vision and secures thereby freedom from the nerve strain. In chronic simple glaucoma, pains may be the only symptom recognized except at the hands of those of considerable experience; and I would admonish the general practitioner not to use cycloplegics in these cases, as the result is always disastrous. I have found that the most frequent cause of one-sided headache is the nose or the accessory sinuses; and in this order of frequency with the sinuses—the frontal, ethmoidal, sphenoidal and lastly maxillary. Many of the worst headaches come from pressure in the middle turbinate region, and I have given relief to many patients by operations which secured relief of pressure. Contrary to the general opinion, diseased tonsils may be the cause of headache, as proved by several of my own cases during the past year. A school teacher, who had suffered from headaches for three years, was given complete relief by removal of the tonsils in their capsule.

DR. J. D. KISER, Lexington: In a case of periodical pain, which may involve any region, if the headache is one sided, it may be due to trouble with the frontal and sphenoidal sinuses. If the sphenoidal sinus is involved, it is deep seated, going back toward the attic to the head, and often the removal of the middle turbinate will relieve the troubles. In these cases it is essential to secure free drainage. There may be blocking of the ostium, with obstruction to ventilation, the condition being brought about by a swollen condition of the membrane. In case of sphenoidal involvement, a condition may develop in the sphenoidal sinus which will undermine the sella turcica; and pressure on the optic nerve may produce blindness. From an ophthalmologic standpoint, there is temporal, frontal and occipital pain or discomfort extending into the neck, and sometimes down into the shoulders themselves, indicating eyestrain or asthenopia. It may be due to muscular imbalance, to retinal asthenopia, or if due to muscular imbalance the internal muscles may lack the power of con-

vergence. Especially is this the case when there is hypermetropic astigmatism due to failure of the ciliary muscle to act in adjusting the accommodation. The majority of these patients can be absolutely cured or greatly benefited by correcting the refractive error and adjusting properly fitted glasses.

DR. F. H. CLARK, Lexington: I believe that toxemia is the largest of any one cause of headache, but more than one cause is involved in the production of headaches. These toxemias are of two general types, like lead poisoning and acid intoxication, due to a defective liver or kidneys. In many so-called neurasthenias, I believe that the headaches are modifications of migraine.

DR. CURRAN POPE, Louisville: If headache is a symptom and symptomatic, how can we come to a conclusion about headache, unless we, like the jury, are in possession of all the facts? No practitioner has a right to diagnose headache until he first possesses all the facts in any given case. The history of syphilis may be the most unreliable that was ever given. Do not believe it. Do not accept it. You are given scientific methods of approximating an accurate diagnosis through the methods of Wassermann and Noguchi. I do not accept the question of specific headache unless it is based on the serum diagnosis. A headache may disappear when the patient's mental attitude is corrected, without the use of either hypnotism or suggestion. In my opinion, the question of eyestrain, of the various other reflexes arising from the sinuses and otherwise, occupies a very definite, clear, well-defined position. If a condition exists, correct it. My principle has always been to refer these patients to some good specialist, in order that the causal condition may be removed if it really exists. The principal thing is to lift any burden from the individual, and it is only by eliminating one after the other of the possible causes and getting down deep into the question of headache that we will cure these patients. I am not speaking of organic lesions, which are questions for diagnosis and operative work, if possible.

DR. JOHN J. MOREN, Louisville: I want to go on record as saying that true migraine has never been cured by properly fitting glasses. The number of attacks may be lessened and the amount of pain influenced, but these true cases of migraine are never stopped. That has been my experience. My method is to try to distinguish, if I can, the character of the pain. In a patient with pain over the fifth nerve, a true darting, actual pain, the location of the pain being very definite, what is causing it? Is it something in the blood? Is it something irritating the nerve? That should be our line of thought. If an individual complains not of headache, but of the sensation of having a band around the head, or a sensation of weight, it is not a pain, but a sensation, and that will give a clue in looking for hysteria or neurasthenia so called. Look for eyestrain. Look out for various reflex causes. I would emphasize the importance of studying the character of the pain, and there is nothing that will help us more in this than the location of pain.

DR. J. A. STUCKY, Lexington: It is evident that this great bugbear which confronts the medical profession, headache, is not clearly understood, and that after all the diagnosis must be made by elimination. Undoubtedly, toxemia is the basis of the majority of cases of headache. But what causes the toxemia? It may be intestinal. It may be due to trouble in the accessory sinuses. If the sinuses are involved, how does that produce toxemia? Not by production of pus. When the sinuses begin to suppurate, the headaches begin to get easy. It is the negative pressure; it is the rarefaction in the anterior ethmoid cells, in the sphenoidal sinus, in the frontal sinus, and it is necessary to relieve the negative pressure before opening the sinuses. How do refractive errors produce headache and toxemia? By lowering vitality, lowering the power of resistance. I can take a little cotton and give any of you toxemia in twenty-four hours by blocking up the attic of the nose. There is pain as the toxins result from retained secretions. Retained secretions become pus or purulent after a while. We should bear in mind the possibility always of intracranial complications.

(To be continued)

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS

Twenty-third Annual Meeting, held at Syracuse, N. Y., Sept. 20-22, 1910

The President, DR. AARON B. MILLER, Syracuse, in the Chair

Officers Elected

The following officers were elected for the ensuing year: president, Dr. Herman E. Hayd, Buffalo; vice-presidents, Drs. Henry Schwarz, St. Louis, and Lewis C. Morris, Birmingham, Ala.; secretary, Dr. William Potter, Buffalo (re-elected); treasurer, Dr. X. O. Werder, Pittsburg, Pa. (re-elected).

Louisville, Ky., was selected as the place for holding the next annual meeting; time, Sept. 25-27, 1911.

The President's Address: Gynecology

DR. AARON B. MILLER, Syracuse, N. Y., after speaking of the recent advances that have been made in obstetrics, gynecology and abdominal surgery, said in part: The scope of work of the members of this Association has gradually increased since the knowledge of bacteriology has illumined the way to a more accurate diagnosis and given us a known pathology. In 1882, Dr. J. Marion Sims made the prophetic statement that it would become possible to open the abdomen in gunshot and stab wounds, to repair and thereby lessen the mortality attending these injuries. In the master mind of Sims the seeds of advancement had taken lodgment. His observations and associations abroad had given him an oversight into the possibilities of the future, the possibility of surgery becoming a science, founded on findings that were indisputable. With the advent of bacteriology came a new school of surgeons, whose knowledge was founded on facts, not theories, and like the mariner who consults his compass, had known laws to direct them: The field of gynecology, the pelvis, with the abdomen appended, was their hunting ground, and like an army marching to victory, the field was soon taken. Now all the organs of abdomen and pelvis have felt the results of advancement and have yielded of their pathology abundantly. The knowledge of the real etiology of disease robbed surgery of its terrors and opened the pelvic and abdominal fields for investigation through a perfected technic, with but little fear of serious consequences attending thorough exploration, thereby revealing the living pathology and rendering the arrest or elimination of disease possible. In obstetrics, marked results have been obtained through a knowledge of infection. From a heavy death-rate following confinement, the technic carried out in hospital practice has almost eliminated the mortality.

In the field of gynecology, the disease that stands as a lone sentinel against the advancement of science is cancer. Having existed since the earliest history of medicine, it has withstood all investigation. While all forms of maladies have crumbled in ruins about it, it has continued its ravages until many thousands of people in the United States are dying annually of this disease. Cancer of the breast, recognized and treated in its inception by early operation, has resulted in a greater percentage of cures, and materially lessened the mortality. It is the consensus of opinion that cancer of the stomach has its origin on the site of an ulcer. Prophylactic treatment prevents the cancer by curing the ulcer. Prophylaxis must be introduced in the prevention of cancer of the uterus by early repair of lacerations. Traumatism is the accepted factor in inducing cancer of the breast.

Gynecologists have been slow to impress on the public, and to enlighten women especially, as to the great dangers that threaten them through ignorance of venereal diseases that are liable to be brought to them by unsuspected avenues. This subject has been enshrouded in such mystery that boys and girls have grown to mature manhood and womanhood, ignorant of the laws that should govern their lives, for fear that the knowledge of sexual diseases might lead to contamination. Proper environment should be placed about the growing child to aid in development and to protect when dangers threaten, thereby promoting stronger, healthier bodies.

Present Status of the Colon Tube

DR. H. WELLINGTON YATES, Detroit: Seldom, if ever, are soft rubber tubes admitted into the normal colon. When an endeavor is made to force the tube upward, even by the gentlest manipulations, it is found to coil itself up in the rectum and there do positive harm, because of pressure irritation and the consequent inability to retain the enema. In perhaps half the instances it is impossible to tell when the tube is coiling up on itself, even when we suspect it. Colon tubes as such are of no value, because they do not reach the colon, and they are mischievous in that proportion as we endeavor to force them high up. Water or fluid injected four or five inches into the rectum is carried upward into the colon and may be found at the cecum in ten minutes. There is good reason to believe that a reversed peristalsis is set up when fluids are injected into the rectum. The introduction of a tube more than five inches for colonic irrigation or therapeutic enemata is useless and likely to defeat the object desired.

DISCUSSION

DR. L. S. McMURTRY, Louisville, Ky.: It has been discovered that what we formerly called high enemata were not high enemata; that if we introduced a soft rectal tube into the bowel and kept on passing and passing the tube it reached to the sigmoid and then began to coil on itself and did not pass into the bowel. Years ago, therefore, I abandoned all efforts at what is known as high enemata, recognizing that it was a deception. It seems that this has an important bearing on some important features of treatment of the colon, especially ulcerative conditions. For instance, if the cecum be opened the colon can be irrigated from below or above, but if there is no opening in the caput coli it is almost impossible, no matter what position the patient is in, to get water up into the transverse and ascending colon, but if an opening is there and water is thrown in the gas will pass out of the opening in the cecum. An opening also provides a means of medicating the entire mucous surface of the colon, but without such an opening it is impossible to do it.

DR. J. G. SHERRILL, Louisville, Ky.: It has been demonstrated by Dr. Hanes that fluids pass with difficulty into the colon and cecum because of the amount of gas found in this portion of the bowel, and that if an opening be made in the cecum or appendix the gas will pass out and fluid will go in. Dr. Hanes uses coal oil in the treatment of amebic dysentery with gratifying results.

DR. LOUIS FRANK, Louisville, Ky.: I wish to emphasize the therapeutic value of injections of fluids for medication in high bowel lesions by the use of the inverted posture.

DR. FRANCIS REDER, St. Louis: Dr. Soper and I have done considerable work in the field of rectal intubation and the injection of water into the lower bowel, endeavoring to get it as high up as possible, and we found that if we took an ordinary colon tube and introduced it into the bowel it was impossible to get above the promontory of the sacrum. The ordinary soft tubes coil on themselves and the fluids injected do not reach beyond what is called the shelf of the rectum.

DR. W. YATES, Detroit: The purpose of my paper was to show the possibility of not only medicating the rectum, but the sigmoid and colon with fluids.

Diagnosis of Chronic Surgical Lesions in the Upper Abdomen

DR. C. N. SMITH, Toledo, O.: The diagnosis of these lesions is made with accuracy by the anamnesis alone. Differentiation of cholelithiasis from ulcer demands recognition of the initial symptoms which are frequently overlooked. The accepted symptomatology of cholelithiasis and ulcer is largely that of their terminal events. The most striking feature of ulcer is periodicity of painful attacks, alternating with intervals of relief. As complications occur, the attacks are more severe, becoming nearly continuous. In cholelithiasis the stomach distress, compared with the pain of ulcer, is of much less intensity, occurs sooner after the taking of food, is the pain of a full stomach and does not progressively increase and reach its height in from two to five hours after meals. In cancer of the stomach, generally a sequence of ulcer, symptoms of

the latter gradually merge into those of the former. Vomiting may or may not be a dependable symptom in cancer; anemia is a most important symptom. Chronic pancreatitis being largely a terminal event in cholelithiasis, the diagnosis of the former is facilitated by recognizing the initial symptoms of the latter. Valuable pancreatic symptoms are found in the feces. Chemical and microscopic examinations are necessary. The Cammidge reaction is of questionable value. In movable kidney during Dittel's crises, the swollen and tender kidney, especially when jaundice is present, may be mistaken for an inflamed and distended gall-bladder. Differentiation is made from appendicitis, rupture of the gall-bladder and renal colic. The appendix may mimic successfully many of these lesions.

DISCUSSION

DR. R. T. MORRIS, New York: We cannot always make a diagnosis of the presence of gall-stones. We should not fall into the trap of speaking of cholelithiasis. We should not make that diagnosis. It is a dangerous thing. We should speak of cholecystitis, as the gall-stones are merely incidental to cholecystitis.

DR. J. PRICE, Philadelphia: If the internists made diagnoses in these cases early and referred them to surgeons for operation promptly, many more lives could be saved than are now saved.

DR. R. E. SKEEL, Cleveland: If one wishes to secure as complete and certain a history as is necessary to make a diagnosis in the class of cases under discussion, unusually intelligent patients must be met with, but I do not see any possibility of the average patient giving such an accurate history of his case as will lead the surgeon to make a diagnosis from that alone.

Problems in Uterine Cancer

DR. WALTER B. CHASE, Brooklyn: In the present state of our knowledge, early extirpation of the uterus offers the best chance of cure. Where there is considerable involvement of the vaginal structures, the first indication is high amputation of the cervix and removal of the vaginal involvement. If the uterine stump does not heal hysterectomy should usually be undertaken, providing there is normal mobility of the uterine body. Vaginal hysterectomy subsequent to cervical amputation is difficult if not impracticable; fixation of the uterus, if not dependent on other coexisting causes, contraindicates hysterectomy. If the parametria are involved radical measures are contraindicated. When subsequent to the removal of the cervix and the vaginal growth hysterectomy is expedient, the abdominal route should be chosen, because vaginal hysterectomy is neither easy nor practicable and because there should be as little interference as possible with the remaining cicatrix. The value of hysterectomy for cancer of the body of the uterus as a secondary operation, though not recognized by the average practitioner, has a value which cannot be gainsaid in a certain class of cases. I object to the palliative treatment of uterine cancer by potent escharotics, both on account of the inability to limit the area of their destructive influences, and the violent pain attending their application. The thermo-cautery is the palliative measure *par excellence*. The electric cauterizer leaves nothing to be desired, but if one is under the necessity of using a Paquelin cauterizer, which is practically as satisfactory, it is hazardous to attempt the operation with a single apparatus. A variety of straight and curved platinum knives and home-shaped instruments are needful. For securing the best results, care is needed in protecting the vaginal walls from excessive heat and skill in removing all diseased structures compatible with the anatomic relations of the healthy and diseased structure. My results from the use of the thermo-cautery have been satisfactory. The *modus operandi* seems to be, first, it has the power to destroy or inhibit specific germs beyond the area of actual destruction of tissue; second, it closes the lymphatics, thereby limiting absorption; third, it promotes healing, diminishing hemorrhage and purulent discharges; fourth, when the destruction of malignant growth extends to normal structure, it facilitates the advent of healthy cicatrization; fifth, by

following the use of the cautery, by daily gentle irrigation with an antiseptic of not more than one dram to a quart, always avoiding peroxid of hydrogen, and dressing with antiseptic gauze, the suffering is greatly lessened and sometimes almost wanting, until the inevitable end; sixth, well authenticated cures have followed this treatment, in which no expectation of cure was suggested.

Such information should be disseminated among women as would teach them the necessity of seeking assistance early in cancer. Public interest should be awakened among philanthropic men and women, in order that as much may be done for cancer patients as has been done for those suffering from tuberculosis, and that facilities may be provided for the care of the numerous patients with uterine cancer who are without financial resources.

Statistics of Cancer in the Female

DR. K. I. SANES, Pittsburg, Pa.: This paper is based on statistical data collected from the latest 8 annual reports of the Bureau of the Census and the latest reports of 219 hospitals. The figures show that the proportion of deaths from cancer to the total number of deaths from all causes are in females, 1 to 17.7; in males, 1 to 33.4; the proportion of deaths from cancer in the past 35 years, to the total number of deaths in the same period, are, in females, 1 to 9.8; in males, 1 to 18.5. Taking the relative frequency of cancer in both sexes, it is found that according to the mortality statistics of the United States Bureau of Census, 62 per cent. of those that died of cancer are females and 38 per cent. males; according to the hospital statistics, 66.5 per cent. are females and 33.5 per cent. males. We see then that cancer is an exceedingly common disease in the female and is seen about twice as frequently in females as in males. Whether based on mortality figures or on population figures, there is clearly shown an increase in cancer from 1900 to 1908. In the 8 years there was an increase in cancer mortality from 1 in 22.8 deaths to 1 in 16.6 deaths, or from 63 per 100,000 population to 74.3. The question is frequently raised whether the gradual increase in mortality is not due to changes in the methods of reporting deaths and to the greater accuracy in the diagnosis of cancer, especially in view of the slight variation for the 5 years between 1903 to 1907. Hospital statistics, if carefully and properly compiled, can be utilized to great advantage by the profession in many ways. The modern hospital organization and facilities, the gradual increase of the number of hospitals all over the country, the more general use of the hospitals by the sick, the greater readiness by the profession and patients to adopt surgical measures for surgical diseases—all this makes the hospital the most valuable source of statistical medical information. But to get accurate information, not only must each hospital have a careful conscientious statistician, but the visiting members of the hospital staff must see that their diagnoses are carefully reported in the hospital records.

Discussion on Cancer

DR. W. H. HUMISTON, Cleveland: I have had but five cases of the so-called inoperable cancer of the uterus, and in these I resorted to the Wertheim operation, making a very wide dissection. Four of these patients are still living.

DR. R. WALDO, New York: A decided advance has been made in operative work for the treatment of cancer of the uterus. I believe to-day that almost any one, who is competent to pass judgment, will advise a radical operation on any woman 45 or 50 years old, who has a persistent hemorrhage from the uterus, unless there is a polypus or something of that kind which he can thoroughly demonstrate is the cause of the hemorrhage. Occasionally a uterus will be removed at that age which is not cancerous, but many more uteri will be taken out that are the seat of incipient carcinoma. Generally I prefer the vaginal route in operating in these cases.

DR. M. I. ROSENTHAL, Fort Wayne, Ind.: The early symptoms of cancer of the uterus are hemorrhage and discharge, and when we get a case of cancer of the uterus early it is a pure accident. The only saving point we have is the fact

that some carcinomata are less malignant than others, or some are more malignant than others, and when we are dealing with carcinoma of the fundus of the uterus we are ordinarily dealing with a carcinoma that is less malignant, and a destructive operation through the vagina in such a case is uncalled for. When we are dealing with carcinoma of the portio vaginalis we are dealing with that form of cancer which is not so malignant. In such cases, ordinary hysterectomy done with cautery will give as good results as any other method. When we are dealing with carcinoma of the portio uteri, which begins in the endometrium higher up, we are dealing with a serious malignant growth in which practically no operation will do good. I have done the Wertheim operation, and reported fifty-seven cases in the *New York Medical Journal* some years ago, with good results in that class of cases.

DR. J. H. CARSTENS, Detroit: I agree with Dr. Rosenthal and Dr. Waldo that it is largely a question of early diagnosis. When a woman has cancer which is so far advanced that the lymphatics and other structures are involved, it is better to let her alone and trust to the *vis medicatrix naturæ*.

DR. T. B. NOBLE, Indianapolis: I look on cancer of the cervix or of the uterus as an analogue to carcinoma of the breast. It should be so considered and diagnosed, and decidedly so with regard to treatment.

DR. J. PRICE, Philadelphia: I look on the vaginal operation as one of the simplest in surgery, but in operating for the removal of carcinoma of the uterus, in which adjacent structures are involved, and wide and deep dissection is necessary, it is better to operate through the abdomen.

DR. F. REDER, St. Louis: The whole question resolves itself into early diagnosis, skilled operative measures, and education of patients.

DR. E. J. ILL, Newark, N. J.: In operating for cancer of the uterus no surgeon can open up an extensive area of cellular tissue without spreading the cancer cells. The safest operation in cervical carcinoma is to start from above, separate all adhesions, separate all attachments to the uterus and to its surroundings, and then go from below and lift the mass right out and cut it off with a cautery, as has been suggested by Werder.

Treatment of Intestinal Obstruction Due to Malignant Neoplasm

DR. M. I. ROSENTHAL, Fort Wayne, Ind.: The general results from operations for cancer of the bowel, as shown by a review of 328 cases from the literature, are as follows:

1. Obstruction of the bowels due to carcinoma is not hopeless as to cure by radical operation. Incomplete excision of all cancerous tissue must necessarily result in recurrence of the growth.
2. Anastomosis without resection of the malignant growth should be the operation of election in obstruction due to cancer, when the radical operation, that is complete excision, is impossible.
3. Anastomosis without resection low in the pelvis, when the bowel is accessible with difficulty, can be successfully accomplished by the assistance of the Murphy button.
4. Anastomosis without resection probably bears the same relation to cancer of the bowel as does gastroenterostomy to cancer of the pylorus.
5. The clamp and suture method of bowel anastomosis is practical, rapid and trustworthy, and applicable in a large variety of bowel cases requiring resection or anastomosis.

Diagnosis of Tubal Abortion and Rupture

DR. C. E. CONGDON, Buffalo: The general indication for operative interference as promptly as possible cannot be gained. Schauta, for example, after a careful study of the literature, collected 123 operative cases, with a mortality of 5.7 per cent. and 121 cases treated palliatively, with a mortality of 86.89 per cent., although in another series of more carefully selected cases, he found the mortality by palliative treatment to be only 65 per cent. To recapitulate the diagnostic features:

1. There is sudden pain, nearly always, the exceptional cases being those with sudden collapse, as in two cases which I reported in July, 1909.
2. Florine hemorrhage occurs within 48 hours after the initial pain. This symptom and sign is common to all cases of ruptures or abortive tubal pregnancy.
3. If to this we add collapse the diagnosis is complete. If collapse is lacking or slightly marked it is on account of gradual internal hemorrhage when on examination the cul-de-sac will show a progressive bulging.

Results at Lebanon Hospital of Deferred Operations for Extrauterine Pregnancy

DR. RALPH WALDO, New York: Many patients are brought into the hospital in a desperate condition, and in the 81 cases that I report there have been but 3 deaths. It was thought that 2 or 3 patients would die in the ambulance. They were freely stimulated and reached the hospital moribund. At no time after reaching the hospital would they have stood an anesthetic or the slightest operation. Necropsies proved the diagnosis of ruptured extrauterine pregnancy to be correct. The third patient who died presented one of these unfortunate cases, occasionally encountered by all surgeons, in which the patient was making an absolutely normal convalescence, when she suddenly died from pulmonary embolism. Seventy-eight other patients were operated on by the abdominal route, and recovered. After a severe hemorrhage another does not take place in less than from a week to ten days. In from two to seven days, depending on the condition, the abdomen is opened from above. The clots and free blood are rapidly removed with the hand and dry gauze sponges, but the abdominal cavity is never irrigated. Formerly, when the patient had lost a large amount of blood we put a quart or two of normal saline solution in the abdominal cavity, and left it there to be absorbed. More recently, this saline solution has been given in rare instances in the cellular tissue by hypodermoclysis, or more frequently in the rectum. In one instance only in the above cases was the abdomen drained; in all others it was closed. The entire operation required from eight to twenty minutes. I prefer the abdominal route, because the operation can be performed much more quickly, and, when the mass is high up and the vagina small, much better. I perform many operations on the tubes and ovaries through the vagina. So I am not prejudiced in favor of the abdominal route.

Discussion of Extrauterine Pregnancy

DR. L. F. SMEAD, Toledo, O.: A woman, aged 25, was brought to me with a diagnosis of ectopic pregnancy. This was her second pregnancy. In her first pregnancy she was cared for by the physician who brought her to me, so that we knew the exact condition. There were no abnormal symptoms. The history of the case was that for two or three days there was slight pain in the right side and during the night preceding the day on which I saw her there was a slight flow. There was no tenderness in the abdomen particularly and on vaginal examination I found a slight mass over the right cornu of the uterus. The question was whether it was ectopic pregnancy. First, I considered the pregnancy possibly tubal, with a slight rupture into the broad ligament; second, I thought of interstitial pregnancy in the cornu, and third, I considered the possibility of a simple development of the placenta in the right horn of the uterus. The uterus was fully as large as it should be at about three months. As the examination was satisfactory with the abdominal muscles quite relaxed, I decided later that probably a threatened abortion was taking place with the placenta in the right cornu of the uterus, and I decided to treat the case in that light, as I was not anxious to open the abdomen in a normal pregnancy or to overlook interstitial pregnancy in the cornu of the uterus. Two months have elapsed since I saw her. The symptoms have disappeared and apparently a normal pregnancy is progressing.

DR. H. W. LONGYEAR, Detroit: This matter of deferred operation in extrauterine pregnancy in the presence of shock has been threshed out in this association several times and, if I remember rightly, the consensus of opinion has been decidedly in favor of immediate operation. It is my opinion that operation should be done in these cases even in the presence of extreme shock. I know of no other class of cases in which we wait in the presence of hemorrhage for shock to cease. We operate primarily for the stoppage of hemorrhage, and to wait for shock to cease in some cases would be fatal.

DR. J. H. CARSTENS, Detroit: Dr. Longyear has struck the keynote. In hemorrhage from a leg that has been cut off, we do not wait for shock to subside, but we stop the hemorrhage. I believe in operating in these cases promptly.

DR. W. H. HUMISTON, Cleveland: I have had an unusual record in cases of ruptured tubal pregnancy, that is, I have

yet to have my first fatal case, and I operate on these patients as soon as I can get them ready for operation, or get my instruments there and assistants. I do not care what condition the patient is in, whether in shock or not.

DR. H. S. LOTT, Winston, N. C.: I want to emphasize the character of the pain. Several times I have made a diagnosis of ectopic pregnancy in the early weeks by sitting by the side of the bed of the patient and watching her for several hours, and the pain is always recurrent, rhythmic, and explosive, whereas if the appendix is the seat of trouble the pain is continuous without intermissions, and often without remissions.

DR. J. G. SHERRILL, Louisville, Ky.: I agree with Drs. Carstens and Humiston. If we have a ruptured vessel internally we consider it one of the most dangerous forms of hemorrhage with which we have to deal. If we had a case of gunshot wound of the abdomen we would not wait to open that abdomen. The same course therefore should be pursued in cases of ruptured extrauterine pregnancy.

DR. E. GUSTAV ZINKE, Cincinnati: There are exceptional cases. Extrauterine pregnancy is not always the same in every case. Some of these patients recover without operation. We find these symptoms when we operate for other conditions. Tubal pregnancy terminates in three different ways, namely, tubal abortion with absorption of the ovum rupture between the layers of the broad ligaments and tube ruptured into the peritoneal cavity. In the case of rupture between the layers of the broad ligaments we have a well-defined tumor form. In rupture into the peritoneal cavity we have sudden shock and all the signs of internal hemorrhage, and in such a case prompt action is indicated, and it is for the operator to decide whether an operation should be performed at once or whether he has time to wait. In cases in which the tube ruptures into the peritoneal cavity with severe hemorrhage, with all the symptoms of shock, we do not see the patients in the hospital, but usually at their homes or in places where opening the abdomen is prohibited. It would mean death to operate at once, because neither the surgeon nor the patient is prepared. Experience has taught us that by putting these patients in the recumbent position, and keeping them there with an icebag over the abdomen and lowering the head, often within half an hour or an hour, improvement takes place. The pulse begins to get stronger, and with the appearance of a stronger pulse, or digital examination, we feel the formation of a tumor through the vagina. In cases in which that tumor does not appear the vaginal vault becomes more or less flattened. There is no resistance. You feel nothing apparently. In these cases hemorrhage goes on. In the cases in which a tumor forms we can afford to wait longer and encapsulation will take place and the patient can be operated on with absolute safety within a few days or even weeks.

DR. L. S. McMURTRY, Louisville, Ky.: The diagnosis is easy in these cases. I have known women who have had one attack of tubal pregnancy and who were then operated on make the diagnosis themselves in the second instance and call the physician and tell him the condition that existed. I have one instance of that kind in mind now, and there is no trouble with the diagnosis and the treatment. When a woman is bleeding to death inside there is only one indication and that is to operate as soon as possible.

DR. C. L. BONFIELD, Cincinnati: I want to emphasize the point that in these cases, by the time the operator gets to the patient, usually the hemorrhage has taken place and the surgeon does not operate to stop hemorrhage, but to relieve shock, because in the majority of cases the hemorrhage has already stopped.

DR. W. B. CHASE, Brooklyn: Every member of this association believes he is grounded in the principles of surgery, but we have different methods of reaching the same end. We cannot make a universal rule which will apply to every case of tubal pregnancy. The man who attempts to do it will go wrong more than half of the time. Every case must be treated according to the findings, and according to whether the physician is prepared to treat it at the time.

DR. J. PRICE, Philadelphia: I feel that cases of ruptured ectopic pregnancy and all perforative forms of disease belong to the calamities, and we should be prepared to operate

promptly. The surgeon should be the cleanest and most prepared man living.

DR. C. E. CONGDON, Buffalo: It is not my policy to cross swords with my friends, but when they make the assertion that the diagnosis of ectopic pregnancy is always easy and that any one can make it without any preparation I certainly must take exception to the statement. The members of this association mean that they can make a diagnosis, but not the average general practitioner.

DR. R. WALDO, New York: A mistake made much more frequently than any other is that the patient is suffering from incomplete abortion.

The Breast of the Expectant Mother; Its Care Before and During the Period of Lactation

DR. FRANCIS REDER, St. Louis: To prepare a nipple properly the expectant mother is instructed to use soap and water freely. After drying the breast, gentle friction with a rough towel or flesh brush is made for about five minutes. Following this rubbing, the nipple is massaged by rolling and kneading it between the fingers, gentle traction being made during these manipulations. Olive oil may be used freely during the process of massage, which is to be done twice daily. It is surprising how an almost hopeless appearing nipple in a comparatively short time will assume the characteristics of a normal one. The application of alcohol and astringent lotions is to be condemned. A nipple cared for with these agents will become large, hard and inelastic, presenting deep corrugations, which will impede the healing of any excoriation or fissure, should such a lesion occur. The pain accompanying such a lesion brings many hours of suffering to the mother. A nipple prepared by systematic massage will usually withstand the strain of the nursing period without mishap. Its care after the child has commenced to suckle is one of simple cleanliness. Thorough ablutions after each nursing, to free it from any accumulated secretions, and liberal dusting with boracic acid, which is washed off when the child is put to the breast, are all that is necessary. This treatment must be diligently adhered to. The care of the breast is as important as that of the nipple. Its anatomic structure gives evidence of how readily this organ is amenable to culture, if only instituted properly and at the right time. The breast of a healthy girl that does not show development conforming to the incentive given by puberty should after an elapse of three years be subjected to the stimulating influences of systematic massage, to be continued until a normal equipoise has been attained. By developing the breast at this stage of womanhood, many of the obstacles pertaining to a normal motherhood may be overcome. The massage in reality is an exercise most simple in character. By placing a breast in the palm of each hand and locking the fingers across the chest, the young woman is told to walk about in a well-aired room, and with a full inspiration force the hands apart. This exercise is to be repeated for at least fifteen minutes daily. It is most conveniently carried out on rising and before retiring, and should be continued until satisfactory results show themselves. The normal breast of the expectant mother should receive some attention as soon as the physiologic changes manifest themselves. The breast during the pregnant state does not require the judicious management that the breast demands after lactation has established itself; it is of the greatest import, especially if the breast gives evidence of great fulness and tension with tenderness, that the lactiferous ducts be maintained in as patulous and healthful a state as possible. In short, the secretions in the tubes should not be allowed to become stagnant. It has been demonstrated that the *Staphylococcus albus* and the *Staphylococcus aureus* find entrance into the milk ducts from the skin. It seems to me that this so-called milk fever is the result of these micro-organisms having gained entrance into the lactiferous ducts, and having been stimulated into great activity by finding a proper medium in the milk for their propagation.

DISCUSSION

DR. THERESA BANNAN, Syracuse, N. Y.: I have been looking for milk fever, referred to by Dr. Reder, for 20 years in

practice and have not found it. The question of the care of the nipple of the expectant mother is of far-reaching and tremendous importance. It solves 50 per cent. of the problems of pure milk. It means not only the health of the mother, but the life not only of the first child, when most of the difficulties arise, but of all her subsequent children.

DR. WILLIAM G. DICE, Toledo, O.: It is the general practitioner who is at fault to a great extent. I think most patients are willing to take proper care of the breasts if given proper instruction. I do not recall seeing in my own practice more than two cases of abscess of the breast in ten years.

DR. A. J. RONGY, New York: I thought that the term milk fever had been eliminated from the vocabulary of our obstetrical work. In a record of 6,000 cases, in both hospital and maternity work, we practically do not have what is known as mastitis. We never have cases of suppurative mastitis. It seems to me that the trouble with these engorged breasts, or with so-called milk fever, is in doing too much for the patient rather than doing too little.

DR. J. H. CARSTENS, Detroit: I am opposed to the application of alcohol or tannic acid and other astringents to the breast. The nipple of the mother should be soft and pliable.

(To be continued)

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

CITY NEWSPAPERS AND SANITARY REFORMS

Thanks to a broader knowledge and a developing public sentiment, it is no uncommon thing to-day to see a great city newspaper stand squarely for sanitary progress. In this respect none ranks higher than the Philadelphia *North American*, whose editorial utterances on public health are sane and sound from both an economic and scientific standpoint. An editorial in a recent issue takes as its text a statement made by one of the candidates for governor of the state. THE JOURNAL is not especially interested in state, local, or party politics, but the editorial in question contains so many good things that it is deserving of reproduction in full had we the space. Strange and well nigh unbelievable as it may seem, the time has apparently arrived, in Pennsylvania at least, when the utterances of a candidate for political preferment on the subject of the health and life of the people are regarded as almost as important as his views on the tariff or on the crime of '73. Such papers as the *North American* are doing a great work in arousing and guiding public sentiment in support of life-saving measures. Under the title, "Grim Advocate of Death," the editor says:

Not in the credulous days of the witch-burners, nor in the dark ages when dirt was considered a corollary of holiness, but in this presumably enlightened year of our Lord 1910, before an audience of sane citizens of Pennsylvania, a man who has not the excuse of illiteracy dared declare this doctrine:

"I shall have something to say in the campaign about our health department. It is the best illustration of what Tilden said was the meddling into the affairs of an individual. It is sumptuary legislation with a vengeance.

"Common-sense application of the rules of education along hygiene has been taught in the public schools for twenty-five years, and we are just now realizing the fact that we know nothing at all about it.

"Of all the cranks in the world, the scientific crank is the worst to deal with, because, while he has truth on his side, he sees nothing but the naked facts. He finds bacteria and germs everywhere, and if you give him enough latitude, he will find impurity everywhere.

"He closes your country school because some one with a case of mumps or German measles has attended.

"He will not allow you to expectorate for fear that some germ will be started upon its deadly mission.

"He objects to having your barnyard drain into the rivulet for fear some germ will contaminate the creek miles below.

"He is just now engaged in working up a sentiment to get the next legislature to require you to erect sun parlors for your cows and biplanes for your chickens. Hogs will be something of the past. Your cows will be required under penalty of the law to drink nothing but filtered water, and their milk must be pasteurized before shipment. He intends to send inspectors into every dairy in the state.

"Not content with an army of 1,200 men on the state payroll with an expenditure nearly as great as the whole expenses of government during Pattison's first administration, he is looking for new worlds to conquer, and soon the veterinary department and the pure food department will form new regiments in the army of the employed."

Had Rip Van Winkle gone to sleep an office-seeking politician and slept a century instead of napping only twenty years, he might have been excused for such a speech. But it is difficult to understand how any man who has been awake and honest during any portion of the past twenty years could so play the part of a voice both from and for the tomb.

Yet that plea for dirt, ignorance, disease and death was made only two days ago as an appeal for votes by a man who knows how to read and write, whom we do not think even intellectually dishonest, who has been elected to the senate of this state, and actually hopes, even after those utterances, to be elected governor of a self-respecting, twentieth-century American commonwealth.

The farmer is studying fertilization, alternation of crops, selection of seeds, retention of the fittest and elimination of the unfit among his livestock, the application of the germ theory to the soil beneath his feet, which has given to Europe three times the grain product per acre that our virgin lands produce.

And here comes a man asking for their votes by such an insult to their intelligence as lies in asking them to go back half a century in consideration of those nearest and dearest to them. . . .

We do not think Mr. Grim ever harbored a thought of murder of his fellow-man or woman. He is simply a victim of the ignorance which he mistakenly supposes is shared by the farmers of Pennsylvania.

It might be well for him to ask the oldest war-time farmer whom he meets about gangrene in hospitals and about how not only a gunshot wound, but any internal abdominal ailment, meant death before the advent of scientific meddlers like Pasteur and Lister.

It might be well for him to ask some farmer's wife, who saw a long-lost but unforgotten baby choke to death in her arms, and later saw a child quarantined from school and saved to health and strength by antitoxin.

He talks of "cranks"—scientific, meddlesome, official cranks—who forbid the pollution of streams and the drainage of poisonous filth into drinking water. And this to the families that, one day each year at least, put fresh flowers on the grave of one whose life was heedlessly wasted by typhoid.

Actually, in this stage of the world's progress, a man dares assert that it is an infringement on personal liberty to put restrictions on expectoration.

Let the man spit where he pleases—in or out of the executive offices of the capitol at Harrisburg. But, in the name of God and Mount Alto and White Haven, and the memory of all the dead innocent victims of dried tuberculosis sputum, blown from the dust under their feet into their nostrils, let there be an end of such noxious demagoguery.

This is not a matter of politics. It is a matter of state shame that a department of Pennsylvania's government, that is the admiration of the other states and not a hissing and a byword to the rest of the country, should be so assailed by a would-be governor. . . .

And the farmers of Pennsylvania know, as well as we know, as well as Mr. Grim should know, the ideal of the health department, the "microbe cranks," the plan that is the one thing

for which this state has earned and is earning the admiration of the civilized world:

A Pennsylvania in which there shall be no young men and women languishing away with tuberculosis; a Pennsylvania in which no children shall die of diphtheria; a Pennsylvania in which there shall be no typhoid, no scarlet fever, no small-pox, no meningitis, no dysentery, no malaria—this is the kind of Pennsylvania which the state department of health hopes ultimately to create.

It does not expect to reach this goal in a year, or ten years, perhaps not in a single generation, but this is the ideal that it has constantly in mind. It recognizes the fact that, so long as any of these diseases exist, their prevalence is a distinct reproach to the state. It is a reproach simply because the method of eliminating them is known.

The old theory of government as a power which protects its citizens only from foreign foes and native marauders is giving way to new standards of civilization. The greatest enemies to the state are those which are unseen, and the first duty of an enlightened commonwealth is to protect its people against them.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Second Month—Fourth Weekly Meeting

DISEASES OF THE VEINS

VARICES, PHLEBECTASES

ETIOLOGY: Anatomic and mechanical factors. Age, sex, occupation.

PATHOLOGY: Gross and microscopic changes.

SYMPTOMS: Local and secondary disturbances.

VARICOSE VEINS OF LOWER EXTREMITY: Veins involved. Local changes. Secondary disturbances. Complications.

TREATMENT of veins; of ulcers.

VARICOCELE: Causes. Symptoms. Indications for surgical treatment. Methods of operation.

Monthly Meeting

Etiology and Early Diagnosis of Arteriosclerosis.

Prophylaxis of Diseases of the Arteries.

Surgical Treatment of Aneurism.

State Boards of Registration

COMING EXAMINATIONS

GEORGIA: Regular, The Capitol, Atlanta, October 11. Sec., Dr. I. H. Goss, Athens.

ILLINOIS: Coliseum Annex, Chicago, October 19-21. Sec., Dr. James A. Egan, Springfield.

KANSAS: Topeka, October 13. Sec., Dr. H. A. Dykes, Lebanon.

LOUISIANA: New Orleans, October 18-19. Sec., Dr. A. B. Brown, 108 Baronne Street.

MICHIGAN: Lansing, October 11-13. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MISSISSIPPI: Jackson, October 11-12. Sec., Dr. S. H. McLean.

NEW JERSEY: State House, Trenton, October 18. Sec., Dr. H. G. Norton.

NEW MEXICO: Santa Fé, October 10-11. Sec., Dr. J. A. Massie.

OKLAHOMA: Muskogee, October 11. Sec., Dr. Frank P. Davis, Edft.

WYOMING: State Capitol, Cheyenne, October 12-14. Sec., Dr. S. B. Miller, Laramie.

Virginia June Report

Dr. R. S. Martin, secretary of the Medical Examining Board of Virginia, reports the written and oral examination held at Richmond, June 21-24, 1910. The number of subjects examined in was 9; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 110, of whom 97 passed, including three

osteopaths, and 13 failed. Eight candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad	Per Cent.
Howard University, Washington	(1910)	82	82
Georgetown University	(1910)	82	82
Columbian University, Washington, D. C.	(1898)*		
Hahnemann Med. Coll. and Hospital, Chicago	(1883)*		
University of Louisville	(1909) 76; (1910) 83, 85, 86		
Atlantic Medical College	(1910)	77	80
Maryland Medical College (1908) 80; (1909) 75, 82; (1910) 80, 80			
Johns Hopkins University	(1908)* (1909)	85	
Baltimore Medical College	(1910) 79, 79, 80		
University of Maryland	(1896)* (1910)	82, 82	
Baltimore University	(1898)*		
College of Physicians and Surgeons, Baltimore	(1882)*		
Leonard Medical School	(1910) 75, 75, 85		
University of Pennsylvania	(1910) 79, 80, 82, 87		
Chartanooga Medical College	(1907) 76; (1909)*		
Memphis Hospital Medical College	(1909)	75	
University of the South	(1908)* (1909)	77	
University College of Medicine, Richmond (1910) 79, 81, 82, 83, 84, 84, 84, 85, 86, 88, 89.			
Medical College of Virginia (1908) 77; (1909) 80; (1910) 77, 77, 78, 78, 79, 79, 80, 80, 81, 81, 81, 82, 82, 82, 83, 83, 83, 84, 84, 84, 85, 86, 89.			
University of Virginia (1905)* (1907) 87; (1908) 75, 80; (1909) 79, 82; (1910) 77, 78, 81, 82, 82, 82, 83, 83, 84, 85, 85, 85, 88.			
FAILED			
Maryland Medical College	(1909)	69, 73	
College of Physicians and Surgeons, Boston	(1907)	74	
University of Buffalo	(1895)*		
Leonard Medical School	(1908) 72; (1909) 72; (1910) 69, 73		
University of West Tennessee	(1910)	71	
University of the South	(1904)* (1908) 68; (1909) 67		
University College of Medicine, Richmond	(1910)	72	

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
George Washington University	(1908)	Dist. Colum.
Southern Homeopathic Medical College	(1906)	Maryland
University of Maryland	(1910)	Maryland
Leonard Medical School	(1905)	Delaware
Washington University, St. Louis	(1902)	Missouri
St. Louis College of Physicians and Surgeons	(1899)	W. Virginia
Jefferson Medical College	(1885)	W. Virginia
Marquette University, Milwaukee	(1908)	Wisconsin

* Took oral examination.

Texas Reciprocity Report

Dr. M. E. Daniel, former secretary of the Texas State Board of Medical Examiners, sends a report of candidates licensed through reciprocity from January 1 to August 1, 1910. The following colleges were represented:

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
University of Arkansas	(1910)	Arkansas
Beving Medical College	(1903)	Illinois
Rush Medical College (1891) North Dakota; (1900) Iowa; (1909) Ohio.		
Northwestern Univ. Med. School (1900) (1906) (1908)		Illinois
College of Physicians and Surgeons, Chicago (3, 1902) (1905) (1906) (1907) Illinois.		
National Medical University, Chicago	(1905)	N. Dakota
Jenner Medical College	(1909)	Illinois
Chicago College of Medicine and Surgery	(2, 1910)	Illinois
Indiana Medical College	(1906)	Indiana
University of Iowa, College of Medicine	(1896)	Minnesota
College of Phys. and Surg., Kansas City	(1904)	Kansas
University of Louisville (1901) Indiana; (1909) Illinois; (1909) West Virginia.		
Kentucky University	(1906)	W. Virginia
Kentucky School of Medicine	(1903)	Indiana
Hospital College of Medicine, Louisville (1901) Indiana; (1903) Kansas.		
Tulane University of Louisiana	(8, 1910)	Arkansas
Baltimore Med. College	(1906)	West Virginia; (1909) Maryland
Johns Hopkins University	(1902)	Michigan
University of Maryland	(1895)	Virginia
Boston University	(1888)	Ohio
University of Minnesota, College of Medicine	(1899)	Minnesota
Washington University, St. Louis	(1909)	Illinois
University Medical College, Kansas City	(1910)	Arkansas
St. Louis University	(1906)	Missouri
American Medical College, St. Louis	(1895) (1907)	Missouri
St. Louis College of Physicians and Surgeons	(1903)	Missouri
Barnes Medical College (1903) Illinois; (1899) North Dakota; (2, 1905) (1909) Missouri.		
Kansas City Hahnemann Medical College	(1908)	Kansas
Lincoln Medical College	(1905)	Nebraska
Cornell University Medical College	(1908)	Illinois
Bellevue Hospital Medical College	(1894)	Kansas
New York University Medical College	(1882)	Nevada
Western Reserve University	(1905)	Ohio
Starling-Ohio Medical College	(1910)	Ohio
Eclectic Medical Institute, Cincinnati	(1880)	Kansas
Miami Medical College	(1909)	Ohio
Medical College of Ohio	(1904) (1907)	Ohio
Jefferson Medical College	(1900)	Illinois; (1906) Michigan
Memphis Hospital Medical College	(3, 1910)	Arkansas
Ft. Worth University	(1910)	Arkansas
Baylor University, Dallas	(1910)	Arkansas
Southwestern University Medical College	(1910)	Arkansas
Wisconsin College of Physicians and Surgeons	(1902)	Wisconsin

Book Notices

LES GREFFES OVARIENNES ENVISAGÉES AU POINT DE VUE DE LA PRATIQUE CHIRURGICALE. Etude critique, expérimentale et clinique. Par le Docteur Louis Sauré, Prosecteur à la Faculté. Travail de la Clinique de M. le Professeur Quenn. Papier. Price, 3,50 francs. Pp. 96, with 4 illustrations. Paris: G. Steinheil, 2, rue Casimir-Delavigne, 1909.

The author of this work has set out to discover the value of ovarian grafting in surgery and has collected, classified and subjected to careful criticism the various results hitherto obtained from human and experimental surgery. Holding that it has been well established by Limon that there are present in the ovary two kinds of glandular cells and two kinds of secretions, that of the corpus luteum and that of the interstitial cells, and believing that the failure of the latter by removal of the ovary or by their destruction by disease leads to pathologic phenomena, the author concludes that it is reasonable to assume that grafting of the ovary may be of value if it can be successfully done. He then subjects the results of both surgical and experimental operations to clinical and histologic tests.

He arrives at the following conclusions: 1. Autografting, that is, transplanting the whole or a portion of one ovary from its normal seat to another location in the same individual, intraperitoneal or under the skin or intramuscular, is practical, especially when done with a simple technic. The method of grafting with a vascular anastomosis, however, is considered too dangerous. 2. Heterografting, that is, transplanting an ovary from one individual into another, fails in the great majority of cases. To what degree the internal secretion of the ovary is established in the graft is uncertain. 3. The clinical benefit of the grafts are rarely appreciable. 4. The practice of human ovarian grafting is at present very limited, its most enthusiastic advocates having had not more than a score of cases in the last ten years. The booklet closes with a complete bibliography.

THE LAWS OF LIFE AND HEALTH. By Alexander Bryce, M.D. Cloth. Price, \$2 net. Pp. 421, with illustrations. Philadelphia: J. B. Lippincott Company, 1910.

While the layman is interested as never before in the subject of health preservation, the number of books which satisfactorily treat it are lamentably small. Books there are by the score that professedly have been written to meet this need, but the great majority of them are entirely inadequate. Many have been written by those whose literary attainments far outstripped their scientific knowledge, with the result that accuracy has been sacrificed in the attempt to "popularize" the book. On the other hand, not a few are all that could be desired scientifically, but the language is so technical and the style so abstruse as to render the works worthless for lay perusal. Bryce in his "Laws of Life and Health" has managed to steer clear of the Scylla of inaccuracy on the one hand and to avoid the Charybdis of technicality on the other—not that the whole of the book would be intelligible to the ignorant, but the ignorant are not as a rule interested in the subject with which it deals. To the average layman of ordinary intelligence and education, however, the subject-matter will be perfectly lucid. One of the interesting features of the book is the eminently fair and impartial way in which the author deals with what may be called the controversial questions of hygiene and dietetics. Each chapter of the book is prefaced by a "law" in which is expressed the principle underlying the subject-matter of that chapter; furthermore, at the end of each is given a brief and succinct summary. Dr. Bryce's work is one that the physician can conscientiously recommend to his patients, because of the sterling common sense which characterizes it and the absence of "fads" and "notions."

HOOKWORM DISEASE. Etiology, Pathology, Diagnosis, Prognosis, Prophylaxis, and Treatment. By George Dock, M.D., Professor of the Theory and Practice of Medicine, Medical Department Tulane University of Louisiana, New Orleans, and Charles C. Bass, M.D., Instructor of Clinical Microscopy and Clinical Medicine, Medical Department, Tulane University of Louisiana, New Orleans. Cloth. Price, \$2.50. Pp. 250, with 50 illustrations. St. Louis: C. V. Mosby Co., 1910.

Uncinariasis is a historical disease and has been the subject of preventive and remedial measures in European countries for many years. Though it had been suspected or hinted

at as the cause of morbidity, in the South, particularly, and a few cases had been actually demonstrated previously, "the era of productive discovery" in regard to uncinariasis in this country began in 1895 when Smith found the ova in human feces in Texas, and thence knowledge of the disease advanced rapidly through the work of Ashford, King, and Gutierrez in Porto Rico in 1899 and subsequent years, and through the studies of Stiles, who has developed the subject thoroughly and named the parasite most frequently found in this country, *Necator americanus*. The great prevalence of the parasite in Porto Rico and the South has led to a wide study of the subject and the production of a large literature in the weekly and monthly medical publications and its discussion in conferences and medical meetings. Now come the textbooks. This book by Doek and Bass is the result of a study of the literature and of their own work in Louisiana and Mississippi, and describes concisely the history, distribution and zoologic features of the hookworm, the modes of infection and the pathology, symptomatology, prophylaxis, diagnosis and treatment of the disease. Not much space is devoted to treatment, since this is comparatively simple and confined almost entirely to the administration of thymol, although other drugs are mentioned. The chapter on diagnosis, however, is complete, and gives clear and explicit directions for examining the feces for the worms, the larvæ and the eggs, the diagnosis depending on the finding and identification of the ova, as the worms are rarely if at all found in the feces unless oteniacide has been given. The history of ground-itch, the appearance of the patient and the presence of eosinophilia also indicate the presence of the parasite. The subject of prophylaxis is perhaps the most important, on account of the wide distribution of the disease and the production of so much incapacitating morbidity. One of the first and most important prophylactic measures is the cure of those affected. The continuance or extension of the disease depends entirely on the human host who alone harbors the human parasite and deposits the ova in the feces. The prevention of soil pollution is important but secondary, and a full discussion of the subject is given. The book makes free use of the literature and the work of others and well covers the subject of this important disease, which has incalculably retarded the development of an immense and rich section of our country. It contains numerous charts showing the rapid improvement in the blood picture following treatment. It is a practical working book in the management of this disease.

SURGICAL AFTER-TREATMENT. A Manual of the Conduct of Surgical Convalescence. By L. R. G. Crandon, M.D., Assistant in Surgery at Harvard Medical School. Cloth. Price, \$6 net. Pp. 803, with 265 illustrations. Philadelphia: W. B. Saunders Co., 1910.

One of the many advantages of a hospital training or an internship in a large hospital is the opportunity it affords of learning the details of many minor procedures relating to the care of patients both before and after operations, which, heretofore, have formed in a sense an unwritten book and which have descended by word of mouth or by precept from senior to junior members of the house staff.

In this volume appears much of this "unwritten" matter, so that the younger members of the profession need no longer be altogether dependent on their senior brothers for the acquisition of this knowledge. But the contents of this volume are much more comprehensive than might be inferred from the above, as it contains much that is essential for the nurse to know, such as how to prepare the patient for the operation, or for catheterization; how to give enemas; formulas for nutritive enemas; proctocolysis; lavage of the stomach; bandaging; care of bed-sores; invalid and convalescent food receipts; massage and movements, etc.

There is also much that is of great value to the older surgeon, such as the details of many operative procedures; methods of after-dressings, splints, bandages, casts, fixation appliances, etc., and a most interesting and instructive chapter by Sanborn on "Therapeutic Immunization and Vaccine Therapy," in which are taken up the principles of immunization; the role of opsonins; the opsonic index in health and disease; theories relating to infection; auto-inoculation by Bier's method; technique of the preparation, care and use of vaccines in which the clinical side of the subject is quite extensively presented, etc.

It will thus be seen that the volume is more comprehensive in its subject-matter than might be supposed from the title. It is an excellent work and can be heartily commended.

A SYSTEM OF SYPHILIS. In Six Volumes. Edited by D'Arcy Power, M.B., and J. Keogh Murphy, M.C. With an Introduction by Sir Jonathan Hutchinson, F. R. S. Volume IV, Syphilis of the Nervous System. By F. W. Mott, M.D. Cloth. Price, \$13.50. Pp. 502, with 57 illustrations. New York: Oxford University Press, 1910.

This volume of Power and Murphy's series is by one author, and it gains greatly in continuity and balance thereby. Dr. F. W. Mott, to whom the task of writing on syphilis of the nervous system has been entrusted, is notably suited for it, and the editors are to be praised for their wisdom and courage in assigning the entire subject to him, instead of, as is usual, parceling the topics around among numerous writers. After an introductory chapter in which a broad survey of the subject is made, he considers his special topics in the following order: general pathology of syphilis of the nervous system; general symptomatology of brain syphilis; syphilis of the spinal cord; parasymphylis; the cerebro-spinal fluid in relation to syphilitic diseases of the nervous system; the etiology of tabes; general paralysis of the insane; diagnosis of syphilis of the nervous system; tabes; nervous diseases in congenital syphilis; specific treatment of syphilis of the nervous system; general treatment and prognosis of syphilitic diseases of the nervous system. These chapter headings indicate the broad view of the subject which the author takes, and the details are worked out not only with an intimate knowledge of the symptomatology and pathology of syphilis in its multiform attacks on the nervous system, but with an equal familiarity with the recent advances in the subject which have come from the study of experimental syphilis in apes, from the discovery of the *Spirochæta pallida*, and from the application to syphilis of the complement fixation test. Altogether the volume is a very valuable addition to the literature of syphilis and a credit to British scholarship.

GRUNDRISSE UND ATLAS DER SPEZIELLEN CHIRURGIE. Von Georg Seltan, M.D. Second Edition. Lehmann's medizinische Handatlasen. Vol. xxxvii. Cloth. Price, 16 marks. Pp. 624, with 261 illustrations. München: J. F. Lehmann's Verlag, 1910.

The author says that in preparing this work he had two objects in view: first, to present an atlas on surgery which should form a part of Lehmann's "Medical Atlases;" and second, to present a text on surgery which should come in between the too condensed compends and the more elaborate works on surgery, the idea being to condense as much as possible, yet to omit nothing which is essential.

The atlas consists of 80 full-page handsomely colored plates from life and 479 illustrations in the text, many of which are in two and three colors, and all of which are said to be original. As an atlas the work is a good one, and the artists and the publishers are to be congratulated on the excellence of the plates and illustrations. The text is concise and to the point, but possesses no other special advantage.

PROCEEDINGS OF THE EXERCISES AND CONFERENCES OF THE NATIONAL ASSOCIATION FOR THE STUDY AND EDUCATION OF EXCEPTIONAL CHILDREN. Inaugurated on the occasion of the Tenth Anniversary of the Groszmann School for Nervous and Atypical Children, April 1, 1910. Waldemar H. Groszmann, Secretary. Plainfield, N. J. Paper. Price, \$1.50. Pp. 141. 1910.

This pamphlet contains the proceedings, including papers, of the first conference of the organization. The papers describe work being done in the education and training of exceptional children in New York City and other places, and the problems presented by such children in the schools. Other papers are on biologic variations causing retardation, congenital symbol amblyopia, hysterical states in childhood, a comparison of the psychologic and chronologic ages in children, hereditary and general causes of exceptional development, the exceptional child and the law and many other papers on allied subjects. With the present tendency to differentiate in the school courses between the normal pupils and those varying from the normal standard these papers and those prove of interest to educators, school authorities and those interested in child study.

MICHAEL SERVEYUS. HIS LIFE AND TEACHINGS. By Carl Theophilus Odner, Professor of Church History, Academy of the New Church, Bryn Athyn, Pa. Cloth. Price 50 cents. Pp. 96, with illustrations. Philadelphia: J. B. Lippincott Co., 1910.

Probably no more remarkable man ever lived than Michael Serveyus; but, hounded by both Catholics and reformers, and

by Calvin especially, his books destroyed almost as soon as printed, and himself burned at the stake in his early manhood, he accomplished practically nothing, and his influence on his own and succeeding generations has been *nil*. Finding opposition and persecution on every hand, he temporarily gave up his theologic writings and studied medicine, and for several years had a large practice. But the temptation was too strong and he again became involved in a fight with the theologians. In the present work Professor Odlner discusses and defends not only Servetus the theologian, but Servetus the man. The book is of medical interest simply because Servetus was a physician; it will appeal especially to theologians and has a value as a historical contribution to the subject of martyrs to religion.

ESSENTIALS OF LABORATORY DIAGNOSIS. Designed for Students and Practitioners. By Francis Ashley Faight, M.D., Director of the Laboratory of the Department of Clinical Medicine, Medical-Chirurgical College, Philadelphia. Second Edition. Cloth. Price, \$2 net. Pp. 336, with illustrations. Philadelphia: F. A. Davis Company, 1910.

This treatise covers the methods of laboratory diagnosis. The directions are clear and concise and sufficient for carrying out the ordinary methods of examination demanded in clinical investigations. In the preparation of the new edition, the material has been brought up to date without materially increasing the size of the book. The book is excellently illustrated. In an appendix a description is given of the author's private laboratory equipment; a number of useful tables are also added.

HYPNOTISM AND TREATMENT BY SUGGESTION. By J. Milne Bramwell, M.D., Author of "Hypnotism: its History, Practice and Theory"—etc. Cloth. Price, \$1.75 net. Pp. 216. New York: Funk & Wagnalls Co., 1910.

Dr. Bramwell, who is one of the principal English advocates of the use of hypnotism in medicine, in this little book gives a summary of his experience and views. A brief history of hypnotism, especially in its development in England, is given. The body of the book is largely taken up with case histories in which the author's successes are reported. He discusses the various theories of hypnosis and gives his objections to them, but says that unfortunately he has none of his own to offer. The book is a pretty good summary of the subject, though not a very elaborate or detailed one.

PRAKTISCHE WINKLE FÜR DIE CHLORARME ERNÄHRUNG. Von Dr. H. Strauss, Dirigierender Arzt der inneren Abteilung des Jüdischen Krankenhauses in Berlin. Paper. Price, 1 mark. Pp. 47. Berlin: S. Karger, 1910.

In this little pamphlet Professor Strauss has given a supplement to his other publications on the salt-poor diet in which practical directions are given for the carrying out of the treatment. The indications and principles of the method are not discussed. A large number of recipes and suggestions for the preparation of various foodstuffs in palatable form without salt are given and the book is completed by extensive tables based on the analyses of Strauss and Leva, giving the percentage of salt in the raw material of different foodstuffs.

A MANUAL OF OPERATIVE SURGERY. By Sir Frederick Treves, Bart, F.R.C.S., Sergeant-Surgeon to H.M. the King, and Jonathan Hutchinson, F.R.C.S., Surgeon to and Lecturer on Surgery at the London Hospital. Third Edition. In Two Volumes. Vol. II. Cloth. Price, \$13. Pp. 821, with 495 illustrations. Philadelphia: Lea & Febiger, 1910.

The previous editions of this book met such general favor that it is merely necessary to point out new and enlarged features. Considerably more space is given to the chapter on operations on the skull and brain, middle ear and mastoid antrum, and a new chapter on tendon surgery is added. The mechanical features of the book deserve special mention. The type is clear and clean-cut, the paper is not glossy and the illustrations are numerous, well made and descriptive.

ÜBER DIE NATUR UND DIE HERKUNFT DES TRACHOMERREGERS UND DIE BEI SEINER ENTSTEHUNG ZU BEOBACHTENDE ERSCHEINUNG DER MUTIERUNG DES GONOKOKKUS NEISSER. Von Dr. Hans Herzog (Refln). Paper. Price, 5 marks. Pp. 56, with illustrations. Vienna: Urban & Schwarzenberg, 1910.

Herzog considers the work that has been done on the "trachoma bodies" of Halberstadter and Prowazek, and gives a fairly complete bibliography. In his opinion the "trachoma bodies" are mutation forms of the gonococcus of Neisser. His theory and his work are very entertaining but not completely convincing.

Miscellany

REPORT ON OBSTETRIC TEACHING

The report of a special committee appointed by the American Gynecological Society to investigate the present status of obstetric education in Europe and America and to make recommendations for the improvement of obstetric teaching in this country appears in the *American Journal of Obstetrics and Diseases of Women and Children*, August, 1910. The committee consisted of Prof. B. C. Hirst, of the University of Pennsylvania, Medical Department, chairman; Prof. E. B. Cragin, of Columbia University, College of Physicians and Surgeons; Prof. J. Clifton Edgar, Cornell University Medical College; Prof. C. M. Green, Medical School of Harvard University; Prof. E. P. Davis of Jefferson Medical College; Prof. J. W. Williams of Johns Hopkins University Medical Department, and Prof. J. Clarence Webster of Rush Medical College (University of Chicago).

RECOMMENDATIONS

A detailed statement of the methods employed in certain medical colleges of Great Britain, Germany, Austria, Switzerland, France, and Italy is given, and, by way of comparison, of the courses given in the American colleges represented by the members of the committee.

Length of Instruction.—It is recommended that the teaching of obstetrics occupy at least two years of the medical course, and that those expecting to practice obstetrics should be urged to avail themselves of elective opportunities. The committee also recommended that the number of labor cases personally attended by each undergraduate student should be at least six, under supervision and instruction.

Character of Instruction.—The committee also recommended all the known methods of teaching this branch of medicine, namely: didactic lectures, clinical lectures, clinical conferences, ward classes and touch courses, hospital and out-patient instruction, manikin practice in operative obstetrics and recitations. Of the first three methods, it recommended specially clinical lectures and conferences, and that ample facilities should be afforded students to make antepartum examinations, including inspection, abdominal palpation, pelvimetry, fetometry, vaginal examinations, etc. A two-weeks' hospital residence should be required, the committee thinks, before the out-patient practice.

Scope of Instruction.—It is recommended that as obstetrics at present includes pregnancy and parturition, their complications and consequences, and the complete recovery of the women after labor, that obstetric instruction should include the medical and surgical treatment of these conditions.

The tendency of obstetrics to become more surgical in practice and to require a surgical training is evidenced by the fact that in the medical schools of Europe and in more than one-third of the first fifteen medical colleges of this country, the chairs of obstetrics and gynecology are combined under one head.

The Individual Study of the Young Criminal.—The anti-social acts which we call criminal are just as much the outcome of physical and mental capabilities, of emotions, desires, obstinancies, weaknesses of character, imitation, submission to psychologic influences of the crowd and other definite results of environment as are the more socially desirable aspects of conduct. For this reason William Healey (*Jour. Am. Inst. of Crim. Law and Criminology*, May, 1910) believes that a scientific inquirer is early forced to doubt the efficacy of investigating the causes of crime by any generalized method and must question the system of treating the criminal through institutional life; but much, he thinks, can be gained by an intensive investigation of the individual. There is considerable analogy all the way through between crime, a so-called social disease, and bodily disease. To understand each there must be estimation of the normal as well as of the pathologic, there must be study of etiology, symptomatology, diagnosis and, finally of treatment. But the analogy must not be carried so far that crime is likened to a specific disease

and the hope aroused that there may be found a specific treatment. In this paper, Healy deals only with the diagnosis of the underlying causes and attempts to show the great complexity of etiologic factors and the hopelessness of treating the cases wholesale. After reciting the histories of a number of young offenders, Healy analyzes the causes of juvenile criminality as follows: bad companions, immoral mother, poverty, mental subnormality, cheap plays and nickel shows, bad heredity, very poor education, bandit ideas from books, morbid impulsions-kleptomania, mother away working—no one to look after the children, bad sexual habits, congested neighborhood, defective antenatal conditions, neglectful father, innate laziness, epilepsy, difficult birth, degeneracy with stigmata, feeble-mindedness, recent immigration, densely ignorant family, desire for finery, careless not ignorant parents, hypersensitiveness, stepmother, mental peculiarities—perhaps the beginning of a psychosis—teasing by other children, alcoholism of parent, high mental capacity out of all proportion to the environment, nervous irritability, poor general health, defective vision, defective hearing, great love of excitement and adventure. The above study shows that delinquents have immensely varying needs, capabilities and adaptabilities, and the system which has mainly attempted reformation by mere restraint or, recently, somewhat by efforts at formal education or other classwork in custodial institutions is not effective. We know by court records that old methods are largely a flat failure as a deterrent to crime. In place, then, of any policy of repression or effort at reformation in large groups, what are the more constructive methods that offer greater chances of success? The amount of alterability in the whole situation is, plainly enough, the sum total of the alterabilities of the individuals concerned. Then it follows that if, as we have seen, the needs and possibilities of these individuals are extremely various, greatly varying methods of meeting those needs and developing those possibilities must be inaugurated, if the full amount of modification of the situation is to be realized. Just how much alleviation the entire crime situation can be subjected to is, of course, altogether unknown, and it certainly will remain unknown until the most rational procedures of treatment follow the most rational methods of diagnosis—especially until the importance of the young criminal as a factor is realized, his importance as an individual at the age when the twig is bent, needing individualistic study and individualistic treatment.

Medicolegal

Injured Person Not Responsible for Malpractice

The St. Louis Court of Appeals says that the case of Scholl vs. Grayson (127 S. W. R. 415) was brought to recover damages for a man being negligently run down by an automobile. He was first treated for his arm by a physician whom he afterwards discharged and sued for unskillful and careless treatment. The petition in that case was offered by the defendant in this case as an admission against the interest of the plaintiff. But the offer of the petition in the action filed by the man against his first physician for wrong treatment was not accompanied by an offer to prove the physician was not of good reputation, or that he fell short of due care in consulting him. The duty of a party injured by the tort (wrongful act) of another to use reasonable care to obviate, as far as possible, bad results from the injury and thereby diminish the damages, extends no further in the matter of selecting a physician to treat the injury than to select one of good repute. For lack of care and skill shown by such a physician in his treatment, the patient is not answerable; nor is the circumstance admissible to mitigate the damages for which the tort-feaser (wrongdoer) is liable. The petition filed against the physician was therefore properly excluded in this case because it tended to establish no fact favorable to the defendant in this case.

Reciprocity Provision in Medical Practice Act—Powers of Board and Their Limitation

The Court of Appeals of the District of Columbia says that the case of United States vs. Custis and others, brought on the relation of one Thompson (38 W. L. R. 396), was to compel the defendant, the Board of Medical Supervisors of the District of Columbia, to grant the relator a license to practice medicine and surgery in the District of Columbia.

The statute regulating the practice of medicine and surgery in the District of Columbia authorizes and directs said board to license to practice medicine and surgery in the district, without examination, any applicant for such license who has been engaged in the practice of medicine and surgery in any other jurisdiction (state, etc.), on condition, among other things, that the applicant acquired the right to practice medicine and surgery in such jurisdiction under conditions equivalent to those with which he would have had to comply in order then to have practiced medicine and surgery in the District. "And said Board of Medical Supervisors is further authorized to determine all matters of fact required to be determined in the execution of the provisions of this section."

It was conceded that the material provisions of the Maryland statutes were the same as those of the District of Columbia; that the relator was regularly admitted to practice medicine and surgery in Maryland, and practiced thereafter for a period of two years; that he presented satisfactory evidence of good character, paid the fees required and complied with all the requirements of the statute. The board, however, claimed the power, by rules and regulations, to determine what should constitute "conditions equivalent" under the statute, before reciprocal relations between Maryland and the District of Columbia could be said to exist. But the court thinks equivalent conditions exist under this statute by virtue of the provisions of the law, and not under the rules of the board.

The rules which the board are authorized to make are, the court says, for its guidance in carrying into effect the provisions of the law in the District of Columbia, and not in the State of Maryland. The Maryland board may have an entirely different set of rules for carrying into effect substantially the same statute as that of the District of Columbia; but that is a mere matter of local procedure, which cannot affect the reciprocal rights of practitioners of one jurisdiction to practice in another, provided they meet the requirements of the board in the state where originally admitted and the provisions of the statute in the jurisdiction where they desire to practice. If the contention of the board be correct, it lies within its power to prescribe conditions of admission to the boards of all states and territories in order to entitle any of their licentiates to practice in the District of Columbia, thereby absolutely annulling the express provisions of the statute. It is against public policy to place such arbitrary power anywhere, much less in a mere medical board.

The object of this statute was to open the doors to reputable practitioners, and, to this end, give full faith and credit to the acts of the board of a neighboring state having equivalent conditions, until it is clearly shown that the applicant does not come up to the requirements of the statute as to two years' practice or good moral character, or that he wrongfully obtained his original license to practice, either through his own fraud or through the fraud of the board. These are matters which the board would have authority to investigate, matters of fact on which they could pass, and their decision would not be subject to review in a proceeding of this kind. But no such showing was here made. The whole action of the board was based on the fact that they had a different system of grading for admission to practice than that adopted by the Maryland board. About the most inequitable test of ability that can be applied is the comparison of examination grades derived from either the same or different sources. It would certainly be dangerous to make arbitrary power dependent on such a deceptive test. It is well settled that licensing boards are not vested with personal or arbitrary power, but are subject to the control of the courts when it appears that they have acted arbitrarily in refusing a license.

This power is inherent in the court, and no statutory authority is necessary for its exercise.

If a board or officer deprives a citizen of a legal right, to which he is clearly entitled, and the citizen has no right of appeal or other adequate remedy, the proper court will review the action and see that justice is done and legal rights preserved. The rule is well expressed in *Spelling on Injunctions and Other Extraordinary Remedies*, 2d Ed., sec. 1433: "But, while the action of an officer clothed with a discretion is not reviewable, if exercised on matters left to his discretion, yet his judgment as to the extent of his discretion under the law, and the matters on which it may be exercised, are reviewable on mandamus; and where a discretion is abused, and made to work injustice, it may be controlled by mandamus."

The answer of the board totally failed to set forth any legal justification for its refusal to grant the relator a license. The rules and regulations of the board were its sole defense. As the court has observed, this was insufficient. The relator had complied with all the requirements of the law and the board had no discretion left in the premises. It was its duty to have acted favorably on the application. Refusing to do so, the relator availed himself of the only remedy afforded him, and the court below should have sustained the relator's demurrer to the board's answer to his petition and issued the writ of mandamus he asked for to compel the board to grant him a license to practice medicine and surgery in the District of Columbia.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

September 24

- 1 Preliminary Report on Ehrlich-Hata Preparation, "606," for Cure of Syphilis. M. S. Kakels, New York.
- 2 *New Treatment for Chronic Intestinal Putrefactions by Means of Rectal Instillations of Autogenous Bacteria and Strains of Human *B. coli Communis*. A. Bassler, New York.
- 3 *Possible Second Attack of Acute Anterior Poliomyelitis in the Same Patient. A. A. Eshner, Philadelphia.
- 4 *Three Unusual Cases of Retropharyngeal Abscess. A. Spingarn, Brooklyn, N. Y.
- 5 Library Ventilation. W. A. Evans, Chicago.
- 6 Psychotherapy; Its Place; Its Uses. B. C. Loveland, Syracuse, N. Y.
- 7 *Culture of Lactic Acid in Treatment of Chronic Specific Urethritis. G. A. Persson, Mount Clemens, Mich.
- 8 Plea for the Study of Geriatrics. I. L. Nascher, New York.
- 9 *Practical Inexpensive Aseptic Blood-Sticker. C. C. Bass, New Orleans, La.

2. Treatment for Chronic Intestinal Putrefactions.—After having studied the problem experimentally and then trying it out clinically in thirteen cases, Bassler is convinced that in cases of chronic intestinal putrefaction wherein such conditions as carcinoma, colonic obstruction, abnormal organic disease of the pancreas or stomach, or gastrointestinal atrophy, etc., are not responsible for the condition, much benefit can come from raising the content of *B. coli communis* in the gut by instillation of either the autogenous mixed forms or strains from other individuals. An individual who has high Gram-positive stools can by the autogenous mixed or *B. coli* instillations quickly have the running proportion between the Gram negatives and Gram positives raised to a proportion equivalent to normal, this being due to raising the number of *B. coli* and also to diminution in the putrefactive Gram positives as the first-named become more numerous. With this more equal proportion between the two types of organisms, the conjugate sulphate of the urine diminishes and substantial improvement occurs. From his experience Bassler is led to believe that these injections are a valuable method of treating these patients, being quick and effective in the majority, and not harmful in any. It is his belief that when anatomic conditions causing stagnation exist the results from these treatments are not capable of giving such good or substantial benefit. As regards the permanency of the benefit brought about it is apparent that in about half of the patients who do not respond to simple treatments, the condition clears up inside of from one to three months of this

treatment, but that the other half may not remain substantially benefited even when the instillations are kept up for longer periods. These latter patients show relapses when the instillations have been stopped for a week or more, quickly responding again when the injections are re-established. Bassler thinks it probable that in the relapsing cases some permanent anatomic mischief preventing the establishment of a normal bacterial intestinal condition is present, which is either the cause of the development of the condition in the first instance and then of its prolongation, or that there is present some anatomic or permanent functional change affecting normal secretions and motility of the digestive canal in asthenic ways. All patients with putrefactive conditions should first be treated by the routine methods of treatment for those conditions (diet, hygiene, tonics, etc.) before instituting the instillations. When, however, the latter are begun, the autogenous mixed bacteria should first be used, always employing fresh specimens of stools for inoculation of the media. This treatment should be kept up for about 4 weeks before a change to the strains of *B. coli* is employed for a length of time: when benefit has been established autogenous mixed bacteria may again be used. If no benefit is noted on the *B. coli* alone the *B. lactosus aerogenes* may also be added to them, the two grown together in the single media, and these tried for a length of time. If after these, no sustained or apparent benefit is achieved, then there is present some anatomic and permanent complication affecting the function of the gut, and the best he has hoped for is a resort to surgery in some of the cases, or a longer interval continuation of instillation of whatever form of culture has shown the best results in that particular case.

3. Acute Anterior Poliomyelitis.—On a warm day in August, 1891, when 25 months old, after an indiscretion in diet, and without antecedent traumatism, Eshner's patient was seized with fever lasting three days, and associated with pain in the right leg and the back. There had been no vomiting and no diarrhoea. On the fifth day the right lower extremity was found to be paralyzed, without apparent alteration in sensibility. The paralysis increased in severity for a week, and then it began gradually to diminish. The upper extremities, the left lower extremity, and the face were unaffected. The general nutrition was preserved, but the right lower extremity was moderately wasted. Intelligence was good and sensibility was unaffected. The gait was wobbling, the feet being held rather far apart in walking. There were no contractures and no deformity. The knee-jerk was normal on the left, enfeebled on the right. The circumference of the right leg was $7\frac{1}{4}$ inches, that of the left $7\frac{1}{2}$ inches. The muscles of the right leg responded less well to faradic stimulation than did the muscles of the left leg, but there was no degenerative reaction. The patient occasionally had nocturnal enuresis, but there was no evidence of rachitis. Under treatment with massage and electricity for eight months practical recovery took place. Eleven years after this illness, in March, 1903, a day after a fall, resulting in injury to the left shoulder and the left elbow, the patient developed weakness in both hands, more marked on the left. She had not been feeling well at this time and was "nervous," although she was attending school and had no fever or nausea or vomiting. While the symptoms manifested were those of acute anterior poliomyelitis, Eshner points out that some one might attribute them to peripheral nerve injury in consequence of the fall. The development of the symptoms a day following and not immediately after the accident, the involvement of both hands primarily, even though in slight degree and but transitory in character on the uninjured side, the absence of sensory alterations, certainly entitle the possibility of a spinal, rather than a peripheral lesion a poliomyelitis rather than neuritis—to serious consideration.

4. Three Unusual Cases of Retropharyngeal Abscess.—The first of these cases of retropharyngeal abscess was associated with evidence of pressure on the pneumogastric nerve. The two striking points in connection with this case were the initial torticollis and external cervical adenitis, and the remarkably low pulse (60) that could be explained only on

the basis of pressure on the pneumogastric. The second case was followed by general pyemia and death. The history of this case was typically that of a general pyemia following a retropharyngeal abscess, and strikingly emphasizes the importance of making a prompt diagnosis of the latter condition and of instituting early drainage. The third case was associated with edema of the glottis. The patient recovered.

7. Treatment of Chronic Specific Urethritis.—Persson found that secretions present in the infected urethra inhibit the growth of a common strain of lactic acid bacillus. Suspension in physiologic salt solution of lactic acid bacilli grown on slant agar was injected into the infected urethra and cultures obtained by means of a sterile platinum loop from the urethra—these cultures were planted in milk at the following intervals: First culture, 1 minute after injection; second culture, 5 minutes; third culture, 10 minutes; fourth culture, 15 minutes; fifth culture, 20 minutes; sixth culture, 30 minutes. After 48 hours' incubation there was complete coagulation in cultures 1 and 2; slight coagulation in culture 3; in culture 4, acidity but no coagulation; in cultures 5 and 6, no growth. It was observed that the disappearance of the gonococci bore a constant relation to the length of time the lactic acid bacilli retained their virulence in the urethra. In each of 6 unimproved cases the bacilli were killed almost immediately after injection and although several different cultures were tried, none proved effective. Cultures of lactic acid bacilli grown in nucleinic acid media, retain virulence when injected into the infected urethra for a much longer period of time. In a number of instances cultures which coagulated milk in 36 hours were obtained from the urethra of the patients under treatment 10 hours after the injection was made.

9. A Practical Blood-Sticker.—This sticker is made of a two-dram vial, cork, and a straight surgical needle. The eye end of the needle should be stuck into the small end of the cork. The needle should not be stuck through the cork. The vial contains alcohol or some other antiseptic solution.

New York Medical Journal

September 24

- 10 Ambulance Surgery—Its Problems. T. A. Cheatham, New York.
- 11 Epistaxis in Relation to Various Constitutional Diseases. H. Hays, N. Y.
- 12 Ether. J. B. Bogan, Washington, D. C.
- 13 Treatment of Peritonitis. M. F. Goldberger, New York.
- 14 The Munich Psychiatric Course of 1909. L. Casamajor and M. J. Karpas, New York.
- 15 *Standardization of Blood Pressure. A. K. Sallom, Philadelphia.
- 16 *Dr. Pohly's Cases of "Anemic Ulcer" of the Throat. G. F. Lydston, Chicago.
- 17 Aconite. J. Knott, Dublin, Ireland.

15. Standardization of Blood Pressure.—After the most careful investigation Sallom found that normally the blood pressure does not vary more than about 0.3 millimeters of mercury and to be expressed by the following equation:

$$\text{mm. Hg.} \div (\text{W.C.} \times \text{C.}) = \text{P.};$$

in which mm. Hg represents the height of the column of mercury; W. C. the width of the cuff employed; C. the circumference of the arm, and P. the pressure. He says that it is a well-known fact that the pressure exerted by any fluid depends entirely on its height and the size of its base. The size and shape of the vessel play no part whatever. With this in mind it at once becomes evident that the area on which the pressure is exerted plays a most important rôle and must be taken into consideration with every observation. Of course, this is obtained by multiplying the width of the cuff by the circumference of the arm. Knowing the height of the column of mercury and the area or base on which the pressure is exerted it at once becomes a simple mathematical problem to compute the actual pressure employed. For example, in the case of a person, age 22, the circumference of the arm being 8 inches, and the width of the cuff 3 inches, therefore: $-8 \times 3 = 24$ sq. in. = area over which the pressure is exerted.

The systolic pressure in this case was found to be 125 mm. Hg. If, therefore, 125 millimeters of mercury were sustained over an area of 24 square inches, 1 square inch will support a column of mercury 1.24 of 125 mm. Hg or 5.21 mm. Hg.

By computing in this manner the actual pressure employed the results have been startling and of great importance.

Age has been found to have no influence on blood-pressure, it being the same in the child and the adult. In making this statement Sallom says that he is aware of the great importance laid by all observers on age. The error is due to the fact that the circumference of the arm was not taken into consideration. It being smaller in the young the blood-pressure readings were necessarily lower than in the adult, which, however, when standardized gave the same ratio for each square inch. The same is true in regard to sex. It is somewhat inconvenient to speak of the pressure in terms of 4.82 mm. Hg per sq. in.; 6.25 mm. Hg per sq. in., etc. On this account and in order to place the blood-pressure readings on a definite standard it has been found convenient to express them in terms of units. Such a method is simple and practical. It is obtained by taking the figure or figures before and the first figure after the decimal to represent the number of units. For example:—4.82 mm. Hg per sq. in. would be spoken of as 48 units; 6.25 mm. Hg per sq. in. as 62½ units, etc. By such a system the readings are simplified and we become better able to appreciate slight differences.

16. Dr. Pohly's Cases of "Anemic Ulcer" of the Throat.—Lydston takes exception to Pohly's diagnoses of anemic ulcer in three cases on the ground that the cases were not investigated sufficiently. He seems to be inclined to regard them as cases of syphilis.

Boston Medical and Surgical Journal

September 22

- 18 Place of Tuberculin in the Immunization of Urogenital Tuberculosis. G. P. Sanborn, Boston.
- 19 Acute Pancreatitis. P. E. Truesdale, Fall River, Mass.
- 20 *Influence of Exhaustion on Puerperal Morbidity. J. T. Williams, Boston.
- 21 Value of Tuberculin in Tuberculosis of the Urinary Tract. H. Cabot, Boston.
- 22 Bacterial Vaccines in Pyrogenic Infections of the Urinary Tract. H. F. Hartwell, Boston.

20. Influence of Exhaustion on Puerperal Morbidity.—A review of the clinical records of 5,000 cases has shown Williams that it is evident that exhaustion during labor has a distinct influence toward increasing puerperal morbidity. He says:

1. A temperature of 100 F. or above occurs at some time during the first twelve hours after delivery in about 20.5 per cent. of all cases.
2. The temperature curve during this period in the majority of cases corresponds with the diurnal variation.
3. This elevation of temperature does not necessarily correspond to the duration of labor, but probably does to its severity.
4. The pulse-rate is a less reliable index of exhaustion than the temperature. It most commonly falls during the first twelve hours, a rise in the majority of cases accompanying a corresponding rise of temperature.
5. Puerperal morbidity, with the exception of mastitis, increases in direct proportion to the duration of labor.
6. This increase affects equally all the more common complications of the puerperium.
7. Cases in which there is an elevation of temperature during the first twelve hours after delivery are followed by a higher morbidity than those in which there is not; and when this temperature reaches to 101 F. or over, the subsequent morbidity is 38.09 per cent.
8. An elevation of pulse at the end of labor is of comparatively slight prognostic importance from this standpoint, but is followed by a slightly increased morbidity.
9. The morbidity is greatest after the high operations, but here, as is also true of the low operations and spontaneous delivery, the morbidity increases in direct proportion to the duration of labor.
10. The morbidity after low forceps is less than after spontaneous delivery, presumably because labor is shortened and exhaustion lessened.

Lancet-Clinic, Cincinnati

September 17

- 23 *Teaching of Clinical Psychiatry: A Medical Educational Problem. F. P. Norbury, Kankakee, Ill.
 - 24 *The Modern Physician; His Successes; His Failures; His Future. J. K. Mitchell, Philadelphia.
- 23, 24. Abstracted in THE JOURNAL, Oct. 1, 1910, pp. 1219, 1220.

Journal Missouri State Medical Association, St. Louis

September

- 25 *Simple Bursitis. J. F. Rinnie, Kansas City, Mo.
- 26 Obligation of Parents and State to Protect the Rising Generation from Infections of Prevalent Social Diseases. M. P. Overholser, Harrisonville.
- 27 Conservation by the Roentgen Ray. W. L. Brosius, Gallatin, Mo.

- 28 Etiology and Treatment of Carbuncle. W. Frick, Kansas City, Mo.
29 My Friend the Osteopath. J. J. Gaines, Excelsior Springs, Mo.
30 The Physician as a Witness. J. Ashley, Bloomfield, Mo.
31 Owen Bill for the Establishment of a Federal Department of Health, and Its Opponents. S. A. Knopf, New York.

25. **Simple Bursitis.**—Binney says that a chronic bursitis may recover when rest is given, but the gross anatomic changes in the walls of the bursa and in its surroundings are usually so great and so well established that more active treatment may be necessary. Various irritating or alterative liquids or emulsions have been injected into bursæ and have often given good results, but such treatment must be used with great caution, as bursæ frequently communicate with joints and such treatment may produce a dangerous arthritis. Excision is the treatment of choice in chronic bursitis; it not only gives the best prospect of a prompt and permanent cure of the simple, non-infective variety of the disease, and is also the best possible method of treatment if the lesion is due to tuberculosis or similar infection.

Journal Minnesota State Medical Association and Northwestern Laucet, Minneapolis

September 15

- 32 Italian Surgery. W. J. Mayo, Rochester, Minn.
33 Health Officer, Physician and General Public in Enforcement of Health Regulations. F. M. Smersh, Owatonna, Minn.
34 Plea for Better Education of the Young in Sexual Matters. O. F. Way, Claremont, Minn.

New York State Journal of Medicine

September

- 35 *Unusual Case of Hysterosalpingostomy. C. Jewett, New York.
36 *Duty the Medical Profession Owes Women with Cancer. W. B. Chase, Brooklyn.
37 *Importance of Care in Closing the Abdominal Wound. LeR. Broun, New York.
38 *Treatment of Pott's Disease. B. H. Whitbeck, New York.
39 Indications for the Technic of the Operations for the Induction of Labor, Persistent Occipito-Posterior Positions, and Craniotomy. G. L. Brodhead, New York.
40 *Causes of Death from Shock by Commercial Electric Currents, and the Treatment. E. M. Stanton, Schenectady, and A. Krida, Albany.
41 Types of Scarlet Fever and Treatment. C. F. Burrows, Syracuse.
42 Hodgen Suspension Treatment of Fracture of the Femur. W. Brady, Elmira.
43 Extracts from *Chirurgia Curiosa* by M. G. Pusmannus Between the Years 1659 and 1705. J. H. Martin, Binghamton.
44 Why the Marriage of Defectives Should Be Prevented When Possible. W. T. Shanahan, Sonyea.
45 Bacteriologic Findings in Fifteen Cases of Epidemic Cerebrospinal Meningitis. S. B. Klein, New York City.
46 City Hospital or Country Home? H. A. Gates, Delhi.

35. **Unusual Case of Hysterosalpingostomy.**—The uterus and tubes in Jewett's case were exposed through a short median abdominal incision. The inner portion of each tube, about one-third its entire length, was found impervious, being reduced to a mere cord. The outer two-thirds was normal. The malformation was believed to be congenital. Each tube was resected from the uterine cornu and the entire atresic segment removed, care being used not to injure the vascular supply of the sound portion remaining. The fundal incision was lengthened transversely till the endometrium was easily accessible. The proximal end of the sound segment was split for one-half inch and each flap thus formed was fixed with a single catgut suture to the uterine mucosa close to its cut edge. The uterine musculature and peritoneum were then closed securely, except where traversed by the tube, and the latter was still further secured by two or three sutures passed superficially through the uterine wall and engaging the peritoneal coat of the tube. Free communication through an oviduct of ample lumen was thus established between each ovary and the uterine cavity. The fundus was restored to its normal position by the round ligament operation of Webster and the abdomen closed. The patient was out of bed within less than two weeks.

36, 37, and 38. Abstracted in THE JOURNAL, Feb. 27, 1910, pp. 732 and 735.

40. **Death from Electric Currents.**—Stanton and Krida claim that the two great causes of death are cardiac fibrillation and respiratory paralysis. Low-tension currents tend to kill chiefly by producing cardiac fibrillation. As the tension is

increased the effect on the heart becomes less pronounced, but at the same time the effect on the central nervous system becomes more and more certain as the tension is increased so that in the case of the high-tension currents death is more likely to be caused by respiratory failure, although if the contact is prolonged the heart is also stopped. The authors have been unable to find any reliable data concerning the action of commercial currents of more than 4,500 volts, but all evidence points to the central nervous system as being the chief sufferer from the effects of currents of more than 4,800 volts. Cardiac fibrillation is fatal under known methods of treatment. In cases of simple respiratory paralysis, the patient may be kept alive by artificial respiration until the nervous system recovers from the effects of the shock.

Journal of Ophthalmology and Oto-Laryngology, Chicago

September

- 47 *The Economic Value of Family Physician Refracting. L. Connor, Detroit.
48 Intubation of the Larynx, With Suggestions Regarding Anaphylaxis. F. E. Waxham, Denver.
49. Abstracted in THE JOURNAL, April 16, 1910, p. 1333.

Bulletin Johns Hopkins Hospital, Baltimore

September

- 49 *Use of the Roentgen-Ray in Diagnosis of Pulmonary Tuberculosis. C. L. Minor, Asheville, N. C.
50 *Effect of Diminished Blood Supply to the Intestines On the General Circulation. W. T. Longcope, and A. T. McClintock, Baltimore.
51 *Physiologic Mechanism of Anaphylactic Shock. W. H. Manwaring, Baltimore.
52 "Cobra-Lecthid." A Summary. W. H. Manwaring, Baltimore.
53 *Peculiar Degeneration Found in Heart Muscle Cells. J. H. Hewitt, Minneapolis, Minn.
54 *Bactericidal Power of Blood Serum of a Typhoid Carrier, Before and During a Course of Active Immunization with Typhoid Vaccines. Patient Ceases to Be a Carrier. F. M. Meader, Syracuse, N. Y.
55 Association of Psoriasis with Jaundice. W. H. Higgins, Clifton Springs, N. Y.
56 Pemphigoid Eruptions in Typhoid. W. H. Higgins, Baltimore.
57 Acromegaly and Goiter. W. E. Grove, Clifton Springs, N. Y.

49. **Roentgen-Ray in Diagnosis of Pulmonary Tuberculosis.**—As a means of early diagnosis the fluoroscope, says Minor, while useful, is, save in the case of bronchial gland shadows, by no means equal to an expert use of standard physical diagnostic methods. In Germany where several distinguished diagnosticians have used the Roentgen-ray freely, extreme claims for its early diagnostic value are not so common as in this country. Hence, the statement that any given case was negative on physical examination and showed shadows with the Roentgen-ray is of no great value unless one knows who made the physical examination. Systematically used, it will be found to throw wonderful light on the work, and there are few cases, save the extremely incipient ones, in which it is not useful. Further, as has already been noted, there is no other procedure which can give such information as to the topography of the disease, while again and again it will call to one's attention slight foci of trouble which would otherwise have been overlooked. There is no diagnostic measure in which it is more essential to master fully the use of apparatus, and the first few months of fluoroscopy will be well spent if in them one thoroughly masters the idiosyncrasies of the electrical apparatus which one has to use.

50. **Effect of Diminished Blood Supply to the Intestines on the General Circulation.**—The author found by experimentation that compression of the superior mesenteric artery and celiac axis gives rise constantly to an elevation of general blood pressure which may last for at least an hour. This is not dependent on a reflex for there is no compensatory constriction of the other vessels of the body and the rise in pressure occurs after section of the splanchnic nerves. On the contrary, there is a slight compensatory dilatation of the other organs of the body which, however, is not sufficient to compensate for the increased blood pressure. Intravenous injections of salt solution, either through diminishing the viscosity of the blood or by dilating the vessels or through both means, increase the efficiency of the anastomosis of the splanchnic area after ligation of the superior mesenteric artery and celiac axis. Intravenous injections of blood do

not have this effect and therefore result in a sustained elevation of blood pressure due to the increased bulk of fluid in the general circulation. The rise of blood pressure following constriction of the superior mesenteric artery and celiac axis is due to an increased amount of blood in the general circulation. The pressure remains elevated until the excess of blood accumulates in the ramification of the splanchnic vessels by way of the collateral anastomosis.

51. **Physiologic Mechanism of Anaphylactic Shock.**—Manswaring defines the acute anaphylactic reaction in dogs as an explosive auto-intoxication of hepatic and intestinal origin, which is modified, inhibited and overcome, by a more or less efficient antianaphylactic mechanism, part, at least, of which is situated in other organs. As to the nature of this hypothetical auto-intoxication, whether it consists of split or conjugation products of the injected proteid, of liberated hepatic or intestinal enzymes, of an unusual amount of the normal internal secretion peculiar to anaphylaxis, can only be determined after extensive histologic, chemical and biochemical studies. The facts at present do not warrant the formation of even a working hypothesis on this point.

53. **Peculiar Degeneration Found in Heart Muscle Cells.**—The degeneration in question was seen in tissue fixed in 10 per cent. formalin and in tissue fixed in Zenker's fluid. In sections stained with hematoxylin and eosin it is readily recognized with the low power lens and appears as a small round, oval, or irregular pale blue area inside of a single muscle cell. No particular cells or particular regions of the heart muscle were observed in which this degeneration seemed to occur more markedly than in other portions. It occurs where there is marked proliferation of connective tissue and where there is evidence of pressure atrophy; it occurs also where there is no connective tissue proliferation and the cells appear slightly hypertrophied. It also occurs near the endocardium, near the pericardium, and deep in the heart muscle. In some of the cells in which this degeneration occurs the nuclei are quite prominent, in others no nuclei are to be seen. With the high-power lens these degenerations show a slight bluish mottling, somewhat irregularly defined. Across some of them may be seen fine pink-stained lines that are continuous over into the muscle cell. These are apparently unaltered muscle fibrillae. They sometimes occupy only a portion of the cell, at other times almost the whole of the cell is filled with blue staining material, but always enough of the cell remains to show that it is a heart-muscle cell.

Besides hematoxylin and eosin, the only distinctive stain Hewitt has so far found for these degenerations is iodine in the form of Lugol's solution. These areas when so stained and examined in water appear of a terra cotta pink color, somewhat mottled and rather irregularly defined, fading away gradually at the periphery into the substance of the cell. Other cells are seen in which this degeneration appears, when stained with Lugol's solution and examined in water, of a blackish brown color with a dirty pink base. On washing again in water these areas become more and more pink. In many of the pink-stained areas brownish areas may be seen. On treating sections stained with Lugol's solution with water to which a mere trace of ammonia is added the pink and brownish colors in these degenerated areas disappear; treating sections with slightly acidulated water produces no particular change. As to the nature of this degeneration, Hewitt thinks that it is that of a hyaline change allied to hydropic degeneration with the presence of some mucin.

54. **Bactericidal Power of the Blood Serum of a Typhoid Carrier.** The results of Meader's work may be summarized briefly as follows: 1. The bactericidal power of the blood-serum of a typhoid carrier may be that of a normal person. 2. A typhoid carrier may be actively immunized to *B. typhosus* by the use of autogenous vaccines, and in so doing the bactericidal substances in the blood may be markedly increased. 3. A typhoid carrier if vaccinated so as to bring about an increase of bactericidal substances may cease to harbor the typhoid bacillus. 4. The best therapeutic dose, from an investigation of one case, seems to be from 75 to 400 million

Vermont Medical Monthly, Burlington

September

- 58 Carcinoma. H. C. Tinkham, Burlington.
- 59 Chronic Parenchymatous Nephritis. J. S. Horner, Burlington.
- 60 Owen Bill for the Establishment of a Federal Department of Health, and Its Opponents. S. A. Knopf, New York.
- 61 Gall-Stones. E. H. Ross, St. Johnshury.
- 62 Relation of Laboratory Examinations to Diagnosis of Tuberculosis. B. H. Stone, Burlington.

Colorado Medicine, Denver

September

- 63 Digestion and Indigestion. C. B. Dyde, Greeley.
- 64 Gunshot Wounds of the Abdomen. H. R. Bull, Grand Junction.
- 65 *New Treatment for Abdominal Surgical Shock. J. R. Hopkins, Denver.
- 66 Life-Insurance Examination Records. C. Powell, Denver.
- 67 Relation of Vaccine Therapy to Surgery. B. H. Matthews, Denver.
- 68 Stimulation of Mastoid Disease. E. W. Fox, Trinidad.
- 69 Indican in the Urine. M. Kleiner, and I. S. Kleiner, Denver.
- 70 *An Unusual Case of Lead Poisoning. E. W. Lazell, Denver.

65. Abstracted in THE JOURNAL, Feb. 26, 1910, p. 742.

70. **Unusual Case of Lead Poisoning.**—Three months before the onset of foot drop, the patient had suffered an attack of lobar pneumonia and had been very ill. Many years previous to this, he had had occasional attacks of "rheumatism." With the exception of the rheumatism he had not been ill for 16 years. This sickness had been an unusually severe attack of lead poisoning which he had developed while working "in a sheet lead factory" where he had been foreman. After repeated attempts to continue his work there he had been obliged to resign a very lucrative position and discontinue this kind of work. He had had "colic" so severely that the physician in charge had despaired of his life and had expected him to die. Recovery had been tedious and he had never been well since. Still in the last years he had not shown symptoms of lead poisoning and had considered his ill health due to rheumatism.

It was difficult to imagine this present foot drop to be directly due to "leading" sixteen years ago, and the history of his past illness was again reviewed. Special inquiry was made of the attack of pneumonia, which condition the present trouble has so closely followed. Apparently he had had a frank attack of lobar pneumonia but said that the physician in charge thought the lung had not returned to its normal condition, and that he had taken medicine for some time after he was up and about. He was asked to describe this medicine which he did as follows: "The medicine was bitter drops, made my nose run as though I had the hay fever, and I took ten drops after each meal. The medicine formed a white scum over the neck of the bottle and turned the label brown." The explanation of the case seemed clear to Lazell. The lead deposited sixteen years before in some insoluble form in the bones, had been thrown into solution by the iodids given for an unresolved pneumonia and acute lead poisoning had resulted. The patient was given a good prognosis, saturated with sodium iodid and made a complete recovery.

Laryngoscope, St. Louis

September

- 71 Value of Vaccine Treatment of Chronic Inflammatory Disease of the Accessory Sinuses of the Nose. H. S. Birkett and J. C. Meakins, Montreal.
- 72 Vaccine Therapy in Otolaryngology. H. O. Reik, Baltimore.
- 73 Id. B. A. Randall, Philadelphia.
- 74 Present Status of Vaccine Therapy in Diseases of Nose, Throat and Ear. J. A. Patterson, Colorado Springs.
- 75 Autovaccines in Nasal Accessory Sinus Infection. F. Brawley, Chicago.
- 76 Tuberculous Meningitis Following Purulent Otitis Media and Complicated by Anterior Poliomyelitis and Measles. W. C. Phillips, New York.
- 77 Instrument for Direct Intubation of Larynx. H. P. Mosher, Boston.
- 78 Direct Laryngo-Tracheo-Bronchoscopy, and Esophagoscopy. L. J. Goldback, Baltimore.
- 79 Routine Use of Ligature in Tonsillar Bleeding with Description of Technique. L. Cohen, Baltimore.
- 80 Total Extirpation of Tonsils from Experience of Five Hundred Cases. W. E. Chamberlin, Cleveland.
- 81 Etiologic Relation of Diseases of the Ear, Nose and Throat to Diseases of the Heart, Lungs and Blood. R. Levy, Denver.

Medical Herald, St. Joseph, Mo.

September

- 82 Theories of Shock. R. R. Hollister, Omaha, Neb.
- 83 Paresis as Compared with Syphilis of the Central Nervous System. C. R. Woodson, St. Joseph.
- 84 The Sixteenth International Medical Congress, Budapest W. O. Henry, Omaha, Neb.

- 85 Cystic Degeneration of the Ovaries. J. H. Talbot, Sioux City, Iowa.
- 86 *Serotherapy of Gastric and Duodenal Ulcer. J. M. Mayhew, Lincoln, Neb.
86. Serotherapy of Gastric and Duodenal Ulcer.—Mayhew reports five cases which he treated successfully according to the method of E. C. Hott of London by the internal administration of an anti-ulcer serum. The important factors in the treatment are: 1. Absolute rest in bed is ordered from two to three weeks. 2. No drugs are given except a simple purgative. 3. Diet is dry throughout; no milk, soup or fish is allowed. Meals may be given every two hours, consisting in rotation of stale bread, yolks of lightly cooked eggs, white meat of chicken. Only liquid allowed is 10 ounces of hot water at 7 a. m., 11 a. m., and 1 p. m. The dietary is doubled in five days and on the seventh or eighth day pounded meat, lightly cooked, may be added. By the end of the second week meat forms the chief article of diet and soon a return to full diet is gained, but alcohol, soup, tea, coffee, and all starchy puddings are forbidden for six months. 4. The serum is given by mouth three or four times a day, immediately after food in one-half ounce of water. In cases of severe pain or hemorrhage 60 c.c. to 80 c.c. can be given in 24 hours. The usual dose is 10 c.c. The serum is continued for from 4 to 6 weeks. The results Mayhew has noted are: 1. Early relief from pain. This was true in all cases and allowed a generous diet in many cases much earlier than is usually considered possible. 2. Chlorosis improved rapidly. 3. Nausea and vomiting stopped earlier than in other forms of treatment. 4. Nutrition of patients was maintained at a higher level than by other methods.

Iowa Medical Journal, Des Moines

September

- 87 Progress in Medicine. H. B. Jennings, Council Bluffs.
- 88 Syphilis of the Cord. F. A. Ely, Des Moines.
- 89 Syphilis of the Circulatory System. W. H. Reudleman, Dav-
enport.
- 90 *Syphilis Among the Insane. M. N. Voldeng, Cherokee.
- 91 Surgical Treatment of Infantile Paralysis. E. W. Ryerson,
Chicago.
- 92 Infantile Paralysis. T. B. Throckmorton, Philadelphia.
- 93 Modern Therapy of Ethmoiditis. W. S. Windle, Oskaloosa.

90. Syphilis Among the Insane.—Voldeng collected statistics relating to syphilis among the insane in the 4 hospitals for insane in Iowa, and the following is the result for a period of 8 years from June 30, 1902 to January 1, 1910. Number of patients admitted, excluding re-admissions, 7,595; number of patients having a syphilitic history, but who did not develop paresis, 104, or 1.36 per cent.; number of cases of paresis, 346 or 4.56 per cent.; number having had syphilis or paresis, 450 or 5.92 per cent. At Cherokee, paresis was the cause of death of 13.33 per cent. of all deaths during the period.

Therapeutic Gazette, Philadelphia

September 15

- 94 Gonorrhoeal Vaccine Therapy and the Antigenococcus Sero-
therapy in Gonorrhoea and Its Complications, Particularly
Joint Involvements. L. E. Schmidt, Chicago.
- 95 Therapeutic Measures that Have Been Successfully Employed
in the Department of Orthopedic Surgery in the Jefferson
Medical College Hospital. H. A. Wilson, Philadelphia.
- 96 Night-Feeding of Patients, an Important Factor in the Hy-
gienic-Dietetic Method of Curing Consumption. A. S. Ash-
mead, Canadensis, Pa.
- 97 Blood Dyscrasia Following Injection of Calomet. W. G.
Elmer, Philadelphia.

Archives of Internal Medicine, Chicago

September

- 98 *Pathology and Bacteriology of Acute Anterior Poliomyelitis.
H. E. Robertson and A. J. Chesley, Minneapolis.
- 99 *Phagocytosis of Red Blood-Cells After Transfusion. J. G.
Hopkins, New York.
- 100 *Prognostic Significance of Pulse-Pressure Changes During Hem-
orrhage. C. J. Wiggers, Ann Arbor, Mich.
- 101 Multiple Non-Inflammatory Necrosis of the Liver with Jaun-
dice in Chronic Cyanosis. H. Oertel, New York.
- 102 *Case of Trichinosis; Trichinella Found in Blood Taken from
an Ordinary Ear Puncture. G. Cross, Minneapolis.
- 103 *Prevalence of Uncinariasis Infection in the Better Class of
Southern White People. J. G. Gage and C. C. Bass, New
Orleans.
- 104 *Diagnostic Value of the Intracutaneous Tuberculin Test. G. H.
Evans and J. L. Whitney, San Francisco.
- 105 *Has Ootherapy, as Now Practiced, an Experimental Basis?
R. T. Frank, New York.
- 106 *Anterior Poliomyelitis. F. P. Gay and W. P. Lucas, Boston.

98. Pathology and Bacteriology of Acute Anterior Poliomye-
litis.—Acute anterior poliomyelitis is a specific infectious
disease characterized pathologically by general toxemia affect-
ing the parenchyma of the heart, liver and kidneys and the
lymphoid tissues of the body, but spending itself locally on
the structures of the spinal cord. The authors found that
grossly the cord is congested and on transverse section shows
softening and often hemorrhages in the gray matter of the
anterior horns. In the cord the infectious agent is located in
the perivascular lymph-channels of the anterior portions,
especially invading the gray matter, but extending to the
white matter and pia and occasionally to the posterior horns.
The brain stem and basal ganglia may be involved. In the
cord the medulla and cervical and lumbar swellings are par-
ticularly affected.

The characteristic lesion consists of collections of cells in
the peri-vascular and pial lymph-channels and tissue spaces
of the anterior horns. Of these cells the polymorphonuclear
leukocytes appear early and are relatively few in number.
They are soon displaced by endothelial cells arising from pro-
liferation of the lining and endothelium and lymphocytes
coming from the blood and lymph streams. Edema of the
interstitial tissue and degeneration and destruction of the
ganglion cells are always present. The vessels are congested,
their walls degenerated, and the capillary branches in the
gray matter are irregularly distended and often ruptured,
giving hemorrhages, which always intensify markedly the
amount of destruction. Thrombosis was not observed. Early
degeneration of nerve fibers from the anterior roots is a
constant feature. Stains for micro-organisms were uniformly
negative.

99. Phagocytosis of Red Blood-Cells After Transfusion.

Immediately following transfusion in a patient suffering from
an extreme anemia, resembling the primary pernicious type,
smears of the peripheral blood made by Hopkins showed
great numbers of the polymorphonuclear neutrophil leukocytes
containing red blood-cells. About six hours after the opera-
tion the patient became comatose, developed hemiplegia and
died three hours later. Hopkins believes that the shape, size
and staining properties of the ingested red cells make it seem
probable that many of them were from the donor; while the
fact that the phagocytes were so numerous and that many
of them were atypical, makes it certain that some, at least,
were from the recipient; so that what was observed was
probably a phagocytosis of the transfused red cells by the
phagocytes of the recipient. This might be explained in two
ways: As a washing out into the peripheral blood of phago-
cytes from the blood-destroying organs, or as a phagocytosis
due to the presence of hemopsonin in one of the serums. In
regard to the first possibility, there is ample evidence that
some such "washing out" of bone marrow elements occurred,
in the presence of numerous erythroblasts and the bone-mar-
row giant cell. Moreover, there are two factors present which
are known to increase the phagocytosis in these organs, per-
nicious anemia and transfusion.

100. Pulse-Pressure Changes During Hemorrhage.—While
there are interfering factors which may at times mask the
significance of pulse-pressure changes, Wiggers believes that
the deduction may be drawn that many cases of hemorrhage
must occur in practice in which these pulse-pressure changes
may be of value in following the course of bleeding. The
following series of procedures may then be recommended for
following the course of a suspected or diagnosed internal
hemorrhage:

1. Eliminate so far as possible psychological factors in the patient
by the administration of the customary dose of morphin.
2. Determine the systolic and diastolic pressures by means of the
sphygmomanometer at intervals of not more than ten minutes, and
more frequently if possible. By subtraction obtain the pulse-pres-
sure, and also determine the rate of the pulse and respiration.
3. Tabulate the data as the observations continue.

If the respirations undergo little or no change, the follow-
ing deductions may be drawn: (A) A progressive decrease in
pulse-pressure and decrease in the product of the pulse-pres-
sure and the heart-rate indicate a continuance of the bleeding.
(B) An increase of both, if permanent, after several determi-

nations, indicates a cessation of hemorrhage. (C) A temporary increase of both, followed by a marked decrease on subsequent examinations, indicates an exacerbation. If it is true, however, that such determinations possess a clinical value, the fact should be capable of demonstration in a similar manner on animals.

Wiggers says that he has not yet had time to test his skill in following the course of a sufficient number of such hemorrhages to draw final conclusions, but the results incorporated in a table appended give an indication of the close correspondence in a number of cases. In these experiments hemorrhages were produced in dogs by an assistant, at intervals and times unknown to him. With maximal and minimal manometers, Wiggers determined at various intervals the data, incorporated them in the table, made his predictions, and compared them with the actual date of hemorrhage.

102. Trichinelli Found in Blood.—The patient had been ill since Aug. 17, 1909. On August 24 a diagnosis of trichinosis was made on the basis of edema of the face, together with a differential count, showing 9,100 white cells and 20 per cent. of eosinophils. On August 20 the white cells numbered 10,100 eosinophils, 38 per cent. On August 27 the white cells numbered 11,200, with 44 per cent. eosinophils. On the twenty-fifth and twenty-sixth the stools were examined carefully for trichinae, but none was found. Excision of a piece of muscle for examination could not be done, and on the twenty-fifth it was determined to examine the blood for parasites and preparations were made to take a quantity of blood from a vein; it was not feasible, however, to get a needle into a vein, and, as an experiment, an ordinary puncture was made in the lobe of the ear and 1 c.c. of blood squeezed out by continued effort; this was laked with 12 c.c. of 3 per cent. acetic acid, centrifuged, and the sediment examined under low power. One trichinelli was easily found, two others were not so clearly marked.

103. Uncinariasis in Southern Whites.—The results of this investigation demonstrate that hookworm infection is prevalent not only among the working class and poor people, but also among the upper classes in infected districts, and that in the country and smaller towns at least 30 per cent. of young adults between the ages of 15 and 25 are infected. Judging from the number who give a history of ground itch, a much larger proportion of people under this age harbor the parasite. The authors emphasize the value of the washing and centrifugalizing method of examination in detecting mild infections. Their results would indicate that two-thirds of the mild infections are overlooked in the ordinary stool examinations.

104. The Intracutaneous Tuberculin Test.—The authors feel that in the intracutaneous test we have a method of more exact dosage than in the other methods of cutaneous application. It has been their experience that the general reactions subsequent on the subcutaneous test have been avoided. They urge a more general application of this test, bearing always in mind that tuberculin tests, however applied, become a source of error when they are given a more prominent and important diagnostic place than painstaking and thorough search for physical signs.

105. Has Ovarytherapy an Experimental Basis?—The result of Frank's investigation can be summed up briefly as follows:

1. Corpus luteum extract, injected intravenously in sufficient concentration, proves rapidly fatal in consequence of intravascular thrombosis.
2. Corpus luteum extract of a heterologous species, given subcutaneously, by mouth, or by a combination of these routes, does not replace the normal action of this gland of internal secretion. The injections do not suffice to "sensitize" the uterus and enable it to produce Loeb's d-oidiomata and do not bring about such epithelial changes as are noted after follicular rupture.
3. Corpus luteum extract injections call forth no recognizable reaction in the hypophysis.

106. Anterior Poliomyelitis.—This article deals with attempts to find a method of diagnosis from the blood or cerebrospinal fluid in cases of anterior poliomyelitis, both in monkeys and in human beings. The acute stage of anterior poliomyelitis, as it occurs in human beings, and as it is produced experimentally in monkeys, is characterized by the occurrence of adistinct leukopenia. The differential count

shows a relative increase in number of eosinophils and lymphocytes. As studied experimentally in monkeys, the leukopenia of the acute stage is not preceded by any constant leukocyte picture. The spinal fluid in poliomyelitis monkeys shows more marked and characteristic findings. There is a marked increase in the number of cells during incubation and prodromal stages and the early days of the acute period, being highest in the prodromal stage. The increased cells are at first mononuclear in type and are later replaced by polymorphonuclear cells. A fibrin clot appears in the prodromal and early acute stages, but disappears later. These findings in monkeys agree with the findings in human beings, so far as the author's observations extend. Tests for antibodies to the poliomyelitis (blood of animal repeatedly inoculated with active and then inactivated virus) were made by means of the Bordet-Gengou fixation reaction. There was no evidence of antibodies in the serum of monkeys taken at intervals during the acute disease or in the serum of unsuccessfully inoculated monkeys. There was no evidence of the antigen in the spinal fluids of monkeys or of human beings at various stages in the disease, or in the blood-serum of monkeys suffering from the disease. These latter results corroborate and extend the negative findings of Wollstein.

Memphis Medical Monthly

August

- 107 Diagnosis and Medical Treatment of Thyroidism. B. W. Fontaine, Memphis.
- 108 The Thyroid: A Consideration of Its Disorders. B. F. Turner, Memphis.
- 109 Pathology of the Thyroid. L. Leroy, Memphis.
- 110 Surgery of the Thyroid. B. Malone, Memphis.
- 111 Treatment of Acute Enterocolitis. E. Rosamond, Memphis.

Journal of Biological Chemistry, New York

September

- 112 Peculiarities of the Proteolytic Activity of Papain. L. B. Mendel and A. F. Blood, New Haven, Conn.
- 113 Erepin of the Cabbage. A. F. Blood, New Haven, Conn.
- 114 *Method for the Determination of Saccharin in Urine. W. R. Bloor, Boston.
- 115 *Estimation of Saccharin in Urine and Feces. A. J. Wakeman, New York City.
- 116 Manganese of the Tissues of Lower Animals. H. C. Bradley, Madison, Wis.
- 117 Lipase Reactions. H. C. Bradley, Madison, Wis.
- 118 Behavior of Molds Toward the Stereo-Isomers of Unsaturated Diabasic Acids. A. W. Dox.

114. Determination of Saccharin in Urine.—The method presented by Bloor is a colorimetric one, depending on the transformation of the saccharin into what is probably phenolsulphonephthalein or sulphurein, by treatment with a phenol-sulphuric acid mixture, the nitrogen having been split off during the treatment with the strong mineral acid. The color obtained is reddish in strong acid solution, purple-red in alkali and a bright clear yellow in weak acid solutions. It was first attempted to use the reaction directly on the urine, but the phenol-sulphuric acid reagent gives color with so many of the urinary constituents that the direct treatment had to be abandoned and an extraction made. In trying out the various solvents which have been suggested for the purpose it was found that benzol was the most satisfactory, in that it extracted the least foreign matter which interfered with the color. The benzol used must not leave any residue which gives a color with the reagent. Urine containing about 3 milligrams of saccharin is measured off into a 250 c.c. Florence flask, evaporated to about 5 c.c., cooled and strongly acidified with concentrated sulphuric acid (about 18 drops). Clean quartz sand is then added until the whole of the liquid is taken up. About 125 c.c. of benzol are poured in and the whole boiled gently with a return condenser for two hours, with occasional shaking. The benzol is poured off and the extraction repeated with about 100 c.c. of the solvent. After this extraction the solvent is poured off, the sand shaken out into a Buchner funnel, sucked dry and washed two or three times. The combined solvent with washings is set aside to cool to allow water to separate, then is poured through a dry filter into a clean flask. The benzol is now distilled off, using a long brass tube as condenser, until 1 or 2 c.c. is left. This remnant must be removed carefully, with gentle heat and a slow current of air, because saccharin is readily volatile

above 100 C. To the flask containing the saccharin extract are added about 5 c.c. of the phenol-sulphuric acid reagent and the whole heated at a temperature of from 140 to 150 C. for two hours. This temperature must be accurately maintained, since the speed of reaction drops off very rapidly below 140 C., while at much above 150 C., although the reaction goes more rapidly, there is danger of overheating, with destruction of part of the color. The flask is then cooled somewhat and about 150 c.c. of hot water are added.

After the syrupy residue is dissolved the solution is neutralized by the addition of sodium acetate crystals in slight excess, recognized by the disappearance of the pinkish tinge, leaving the liquid clear yellow. The mixture is allowed to stand some hours or preferably over night. The neutralized liquid is transferred to a 500 c.c. graduated flask and diluted up to the mark. A small amount (from 25 to 50 c.c.) is filtered off for colorimetric reading. This filtrate should be clear yellow, with not more than a trace of smokiness. It is then compared with the standard color in a Duboscq colorimeter, setting the standard at 20 mm. The following solutions are required: 1. Reagent: Equal parts by weight of concentrated sulphuric acid and pure crystallized phenol (equimolecular proportions with 5 per cent. excess of phenol) are stirred together until dissolved. The solution should be only slightly colored and a blank determination with the reagent should give only a negligible tinge to the solution. If crystals separate on standing they may be re-dissolved by gentle warming. 2. Standard color solution: Weigh out accurately about 3 mg. of pure saccharin into a 250 c.c. flask, add 5 c.c. of the reagent and digest at from 145 to 150 C. for two hours. Dissolve in hot water, neutralize with sodium acetate and make up to 500 c.c. Check the accuracy of the solution by comparison with other similarly treated amounts of saccharin. These should check to within 0.2 mg. The results of these experiments show that small amounts of saccharin may be determined in the urine by this method with a reasonable degree of accuracy.

115. Estimation of Saccharin in Urine and Feces.—In the course of his work Wakeman took occasion to modify Bloor's procedure in more or less essential details. The main points of difference from the procedure reported by Bloor are the use of ethyl acetate as a solvent instead of benzol and of lead acetate in the place of sodium acetate, and the use to some extent of different apparatus.

Old Dominion Journal of Medicine and Surgery, Richmond

September

- 119 Cesarean Section for Carcinoma of the Cervix. M. H. Biggs, Rutherfordton, N. C.
- 120 The Scope of Vivisection. L. B. Wiggs, Richmond, Va.
- 121 A Pontocerebellar Cyst Correctly Diagnosed, Localized and Diagnosis Verified by Operation. A. Gordon, Philadelphia.
- 122 Nephrolithiasis. D. T. Talley, Richmond, Va.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

September 10

- 1 Annual Educational Number.

Lancet, London

September 10

- 2 *Duty of the General Practitioner to the Deaf Child. M. Yearsley.
- 3 *Value of Blood-Pressure Determinations in the Toxemia of Pregnancy. H. J. Starling.
- 4 *Cesarean Section in Treatment of Eclampsia Gravidarum. F. J. McCann.
- 5 Central Origin of Some Cases of So-Called Heart-Block. J. F. Goodhart.
- 6 Typhoid Spread by Milk Infection, Probably by Means of a Carrier Case. II. Stoff.
- 7 Vesicovaginal Fistula: Summary of 21 Operative Cases. W. C. Bentall.
- 8 Failure of Nerve Anastomosis in Infantile Paralysis. A. Stoffel.
- 9 *Chronic Constipation Treated by Faradism of the Large Intestine. W. J. Burroughs.
- 10 Case of So-Called Chronic Neurasthenia Due to Abdominal Adhesions; Operation; Recovery. P. L. Mummery and E. C. Bridges.

2. Duty of General Practitioner to Deaf Child.—It is claimed by Yearsley that something like 50 per cent. of the cases of congenital deaf-mutism are the result of marriage either (1) among those who have such cases, either direct or collateral, in their families, or (2) among those who are blood relations. Here, then, becomes apparent an obvious duty of the general practitioner, and one which he will not infrequently have an opportunity of bringing into action. He should, whenever the occasion occurs, do all he can to discourage such marriages. It may be, says Yearsley, that when we, as a nation, are more alive to the urgent necessity for race culture, when we more fully realize that national wealth is not gold, but healthy, normal citizens, we shall discourage consanguineous marriages in tainted families by law. Until then it will remain the paramount duty of every medical man to do his utmost in this direction and to foster in his patients the feeling that we have a bigger duty toward future generations than we have to ourselves. There is also a duty to deaf children, whether the deafness be congenital or acquired, whose defect lies, in the majority of cases, only in the absence of the sense of hearing. That duty is to impress on the parents that to obtain the best results from education by the oral system (which is the only system which can give the deaf child anything approaching normal intercourse with his more fortunate brethren), such education must begin as early as possible, while brain and larynx are still plastic; that attendance at the deaf school must be as regular as possible; and that the oral training carried out by the trained teacher of the deaf must be continued, supplemented and amplified at home by treating the child as a speaker and not a signer.

3. Blood-Pressure in Toxemia of Pregnancy.—For the last five years Starling has made a rule of taking the blood-pressure as often as possible of every pregnant woman under his care, especially in the last three months of pregnancy. It was impossible to secure identical conditions of observations in these cases, but the mere fact that most of the observations were made, not on patients resting in bed but on patients who either were working in their homes or else had walked to his consulting-room, would prove that these estimations of blood-pressure were too high a reading rather than too low. In spite of the conclusions arrived at by Vogeler and other writers Starling is convinced that during the whole period of normal pregnancy the blood-pressure is normal—that is, from 110 to 120 mm. Hg. Any rise of blood-pressure above 125 mm. Hg would make him suspect that the pregnancy was not quite normal and would put him on the lookout for some degree of toxemia. Any rise of blood-pressure at the commencement of and during normal labor is due entirely to the pain or muscular exertions consequent on labor.

4. Cesarean Section in Eclampsia Gravidarum.—The indications for operation are regarded by McCann to be the following: 1. When the fits are severe and recur in rapid succession. 2. When labor has not commenced. 3. When the cervix is difficult to dilate from elongation, hypertrophy or excessive rigidity. 4. When the mother is moribund and the fetus living and viable. 5. When labor has commenced and there is found considerable disproportion between the size of the child and that of the pelvis. 6. When the surroundings of the patient are suitable for a major surgical operation and when the services of an operator skilled in pelvic surgery can be obtained. Eclampsia, as a rule, is not encountered before the second half of pregnancy, and becomes more frequent the nearer term is approached. Zweifel has, however, reported a case occurring in the third month. When it does occur in the latter half of pregnancy the disease is usually severe, a favorable termination occurring generally in the cases in which premature labor has rapidly supervened. In such cases, when the fits are severe and rapidly succeed one another, the indication is to empty the uterus at once, and this, McCann holds, is best accomplished by the Cesarean operation, in which the bleeding resulting therefrom is also beneficial. Too much time should not be spent in such cases in attempting to dilate the cervix. Unless the cervical tissues rapidly yield to the

methods of dilation adopted it is a matter of common experience that such manipulations tend to increase the fits, and unless the procedures are carefully carried out there is further risk of septic infection. Infection has already claimed many victims in this disease. The wearing of sterile india-rubber gloves should be made compulsory for all those who engage in the practice of obstetrics, and special precautions should be taken in eclamptic cases to disinfect all instruments used.

Whatever views may be held with regard to the first three indications for this operation, McCann thinks that all agree that when the mother is moribund and the child alive an attempt should be made to save the child's life, and that this is best done by rapid Cesarean section. Eclampsia, which is associated with disproportion between the size of the child and that of the pelvis, is a further indication for this operation, as in such cases it is undoubtedly the most rapid method of effecting delivery. The surroundings of the patient and the surgical ability of those in attendance are important factors in deciding what course is best to pursue in the interests of the patient. If a patient can be removed to a well-ordered hospital or nursing home and can command the services of a competent operator the chances of her recovery will be increased, or if her apartment is clean and skilled assistance at hand the simple technic of the operation may be carried out in her own home. Should, however, the patient be in an insanitary dwelling, and no skilled surgical assistance available, her interests are best served by the adoption of expectant methods of treatment. The Cesarean operation under modern conditions is practically free from risk and is, in McCann's opinion, much to be preferred to the other methods of rapid delivery, including vaginal Cesarean section. In properly selected cases it offers the best chances of saving the life of both mother and child, although death of the fetus *in utero* is not infrequent on account of severe convulsions.

9. **Chronic Constipation Treated by Faradism of the Large Intestine.**—The treatment employed by Burroughs consists in the application to the large intestine of a faradic current of a high degree of penetration and capable of very exaggerated interruption. The method positively resolves itself into putting the abdominal and intestinal muscles through a variety of physical drill, by which they daily can gain in strength and efficiency till their restoration is positively complete. In one case cited the patient was placed in a sitting position, leaning slightly forward. Two flat leaden electrodes were adjusted next to the skin over about the middle of the ascending and descending colon respectively. A faradic current of about 9 volts, with an amperage adjusted to the requirements of the patient, was passed for 15 minutes and the current then reversed for another 15 minutes, at the end of which the first seance closed. The patient had about 30 treatments at ever-increasing intervals until the evacuations became normal in consistency and frequency.

Medical Press and Circular, London

September 7

- 11 *Epistaxis in Cerebrospinal Meningitis. L. Rimbaud.
- 12 Biliary and Intestinal Sand. G. Parker.
- 13 Cyst of the Broad Ligament; Operation—Recovery. S. J. Ross.
- 14 The Alcohol Problem as Seen in Ancient and Modern Times. T. D. Crothers.

11. **Epistaxis in Cerebrospinal Meningitis.**—During an epidemic which came under Rimbaud's observation during the past winter at the penitentiary colony at Aniane (Herault) there was epistaxis in 4 out of 12 cases. In the 3 first cases the attacks of epistaxis determined an immediate improvement of the symptoms. In the first case the bleeding took place on the second day, and was followed by a sharp fall of the temperature, and on its repetition in the evening the fever fell, the delirium ceased, and recovery was complete in a week. In the second case the epistaxis did not occur until the fifth day and recurred 3 times in the 24 hours. Here, again, there was marked and immediate improvement, with rapid subsidence of the symptoms of meningitis. Much the same thing occurred in the third case, the disease only lasting 6 days. In the fourth case the effects were not so marked and recovery

was delayed for 3 months. Here, then, are 4 cases of cerebrospinal meningitis with epistaxis, in all of which the patients recovered. In this particular epidemic the mortality was comparatively low, viz., 25 per cent. In only 1 case was anti-meningococcus serum employed, so that it looks as if the low mortality were due to the epistaxis. The cases may be classified as follows: Meningitis without epistaxis, 8, with 3 deaths, 37.5 per cent.; meningitis with epistaxis, 3, with no deaths.

Clinical Journal, London

September 7

- 15 Diseases of the Colon. W. J. Hadley.
- 16 *Case of Cerebral Tumor. J. A. Ormerod.
- 17 Value of Vaccination. F. M. Sandwith.

16. **Case of Cerebral Tumor.**—The principal points about Ormerod's case are these: The tumor was a sarcoma; its position as found at necropsy was in the right frontal lobe, where it was diagnosed during life. Yet, though it was correctly localized during life, the localizing symptoms were very scanty. The patient was operated on, i. e., the skull was trephined and the dura mater was opened. No tumor was found, but the relief was very complete for the time. However, the symptoms recurred and finally the man died. The first symptoms began in May, 1906. He was under observation on and off in the hospital for the last 11 months of his illness, and the total illness, as estimated from the first symptoms, lasted three and a half years. The first symptoms were fits of a kind called by friends "fainting fits." In these fits there were no convulsions, only loss of consciousness. They began in May, 1906, and he had about one a week for 2 or 3 months. After this he had an interval of 9 months without a fit. Then, in May, 1907, he had an attack in which he lost consciousness and fell off a ladder and hurt himself. After this he seems to have had an interval of a year without any symptoms at all.

In June, 1908, other symptoms began, namely, headache and vomiting. The vomiting, as is usual in such cases, had no relation to food. The headache was intermittent; at any rate, at first. It was said to be brought on when the patient went into a bright light. The headache and vomiting became worse, and 2 weeks before admission he had another fainting fit, which seems to have been the signal for all the symptoms to get worse. Optic neuritis was more advanced on the right side than on the left. The man had an incomplete paralysis of the left side of the face, affecting only the lower part of the face, not the orbiculis oculi nor the occipitofrontalis. This facial paralysis had a character which is peculiar and which is not often seen, that is, the paralysis was more marked in reflex muscle movements of his face than in volitional movements. About the end of January or the beginning of February he developed a transient diplopia, due to weakness of the right external rectus muscle. At this stage he began to get rather dull; he developed a certain fine tremor of his hands. His headache became persistently worse and the symptoms appeared to increase steadily, and, as anti-syphilitic treatment seemed to bring about no permanent benefit, the operation was performed. At the post-mortem examination a sarcomatous tumor nearly as large as an orange was found in the right frontal region.

Journal of Tropical Medicine and Hygiene, London

September 1

- 18 Ankylostomiasis Fever. A. Castellani.
- 19 Distribution of *Necator Americanus*. A. Y. Massey.
- 20 Poroccephaliasis in Man. L. W. Sambon.

British Journal of Children's Diseases, London

September

- 21 Aspects of Venereal Disease in Children. C. F. Marshall.
- 22 Operative Treatment of Tuberculosis Meningitis. A. J. Cleveland.
- 23 *Malignant Endocarditis of the Tricuspid Valve in a Child of Six Years. F. H. Hawkins.

23. **Malignant Endocarditis of the Tricuspid Valve.**—The little girl in the case reported first complained of abdominal pain, which had come on apparently rather suddenly on March 11. There had been no vomiting, and no blood had been passed by rectum; the bowels had not been moved since the onset of

the illness. The child had not suffered from any recent illness and there was no history of scarlet fever or chorea. At the time of complaining of abdominal pains she had also complained of pains in the leg. Temperature was 104.2 F.; pulse regular, but weak and rapid. The abdomen was much distended, movements with respiration were very slight, and the walls were rigid, and whenever touched she cried out, "Oh, my belly!" The percussion note was resonant. Nothing abnormal could be felt on rectal examination. On examining the chest no abnormal physical signs were detected. There was no albumin in the urine. The abdomen was opened, but beyond some meteorism and one or two small fecal masses nothing abnormal was observed. On the following day the child still complained of constant abdominal pain and cried out very frequently; the legs were now somewhat rigid and no knee-reflex could be obtained. On March 17 considerable dyspnea was present, and on percussion over the thorax the note over both bases was impaired and an area of tubular breathing was noted over the left base. The abdominal pain was still complained of and on March 18 the child's face was of a dusky color. Dyspnea was much increased and there was evidence of bronchopneumonia of both lungs. Later in the day the child died, three days after admission. No cardiac murmur was detected at any time. On opening the abdomen the stomach was found to be distended. The mesenteric glands were enlarged. There was no peritonitis, no collapse of bowel and no occlusion of the mesenteric vessels noticed. The mitral and aortic valves were normal. On the auricular surface of the middle cusp of the tricuspid valve a whitish-grey, rounded nodule, about one-eighth of an inch in diameter, was seen, which was found to be inflammatory in origin and crowded with Gram-staining micrococci. The lesion was very suggestive of an ulcerative endocarditis.

Practitioner, London

September

- 24 Surgical Treatment of Renal Calculus. H. Morris.
- 25 Vaccine Therapy. T. J. Horder.
- 26 Treatment and Pathology of Chronic Gastric Ulcer. C. Bolton.
- 27 Early Recognition of Cancer of the Uterus. F. McCann.
- 28 Auto-Intoxications of Epilepsy. D. M. Alexander.
- 29 Coll-uria. H. M. McCrea.
- 30 Cases of Ataxia Due to Disease of the Cerebellum or of the Adjacent Parts. R. T. Williamson.
- 31 Peripheral Neuritis (Alcoholic). J. Wyllie.
- 32 Part Played by Colloids in Physiology and Pathology. G. A. Stephens.
- 33 *Certain Urinary Reactions and Their Significance in Chronic Conditions of Faulty Metabolism. H. Higgins.
- 34 Points Concerning Typhoid Vaccine. W. B. Leishman.

33. **Certain Urinary Reactions.**—According to Higgins, Joulié's reaction gives information of the power possessed by a given urine of holding calcium sucrate in solution which would be modified by one of the following conditions: (1) The presence of so large an amount of calcium that it exhausts its power of holding calcium in solution, an absence of bodies which hold it in solution, or the presence of bodies which precipitate; (2) the calcium chlorid reaction precipitates a number of bodies closely associated with calcium; (3) Jacquemet's reaction also tends to be exaggerated when there is marked hypoacidity; (4) it has been mentioned that the reduction of copper varies with the amount of calcium in the ammonium filtrate. Higgins has found the following plan useful in ascertaining the variations in the quantitative distribution of calcium magnesium in the urine [100 c.c. is preferably used for each reaction]: (1) Total calcium ammonium hydroxid is added until a precipitate forms, acetic acid is added till it dissolves, ammonium oxalate is then added. This precipitate is collected, washed, burnt with the addition of a little sulphuric acid, the sulphate is then weighed and estimated by multiplying the weight found by 0.4116. (2) By dissolving the precipitate after adding ammonium hydroxid in acetic acid and adding ammonium oxalate the calcium precipitated by ammonium hydroxid can be separately weighed. By estimating the magnesium phosphate and subtracting the amount from the total of the phosphorus pentoxid in combination with the early phosphates one obtains the amount of calcium phosphate present which can be estimated as calcium so as to ascertain how much of the calcium previously estimated in the ammonium precipitate is in combination with

organic acids. (4) The amount of calcium in the ammonium filtrate is obtained by subtracting the weight of the calcium in the ammonia precipitate from that of the total calcium.

Archives Générales de Chirurgie, Paris

August 25, IV, No. 8, pp. 771-880

- 35 Advantages of Duodenectomy for Duodenal Ulcer. Vantrin.
- 36 Scarlet Red Salve in Treatment of Wounds. (Panséments des plaies avec la solution de la pommade rouge R.) M. Strauss.
- 37 *Arteriovenous Anastomosis; 4 Cases. P. Maclaure.

37. **Arteriovenous Anastomosis.**—Maclaure reports 4 cases of senile gangrene in which he tried to remedy conditions by making an anastomosis between the femoral artery and vein. No benefit was derived in either case, the lesions being too far advanced. The reduced blood-pressure and the atheromatous state of the internal wall of the artery explain the failure of such operations for senile gangrene. To have any chances of success they should be done early.

Lyon Surgical, Lyons

September, IV, No. 3, pp. 225-312

- 38 *Operations on the Cervical Sympathetic and on the Thyroid in Exophthalmic Goiter. J. Jaboulay.
- 39 Operative Treatment of Chronic Urethritis. Carle.
- 40 *Cancer of the Body of the Pancreas. R. Leriche.

38. **Operative Treatment of Exophthalmic Goiter.**—Jaboulay reports 28 cases in which he resected the cervical sympathetic. Of the 23 patients surviving the operation, 5 died from intercurrent disease after great improvement and 11 have been lost to sight; 7 have been under observation for from 8 months to 12 years, and the cure has been complete except for slight tachycardia on effort. He gives the details of 2 cases in which the cure has persisted for 12 years; in one of these the sympathetic was merely stretched for a minute. He found that after partial thyroidectomy all the symptoms subsided except the enlargement of the gland, and for this he applies supplementary electric or thyroid treatment. He says that treatment should be by medical means for the exophthalmos and palpitations; if these fail, operative measures are in order. The cases in which operation on the sympathetic is indicated are the recent active forms of exophthalmic goiter and the forms without enlargement of the thyroid. Partial thyroidectomy should be preferred for the old cases and for the forms with great enlargement of the goiter and mild symptoms on the part of the eyes and heart.

40. **Carcinoma of the Body of the Pancreas.**—Leriche calls attention to the peculiar painfulness of these cancers and the special clinical picture as he shows by 3 case histories. Exploratory laparotomy showed that the growth was inoperable although the pain was much relieved by it. This brings to 16, he says, the number of cases on record in French literature; the youngest patient was 37. A number of the other patients were between 40 and 45. In the majority the first symptom was a sudden intense pain above the umbilicus, commencing on the left under the ribs but spreading toward the center and radiating to the back, chest and shoulder. The paroxysms occur more and more frequently, resembling the crises in tabes. In some cases, however, gastric disturbance was the first symptom and in others merely weakness and progressive cachexia. A tumor was palpable in only 9 of the cases. The patient may die without any signs of jaundice. All but 5 of the patients were men. Leriche discusses the possibility of operative treatment and the technic.

Obstétrique, Paris

August, V, S. III, No. 8, pp. 673-720

- 41 *Streptococcus-Carriers as Source of Puerperal Fever Epidemics in Institutions. (Quelques notions nouvelles sur les streptocoques des suites de couches.) J. Fabre and Bourret.

41. **Streptococcus-Carriers in Maternities.**—Fabre and Bourret have found the strains of streptococci inducing hemolysis in certain parturients never presenting puerperal complications. They also found them in some with only slight, transient fever. These comparatively healthy streptococcus-carriers may yet prove a source of contagion of other parturients in whom this strain of streptococci may induce serious

complications. They therefore urge prompt bacteriologic examination of every parturient and measures to exclude the possibility of contagion if streptococci of the hemolytic type are encountered. The blood-agar method (Lenhartz and Schottmüller) they have found the simplest and most practical means for cultivating these streptococci from the lochia.

Presse Médicale, Paris

August 31, XVIII, No. 70, pp. 657-667

- 42 Antihemolytic Serums and Complement-Binding. (Les sérums antihémolytiques et le phénomène de Neisser et Doering.) C. Foix and H. Salin.
43 The Wassermann Reaction in Forty-eight Cases of Leprosy. D. Montesanto and D. Sotiriades.

Revue de Médecine, Paris

August, XXV, No. 8, pp. 617-696

- 44 Experimental and Clinical Research on the Internal Secretion of the Pancreas. E. Hédon.
45 Registration of the Auricle Pulsation within the Esophagus. (Sur la courbe de l'oreillette gauche du cœur. Son explication et la valeur diagnostique.) W. Janowski.
46 *The Role of the Trichocephalus in Pathology. A. Stecherbak.
47 *Lactic Acid Bacilli in Local Therapeutics and Prophylaxis. (Nouvelles applications de la bactériothérapie lactique.) A. Berthelot.
48 Disturbed Functioning of the Sweat Glands with Chronic Nephritis. (Les oedemes et les troubles de la fonction des glandes sudoripares chez les brightiques.) N. Kabanow.

46. **Pathologic Importance of the Trichocephalus.**—Stecherbak reviews the literature on this subject and then gives the details of a case of neurasthenia with severe gastro-intestinal disturbances, rebellious for 2 years to all treatment until the discovery of trichocephalus eggs and a course of thymol rapidly induced a complete cure. In another case, neurasthenia and anemia promptly improved under thymol treatment. In 11 other cases the trichocephalus was undoubtedly responsible for convulsions and other nervous symptoms observed and disappearing after thymol treatment. These patients were all between 19 and 26 years old except 3, aged 7, 14 and 16. The epileptiform convulsions, hemichorea, neurasthenia, cephalalgia and migraine all disappeared or essentially improved under treatment for the helminthiasis. The convulsions in some of the cases had certain hysterical traits, and he has noticed this feature also in intestinal auto-intoxication and with tape-worm. In most of the cases the patients and their families refused to admit the helminthiasis as the cause for the nervous troubles until convinced by the success of treatment. In another series of 20 cases of severe neurasthenia or epilepsy in which helminthiasis was suspected but not proved, tentative systematic thymol treatment did not benefit in the least. He gave from 0.5 to 2 or 2.5 gm. of thymol a day to adults (7½ to 37½ grains), keeping this up for several weeks or months. The drug was suspended for 5 or 6 days after taking it a week, and this intermittent method has proved effectual and harmless in his experience in hundreds of cases. The patient takes the thymol in a capsule, fasting after a purge, and drinks at once a large amount of hot tea and then does not eat for 2 hours. He gradually begins with the smallest doses to test the patient's tolerance for the drug, except in urgent cases of pseudomeningitis or appendicitis, and then he sometimes supplements it with rectal injections with 5 or 10 drops of benzin to the liter of water. He does not ascribe pathologic importance to the trichocephalus unless the eggs are found in unusual numbers. Even when this is the case, the patients may be entirely free from gastro-intestinal symptoms.

47. **Lactic Acid Bacteria in Local Therapeutics.**—Berthelot reports experiences confirming the conclusions of North's work in this line, summarized in these columns, April 19, 1909, page 1204.

Archiv für klinische Chirurgie, Berlin

XCVI, No. 3, pp. 913-1215, Last indexed Aug. 27, p. 808

- 49 *Permanent Cure after Resection of the Upper Jaw for Carcinoma. (Bedeutung der operativen Behandlung des Krebses.) F. König.
50 Transpleural Operation for Subphrenic Abscesses Originating in the Pancreas. (Beitrag zu der Lehre von den Pancreasverletzungen.) S. Adler.
51 *The Thymus. (Experimentelle Studien über die Thymusdrüse nebst Bemerkungen zu der Meltzerschen Intratrachealen Insufflation.) O. Nordmann.
52 *Chondrotomy for Rigid Thorax. (Chirurgische Mobilisierung des stenotischen und des dilatirten starren Thorax.) W. A. Freund.

- 53 *Idem. (Untersuchungen an zehn operirten, Fällen von starrer Dilatation des Thorax.) R. von den Velden.
54 *Idem. (Anatomische Grundlage für die Indication der Freund'schen Thoraxoperationen.) D. v. Hansemann.
55 *Idem. (Indicationen der operativen Behandlung der starren Dilatation des Thorax und der Enge der oberen Brustapertur.) L. Mohr.
56 Cystic Formations in the Bones. (Zur Casuistik der Knochen-cysten.) A. Studeny.
57 Treatment of Wounds in General Practice. (Blick auf den gegenwärtigen Stand der Wundbehandlungstechnik in der Praxis.) C. Brunner.
58 *Carcinoma of the Body of the Pancreas. R. Leriche.
59 Importance of Intra-Abdominal Pressure for Treatment of Peritonitis. C. Propping.
60 *Treatment of Air Embolism. (Zur Behandlung der Luftaspiration.) P. Clairmont.
61 Peritonitis after Perforating Appendicitis. N. Kron.
62 *Local Anemia and Hyperemia by Artificially Altering the Distribution of the Blood. F. Sauerbruch.
63 *Thymectomy and Its Consequences. II. Klose.
64 Actinomycosis of the Tongue. A. P. Krymow.
65 *Exophthalmic Goiter Following Treatment of Ordinary Goiter with Iodin. (Ueber Jodbasedow.) T. Kocher.
66 Old Traumatic Luxation in the Talocrural Joint. F. Fink.
67 Suprathyroid Pharyngotomy for Removal of Growths in the Tongue, Nasopharynx, etc. (Neue Methode der totalen Exstirpation der Zunge bei Neubildungen derselben.) I. K. Spischarny.

49. **Permanent Cure After Resection of Carcinoma of the Upper Jaw.**—In the 8 cases reported the patients are in good health to date or died from other cause, 10, 18, 19, 21 and up to 26 years after the resection of the carcinoma. These are the survivors out of 48 operations of the kind; the immediate mortality was 19 and 2 died of intercurrent disease and in 2 other cases the operation was recent. The other patients all succumbed to recurrences. König believes in extremely radical operation.

51. **The Thymus.**—Nordmann reports experimental research on a large number of puppies in which he removed the thymus or implanted thymus tissue in other young dogs. He used an apparatus similar to Meltzer's intratracheal insufflation apparatus. The thymus was removed in the third and sixth week of life; none of the animals lived longer than a year and the entire heart was found enormously dilated, especially the right half, but there was no hypertrophy—the wall was nearly as thin as paper. He accepts the suprarenals as the antagonists of the thymus.

52-55. **Chondrotomy.**—Freund describes the basis for the method of mobilizing the rigid thorax which he regards as responsible for the development of morbid processes in the lungs in many cases or at least provides conditions favoring their development. Velden describes the ultimate outcome in 10 cases in which Freund's operation was performed, giving the autopsy findings in one case. He emphasizes the necessity for postoperative physical exercises to fasten and enhance the benefit derived. Hansemann discusses the indications; he restricts the operation to cases with stenosis of the superior thoracic aperture and an apical process not yet extending beyond the second or third rib. With emphysema he advises doing the operation early, and he appeals to practitioners and clinicians to give their patients the benefit of chondrotomy in time. The cure of the apical tuberculous process and emphysema is possible only when patients learn to permit surgical intervention of this kind, as for cancer, in the early stages. Mohr gives some skiagrams to illustrate the prevailing types of indications for Freund's chondrotomy.

58. See abstract 40 above.

60. **Treatment of Air Embolism.**—Clairmont suggests exposing the heart and aspirating the air from the right side of the heart when air has been drawn into an open vein under negative pressure. No benefit can be expected unless this is done at once, immediately after respiration has ceased, while the heart is still pulsating. It should be followed by saline infusion into the right ventricle or intravenously or by direct transfusion according to Crile, with stimulants and direct massage of the heart and artificial respiration.

62. **Local Anemia and Hyperemia by Artificially Altering the Distribution of the Blood.**—Sauerbruch gives an illustrated description of his method of inducing negative or positive pressure in parts of the body by a box with devices for differential pressure. The box can be applied to different parts of the body. It has proved possible thus to suck the blood from

part of the body and permit bloodless operations. He has tested the device on himself, lying for a long time in the box, but experienced no disturbances or untoward by-effects. The veins in the fundus of the eye were found engorged but the arteries did not seem to be much affected. He has applied the method in removing a carcinoma of the orbit, for a mastoid operation and for operations on the neck and hand. The benefit was particularly striking in a case of intradural traumatic intracranial hemorrhage. Under slight differential pressure the blood was all aspirated out of the soft parts and bones. Any air cabinet can be used for the purpose.

63. **Thymectomy and Its Consequences.**—Klose operated on puppies ten days old and concludes from the results observed that the thymus is a vital organ that should never be removed in young children. The symptoms following its removal are the results of an acid intoxication, presumably from nucleic acid, and a deficiency of lime, with resulting changes in the bones and brain. Partial removal of the thymus during its most active phase of existence or complete removal during the phase of involution did not seem to cause permanent injury. He believes that the spleen is the organ which acts vicariously for the thymus. Treatment with thymus preparations is unable to counteract the effects of thymectomy. More logical is the administration of alkalines to counteract the acid intoxication or means to stimulate production of alkalies. Harm is done by thymus treatment, as this merely increases the acid intoxication. Rational surgical treatment is by autoplasmic operations.

65. **Exophthalmic Goiter Coming on During Iodid Treatment.**—Kocher thinks that excessive iodid treatment is responsible for the development of exophthalmic goiter in more cases than is generally recognized. He says that this iodine-Basedow, as he calls it, is a frequent and important form of exophthalmic goiter. Treatment should be prophylactic, removing all goiters which do not yield in a few weeks to careful treatment with iodid in small doses. Once developed, all iodid medication should be stopped and all factors avoided that might act unfavorably on the nervous system. In a case described, the thyroid weighed over 160 gm. and contained no less than 0.00368 gm. of iodine. If the other cells of the body had stored up iodine in the same way, there would have been 18.4 gm. in the body. This patient had a goiter for nearly 7 years and then applied local injections of an advertised mixture containing iodine. In four weeks she lost 16 pounds and the typical Basedow syndrome developed. Suspension of the drug and removal of parts of the goiter were followed by gradual recovery.

Beiträge zur klinischen Chirurgie, Tübingen

August, LXIX, No. 1, pp. 1-200

68 *The Thymus. (Klinik und Biologie der Thymusdrüse.) H. Klose and H. Vogt.

68. **The Thymus.**—This entire number of the *Beiträge* is devoted to an account of Klose's research on animals and study of clinical experiences and of the literature. The work was done in collaboration with a neurologist. Twenty pages are devoted to the bibliography on the subject, 615 articles being listed. The work is well illustrated. The main points were summarized in abstract 63 above.

Berliner klinische Wochenschrift

August 22, ALVII, No. 34, pp. 1565-1608

- 69 Farewell Address. (Abschiedsvorlesung.) H. Senator.
70 *Vaccination against Cholera. (Ueber die Schutzimpfung des Menschen gegen Cholera asiatica.) P. Aaser.
71 Feeding by Way of the Duodenum. (Ueber Duodenalernährung.) M. Einhorn.
72 *Sponge in Capsule as Means of Obtaining Contents from the Small Intestine. (Ein neues Verfahren den Inhalt des Dünndarms zu erhalten unter Anwendung einer Kapsel mit einem Schwamm.) P. J. Sarnizyn.
73 Simplified Tomometer for Determining the Systolic and Diastolic Blood-Pressure. M. Bruhn-Fabrous.
74 *Hemorrhagic Cystitis after Operations on the Rectum. S. Hadda.
75 Bacteriolysis of Tubercle Bacilli. F. Dittborn.
76 Antistreptococcus Serum. (Zur Kenntnis der Streptokokken und des Antistreptokokkenserums.) A. Marxer.
77 *Theoretical and Practical Considerations in Regard to Ehrlich's "606." E. Kromayer.
78 Transmission of Syphilis to Guinea-Pigs. (Ueber die Uebertragung der Syphilis auf das Meerschweinchen.) M. Truffi.
79 Injections of Metallic Mercury. (Einspritzungen von metallischen Quecksilber.) E. Richter.

80 The X-Rays and Stomatology. F. Davidsohn.

81 Suicide in the Past and Present. (Ueber den Selbstmord.) A. Münzer.

70. **Vaccination Against Cholera.**—Aaser reports his protective inoculation of the medical and nursing force at the Christiania isolation hospital, 31 persons in all. The vaccine was made according to the Pfeiffer-Kolle technic. The reaction was moderately severe, but was entirely over by the evening of the second day. A few patients said they had never been so sick before in their lives. The moderate fever never lasted more than twenty-four hours. Diuresis was common but no diarrhea was observed. He gives the results of determination of the bactericidal property of the blood serum as followed through several months; the serum has persisted bactericidal for over a year to date.

72. **Sponge for Obtaining Contents of Small Intestine.**—Sarnizyn experimented with various capsules but now uses a little silver capsule. A piece of sponge is placed in the silver capsule and on this a little disc of cork. The whole is then enclosed in a glutoid capsule which passes unmodified through the stomach. When the capsule reaches the small intestine the outer capsule is dissolved. The sponge then becomes impregnated with the fluid contents in the intestine; as it swells it presses the disc of cork against its open end, which is smaller in diameter than the cork. This plugs the opening completely and when the capsule is voided in the stool the sponge can be pressed without removing it from the capsule, and we thus obtain the undiluted fluids from the small intestine. He relates his experience with this procedure at Kasan, Russia, having found it extremely instructive. A glutoid rather than the silver capsule is preferable on suspicion of a stricture of the intestines.

74. **Hemorrhagic Cystitis After Operations on the Rectum.**—Hadda has been impressed with the frequency of cystitis after operations on the rectum. It occurs even when the patients have not been catheterized. At it is usually of a hemorrhagic character, he thinks it is probably the result of thrombosis in the bladder veins. In 153 operations on the rectum, 61.4 per cent. of the patients required catheterization and cystitis developed in 50 per cent. of these. It came on between the third and sixth day as a rule, and in about half the cases of this hemorrhagic cystitis the trouble began with severe hemorrhage. Postoperative cystitis developed in only 12 of 46 patients requiring catheterization in a series of 239 laparotomies in the last three years, and in none of these was the cystitis hemorrhagic.

77. **Ehrlich's "606" in Syphilis.** Kromayer reports 27 cases. In 3 cases some of the symptoms persisted after the injection and in 5 others there has already been a recurrence. A positive Wassermann reaction became negative in only 25 per cent. of the cases. His experience confirms the rapid reabsorption of the pathologic tissue of the syphiloma and the rapid healing over of ulcerations from the stimulation of the epithelium to proliferation.

Correspondenz-Blatt für Schweizer Aerzte, Basel

September 1, XL, No. 25, pp. 785-816

82 Fibroadenoma and Cancer of the Breast. (Fibroadenom und Krebs der Brustdrüse.) F. de Quervain.

Deutsches Archiv für klinische Medizin, Leipsic

C, Nos. 1-2, pp. 1-220. Last indexed Sept. 3, p. 894

- 83 Importance of the Sinus Node for the Heart Rhythm. (Bedeutung des Keith-Flack'schen Knotens für den Herzrhythmus.) T. Jäger.
84 Chronically Recurring Tetanus Cured by Serotherapy. (Erfolg der spezifischen Therapie bei einem Fall von recidivierendem Tetanus.) M. Leube.
85 *Study of the Blood-Pressure during a "Carlsbad Cure." (Ueber den Einfluss von Salzlösungen auf den Blutdruck und Blutdruckmessungen während der Karlsbader Kur.) Ritter.
86 Study of the Heart Sounds and Murmurs. (Akustisch erkennbare kurze Zeitintervalle.) R. Geigel.
87 *Behavior of the Kidney in Diabetes Insipidus after Organic Brain Disease. (Ueber das Konzentrationsvermögen der Niere bei Diabetes insipidus nach organischen Hirnerkrankungen.) R. Finkelburg.
88 *Morphologic and Other Changes in the Blood in Arsenureted Hydrogen Poisoning. (Ueber Blutveränderungen bei Vergiftung mit Arsenwasserstoff.) G. Joachim.
89 *The Course of Tuberculosis 19 Years after Systematic Tuberculin Treatment. (Ueber den Krankheitsverlauf bei vor 19 Jahren mit Tuberkulin behandelten Lungentuberkulösen.) F. Penzoldt.

- 90 Rarity of Tuberculosis in Bolivia. (Das Vorkommen der Lungentuberkulose in Bolivia und der Einfluss des dortigen Klimas auf zugereiste Phthisiker.) A. Treutlein.
- 91 *Study of Atypical (Asthenic) Pneumonia. O. Gross.
- 92 *Addison's Disease with Amyloid or Occlusion of the Suprarenals or Hypernephroma. (Beiträge zur Pathologie der Nebennieren.) A. Bittorf.
- 93 Causes of Insufficiency of Gastric Juice Secretion. (Zur Kenntnis der Entstehung des Salzsäuredefizits.) M. Castex.
- 94 The Morgagni-Adams-Stokes' Symptom-Complex and Its Differentiation in the Electrocardiogram. A. Hoffmann.
- 95 Avidity for Oxygen as Test of Regenerating Power of the Blood. (Klinische Untersuchungen über Blutregeneration. Die Methode der Sauerstoffzehrung.) P. Morawitz and S. Itami.
- 96 Influence on the Mechanism of Breathing of Morbid Conditions in the Respiratory and Circulatory Apparatus. (Ueber die Beeinflussung der Atemmechanik durch krankhafte Zustände des Respirations- und Kreislaufapparates.) R. Siebeck.

85. **The Blood-Pressure During Spa Treatment.**—Ritter reports the findings in regard to the blood pressure in patients taking a course of treatment at Carlsbad, and insists on the importance of keeping constant supervision over the blood pressure during spa treatment. The blood-pressure declined systematically in all but 2 of the cases, and this decline, he thinks, is unmistakably due to the influence of the hypotonic mineral waters. This assumption is sustained by the decline in the blood-pressure observed in animals injected with solutions of salts of varying concentration, the conditions approximating those in the patients.

87. **Behavior of the Kidneys in Diabetes Insipidus Secondary to Organic Brain Disease.**—Finkelnburg reports a case of diabetes insipidus accompanying cerebral syphilis; in another it was consecutive to fracture of the base of the skull, in a third to polydipsia with epilepsy in a hard drinker; in a fourth case the diabetes insipidus followed concussion of the brain. In the 2 latter cases restriction of the intake of water restored the urinary secretion to approximately normal. The concentrating power of the kidneys did not seem to be materially impaired in these cases of primary polyuria with an organic brain affection.

88. **The Blood in Poisoning with Arseniureted Hydrogen.**—Joachim gives the details of 2 typical cases of industrial poisoning with arseniureted hydrogen. One patient had had 2 similar but milder attacks 1 and 3 years before. In both cases the olive green tint of the skin was striking; it was probably the result of the combination of anemia and jaundice. Both patients were taken suddenly with headache, chilliness, vomiting, fever, hemoglobinuria, large amounts of bile in the stool, slight enlargement and tenderness of the liver and enlargement of the spleen. The symptoms came on after working for a few hours plating lamps with a mixture containing hydrochloric acid, zinc and arsenic. The patients lay in a state of stupor for a week, but then one rapidly recovered. The other displayed more of a hemorrhagic diathesis and intercurrent typhoid the third week brought him to death's door, but he finally recovered, although convalescence was delayed by a hemorrhagic nephritis. A special feature of the blood picture was the large numbers of erythroblasts, up to 3,544 per cmm. in the first and 43,377 in the second case.

89. **Outcome of Pulmonary Tuberculosis After Tuberculin Treatment.**—In Penzoldt's 10 cases a systematic course of tuberculin treatment was given in 1890, and he now reports the later history of the patients and urges other physicians to overhaul their old records and compare them with the ultimate outcome. In 7 of his 10 cases tubercle bacilli had been found in the sputum and in the others the unmistakable general reaction testified to the nature of their pulmonary trouble. His patients were men between 19 and 40 and 2 young women, all well-to-do and stopping in the Alps at the time of treatment, where Penzoldt himself was stopping on account of an apical process. All entirely recovered or the tuberculosis passed into a mild state permitting survival to date. One patient succumbed to an intercurrent disease after 15 years. Penzoldt's principle was to keep the dosage low to avoid reactions.

91. **Atypical Pneumonia.**—Gross reports 17 cases distinguished by their insidious and gradual onset, the severe subjective symptoms suggesting typhoid at first—absence of objective findings in the lungs for days, sputum thin, copious

and hemorrhagic, inefficiency of antipneumococcus serum and epidemic character of the disease. It passed finally into the typical croupous pneumonia type and all the patients recovered.

92. **Pathology of the Suprarenals.**—Bittorf reports 2 cases of Addison's disease with amyloid of the suprarenals or obstruction and with hypernephroma in 2 others. In 4 other cases the bronze pigmentation was explained by changes in the suprarenals. In some the lesions were evidently of later date than the pigmentation and a functional disturbance had probably preceded them.

Deutsche medizinische Wochenschrift, Berlin

September 1, XXVI, No. 35, pp. 1593-1640

- 97 Treatment of Tetanus. E. Graser.
- 98 Diagnostic Importance of Microscopic Lipoids in Urine and Sputum. F. Munk.
- 99 Treatment of Tuberculous Lesions with Trypsin. A. Brüning.
- 100 Causal Agents of Meat Poisoning. (Zur Kenntnis der Fleischvergiftungserreger.) O. Bofinger and Dieterlen.
- 101 Prophylaxis of Typhoid Carriers by Treatment of Convalescents with Potassium Iodid or Arsenic Trioxid. (Beeinflussung der Typhusbazillen bei Typhusrekonvaleszenten durch Kalium jodatium sowie Acidum arsenicosum.) M. Tsuzuki and K. Ishida.
- 102 Colon Bacillus as Saprophyte and Morbid Agent in Man. (Bacterium coli commune als Krankheitserreger und als Saprophyt beim Menschen.) L. Fejes.
- 103 Serodiagnosis of Syphilis. (Die Serodiagnose der Lues mittels der Porgesschen Reaktion.) M. Löwenberg.
- 104 Tubercle in the Medulla Oblongata. (Tuberkel im Hirnstamm mit Sektionsbefund.) N. Gierlich and M. Hirsch.
- 105 Operative Treatment of Diastase of the Rectus Muscles. W. Kausch.
- 106 *Tendon Transplantation. (Ueber Sehnenscheidenausweibung.) A. T. K. Biesalski.

106. **Tendon Transplantation.**—Biesalski reports 3 cases in which he applied a modified technic in tendon transplantation, drawing the transplanted tendon through the tendon sheath of the muscle it is to substitute. This prevents adhesions.

Fortschritte der Medizin, Leipzig

August 25, XXVIII, No. 34, pp. 1057-1088

- 107 *Mineral Metabolism in Rachitis. J. A. Schabad.
- 108 Treatment of Syphilis. G. Hahn. Commenced in No. 33.

107. **Mineral Metabolism in Rachitis.**—Schabad summarizes here in brief the results of his researches which have been already reported in THE JOURNAL, pages 359, 810 and 893 of this volume.

Medizinische Klinik, Berlin

September 4, VI, No. 36, pp. 1395-1432

- 109 Modern Treatment of Fracture of the Leg. (Diaphysenfrakturen der unteren Extremitäten.) M. Wilms.
- 110 *Typhoid after a Gall-Stone Operation. (Beziehungen zwischen Typhus abdominalis und den Gallenwegen.) L. Aruspberger.
- 111 *Ehrlich's "606" in Syphilis. (Weitere Mitteilungen über die Wirkung des Ehrlichschen Arsenohenzols bei Syphilis.) K. Herxheimer and R. Schonhoff.
- 112 Old Pins New Tuberculin in Treatment of Tuberculosis. II. Kehl.
- 113 Investigation of Sensation of Vibration in the Ear. (Zur Beziehung zwischen Hautsensibilität und Vibrationsgefühl und eine Untersuchungsmethode des Vibrationsgeföhles im Ohre.) E. Fräscheles.
- 114 Practical Importance of Wassermann Reaction in Syphilis. J. Guszman and E. Neuber.
- 115 Therapeutic Thermopenetration. R. Schmincke. Commenced in No. 35.
- 116 Bile Pigments in Sputum, Urine and Blood Serum in Pneumonia. E. Herzfeld and O. Steiger.

110. **Typhoid Fever After Gall-Stone Operations.**—Aruspberger discusses the cases in which cholecystitis appeared in the course of or soon after typhoid, and also typhoid bacillus-carriers in general. He then reports a case which can be explained only by assuming that the patient was a bacillus-carrier and auto-infection after a gall-stone operation resulted in the development of typhoid fever. She was a woman of 42, the wife of a baker, and had had typhoid 15 years before. Recurring gall-stone colic finally compelled removal of the gall-bladder and drainage of the hepatic duct. Sixteen days after the operation typhoid developed. No typhoid bacilli could be found in stool or urine when the patient was discharged. He has found records of 3 similar cases, and suggests that the possibility of the patient having been a bacillus-carrier must be borne in mind in the puzzling cases in which typhoid develops after operations on the biliary passages.

111. Ehrlich's "606" in Syphilis.—Herxheimer has now used "606" in treatment of 200 syphilitic patients. There has been recurrence in only one. The effects were most striking in the malignant cases. No injuries by-effects were observed in any instance.

Münchener medizinische Wochenschrift

August 30, LVII, No. 35, pp. 1817-1864

- 117 Pathogenesis of Septic Abortion. H. Schottmüller.
118 Inhalation of Radium Emanations in Treatment of Rheumatism. (Ersatz der sogenannten indifferenten Thermalbäder durch Inhalation ihrer Radiumemanation bei rheumatischen Krankheiten.) H. Pässler.
119 *Ehrlich's "606" in Syphilis. (Arsenobenzol bei Syphilis.) B. Spiethoff.
120 *Idem. R. Duhot.
121 *Idem. (Bietet die intravenöse Injektion von "606" besondere Gefahren?) P. Ehrlich.
122 *Morbidity in Puerperium with Early Death of the Fetus and with Syphilis in the Mother. O. Jaeger.
123 Stimulating Influence of Silver Nitrate in Form of Powder on Healing of Wounds. (Einfluss des gepulverten Argentum nitricum auf das Wachstum der Granulationen und des Epithels.) M. Baruch.
124 Increased Prevalence of Scleroma in Eastern Prussia. (Zunahme des Skleroms in Ostpreussen.) P. Gerber.
125 Photographic Registration of the Pulse. K. Ohm.
126 *Floating Capsule Test of Evacuation of Fluids in the Stomach. (Versuch einer neuen Methode zur Prüfung der Verweildauer von Flüssigkeiten im Magen.) C. Kaestle.
127 Localization of Foreign Bodies by X-Rays. (Neue Erfolge in der Bestimmung der Lage von Fremdkörpern mittels Röntgenstrahlen.) J. Gillet.

119-121. Ehrlich's "606" in Syphilis.—Spiethoff states that his experiences with 50 cases were all favorable although the reaction of the drug was rather severe in a number of the patients. In one case, a man of 31 with secondary syphilis, stupor and positive Wassermann reaction had an attack of convulsions resembling an epileptic seizure 4 hours after injection of 0.3 gm. of the "606," with abolition of the corneal reflex and exaggeration of the knee-jerk. There was no history of epilepsy in this case but at the age of 14 he had had a period of psychic disturbances similar to the stupor observed before the injection. Spiethoff had a similar experience with a psychosis developing in a patient during a course of treatment with arsacetin—in these cases the brain was evidently the point of less resistance. In 2 cases he observed sudden total blindness for a few minutes; one in a tabetic 50 hours after the injection of the "606." In the second case an otherwise healthy syphilitic reported sudden blindness in the right eye and ptosis of the lid, the whole lasting for 10 minutes and coming on 8 weeks after the injection. In a few other cases scotoma was noted on the day of the injection. But in all these cases the eye disturbances were briefly transient and never alarming. Tachycardia was also observed in a few cases but subsided if the patients lay down. The treatment had an unfavorable action in the case of an anemic woman of 28, who was very poorly nourished, and had tertiary lesions in the throat. Three years before she had been treated with atoxyl for the same lesions. An injection of 0.5 gm. of the "606" was made in the afternoon, followed in the evening with 0.01 gm. of morphin. The patient was found dead in bed the next morning. Autopsy showed cicatricial stenosis of the throat and healed gummas in the liver, with hypoplasia of the heart and aorta, but no signs of arsenic intoxication could be detected. Ehrlich attributes the death in this case to shock from the local painfulness at the site of injection. Duhot reports an experience similar to that of Taege's, summarized in these columns September 24, page 1154. The infant was transformed under the influence of "606" taken by the mother nursing it. Ehrlich discusses the mode of application of the "606," stating that he has records of 300 cases in which it was given intravenously, while in the 3 fatalities of which he knows the route was different in each case, intravenous in Grouven's case, subcutaneous and intramuscular in the others. It is possible, he adds, that first an intravenous, followed in 48 hours with an intramuscular injection, thus dividing up the amount, may prove the preferable technic.

122. Morbidity of the Puerperium.—Jaeger states that the experiences in 67 cases of febrile puerperium at the Kiel clinic for women show that syphilitic parturients are particularly liable to infection. Consequently internal examination and other interfering measures should be systematically avoided

for them. In 28 of the 50 women in this class there were no signs of syphilis on the external genitals, but the Wassermann test was positive.

126. Floating Capsule Test of the Motor Functioning of the Stomach.—Kaestle has the patients swallow 3 capsules, hardened so that they do not dissolve in the stomach, and filled with bismuth. They float on the surface of the fluid in the stomach and under fluoroscopic examination they can be seen descending as the fluids pass out of the stomach. He found that a glass of water did not entirely pass out of the stomach under 110 minutes, and a glass of warm milk under 2½ hours; the same amount of cocoa required 2¾ to 2 hours and 55 minutes, tea sweetened but without milk passed out of the stomach in 1½ hours. His tests were made on healthy persons of both sexes.

Wiener klinische Wochenschrift, Vienna

September 1, XXIII, No. 35, pp. 1249-1278

- 128 Recovery after Impalement. (Kasuistische Mitteilungen über Pfählung.) F. R. v. Winwarter.
129 The Respiration Quotient in Typhoid. (Vergleichende Betrachtungen der Respirations-Quotienten verletzter Pflanzen und Typhuskranker.) K. Stich.
130 Thermopenetration. (Weitere Mitteilungen über Thermopenetration.) E. Eitner.

Zentralblatt für Chirurgie, Leipzig

September 3, XXXVII, No. 36, pp. 1185-1216

- 131 Multiple Hydatid Cysts in the Abdominal Cavity. (Entstehung des multiplen hydatidösen Echinokokkus der Bauchhöhle durch Keimansaat.) F. Oehlecker.
132 Resection of Posterior Spinal Roots. (Zur Technik der Foerster'schen Operation.) N. Guleke.

Zentralblatt für Gynäkologie, Leipzig

September 3, XXXIV, No. 36, pp. 1185-1208

- 133 *Decapsulation of the Kidneys in Eclampsia. (Zur Nierendekapsulation bei Eklampsia.) J. Gobiet.

133. Decapsulation of the Kidney in Eclampsia.—Gobiet reports 2 cases in which he did decapsulation of both kidneys. The first patient was a iv-para and no benefit was derived from the operation; the kidneys showed acute hemorrhagic nephritis. The other patient was a i-para and there were no further convulsions after the decapsulation, which seemed to restore normal functioning on the part of the kidneys. When the changes in the kidneys are exceptionally severe, even this intervention is liable to fail, he regretfully remarks.

Gazzetta degli Ospedali e delle Cliniche, Milan

August 23, XXXI, No. 101, pp. 1065-1072

- 134 Differentiation of Gall-Stones and Kidney Stones by the X-Rays. (Röntgendiagnosi differenziale tra calcolosi renale e calcolosi biliare.) V. Maragliano.

August 25, No. 102, pp. 1073-1080

- 135 Acute Gasoline Poisoning with Recovery. (Avvelenamento acuto da petrolio.) G. Porriani.

August 28, No. 103, pp. 1081-1096

- 136 Infection with *Bacillus subtilis* Simulating Miliary Tuberculosis. P. Barabaschi.

August 30, No. 104, pp. 1097-1104

- 137 Disturbances from Prostatic Enlargement. (Considerazioni sul prostaticismo e sui provvedimenti d'urgenza ai quali da luogo.) N. Federici.

Policlinico, Rome

September 4, XVII, No. 36, pp. 1123-1154

- 138 Infantilem. S. de Sanctis. Commenced in No. 35.

Hygiea, Stockholm

August, LXXII, No. 8, pp. 785-912

- 139 *Prophylaxis and Treatment of Curvature of the Spine in School Children. (Om ryggradskrökningarna i en folkskola och om möjligheten att anordna tillfredsställande behandling för desamma.) P. Haglund.
140 Treatment of Placenta Praevia. J. Olow.

139. Curvature of the Spine in Children.—Haglund makes an impressive plea for the earlier detection and proper treatment of scoliosis in children. He found in examining the 1,600 children in a certain public school at Stockholm that 25 of the children had scoliosis to such an extent as imperatively to require specialist orthopedic treatment and that 86 others also needed it greatly; 158 others needed it but not so imperatively, and 85 others displayed a tendency to curvature of the spine but were scarcely in need of specialist measures. A more or less pronounced tendency to scoliosis was thus evi-

dent in 354 of the 1,599 children, and the boys were slightly in the majority. He gives illustrations of the various types of curvature encountered, discussing the causes and urging more active prophylaxis. The ideal would be, he says, to have a medical man or woman connected with each school—giving up private practice—to take charge of the physical training of the pupils and gymnastic exercises and diagnose incipient curvature. There should also be an orthopedic polyclinic to which those requiring special orthopedic treatment but unable to pay for it should be referred. Or, perhaps better yet, every medical student should be given training in orthopedics as part of his regular course. Physicians then would appreciate better, he says, the important matters of physical training, prevention, diagnosis and care of deformities and the necessity for and technic of orthopedic treatment.

Norsk Magazin for Lægevidenskaben, Christiania

September, LXXI, No. 9, pp. 889-1010

- 141 *Mode and Causes of Death in Diabetes. (Studier over dødsmaader og dødsårsager.) O. Hanssen.
 142 *Mode and Causes of Death after Lumbar Puncture. O. Hanssen.
 143 *Mode and Causes of Death with Acute Dilatation of the Stomach. O. Hanssen.
 144 Purin Metabolism and Elimination in the Urine in Chronic Rheumatism. B. Malling and O. Hanssen.
 145 Metabolism of Iron with Pernicious Anemia. (Et bidrag till kjenskabets om jernets stofveksel ved anæmia perniciosa.) P. W. K. Bjöckman and O. Hanssen.
 146 Study of Three Cases of Tuberculous Pericarditis. (Perikardieentese med trykmaaling. Pulsus paradoxus. Isoleret tuberkuløs perikardit i høi alder.) O. Hanssen.
 147 *Digitalis-Camphor in Treatment of Pneumonia. A. W. Schiander.
 148 *Rapid Determination of Albumin Content in the Urine. (Hurtigbestemmelser af eggehvitemængden i urin.) N. B. Koppang.

141. **Causes of Death in Diabetes.**—Hanssen states that of the 33 diabetics dying at the Rigshospital at Christiania in the last 20 years the fatal coma developed once each after pneumonia, the excitement of a journey, diarrhea, alveolar periostitis or rhinitis, twice during otitis media, three times after abrupt changes in the diet and once, in a patient free from sugar at the time, after a diagnostic injection of tuberculin. In 13 of the 23 patients examined post mortem no traces of tuberculosis could be detected and no clinical evidences of tuberculosis had been noted during life in the 10 other cases that did not come to autopsy. In only 9 of the total number of cases were signs of gross disease found post mortem; in this group was a patient with acute dilatation of the stomach, another with edema of the larynx, another with perforation peritonitis and 4 with a combination of pulmonary and heart disease. Seven of the 24 patients dying in coma were between 10 and 20 years old, 7 between 20 and 30, and the others between 30 and 70.

142. **Sudden Death After Lumbar Puncture.**—Hanssen states that there are about 30 cases on record of fatalities soon after lumbar puncture. Autopsy generally reveals excessive pressure on the brain from accumulated fluid and more or less obstruction of the communication between the fluid in the skull and in the spinal canal. In a case he reports, fatal paralysis of the respiration came on 6 hours after the puncture, done to relieve severe intracranial trouble. The heart action remained regular for nearly 20 minutes after the patient had ceased to breathe. In another case evacuation of pus from a cerebellar abscess was followed by similar arrest of the respiration while the heart continued to beat for 15 minutes. In another case, a few hours after a lumbar puncture an operation was done for sinus phlebitis in a boy 5 years old. As the wound was being dressed after the operation the child stopped breathing but under artificial respiration the heart continued to beat for 55 minutes longer. Alcoholism seems, he says, to favor the development of serous meningitis and this should warn against lumbar puncture in hard drinkers. Grøndahl has recently reported an instructive case of this kind; a sailor who was found later to have had a cyst in the membranous roof of one of the ventricles of the brain developed signs of severe pressure on the brain after drinking some liquor and was found dead in bed the next morning.

143. **Acute Dilatation of the Stomach.**—Hanssen discusses eleven cases of fatal acute enlargement of the stomach

observed at the Christiania Rigshospital, and calls attention to the danger of its occurrence with deformities and fractures of the spine; he says that in several cases on record it has followed the application of a correcting corset. In 5 of his cases the enlargement of the stomach was a terminal phenomenon in constitutional disease, but in another case the acute and promptly fatal enlargement occurred in a healthy boy of 15 who swallowed his dinner hastily and hurried back to his employer over a mile away. Notwithstanding lavage and incision of the stomach, releasing explosively the air which was ballooning it, the patient died the next day. The evidence seems to be in favor of the dilatation being due to paralysis; collapse, vomiting and oliguria are the main symptoms. There was no dilatation of the abdomen in six of his eleven cases; the stomach contained from 1 to 8 liters of fluid.

147. **Digitalis and Camphor in Treatment of Pneumonia.**—Schiander states that 7 died of the 25 patients treated according to Quisling's method of combining digitalis and camphor. The mortality was thus 28 per cent., but he adds that the results might be better in private practice.

148. **Determination of Albumin in Urine.**—Koppang reports comparative tests with various methods and technics, his conclusions being most favorable to Aufrecht's method of centrifugating the urine, mixing with 4 c.c. of urine 3 c.c. of an aqueous solution of 1.5 per cent. picric acid and 3 per cent. citric acid. The results, he says, are reliable while the method is simple, rapid and practical and can be applied to any organic fluids and also for determination of propeptones in urine after filtering out the albumin, cooling and centrifugating anew.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

A MANUAL OF TOXICOLOGY. A Concise Presentation of the Principal Facts Relating to Poisons, with Detailed Directions for the Treatment of Poisoning. Also a Table of Doses of the Principal and Many New Remedies. By Albert H. Brundage, M.D., Professor of Toxicology and Physiology in the Department of Medicines, Dentistry and Pharmacy of Marquette University. Seventh Edition. Price, \$1.50. Pp. 428, with illustrations. Brooklyn: The Henry Harrison Co., 1910.

AMERICAN RED CROSS ABRIDGED TEXT-BOOK ON FIRST AID: A Manual of Instruction. Industrial Edition. By Major Charles Lynch, Medical Corps, United States Army and First Lieutenant M. J. Shields, Medical Reserve Corps, United States Army. Prepared for and endorsed by the American Red Cross. Paper. Price, 30 cents net. Pp. 175, with 49 illustrations. Philadelphia: P. Blakiston's Son & Co., 1910.

CYSTOSCOPY AS ADJUVANT IN SURGERY. With an Atlas of Cystoscopic Views and Concomitant Text for Physicians and Students. By Staff-Surgeon Dr. O. Rumpel, Lecturer in Surgery at the University of Berlin. Only authorized English translation by P. W. Shedd, M.D., New York. Half leather. Price, 88.50. Pp. 131, with 107 illustrations. New York: Rebusan Co., (1910).

PALUDISM, Being the Transactions of the Committee for the Study of Malaria in India. Edited by Major S. P. James, M.D., Secretary to the Committee. Issued, under the authority of the government of India, by the Sanitary Commissioner with the government of India, Simla. Paper. Pp. 53, with illustrations. 1910.

SYMPTOMATIC AND REGIONAL THERAPEUTICS. By George Howard Hoyle, M.D., Professor of Internal Medicine and Dean of the Clinical Department in the School of Medicine of the University of Kansas. Cloth. Price, \$4. Pp. 499, with 58 illustrations. New York: D. Appleton & Co., 1910.

EUTHENICS. THE SCIENCE OF CONTROLLABLE ENVIRONMENT. A Plea for Better Living Conditions as a First Step Toward Higher Human Efficiency. By Ellen H. Richards, author of Cost of Living Series, etc. Cloth. Price, \$1 net. Pp. 162. Boston: Whitcomb & Barrows, 1910.

DARWINISM AND HUMAN LIFE. The South African Lectures for 1910. By J. Arthur Thomson, M.A., Regius Professor of Natural History in the University of Aberdeen. Cloth. Price, \$1.50, net. Pp. 237. New York: Henry Holt & Co., 1910.

TRANSACTIONS OF THE NEW HAMPSHIRE MEDICAL SOCIETY. At the One Hundred and Nineteenth Anniversary held at Concord, May 12 and 13, 1910. Cloth. Pp. 333, with illustrations. 1910.

THE PITTSBURGH TUBERCULOSIS LEAGUE SCHEME: What it is and what it does. Paper. Pp. 33, with illustrations. Pittsburgh: Tuberculosis League.

MEDICAL COMMUNICATIONS OF THE MASSACHUSETTS MEDICAL SOCIETY. Vol. XXI, No. 3, 1910. Paper. Pp. 102. (E. H. Brigham, M.D., Librarian Mass. Med. Soc., 8 The Fenway, Boston.)

The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOL. LV, No. 16

CHICAGO, ILLINOIS

OCTOBER 15, 1910

THE RELATIONSHIP OF NEUROLOGY TO PREVENTIVE MEDICINE*

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NEW YORK

The neurologist is concerned with a branch of internal medicine which at first sight does not appear to have much relationship to public health, but, in reality, not only does such relationship exist, but it is a very intimate one. Though public health seems to concern itself with sanitation and pure food, epidemics and health-menacing noises, public hygiene is, in reality, public education. Its aim should be to teach people, not only how to live long, but how to live happily, and my first contention is that, until the present time, preventive medicine has concerned itself exclusively with the former, whereas, if the object and aim of life is the pursuit of happiness, personal and general, preventive medicine is but half accomplishing its purpose. Following its principles, we direct our efforts to stamping out diseases which kill, leaving unnoticed and unattacked those which maim and incapacitate. The victims of these often find life insupportable, and they not only menace the happiness of their families, but stain the escutcheon by the crime of self-destruction.

I shall attempt a discussion of the relationship of neurology to public health under two captions: first, our obvious duty in dealing with certain infectious diseases of the nervous system, and second, our privilege in attempting to overcome certain incapacitating mental states.

OUR DUTY

Certain infectious diseases of the nervous system, especially poliomyelitis and epidemic cerebrospinal meningitis should be considered reportable, quarantinable diseases. The former is not yet so considered by many health boards; the latter, fortunately, is. The epidemic prevalence of poliomyelitis has been recognized for nearly twenty-five years, the first epidemic having been studied in Norway in 1887, and the second in Vermont in 1894.¹ Since that time, more than fifty epidemics have been carefully described. As the result of the investigation of these epidemics, and particularly of the epidemic that occurred in southern Norway in 1905, the epidemic in New York in 1907, and the epidemic in York County, Nebraska in 1909, we are now in a position to state that the disease is communicable; that contact with a person sick of the disease is not necessary that another person may contract

it; that the period of incubation is from four to ten days; that the contagiousness of the disease varies with the epidemic, and that the mortality rate is liable to great variation, in some instances being as low as 5 per cent., in others as high as 46 per cent. In addition, we know that the seasonal occurrence is very extraordinary; that it occurs, practically only in the warm weather; and that unhygienic surroundings, density of population and conditions of health have little or no bearing on the occurrence of the disease.

The experience of Dr. G. P. Shidler² of York, Neb., shows that the disease can be readily controlled by quarantine, and boards of health should be urged to place poliomyelitis on the list of reportable diseases and to formulate measures which may be quickly enforced to constitute the strictest quarantine.

We must bear in mind that it is an acute and infectious disease of the cerebrospinal axis and its covering, the pia, with a pronounced and inexplicable predilection for the gray matter of the anterior portion of the spinal cord, which it nearly always succeeds in affecting before its pathogenic impetus is satisfied. It affects the gray matter in one case profoundly, in another triflingly, and the symptoms that result in any case must, of necessity, vary with the intensity of the infection and with the portion of the cerebrospinal axis that bears the brunt of the lesion. The most important factor in stamping out the disease is that we learn to recognize it early and that we interpret correctly the so-called atypical cases. In many of the epidemics the experience has been that milder cases and cases in which the paralysis was neither profound nor lasting were looked on as cases of grip or rheumatism. I need not say that these mild and difficult cases are as potent to disseminate the disease as are the severer cases.

The necessity for quarantining epidemic cerebrospinal meningitis is generally conceded. Here we are dealing with a disease that fights in the open, as it were. We know the natural history of the *Diplococcus intracellularis*, we know its mode of entrance into the system; and fortunately, thanks to the brilliant investigations of Flexner, we are in possession of a serum which, given early and properly, is adequate to control the disease, and, in any case, to rob it of its terrors. More than this, epidemic cerebrospinal meningitis is a disease that either kills its victim or allows him to recover, while poliomyelitis nearly always maims, and pitifully so, those that it does not kill.

Other varieties of infectious nervous diseases that come within the scope of the neurologist are epidemic polyneuritis and pellagra. The former is of such rare occurrence in this country, save in our tropical possessions, and the latter is now having its natural history

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Collins, Joseph: The Epidemiology of Poliomyelitis, THE JOURNAL A. M. A., June 11, 1910, p. 1925.

2. Shidler, G. P.: The Epidemic of Spinal Disease in Nebraska, THE JOURNAL A. M. A., Jan. 22, 1910, p. 277.

and pathology so carefully studied by those to whom the opportunity is given, that I shall make only this cursory reference to them here.

Preventive medicine has not given the attention that it should to certain diseases of the nervous system that flow out of occupation and especially of occupation in foundries, blast furnaces and rolling mills. There is a widespread or generalized intoxication of the nervous system that occurs in bronze workers. It is not possible in every instance to say whether the disease is a neuritis, a myelitis, or an encephalitis. A patient that I have had recently in the Neurological Institute will best illustrate this point and will, likewise, indicate how necessary it is to apprise workers in such foundries of the dangers to which they are exposed.

A man, 47 years old, who had lived a continent, healthy life, and who was by occupation a foreman in a bronze factory, was sent to me from Bellows Falls with the diagnosis of pernicious anemia. His story was that in the winter of 1909 he had had two or three attacks of dysentery without attributable cause. Careful inquiry revealed that during the previous summer he had an attack of salivation, that his mouth had been sore, that his breath was extremely offensive, smelling of garlic, and that he had a craving for raw onions, an article of food which he had not been accustomed to eat. In July 1909, and some time after the third attack of dysentery, he noticed that he would often be stricken with uncontrollable drowsiness, while talking to his men in the shop, while sitting at table, while in church, etc. In addition to this, he became forgetful and stupid. About two months later, he first noticed a sensation of numbness and weakness in the extremities, phenomena that increased until he was wholly paralyzed. It was also noted that his speech became somewhat indistinct, and on two occasions he was incontinent of urine. After three months this paralysis began to disappear gradually, and when I saw the patient in March, 1910, he was able to walk with the aid of a cane and supported by another person. The examination showed that there was no marked muscular atrophy. The station and gait and the purposeful movements of the hands were all ataxic. The knee-jerks, the ankle-jerks and the elbow-jerks were lively and the patient had the Babinski phenomenon (extension of the big toes on irritation of the soles) on both sides. There was no detectable disturbance of the various forms of sensibility nor were the special senses disordered. The pupils responded readily to light. Examination of the urine failed to reveal either arsenic or lead.

I interpret this case as an example of intoxication of the nervous system, the peripheral as well as the central, probably by arsenic, although it is quite possible that it was the result of more than one metallic poison. The odor of garlic that was attached to the breath, the ptialism, and the attacks of dysentery, might all be accounted for by arsenic, but arsenical poisoning has rarely been followed by symptoms indicative of implication of the spinal cord and brain such as existed in this case.

The point that I particularly wish to make, however, is that workers in factories such as this should have their health safeguarded.

There is a form of neuromuscular affection which occurs in workers exposed to high degrees of dry heat, such as stokers, puddlers, etc. Its most conspicuous symptom is what we neurologists call myokymia associated with generalized weakness. This condition has been

studied by Edsall of Philadelphia, and I myself have encountered several instances of it. What its pathogenesis is, whether an intoxication by products developed within the system as the result of application of intense heat, or whether it is due directly to the heat, cannot as yet be said.

I purposely refrain from any discussion of the relationship of syphilis to diseases of the nervous system and to the bearing of this problem on preventive medicine. Everyone knows that there are certain organic diseases of the nervous system that flow out of syphilis, and that, if syphilis were conquered, tabes and its twin, general paresis, syphilitic spinal paralysis, and syphilitic endarteritis and meningitis would cease to exist. Syphilis is a social evil which must be dealt with in some other way than by science. The dominant instinct of man will be appeased illicitly, so long as the race exists and so long as alcohol is used. Education will do something toward diminishing its frequency, but a small amount of alcohol, taken at one time, quickly inhibits the effect of education. My personal belief is that we must check the ravages of syphilis by an adequate cure properly administered.

OUR PRIVILEGE

An incalculable part of all the misery, suffering and incapacity in the world is contributed by those functional nervous diseases that are now commonly called the psychoneuroses. They are the diseases that furnish the pabulum on which the rank growth of supernaturalism in therapy, in the shape of Eddyism and Emmanuelism in this country, has occurred. They are the diseases on which the quack fattens; they are the diseases whose existence is a constant reminder of our inadequacy to give proof of the reason for our existence, namely to heal the sick.

We do not successfully combat psychoneuroses, hysteria, psychasthenia, obsessive and anxiety states, because we do not prevent them. We do not prevent them because we do not know their cause. We know that they occur in individuals of neuropathic and psychopathic heritage, that is, in those whose ancestral endowment to resist strain and stress is below the normal, and we know that they are immediately conditioned, in persons thus predisposed, by normal and physical trauma.

During the past few years, a theory or hypothesis of the causation of the psychoneuroses has been evolved and put forth by Freud of Vienna, which is deserving of the most careful investigation and consideration. Although it does not, at first sight, seem to concern the physician who devotes himself to preventive medicine, in reality it does, for on him will devolve the devising of ways and means to prevent them.

The enormous importance of sexual factors in pathologic states as well as in normal conditions, has always been conceded, at least tacitly. It is Freud's merit to have opened up a wider vista into the delicate and hidden connections between the erotic element and nervous disease. His explanation of functional neuroses as the result of a mass of suppressed sexual desires has fallen like a bombshell into this era of sexual hypocrisy; and his ruthless application of the so-called sexual symbolism in all cases has naturally led to a strong, though by no means universal, reaction against the proposed remedy, psycho-analysis.

The question has been raised: Why should the sexual emotions alone, among the manifold equipment of the psyche, give rise to disturbances? In other words, why

regard the sexual emotion as the root of all other emotions? In answer it may be urged that there is only one thing in life which is desirable and pleasing enough in itself to induce human beings to sacrifice all else for it, and for which such sacrifices are constantly being made, namely, love, and its sexual gratification. The suppression of sexual life by sexual ethics is a deplorable concomitant of culture. In the interest of the public the individual is forced to immolate a part of his personality, especially his sexual instincts, and, among these, more particularly the heterosexual desire.

Under favorable circumstances, which include elements ranging from a trained will-power to sedative surroundings, the sexual instinct may be sublimed, that is, directed towards a spiritual instead of a carnal goal. It is then devoted to the amelioration, rather than the propagation of the species. Sublimation processes are the basis of artistic and scientific activities, and in more than a few cases, an unflagging diligence along a chosen line of work is the result of a transformed unsatisfied sexual desire. The sublimated sexuality finds its highest expression in adaption to circumstances, the harnessing of the plunging horses of instinct to the chariot of reason. But it is only the direction of the desires that is changed, not their strength; and unless a certain measure of direct sexual activation be left, the sublimation will lead to disease.

Psychoneuroses are the price of sublimation, the negative of the perversions, according to the teachings of Freud. The self-indulgent, who compromise between desires and gratification, are often blessed with iron "nerves," whereas the would-be ethereal and sexless are proverbially high-strung and nervous. The hysteric, beyond the boundary line of psychic equilibrium, cling so tenaciously to the desire as to renounce peace and happiness, preferring silence to confession. They exhibit an exaggerated tendency to sublimation, but their symptoms are abnormal sex manifestations.

Other psychoneurotic states, which, in the opinion of Freud, are mainly due to sexual abstinence, or rather, suppression, with or without masturbation, are the phobias and obsessions. The pathologic condition is, again, the outcome of the disproportion between the sexual demands and the sexual suppression.

A sexual etiology is common to all neuroses, and, in the psychoneuroses proper, dates back to childhood (Freud's infantile sexual traumatism). Such psychoneurotic states, on the basis of psychic traumatism, besides the phobias and obsessions, include neurasthenic fears with their sequelae, disturbances of sleep, such as nightmare, and of speech such as stammering; nervous affections of the heart, the sexual heart, phrenocardia; hypochondriacal conditions; a number of sexual perversions, fetichism, sadism, masochism, psychic impotence, homosexuality and vaginismus. In his modified views, Freud holds that the factors of constitution and heredity regain their supremacy in proportion as the accidental experiences of sexual adventure recede into the background. Nevertheless, the customary term "neuropathic disposition," according to him, really means "sexual constitution" of the individual. The undeniable fact that sexual traumatism also plays a part in the life history of individuals who are apparently free from neurotic taint is ingeniously explained as the correct balance of the sexual equation.

In his later teachings Freud admits that the accidental effect of a psycho-traumatic experience on the infantile sexuality is not so far-reaching or relevant in

its bearing on the origin of a psychoneurosis as is the individual reaction of the sexual constitution. His original view that a morbid fear is a sexual desire diverted from its natural course has been extended by the acceptance of other possible causative factors, namely a congenital diathesis expressed by psychic inadequacy for the control of the somatic sexual tension. The onset of a neurosis is governed by the original resistance of the nervous system, and facilitated by the ordinary emotional shocks of the individual's life, such as fright, grief, psychic fatigue; but the specific cause, the factor which determines the form of the neurosis, is sexual in character.

Hysteria, according to Freud's interpretation, is the result of the conflict between the sexual desire and the sexual suppression. The hysterical symptoms have the value of compromises between these two psychic currents. The sexual desire is confronted with internal resistance, notably modesty and physical aversion. Sexual abstainers (teetotalers in the *ars amandi*) accumulate a mass of unassimilated memories, suppressed reminiscences and converted emotions. In the course of time, the original feelings are blurred, and finally vanish from the realm of consciousness, to become replaced by the familiar hysterical symptoms of globus, palsies, fits, etc. Provided the source of the disturbance can be reached, the suppressed emotion will find its natural solution, and the symptoms will disappear. Having a sexual etiology, hysteria is never associated with so-called innocence of thought, and hence the danger of corruption does not exist. Being of psychogenic origin, the disease requires fundamentally psychic measures for its control. The symptoms must be literally reasoned away.

I trust that I have said enough to convince everyone that the relationship between neurology and preventive medicine is a close one, and that the neurologist of the future must be one who works diligently in the field of preventive medicine. I venture to express the opinion that the expert in preventive medicine would profit from some training in neurology.

But the subject that I venture to bring to attention in the second part of my address, namely that of the psychoneuroses, is one that must be dealt with entirely from the pedagogic standpoint. We, as physicians, however, must devise ways and means for giving such instruction. It certainly cannot be given, and should not be given by the teachers in our schools. I regret to say that the vast majority of them that I have encountered have an ignorance of the principles of sex knowledge and sex hygiene that is almost abysmal. In fact, I am not at all sure that we physicians, as a class, take the trouble to acquaint ourselves as intimately with the principles of sex physiology as we should, and, of course, we cannot expect to teach that which we do not know, and we should not permit ourselves to get a knowledge of it while teaching, because the experiment is too dangerous to those with whom we are dealing. It seems to me that plain wholesome lectures on sex physiology given to small classes and in many instances individually, should be a part of the curriculum of every public and private school, and that these lectures should be given by physicians, men and women, whose sanity, honesty, earnestness, and ability have been testified to or vouched for by their appointments from the executive medical officer of boards of health.

37 West Fifty-fourth Street.

PAPILLARY CYSTADENOMA OF THE KIDNEY,
ASSOCIATED WITH MYOMA OF THE
UTERUS AND SPINAL CARIES *

GEORGE ERETY SHOEMAKER, M.D.
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Summary.—The patient presented an unusual series of lesions, namely, uterine myoma with hemorrhage, spinal caries and kyphosis, together with a large bleeding tumor of the

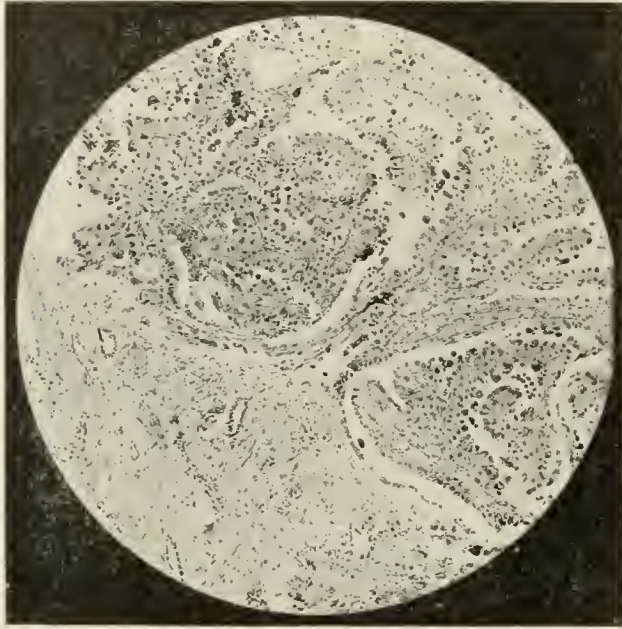


Fig. 1.—A papillomatous pedicle springing from modified kidney structure ($\times 100$).

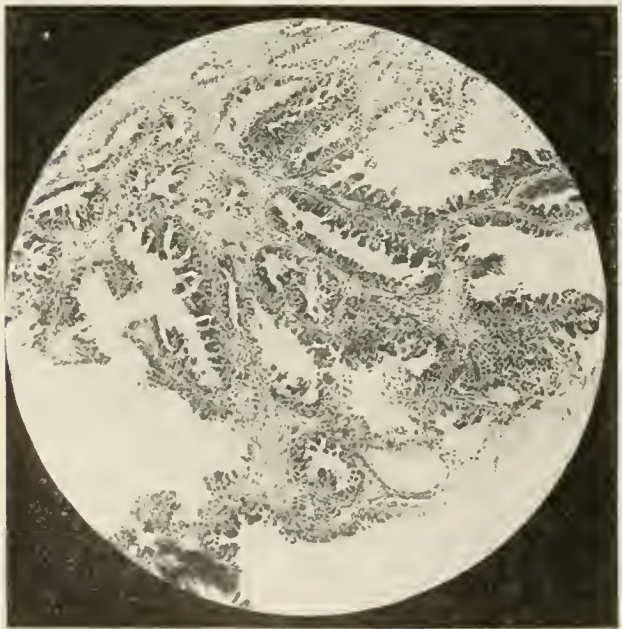


Fig. 2.—A loosely spread portion of a papillary growth ($\times 100$).

kidney. Hysterectomy was first done for the myoma. The kidney hemorrhage filled the bladder with firm clots which decomposed; a vesicovaginal incision gave exit to the offensive

clots and averted infection of the kidney growth. The latter was removed by nephrectomy and later under local anesthesia the vesicovaginal fistula was closed. The patient recovered.

History.—M. J., aged 27, married, sterile, was an overall thin mulatto woman. On admission to the Presbyterian Hospital she was able to give little history except that of irregular hemorrhage from the vagina for a year, at times severe. The day before admission the urine was bloody also, but she had not clearly distinguished the uterine from the urinary bleeding in the past. For two months she had noticed a tumor in the left upper abdomen. There had been a little pain for a month in the left lumbar region, over the left iliac crest and in the left thigh and the legs. There were well-marked syphilitic scars about the anus and legs. The urine was negative except for abundant blood. As the hemoglobin was 28 per cent, and she was losing blood freely from the uterine tumor, abdominal hysterectomy was done as a first step. An interstitial uterine growth reached nearly to the navel, which the pathologic laboratory reported as a myoma of the uterus with no unusual features.

Recovery from the hysterectomy was aseptic, but about two weeks afterward the hemorrhage from the tumor of the left kidney, which had been absent since admission, began again and soon became serious. The bladder filled with firm clots,



Fig. 3.—Shows cyst wall and areas of hemorrhage ($\times 100$).

which became infected and highly offensive. The cystoscope showed blood coming from the left ureter, and, while it might have been possible to break up and remove clots with an evacuator, the process was not without danger and would probably have to be repeated. With the large mass present involving the lumbar spine as well as apparently the left kidney, not the slightest chance of infection through the bladder could be taken. Therefore a large vesicovaginal opening was made, attaching together the mucous membrane of the bladder and vagina. Removal of the clots and irrigation through this fistula promptly cleared up the bladder infection and maintained a clean field while the kidney was attended to.

Examination of Tumor.—What appeared to be a kidney tumor reached 2 inches below the navel on the left side, filled the whole left upper quadrant and was lost under the ribs, which were forced outward and forward. The enlargement produced by the tumor continued around behind where it joined another swelling to the left of the three upper lumbar vertebrae. These projected backward out of line. The swelling immediately to the left of the diseased vertebrae was deep-seated between the ribs and the spine. There was tenderness, but no definite fluctuation and no redness of the skin. The

* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

questions for decision were whether the abdominal tumor was directly continuous with the tumor of the spinal column; or whether the spinal disease was a caries and separate from the other tumor, while lying in contact with it; and, as the masses could not be separated by examination, whether an attempted nephrectomy would open up the spinal area or not. A well-marked bruit and thrill behind suggested an aneurism eroding the vertebrae, but it was found that these symptoms appeared only when the patient lay on the right side. Indeed, the kidney tumor proved to be suspended from its upper portion with some range of mobility below, so that with change of the patient's position it would swing against the aorta, giving rise to the bruit. The skin test of von Pirquet for tuberculosis was negative. The x-ray photograph showed necrosis and posterior displacement of the three upper lumbar vertebrae, apparently from intrinsic disease and not from erosion. Aspiration to a depth of 2 inches in the swelling to the left of the spine yielded dark, thin, bloody fluid. On this the report of the pathologic laboratory by Dr. Canby Robinson was sterile blood with excess of serum. Cultures and smears were negative for tubercle bacilli and other organisms. In the determination of the sufficiency of the other kidney, indigo-carmin solution was injected into the buttock muscles by Dr. Laws. The cystoscope then showed active spout-

ing followed. Eighteen days after the nephrectomy, the vesicovaginal fistula was successfully closed with no pain under local anesthesia. Two per cent. eucain solution and 1 to 20,000 adrenalin solution were injected into the tissues of the vesicovaginal septum.

When studying the kidney functions prior to nephrectomy in this patient, the presence of the vesicovaginal fistula prevented the distention of the bladder with water or air to facilitate cystoscopy. As reported to the Philadelphia Academy of Surgery¹ I overcame the difficulty by introducing a finger-cot partly through the fistula and then distending the cot

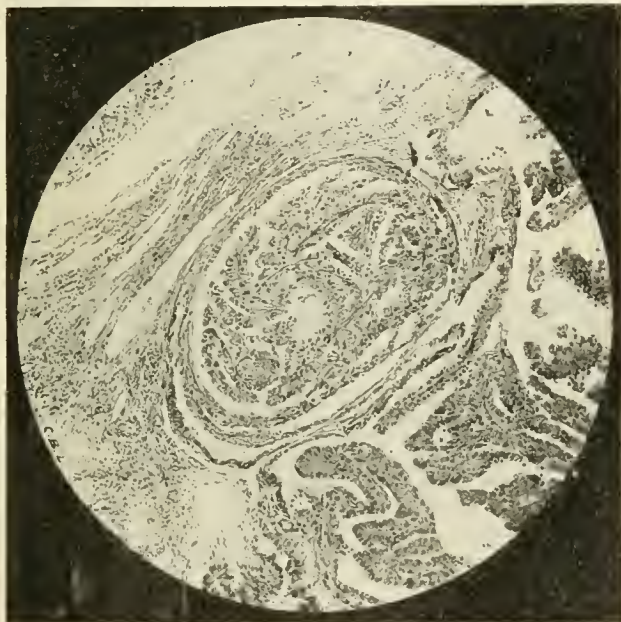


Fig. 4.—A small cyst and papillary growth inside (X 100).

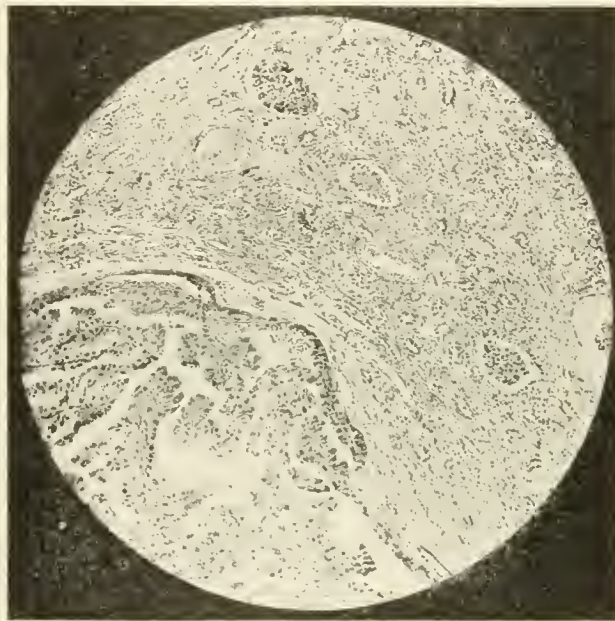


Fig. 5.—A portion of a cyst, and a portion of modified kidney cortex which contains Malpighian bodies and numerous tubules cut in various directions (X 100).

ing of blue urine from the right ureter in eighteen minutes, while the blue stain appeared much more slowly on the diseased side, and the spurts were very feeble and infrequent. The blue stain was very faint on the left. This proved the relatively greater activity of excretion on the sound or right side, and as there were no casts, while the total twenty-four-hour quantity was good, nephrectomy appeared safe. Dr. Willard concurred in the opinion that the main mass was a renal tumor, probably separate from the tender swelling near the spine and that this was secondary to spinal caries. Operation proved the correctness of this view.

Operation.—Through an incision 8 inches long forward over the tumor from the edge of the quadratus lumborum, the entire tumor was enucleated and proved to be a greatly enlarged left kidney. There was no evidence of infiltration of surrounding tissues. Owing to the inaccessibility of the stump, two curved hemostatic forceps were left attached to it, no ligatures being applied.

Postoperative History.—At the end of forty-eight hours these were unfastened, one being removed entirely on the third day and the other, which had appeared to be adherent, on the fourth day. There was no hemorrhage, and aseptic heal-



Fig. 6.—After hysterectomy and nephrectomy; spinal deformity from caries of three upper lumbar vertebrae.

with water. This tightly closed the fistula for the time and made cystoscopy easy. Four weeks after the nephrectomy, when the patient, wearing a plaster jacket for the spinal caries, was nearly ready for discharge from the hospital she

1. Shoemaker, G. E.; *Ann. Surg.*, December, 1909.

suddenly developed a motor paralysis of both lower extremities without impairment of sensation. She had previously been moving freely about the bed. This impairment increased rapidly for seven days after which some improvement in motion occurred. The patient became unwilling to wear a plaster jacket and was discharged at her own request forty days after the nephrectomy.²

Microscopic Examination of Tumor.—Dr. G. Canby Robinson, the pathologist of the Presbyterian Hospital, kindly contributes the following description of the microscopic appearances of the renal tumor: "The tumor mass, which measures 18 by 12 by 9 c.m., takes roughly the shape of an irregularly enlarged kidney. It is roughened by slightly bulbous swellings, especially at the lower end. These swellings have a dark red and purple color. The tumor is firm in consistency. In one place there is a cavity which appears to be the remains of the pelvis of the kidney. On section the kidney is found to be almost replaced by a tumor mass and only at the upper end is kidney tissue seen. Here the cortex is pale, almost white, and swollen, and glomeruli cannot be seen. The tumor structure is pinkish-yellow in color and rises slightly above the cut surface, through which fine bands of connective tissue run. At places the tissue is opaque, while in some areas it is translucent and colorless, resembling hard starch. Microscopic sections show kidney tissue only occasionally. When it is seen, there are a few glomeruli and compressed tubules scattered through large masses of connective tissue. The tumor is composed of fine strands of connective tissue, which grow out apparently from the increased connective tissue of the cortex, and which extend in a branching papillomatous manner in all directions. The connective tissue forms a stroma of the main tumor cells which lie on both sides of the fine connective tissue strands. There are large euboid or columnar epithelial cells, practically always lying in a single layer, possessing large vesicular nuclei with nucleoli, and resembling large tubular epithelium. Tubule-like structures are often seen. Cysts formed by the walls of connective tissue and epithelium are frequent, and small masses of blood are present. The epithelial cells do not appear to have undergone malignant changes, but in one or two places small nests of cells are arranged in a rather suspicious manner."

Diagnosis.—Papillomatous cystadenoma of the kidney. No definite signs of malignancy.

Watson and Cunningham³ state that the adenomas of the kidney are both malignant and benign.

The papillary type usually prevails, but the alveolar is likewise common. The relation between the benign and malignant adenoma is obscure. The majority of pathologists believe that the two are identical, and that they differ from each other only in a clinical sense. There are transition forms from adenoma to carcinoma, although the transition is not a sharp one. It is probable that many of the malignant adenomata are benign in the first place, and that malignancy supervenes. It is impossible to say how long the disease has existed in the benign form, because the tumor may be unrecognized for many years.

In a series of ninety-one tumors of the kidney examined at the Massachusetts General Hospital, four were of the type of large papillary cystadenomata of the kidney.⁴

The accompanying photomicrographs of the tumor tissue illustrate many of the characteristic features of the disease.

Respiratory Signs of Surgical Anesthesia.—Though marked deepening of the respiration may precede, be synchronous with or follow whatever emotional excitement there may be, at any rate it is generally indicative of the early accomplishment of surgical anesthesia.—J. B. Bogan, in *New York Medical Journal*.

² August, 1910, ten months after nephrectomy, patient is reported as doing light housework.

³ *Genito-Urinary Diseases*, II, 231.

⁴ Nelson and Cunningham: *Genito-Urinary Diseases*, p. 225.

A COMBINED FORCEPS AND TONSILLAR SEPARATOR

A NEW TONSIL SNARE

CULLEN F. WELTY, M.D.

SAN FRANCISCO

In the enucleation of the tonsil I have found this combined forceps of value. Because of its length, all parts of the pharynx can be easily reached without interfering with other instruments. Because it can be used as a tonsil separator as well as a sponge carrier, not losing time consumed in changing instruments, the work is more quickly done. Because of the bluntness of the instrument the capsule of the tonsil cannot be punctured.

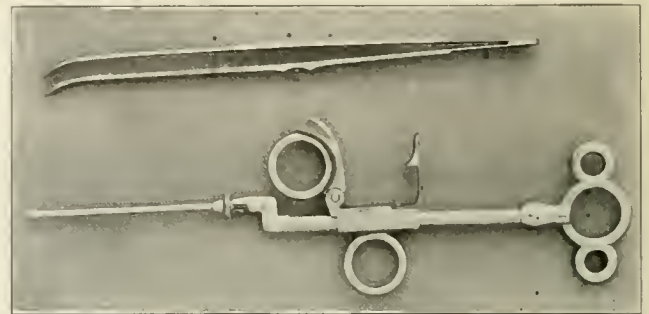


Fig. 1.—Combined forceps and tonsillar separator.

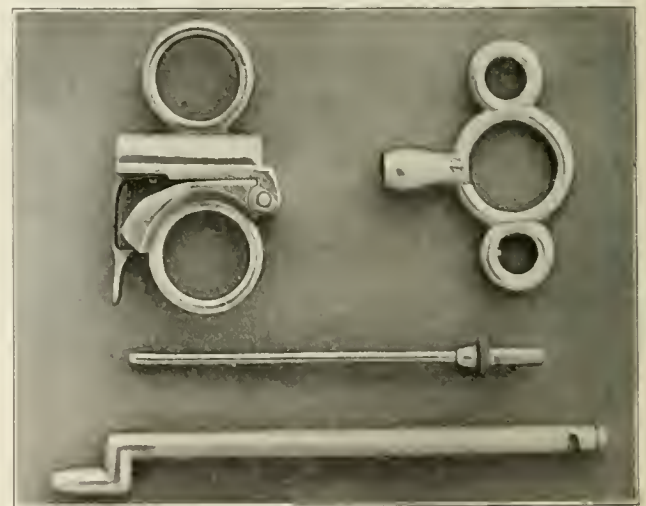


Fig. 2.—Showing parts of combined forceps and separator.

In order to use this instrument it is necessary that the tonsil be drawn taut with another forceps. An incision is then made at the point where the mucous membrane joins the tonsil, which will uncover the capsule, and should begin in front and be carried posteriorly until it begins to descend. Through this incision the tonsil is easily dissected or peeled out.

Directly after removal of the tonsil there is usually considerable hemorrhage. This forceps on account of the bend in the end is useful in making pressure to prevent an excessive loss of blood.

I have never been called to the hospital because of subsequent hemorrhage except in one instance, and in that the tonsil was not entirely removed. I am certain that

the blunt dissection with this instrument has given the good results obtained.

The features recommending this new snare are as follows: 1. It is strong, heavy and will not get out of order. 2. It locks together, instead of having screws or fasteners. 3. It is easily kept clean. 4. It is easily and quickly threaded. 5. It has an entirely new device for fastening the wire; when once clamped the harder you pull the tighter it becomes.

Shreve Building.

DIFFUSE IDIOPATHIC HYPERTROPHY OF THE MAMMARY GLANDS OF THE FEMALE *

A REPORT OF A NEW CASE AND A CONSIDERATION OF THE ETIOLOGY AND PATHOLOGY BASED ON DATA OF RECORDED CASES

HENRY ALBERT, M.D.
IOWA CITY, IOWA

REPORT OF CASES

The following clinical history of the case was furnished by Dr. H. Matthey of Davenport, Iowa:

Patient.—The patient, a girl 13 years of age, when examined August, 1903, was 5 feet and 5 inches tall, weighed 101 pounds and was found to be of a nervous temperament.



Fig. 1.—Patient with mammary hypertrophy; from photograph taken shortly before amputation of the left gland.

Family History.—The patient's parents were both living and well, her father being 39 years of age and her mother 36. She had one brother and one sister, both living. In none of these other members of the family was there any undue enlargement of the mammary glands.

Personal History.—The patient had had the usual diseases of childhood. Enlargement of the breasts began in the early part of June, 1903, and continued at such a rate that in August she was taken to a physician who estimated that each breast weighed about 8 pounds. Pressure applied by means of a bandage and maintained for several months was without benefit. In October when the patient first consulted me, the breasts weighed about 12 pounds each. Operation was advised, but refused. She now drifted into the hands of quacks who treated the condition in various ways, without giving any relief. In July, 1904, she returned to me in poor general condition, feeble, anemic and emaciated. Her weight was 106 pounds, a little more than half of which was contributed by the breasts. Because of these facts, it was deemed advisable to remove only one breast at a time (Fig. 1). The first operation was undertaken July 14, 1904. The amputated left breast weighed 28 pounds. After being two weeks in the hospital, she was allowed to go home to recuperate for the

second operation. At this time her weight was 79 pounds. During the following two weeks she gained 13 pounds and returned for the operation, weighing at this time 92 pounds. The right breast was amputated Aug. 12, 1904. It weighed 26 pounds. Recovery was uneventful, healing being by primary intention. Patient remained in hospital two weeks and returned home in good general health and weighing 75 pounds. Six weeks after the second operation she menstruated for the first time and has been regular since. She was married in 1909 and has been delivered of a six-months developed child since. At present the general health of patient is good; weight, 115 pounds; height, 5 feet 9 inches.

PATHOLOGY OF SPECIMENS

This was essentially the same for the two glands.

Gross Pathology.—Shape: Both glands, which were rather spherical in shape and pendulous while attached to the body of the patient, became considerably flattened out between the skin surface and the base after their removal.

Size: The left gland, which was the larger, was, after removal from the body, 18 inches in diameter and 8 inches in thickness. Its greatest circumference was 58 inches and it



Fig. 2.—Case of left gland, showing lobulated and encapsulated appearance.

weighed 28 pounds. The right gland was 14 inches in diameter, 7½ inches in thickness; its greatest circumference was 45 inches and weighed 26 pounds.

Surface Contour: The skin surface was smooth, being tightly stretched over the underlying gland substance. The nipple of each of the glands had become flattened out and the areola more diffuse, but less distinct than normally. The bases of the glands were distinctly lobulated; the lobulated areas varying from one to four inches in diameter (Fig. 2). The outlines of the glands at the base were so distinct as to be apparently well encapsulated.

Consistency: The glands were moderately soft in consistency. This was quite uniform throughout the gland mass, although on cut section certain areas were found to be much more firm than others. These were not distinct and circumscribed, but fused gradually with the more soft areas. A number of rather large ducts, some with a diameter of as much as 1/8 of an inch were visible on the cut surface. The

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

subcutaneous adipose tissue had entirely disappeared. Only a small amount of fat was still noticeable about the base of the gland (Fig. 3).

Color: The cut surface of the tumor was of a whitish-pinkish gray color. The pinkish tint was more marked in the firm than in the soft areas.

Microscopic Pathology.—Section from Firm Portion of Gland: The section consisted principally of full developed fibrous connective tissue with a fair number of capillary blood-vessels. The gland elements were found somewhat grouped in areas, corresponding to the lobules; the acini, however, were much more widely separated than in the normal gland. The acini which were of variable size, some quite large and many dilated, were lined by a single layer of a low columnar (almost cuboidal) gland epithelium, resting on a basement membrane consisting of flat cells. The lumen was free from



Fig. 3.—Cut surface of right gland, showing dark areas of glandular tissue, light areas of more pure connective tissue, and open spaces representing dilated ducts.

contents, except in a few in which debris, consisting of degenerated and desquamated cells, was found.

Section from Soft Light-Colored Portion of Gland: This section consisted almost entirely of fibrous connective tissue with only a very few gland elements. The connective tissue, which contained only a few widely separated nuclei, was somewhat edematous. There were numerous capillary blood-vessels and a number of fat cells.

Section through Skin, including a Portion of the Gland Substance of Medium Consistency: This section showed the connective tissue of the hypertrophied gland to be continuous with that of the subcutaneous tissue and the corium. Except for a few fat cells, the subcutaneous adipose tissue had entirely disappeared. The elastic fibers of the corium were fully as abundant as in the normal skin. I was unable to find any elastic fibers in the substance of the gland proper except, of course, in the larger blood-vessels.

Section from Base of Gland, Including the "Capsule": The "apparent" capsule of the gland was found to consist of condensed gland substance consisting of both gland and connective tissue elements. The glands were somewhat flattened.

Summary of Pathology.—The process was a diffuse hypertrophy affecting all parts of both glands rather uniformly and involving both the glandular and connective tissue elements, the increase affecting principally the latter. The gland acini were lined by a single layer of low columnar (almost cuboidal) epithelium, were larger than normal and more widely separated by intervening connective tissue, which was of the fully developed fibrous type. Capillary blood-vessels were numerous.

REVIEW OF CASES REPORTED

Diffuse idiopathic hypertrophy of the mammary glands is a rare condition. Several authors have collected data from a number of cases, but no attempt to collect all cases reported has been made for some time. In 1902 Kirchheim¹ collected most of the cases reported up to that time. I have reviewed the literature and have

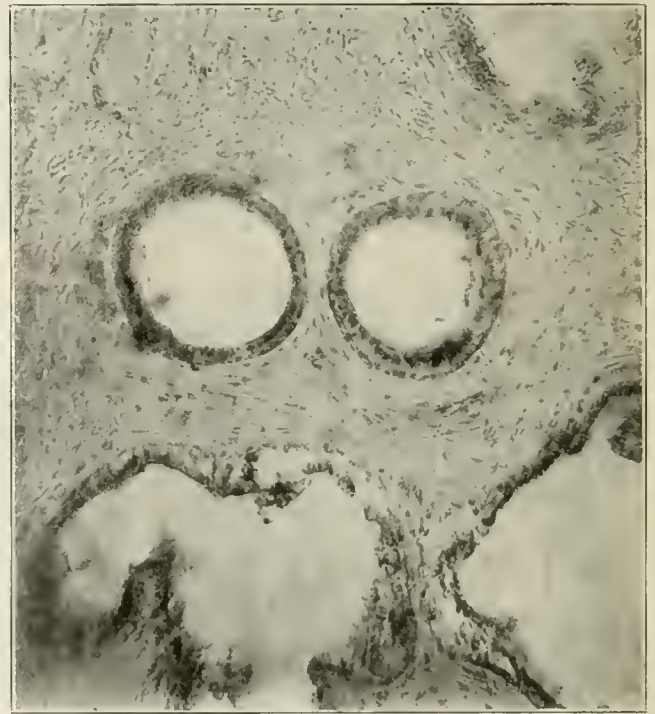


Fig. 4.—Photomicrograph of dense glandular portion of right gland showing irregular variously shaped acini lined by a single layer of low columnar epithelium.

made an attempt to collect all cases reported to date and have summarized the essential data from these cases, so far as such has been available. In some instances I have not been able to secure the original report. In many more the data was very meager. In the majority of cases no description of the pathologic process was given, and I have little doubt but that I have included some cases that are not instances of "true" hypertrophy. I have purposely omitted a case of excessive adiposity of the mamma, diagnosed clinically as diffuse hypertrophy, of which I have the specimen, and another case concerning which I have been informed but of which no pathologic examination was made. I have not included in this paper the cases of mild degree of hypertrophy of the mammae of the male (gynecomastia), or of senile parenchymatous hypertrophy (Bloodgood²), partial or

1. Kirchheim: Arch. f. Klin. Chir., 1902, lxxviii, 582.

2. Bloodgood: Surg., Gynec. and Obst., 1906, lii, 721.

localized hypertrophy, and the still more mild types of so-called hypertrophy occasionally seen associated with pulmonary tuberculosis.

Although I have summarized the principal data from the cases reported, I shall in this paper limit the consideration to the etiology and pathology of the condition.

Number of Cases Reported.—Aside from the one which I have just described, I have been able to collect reports of sixty-nine other cases of diffuse hypertrophy of the female mammae. Of these seventy cases sixty-two were bilateral and six unilateral, three affecting the right and three the left gland. In two instances I was unable to learn which glands were affected.

Age.—Although Bittner³ reported a case of hyperplasia (probably not true hypertrophy) of the mammary gland in a girl 6 months old, the age limit of the reported cases of true hypertrophy extends from 11 to 42 years, with practically every intervening year represented. The vast majority begin to develop about the time or soon after puberty or during gestation. Fifty-eight per cent. of the cases not associated with gestation developed between the ages of 11 and 16 and 40 per cent. during the fourteenth and fifteenth years of age.

Classification of Cases.—Cases of idiopathic hypertrophy may be classified into (1) those associated with gestation and (2) those not associated with gestation, most of which are closely related to puberty.

1. *Gestation Idiopathic Hypertrophy.*—Of the seventy cases eighteen were of this type. Fourteen of these were bilateral and four unilateral. The relation to gestation is clearly indicated by the fact that, after the termination of pregnancy, the condition subsides, although it does not return completely to the normal, and that it frequently reappears during subsequent pregnancies. The enlargement usually begins during the first pregnancy. Sometimes, however, it occurs for the first time during the second or third. In one instance it did not develop until the eighth pregnancy.

2. *Cases Not Associated with Gestation.*—The relation of puberty to cases of hypertrophy is suggested by the fact that 58 per cent. of the cases not associated with gestation developed between the ages of 11 and 16, the period during which puberty ordinarily occurs, and that in a large number of cases menstruation did not set in until after the enlarged glands were removed. In many cases, however, there seems to be no association with either puberty or gestation.

Etiology.—The real cause of this condition is unknown. Such factors as heredity, traumatism, undue sexual activity, general malnutrition, etc., which have been mentioned in connection with the process, seem to have nothing to do with it. Pathologically the process appears to be simply an excessive development of the normal enlargement as seen especially at puberty and during gestation. Presumably the causes which produce the normal enlargement are also at work on this pathologic form, the latter being produced either because of a large amount (or undue activity) of the same cause, or a lack of the inhibitory influences which, under normal conditions, limit the extent of the enlargement.

Recent experimental work has shown that the normal enlargement of the glands is not always due to the same cause. The work of Lane-Clayton and Starling⁴ in producing an increase in the size of the mammary gland of

virgin rabbits by the injection of extracts from the body of rabbit fetuses has shown very conclusively that the enlargement of the mammae during gestation is through the action of a hormone produced in the fetus. That this may also be the cause of the idiopathic gestation hypertrophy is very probable, especially inasmuch as that condition subsides after the termination of the pregnant state.

The cause of the normal enlargement of the glands at puberty is not so well understood. The evidence at hand seems to indicate that a hormone in the ovaries is the principal factor responsible for the development of the mammary glands outside of pregnancy. If this proves to be the case it would seem that removal of portions of the ovaries would be indicated in the treatment of the condition. Up to the present time the only treatment that has been of value is amputation of the glands. Removal of portions of the ovaries has not been tried, so far as I know.

It is very doubtful whether or not the cessation or irregularity of the menses, noticed shortly before and during the hypertrophy in many of the cases not associated with gestation, is of etiologic significance. This may simply be a symptom of the condition, as it is a symptom of other diseases in which the vitality is lowered. On the other hand is to be noted the fact that the general health is usually not affected until after the disease is well advanced, whereas the cessation of the menses is frequently of sudden occurrence several months before the glands begin to enlarge.

Gross Pathologic Morphology.—Shape: The enlarged glands stand out prominently from the chest wall for some time. Later their weight causes them to become pendent and often pedunculated, the gland substance assuming a rather spherical mass, drawn away from the muscles of the chest and hanging over the front of the abdomen, sometimes as far down as the knees. Their large size frequently causes the patient much discomfort and sometimes necessitates the patient remaining in a recumbent position.

Size: The size of the different glands may be compared (1) by their greatest circumference and (2) by their weight.

1. The greatest circumference of the individual glands for which figures are available varies from 20½ inches to 51½ inches, the average being 31½ inches. The average circumference of the hypertrophied left glands is one inch more than the right.

2. The weight of individual glands varies from 1½ pounds to 64 pounds with an average per gland (of all cases) of seventeen pounds. The weight of the combined glands of cases of bilateral hypertrophy varies from three pounds to 124 pounds (Durstons's⁵ case) with an average of 37 pounds. In most cases and on a general average, the left gland weighed a little more than the right. The average weight of the gland in the cases of unilateral hypertrophy is 15 pounds. In the cases reported by Durston⁵ and myself the weight of the two glands exceeded the weight of the remainder of the body.

Surface Contour: The surface of the glands is quite smooth, and skin tightly drawn. The stretching of the skin usually causes the nipples to be flattened out. In one instance they were reported as being retracted; in two, as having become enlarged—in Delfis's⁶ case, as large as a hen's egg. The pigmented areas also become less definite and distinct as the skin becomes stretched. The

3. Bittner, W.: Fall von Hyperplasie beider Mammæ bei einem 6 Monate alten Mädchen, Prag, med. Wchnschr., 1895, xx, 492.

4. Lane-Clayton and Starling: An Experimental Enquiry into the Factors Which Determine the Growth and Activity of the Mammary Glands, Proc. Roy. Soc., London, 1906, lxxvii, B, 505-522.

5. Durston: Phil. Tr. Roy. Soc., London, 1669.

6. Delfis: Jour. de physiol. exper. de Magendie, 1825.

skin remains quite freely movable over the underlying gland even though the subcutaneous fat tends to disappear and the connective tissue of the skin gradually fuses with that of the gland. In the later stages, the skin may become thick and hard. In many instances the superficial veins become very large and stand out prominently as blue streaks.

Consistency: During the early stages the hypertrophic glands are firm and elastic, as they are during the normal enlargement at puberty or during the early part of gestation. Later, when they become larger and pendent, they also become flaccid. At first the glands usually feel somewhat nodular; later, however, these tend to disappear. Even when the process feels quite diffusely uniform through the skin, the cut surface may show areas considerably more firm in consistency than others. Such areas diffuse into one another gradually.

Color: The color of the cut surface of the hypertrophic gland in the few cases in which it has been noted, is apparently the same as under normal conditions.

Microscopic Pathologic Morphology.—Unfortunately, microscopic examinations of the specimens were made in only about twenty of the cases. In all of the cases not associated with gestation, it is recorded that there is an increase of both the glandular and the connective tissue elements. In most instances the connective tissue is reported as being principally increased, although in four cases special mention is made of the marked glandular increase. The gland acini are usually described as being larger than normal, more widely separated and sometimes found to be lined with several layers of gland epithelium. I am inclined to think that this last-mentioned phenomenon is due principally to the thickness of the section and the cutting of the acini in an oblique manner. In many instances the glands are considerably dilated and contain granular degenerated material. Such changes in the glands have been likened to the changes that occur in the glands during the early stages of pregnancy. The fibrous connective tissue is usually described as being of the fully developed type with, as a rule, very few nuclei, although some are mentioned as being quite cellular—which may, of course, have been due to an associated inflammation. In the three cases of idiopathic gestation hypertrophy in which a microscopic examination was recorded, the microscopic findings were like those of the mammary gland during pregnancy. Such findings, indeed, may reasonably be expected.

Pathological Physiology.—Gestation hypertrophic glands usually functionate as do the normal ones, although it is often difficult to nurse the infant because of the flattening out of the nipple. Those not associated with hypertrophy are functionless during non-pregnant conditions, although it has been possible to squeeze colostrum-like fluid from the ducts in some cases. Usually, also there is no lactation after the birth of a full-term child. In several instances, however, there was normal lactation in the glands that had been enlarged before the pregnant state. In one case associated with gestation, there was marked galactorrhoea of eight months' duration.

Nature of Pathologic Condition.—Idiopathic hypertrophy has been regarded variously by different authors as a circulatory (edema), an inflammatory, a neoplastic or as a simple hypertrophic process.

In favor of its being an edematous process is the rather sudden onset that has been reported in several cases. In the cases of Durston⁵ and Delbet,⁷ for in-

stance, the patients retired in the evening, slept quietly as usual and in the morning on awaking found themselves scarcely able to turn around. When they tried to get up, the weight of the suddenly enlarged glands caused them to sink back. Usually, however, the onset is very gradual.

Opposed to its being a circulatory process is the fact that there was no mention made of pitting on pressure in the cases reported, nor has the tissue of the glands removed been reported as edematous. For a long time the enlarged glands are firm and elastic and stand out prominently from the body; this would not be the case in edema. The increase in connective tissue following edema is in the nature of a fibrosis rather than an increase of all of the tissue elements. The slight edema which I found in my specimens and which accounts in part for their great shrinkage when placed in formaldehyd solution may readily be explained by the interference with circulation caused by the pendant glands.

There is really no evidence in favor of its being an inflammatory process. The pain sometimes noticed may readily be accounted for on the basis of pressure and a stretching of the nerves.

The neoplastic theory has several supporters. In Porter's⁸ case, in which the glands weighed 17 and 43 pounds respectively, the diagnosis made was intracanalicular fibroma. Kirchheim¹ regards it as a diffuse fibroma. It is true that a section of the hypertrophic gland may be like one from a case of adenofibroma, but a tumor is usually thought of as a more localized and circumscribed process, especially if it is benign. The idiopathic hypertrophy, however, which pathologically is benign, is a diffuse process involving all parts of the gland. The fact that it may begin as a rather localized process, limited to a certain part of the gland, simply means that such represents the beginning point, probably the most susceptible tissue, just as one gland sometimes becomes involved before the other.

Considered from all standpoints, it must be regarded as a simple hypertrophic process involving all of the elements of the gland, but especially the part which at the time, is the most actively growing tissue, namely, the glandular tissue during gestation and the connective tissue at other times, especially during puberty.

The question has been raised as to whether or not cases of unilateral enlargements are cases of true hypertrophy. With a clinical history like those of bilateral hypertrophy, with the same pathologic condition, so far as we know, and an average weight of 15 pounds as against 17 pounds in case of the bilateral type, there is no reason, it seems to me, why they should not be regarded as identical. Indeed, in Van Swieten's⁹ case, the unusual enlargement of one breast which occurred during pregnancy subsided after the termination of gestation. During the second pregnancy it again enlarged.

Associated Pathologic Conditions.—When the glands become of large size, the friction of the glands against a bracing bandage or supporting clothing frequently causes an excoriation of the epidermis chiefly at the most dependent portion. Such friction is apt to be followed by inflammation, abscess and fistula formation, eczema, erysipelas and gangrene. In one case, there was a hernial protrusion of gland-substance through an excoriated opening. Although Billroth¹⁰ reported a case

8. Porter: Boston Med. and Surg. Jour., March 3, 1892.

9. Van Swieten: Commentaria in H. Boerhaave Aphorism de cognoscendis et curandis morbis, Leyden, 1764, A. IV.

10. Billroth: Krankheiten der Brustdrüsen, Deutsche Chirurgie, 1880, Instalment xii, 69.

of sarcoma and Bloodgood² a case of carcinoma in a gland idiopathically hypertrophied, such glands do not appear to be any more prone to malignant tumor formation than under other conditions. In several cases the axillary lymph-nodes were found to be enlarged. In the majority of these cases, there was some acute inflammation of the mammae which readily accounted for the involvement of the lymph-nodes. In several, however, there was no recognizable acute inflammation of the mammae. Even in such cases, the lymph-node enlargement was of a fibrous (chronic inflammatory) character. In no case has there been any metastatic formation of the hypertrophic mammae.

GENERAL SUMMARY

1. Of the seventy reported cases of diffuse hypertrophy of the female mammae, in eighteen the enlargement occurred during gestation; most of the others occurred about the time of or soon after puberty.

2. Of the seventy cases, sixty-two were bilateral.

3. Fifty-eight per cent. of the cases not associated with gestation developed between the ages of 11 and 16 and 40 per cent. during the ages of 14 and 15.

4. The etiology of the condition is obscure. It is very probably due to the action of the same hormones that produce the physiologic enlargements.

5. Pathologically, the condition is a simple diffuse hypertrophy, involving both glands and connective elements. The increase in the gland elements occurs principally in the cases occurring during gestation, whereas the connective tissue increase usually predominates in those not associated with that condition. The process appears to be essentially an exaggeration or continuation of the enlargements that affect the gland normally at puberty and during gestation.

6. The weight of the glands varies from 1½ to 64 pounds, the average per gland of all cases being 17 pounds. In one instance, one of the glands weighed 64 pounds and both glands, 124 pounds. In two instances the combined weight of the two glands exceeded the weight of the remainder of the body.

7. In cases associated with gestation, lactation is, as a rule, normal. In those hypertrophies not associated with gestation the glands seldom functionate, even after pregnancy.

Dubuque and Jefferson Streets.

ABSTRACT OF DISCUSSION

DR. A. S. WARTLIN, Ann Arbor, Mich.: I should like to ask Dr. Albert whether this woman was able to throw her mammary glands over her shoulder; a similar hypertrophy of the mammary gland is often seen in Hottentot women, who are able to throw their breasts over their shoulders and suckle their children, who are carried in slings on their backs. I should also like to know to what type of man this woman corresponded. Did she have any features that go with the Australoid type or Negroid type? Would there be any anthropologic interest in this case as an instance of reversion?

DR. JAMES J. TERRILL, Galveston: Was there any pain associated with the condition? I remember seeing specimens from a somewhat similar case in the early part of this year. The patient, a girl aged about eighteen, had what was diagnosed as diffuse virginal hypertrophy of the breast. Both breasts enlarged but did not weigh more than two pounds each. One breast had to be removed, however, on account of excessive pain, the cause of which was never discovered; but on removal of the first breast, the pain disappeared and the other breast gradually grew smaller in size. Sections pre-

sented an appearance practically identical with that of the sections in Dr. Albert's case.

DR. GREER BAUGHMAN, Richmond, Va.: I saw a case in November, 1903, with Dr. George B. Johnson, in a young white woman. The left breast weighed 10¼ pounds; the right 7¾. The microscopic findings were almost the same as those in Dr. Albert's case—a true hypertrophy of the mamma—non-functionating, except that there was not so much dilatation of the acini and very little fat.

DR. HENRY ALBERT, Iowa City, Iowa: The patient was not able to throw her breasts over her shoulders. I did not see the patient; but I made careful inquiry of the clinician as to any peculiarities suggestive of reversion and was informed that there were none; nor did her parents present any unusual appearance. There was no pain except that which may be readily explained by the enlarged size of the breast. In the reported cases, however, there are a number associated with severe pain, and in a few instances pain was present from the beginning of the process.

A patient whom I saw three or four weeks ago presented considerable enlargement of the mammary glands. A diagnosis of diffuse hypertrophy was made. The process began about a year ago, but it was only during the last three months that the pain had become extreme. On examining the glands microscopically after removal we found nothing but fatty and a little fibrous connective tissue. One of the cases in the literature contains a reference to the fact that the hypertrophy was not due to glandular, but to fatty increase.

A STUDY OF MISTAKEN DIAGNOSES

BASED ON THE ANALYSIS OF 1,000 AUTOPSIES AND A COMPARISON WITH THE CLINICAL FINDINGS *

RICHARD C. CABOT, M.D.
BOSTON

The subject of this paper was suggested by my experiences in a weekly conference with senior medical students at the Harvard Medical School. At this conference the organs obtained from all the autopsies performed at the Massachusetts General Hospital during the week preceding are brought before the class. Before the demonstration of each set of organs I discuss with the students a typewritten summary of the clinical findings in the corresponding patient, including the history, the physical examinations, the reports on blood, urine, stomach contents and feces, the x-ray plates and all other data on which diagnosis was based during life. I never let anyone inform me beforehand of the autopsy findings. After we have committed ourselves definitely regarding the pathologic changes which we expect to find the hospital pathologist, Dr. Oscar Richardson, reads the autopsy protocol and demonstrates the organs.

In this exercise I have been forced once a week for three years to compare my diagnoses with post-mortem findings. It has proved so salutary and instructive, especially when I have been mistaken, that it has seemed to me well to summarize the results of a large series of comparisons between the judgments arrived at by a careful study of clinical data and the anatomic conditions revealed post mortem.

I. METHODS USED IN THE STUDY

I must first explain, as nearly as I can, the plan followed. It is not a simple matter to collate ante-mortem

* Oration in Medicine read before the Section on Practice of Medicine of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

* Because of the space required, the article is slightly abbreviated in THE JOURNAL. It appears in full in the Transactions of the Section and in the author's reprints.

and post-mortem data in an intelligent way. One cannot simply read off the clinical diagnoses and note their correspondence or lack of correspondence with the anatomic findings, for:

1. It is often obvious when one reads the clinical record that the diagnosis has been copied from the autopsy protocol.

2. The clinical diagnosis may be so abbreviated as to omit important facts known during life. For example: When death occurs from heart disease the clinical diagnosis is often recorded merely as "mitral stenosis" without any statement regarding cardiac hypertrophy, dropsical effusions or terminal infections. Yet on reading the details of the record one may find evidence that the heart was enlarged, that a large amount of serous fluid has been removed from the abdomen and, perhaps, that some micro-organism had been isolated during life from the circulating blood. These facts warrant us in filling in the clinical diagnosis by the addition of a number of details. My comparisons, then, have been made between the diagnosis warranted by the recorded clinical data and the autopsy protocols.

3. In some cases it has been clear, after a little study, that the clinical diagnosis actually written on the records had been hurriedly filled in by an intern and did not represent the opinion of the attending physician. I recall one case in which the clinical diagnosis still stands as "neurasthenia" although the autopsy record shows that the patient died of cancerous pleurisy.

My comparisons, then, have been far from literal. In each case I have gone behind the recorded diagnoses and endeavored to reason out what diagnosis was justified by the facts as known during life. No other course was open to me if I was to avoid some quite ludicrous mistakes.

II. TYPES OF ERROR

In the accompanying tables I have attempted (a) to separate correct diagnoses from mistaken ones and (b) to subdivide the mistakes into errors of omission and errors of commission. By an "error of omission" I mean failure to find some lesion which in all probability contributed to kill the patient; for example, the failure to find a pneumonic solidification.

"Burnt-out" or obsolete lesions are often undiscovered during life and lead, therefore, to a discrepancy between ante-mortem and post-mortem findings, a discrepancy of interest but different from what I am now defining as an "error of omission." If, for example, the autopsy revealed pleural adhesions, and I am convinced from the written record and from my knowledge of the methods used in the hospital wards that these lesions did not contribute materially to the patient's last illness, and that no attempt was made to find these adhesions by testing the mobility of the lung borders or by any other method of investigation, I do not class the resulting discrepancy between anatomic and clinical results as an error of omission.

By an "error of commission" I mean the diagnosis during life of a lesion—such as cancer of the stomach—which autopsy shows is absent. This type of error is defined in contrast with some discrepancies regarding which we need not consider the autopsy as the court of last appeal. If, for example, a diagnosis of mitral regurgitation is recorded on the clinical record but not in the autopsy protocol, I consider this no proof that the clinical diagnosis is wrong. It is quite conceivable that the valve was insufficient during life owing to a muscular relaxation of which no convincing evidence is left

after death. I have, therefore, attempted no comparison between the clinical and anatomic findings regarding mitral regurgitation. On the other hand, if mitral stenosis exists during life it should be demonstrable after death.

I shall now take up some of the statistics which represent our experience in the last thousand autopsies coming from the medical wards of the Massachusetts General Hospital.

III. DIAGNOSTIC ERRORS IN CERTAIN DISEASES OF THE HEART AND VESSELS

MITRAL STENOSIS

Correct diagnosis in	49 cases or 69 per cent.
Error of omission in	16 cases or 22 per cent.
Error of commission in	6 cases or 9 per cent.
Total,	71 cases

Most of these errors of omission were due to the fact that the patients were seen first within twenty-four hours of death, i. e., after the murmur had disappeared and at a time when very little evidence remained on which a diagnosis could be based.

Cases in which we mistakenly supposed that mitral stenosis existed are not so numerous as I had anticipated. Apparently we have learnt pretty well the lesson taught by Austin Flint nearly half a century ago. It seems to me well to emphasize here a fact often recorded, especially by English observers, but not sufficiently realized in this country. I refer to the presence of a presystolic murmur at the apex of the heart despite a sound mitral valve, not merely in cases of aortic regurgitation (as noted by Flint), but in any disease which has resulted in marked enlargement of the heart. In cases of chronic nephritis, pericardial adhesions, arteriosclerosis and hyperthyroidism, or any other cause, we often hear the murmur formerly identified with mitral stenosis. The murmur may be constant or transient. It may or may not be associated with a sharp, snapping first sound and an accentuated pulmonic second. It cannot be distinguished with any certainty from the murmur produced by mitral stenosis and will continue to lead us into error from time to time until some other and more accurate methods of diagnosis are discovered.

I have found it best systematically to disregard all presystolic murmurs heard at the apex of a markedly enlarged heart, unless the case has been under observation long enough for us to have recorded the murmur before the heart became markedly enlarged or unless we have a clear history of a long-standing infectious process, presumably involving the heart valves. In renal cases, arteriosclerotic cases and, indeed, in most patients beyond their fiftieth year, presystolic murmurs are of very little significance.

AORTIC STENOSIS

Correct diagnosis in	19 cases or 61 per cent.
Error of omission in	11 cases or 36 per cent.
Error of commission in	1 case or 3 per cent.
Total,	31 cases

I have been surprised to note that the diagnosis of aortic stenosis (always accompanied in this series by a regurgitant lesion) was correctly made in nearly two-thirds of our cases, and especially was I amazed that in only one case did we commit ourselves wrongly to this

diagnosis during life. It used to be a standing joke among our pathologists that the clinician always diagnosed aortic stenosis when only a roughening of the aortic arch was demonstrable post mortem. On the other hand, I have been equally astonished to learn that the pathologists found aortic stenosis so frequently where we had overlooked it during life. I am quite convinced that this lesion is often impossible of diagnosis by our present methods of physical examination. In this connection the following points have recently been impressed on me:

1. Aortic stenosis may exist despite the presence of an accentuated aortic second sound, although, as a rule, this sound is diminished or absent.

2. Aortic stenosis may exist in association with a "water-hammer" or "Corrigan" pulse, though the rule is against this. How these two facts are to be accounted for I have no idea.

3. With long-standing cases of "rheumatic" endocarditis involving the aortic valve in patients under 35 years of age, aortic stenosis is almost always present (as proved post mortem) whether there are any characteristic physical signs pointing to it or not.

AORTIC REGURGITATION

Correct diagnosis in	57 cases or 84 per cent.
Error of omission in	5 cases or 7 per cent.
Error of commission in	6 cases or 9 per cent.
Total,	68 cases

It will be noted that in the present series, as in that previously mentioned in my "Physical Diagnosis," our largest percentage of correct diagnoses in diseases of the cardiovascular system concern aortic regurgitation. This percentage was possible only because we have made it a rule to disregard diastolic murmurs unless there were vascular phenomena to correspond ("water-hammer" pulse, capillary pulse, etc.). Diastolic murmurs without these vascular phenomena have generally turned out, post mortem, to be associated with a sound aortic valve. I appreciate that the figures here presented regarding aortic regurgitation have less value than those relating to the stenoses, since it is impossible to deny that the aortic ring might stretch during life sufficiently to produce regurgitation and yet show no evidence of such stretching post mortem. Yet, for reasons which I cannot here take the space to present, I do not believe that the error attributable to this possibility is a considerable one.

CHRONIC MYOCARDITIS

Correct diagnosis in	13 cases or 22 per cent.
Error of omission in	15 cases or 26 per cent.
Error of commission in	31 cases or 52 per cent.
Total,	59 cases

I have given up making the diagnosis of chronic myocarditis, and I believe that the term should be stricken from our text-books on the practice of medicine. It is an anatomic condition, like acute interstitial nephritis, having no corresponding manifestations recognizable during life. A correct diagnosis of chronic interstitial myocarditis, of acute degeneration of the myocardium such as occurs in fevers, or of the fatty change observable in most cases of pernicious anemia, is wholly a matter of luck. There are no clinical symptoms and no physical signs constantly associated with any one of these conditions.

When a patient has suffered from well-marked angina pectoris and shows clear evidence of arteriosclerosis in

the brain, the kidney or the peripheral arteries, we may guess that his coronary arteries are somewhat narrowed and that a fibrous myocarditis has resulted. But even then we may be wrong, as I have often been convinced post mortem. The evidence on which the diagnosis of myocarditis is ordinarily based points merely to a *myocardial insufficiency* such as may be produced by a great variety of causes without the presence of any granular, fatty or fibroid change in the heart. Further, the anatomic diagnosis of fibrous myocarditis post mortem is satisfactory only when it is positive. To say that a fibrous myocarditis does not exist one must have cut the heart into mince-meat and then sectioned and stained each morsel of the hash. The absence of gross fibroid changes demonstrable after a few knife-cuts into the ventricular walls, by no means excludes an extensive though microscopic fibroid change.

One of the most surprising things in this series of autopsies has been the not infrequent occurrence of gross fibroid myocarditis in hearts which were perfectly sufficient during life, and the still more frequent absence of any demonstrable lesion post mortem in hearts that were markedly insufficient during life. As will be seen by the figures quoted above we were wrong in more than four cases out of five in our diagnosis of myocarditis.

ARTERIOSCLEROSIS

Correct diagnosis in	131 cases or 60 per cent.
Error of omission in	77 cases or 35 per cent.
Error of commission in	12 cases or 5 per cent.
Total,	220 cases

Most of the correct diagnoses in this group rested on inferences from general knowledge of pathology rather than on physical examination. If a patient has symptoms pointing to a non-traumatic cerebral hemorrhage it is fairly safe to assert that cerebral arteriosclerosis will be found, especially if the sufferer is middle-aged or older. If angina pectoris has tortured a man for months, it is very probable that his coronary arteries are diseased.

THORACIC ANEURISM

Correct diagnosis in	12 cases or 50 per cent.
Error of omission in	10 cases or 42 per cent.
Error of commission in	2 cases or 8 per cent.
Total,	24 cases

In two cases a mistaken diagnosis of aneurism was made owing to too great reliance on *x*-ray findings, in the absence of other important evidence. In one case I believe that the mistake cost the patient his life. Supposing his malady to be incurable, we allowed him to use narcotics for pain to an extent that ultimately proved fatal. At autopsy there was no trace of aneurism or of any other sufficient cause for death.

The classical difficulty of deciding between thoracic aneurism and mediastinal tumor has occurred five times in this series; in every case the autopsy showed aneurism. As a result of these and other experiences in this field I have come to use the following rule: When still in doubt between aneurism and tumor after all proper methods of investigation have been exhausted call it aneurism.

Abdominal aneurism is distinctly rare in my field of work, occurring but three times in 2,000 autopsies. Our autopsy material includes a relatively small number of syphilitics. Possibly it is for this reason that I have been taught by experience that when we have our

annual or semi-annual discussion about the bed of a hospital patient who complains of epigastric pulsation ("aneurism or dynamic aorta?") the doubtful cases always turn out not to be aneurism, i. e., the patients recover and remain well when reassured.

CARDIAC HYPERTROPHY AND DILATATION

Correct diagnosis in	223 cases or 66 per cent.
Error of omission in	113 cases or 33 per cent.
Error of commission in	3 cases or 1 per cent.
Total,	339 cases

Had we relied wholly on palpation, percussion and auscultation for the estimation of the heart's dimensions I feel sure that our failures would have been far more numerous. Blood-pressure estimations have helped us greatly, and if we could have employed fluoroscopy in every case we could doubtless have done far better.

The distinction between dilatation and hypertrophy has not been successfully made in this series. What clinically seemed an acute dilatation has usually turned out after death to be a chronic hypertrophy and dilatation.

It will be noticed that in six of the seven types of cardiovascular disease thus far discussed, the percentage of failures ranges in the neighborhood of 33 per cent.; thus:

Aneurism	48 per cent.
Arteriosclerosis	40 per cent.
Aortic stenosis	39 per cent.
Hypertrophy and dilatation....	34 per cent.
Mitral stenosis	31 per cent.
Aortic regurgitation	16 per cent.
Average	34 per cent.

In the acute infectious lesions presently to be discussed our record is so different as to indicate that from the diagnostic standpoint they belong in a different and less accessible class. But before passing to the consideration of these more difficult diagnostic problems I wish to return for a moment to some of the difficulties attending the diagnosis of mitral regurgitation. I have not attempted to estimate the number or the nature of our failures in the diagnosis of this lesion because we have, in my judgment, no standard by comparison with which we can get our bearings. But the study of hearts before and after death has further convinced me that mitral regurgitation (that commonest of all cardiac diagnoses) is not only an unverifiable but usually a superficial judgment—about as definite as tachycardia. What we chiefly need to know about mitral regurgitation is what is behind it. Does the orifice leak because of an infectious process involving the myocardium, because of a chronic nephritis which has thickened and stretched the heart, because of hyperthyroidism, beer or arteriosclerosis? Or, rarest of all, is there a purely mechanical deformity of the valve or valve curtains? In all cases, except those belonging to this last group, i. e., in at least nine-tenths of all cases in which we are likely to make the diagnosis of mitral regurgitation we should add it, like an appendage, to some other and more fundamental designation. Thus, such diagnoses as "chronic nephritis, hypertension, cardiac hypertrophy and dilatation with mitral regurgitation," or "arteriosclerosis, myocardial insufficiency, relative mitral incompetence," or "infectious arthritis and myocarditis with mitral leakage," should, I think, replace the great majority of those now standing on our record-books simply as "mitral regurgitation."

The origin, prognosis, course, probable complications and treatment—all that is most important about the case—is suggested not by the leakage but by the diseases which have produced it and are indicated in the earlier parts of the diagnoses above suggested. As I look over the annual reports of our hospitals and note the great number of cases recorded merely as mitral regurgitation, it seems to me hardly more sensible than if one made so many diagnoses of "short breath" or "cough."

ACUTE ENDOCARDITIS AND ULCERATIVE ENDOCARDITIS

Correct diagnosis in	23 cases or 39 per cent.
Error of omission in	32 cases or 54 per cent.
Error of commission in	4 cases or 7 per cent.

Total, 59 cases

ACUTE PERICARDITIS

Correct diagnosis in	11 cases or 20 per cent.
Error of omission in	38 cases or 70 per cent.
Error of commission in	5 cases or 10 per cent.

Total, 54 cases

Most of the errors listed in these two groups are, I believe, inevitable at the present time. There are usually no distinctive physical signs either of acute endocarditis or of acute pericarditis, especially when they occur in the terminal stages of chronic disease. Fortunately it makes at present very little difference in our treatment whether we recognize these items of a general infection or not.

IV. RESPIRATORY SYSTEM

LOBAR PNEUMONIA

Correct diagnosis in	116 cases or 74 per cent.
Error of omission in	23 cases or 15 per cent.
Error of commission in	18 cases or 11 per cent.

Total, 157 cases

Regarding these cases of lobar pneumonia two comments seem to me worth making. First, it should be explained that some of the successful diagnoses of lobar pneumonia were made without distinctive physical signs of a process of reasoning which issued in the judgment "That is the sort of case in which a terminal pneumonia might well occur." This sort of reasoning works backward from familiar disease-groups previously encountered post mortem. One recognizes during life one or more members of such a group and infers the presence of another. Alcoholism and trauma with an unexplained fever and leukocytosis is a familiar group pointing in the majority of cases to a larval pneumonia not revealed by the pulmonary signs. Such an inference is very far from being inevitable, yet experience has convinced many that reasoning of this type is valuable if used cautiously and provided it always goes hand in hand with a thorough study of the patient's history and of the present condition.

Another observation is suggested by the numerous diagnoses of pneumonia when this condition was not actually present. Such mistakes were especially common in patients who were comatose or partially so. The type of congestion or "settling" often found post mortem in the lungs of such sufferers may produce all the classic signs of a full-blown lobar pneumonia though absolutely no solidification; nothing but a soggy lung is discoverable after death. I have often had a similar experience in cases involving marked cardiac insufficiency with or

without a considerable degree of hydropericardium. The signs apparently of solidification at the left base (in the so-called "pressure area" of pericardial effusion) associated with fever, leukocytosis and cough have often led me to a false diagnosis of pneumonia no sign of which was discernible post mortem.

BRONCHOPNEUMONIA

Correct diagnosis in	31 cases or 33 per cent.
Error of omission in	60 cases or 64 per cent.
Error of commission in	3 cases or 3 per cent.
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Total,	94 cases

One might imagine that the very large percentage of error in our diagnoses of bronchopneumonia arose from the inclusion of infants and young children whose lungs are notoriously apt to show after death (from whatever cause) unsuspected areas of bronchopneumonia. But this table contains only cases of adults. I excluded all the cases of younger patients because I felt from the start quite hopeless of successful prediction in this field.

I feel convinced, however, that we may apply to adults the old adage of the pediatric specialists: "When you have the signs of bronchitis but the patient is obviously too sick for (simple) bronchitis, call it bronchopneumonia."

I have been much impressed by a series of typhoid patients dying with the signs only of bronchitis but showing extensive bronchopneumonic areas post mortem, and I am inclined to believe that in many "bad colds" the patch of "sticky râles" which hangs on for a week or more in one or another lower lobe posteriorly represents in fact a bronchopneumonia.

PHTHISIS (ACTIVE)

Correct diagnosis in	32 cases or 59 per cent.
Error of omission in	16 cases or 30 per cent.
Error of commission in	6 cases or 11 per cent.
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Total,	54 cases

MILIARY TUBERCULOSIS

Correct diagnosis in	28 cases or 52 per cent.
Error of omission in	20 cases or 37 per cent.
Error of commission in	6 cases or 11 per cent.
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Total,	54 cases

In explanation of these tables we must note that:

1. I have left wholly out of the account the numerous cases of obsolete or healed phthisis.

2. The 30 per cent. of unrecognized cases was made up mainly of cases seen for the first time within a few hours of death, when all distinctions are blurred.

3. In the effort to recognize doubtful incipient cases we have frequently used radiography, but so far without getting any reliable information not obtainable by other methods. An increased resistance to the passage of x-rays is an excessively delicate but also a very general indication, capable of a multitude of explanations and produced by a multitude of causes other than tuberculosis and often indistinguishable from each other by radiographic evidence.

The correct diagnoses of miliary tuberculosis would have been much fewer had we not adopted some years ago the rule, "When a case is clinically one of tuberculous meningitis, call it miliary tuberculosis and you will rarely be contradicted at autopsy." Tuberculosis

is practically never confined to the meninges, though in many cases miliary processes make themselves apparent only in the central nervous system.

V. URINARY SYSTEM

ACUTE NEPHRITIS

Correct diagnosis in	5 cases or 16 per cent.
Error of omission in	20 cases or 62 per cent.
Error of commission in	7 cases or 22 per cent.
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Total,	32 cases

Some years ago I undertook a critical study of the urinary reports and post-mortem findings in the different types of nephritis. I was much impressed at that time with the large percentage of mistaken diagnoses of acute nephritis—especially the errors of omission. In the present study of another series of cases, the same facts claim attention. It must be stated at the outset that our material contains no cases of scarlet fever; very few of diphtheria and that, as we have no maternity department, our cases of the puerperal type are confined mainly to eclampsia. In the material so limited we find almost no recognizable cases of acute nephritis. Most of those which in former years we called acute we now recognize (thanks to blood-pressure measurements) as chronic with acute exacerbations. For prognosis, and in a lesser degree for treatment, this distinction is important.

Our cases of acute nephritis, recognized and unrecognized, belong mostly in one of three groups:

1. Those due to pneumococcus infections.
2. Those due to infection by the organism of septic endocarditis.
3. Those due to mercurial poisoning.

Our verified diagnoses of acute nephritis have been made chiefly by following these etiologic hints and not from the urinary findings. Given a case of mercurial poisoning, of general pneumococcus infection or of "malignant endocarditis," with or without arthritis, and it is fairly safe to predict that an acute nephritis will develop and will be demonstrated post mortem if the issue is fatal. But this is not a secure basis for diagnostic structures, and we have not yet been able to build much on this or on any other foundation. We doubt whether others can do better at the present time.

CHRONIC GLOMERULAR NEPHRITIS

Correct diagnosis in	53 cases or 74 per cent.
Error of omission in	9 cases or 12 per cent.
Error of commission in	10 cases or 14 per cent.
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Total,	72 cases

CHRONIC INTERSTITIAL NEPHRITIS

Correct diagnosis in	25 cases or 50 per cent.
Error of omission in	19 cases or 38 per cent.
Error of commission in	6 cases or 12 per cent.
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Total,	50 cases

In marked contrast with our failures in acute nephritis, our large percentage of success in chronic glomerular nephritis¹—the type often termed chronic diffuse, chronic parenchymatous nephritis or secondary contracted kidney (Senator). Most of our errors were in

1. Judging by the averages of this whole study I consider anything over 66 per cent. of verified diagnoses as a "high" percentage of success, though I admit that even our best is far from brilliant.

patients seen only in the moribund state and the same is true of the failures recorded in chronic interstitial nephritis.

In distinguishing these two types of nephritis (i. e., those due probably to the results of early infection and those due to arteriosclerosis, wear and tear and senility) I have noticed that most of those associated with any considerable degree of anemia usually turn out to be of the glomerular type. Anemia and uremia are, perhaps, due to the same metabolic poison, while in the interstitial cases we have less anemia and less uremia—the symptoms being chiefly those of circulatory failure.

VI. NERVOUS SYSTEM

CEREBRAL HEMORRHAGE

Correct diagnosis in	34 cases or 67 per cent.
Error of omission in	4 cases or 7 per cent.
Error of commission in	13 cases or 26 per cent.
Total,	51 cases

CEREBRAL TUMOR

Correct diagnosis in	8 cases or 72 4/5 per cent.
Error of omission in	2 cases or 18 1/5 per cent.
Error of commission in	1 case or 9 per cent.
Total,	11 cases

"Cerebral hemorrhage" is here used in the broad sense of "apoplexy," including all sudden attacks of coma and paralysis due to thrombosis, to acute softening or to embolism of the cerebral arteries. It is confessedly impossible to distinguish hemorrhage, rapid thrombosis and embolism by any study of the resulting disturbances of function. With this understanding it may be said that our diagnostic campaigns in this field have obtained an average degree of success. I have been struck, however, with the very considerable proportion of cases which presented during life the ordinary features of apoplexy but showed after death only an arteriosclerotic degeneration of the cerebral arteries without hemorrhage, embolism, thrombosis or acute softening. These cases are like some of those on which Pal based his interesting theory of vascular crises² as an explanation of apoplectic seizures without demonstrable gross lesions post mortem.

Of the small group of cerebral tumors here studied. I will merely say that although we usually were correct in predicting the presence or absence of tumor somewhere within the skull, the attempts at localizing the growth were failures in most cases.

SEPTIC MENINGITIS

Correct diagnosis in	23 cases or 64 per cent.
Error of omission in	8 cases or 22 per cent.
Error of commission in	5 cases or 14 per cent.
Total,	36 cases

TUBERCULOUS MENINGITIS

Correct diagnosis in	26 cases or 72 per cent.
Error of omission in	5 cases or 14 per cent.
Error of commission in	5 cases or 14 per cent.
Total	36 cases

Under the general title of "septic meningitis" I have included the epidemic meningococcus cases, together with those due to the pneumococcus and the pyogenic organisms, whether invading the meninges from the

middle ear or elsewhere. I shall omit discussion both of this group and of the tuberculous cases following.

VII. DIGESTIVE SYSTEM

GASTRIC CANCER

Correct diagnosis in	30 cases or 72 per cent.
Error of omission in	7 cases or 17 per cent.
Error of commission in	5 cases or 11 per cent.
Total,	42 cases

PEPTIC ULCER (GASTRIC OR DUODENAL)

Correct diagnosis in	9 cases or 36 per cent.
Error of omission in	14 cases or 56 per cent.
Error of commission in	2 cases or 8 per cent.
Total,	25 cases

HEPATIC CIRRHOSIS

Correct diagnosis in	19 cases or 61 per cent.
Error of omission in	9 cases or 30 per cent.
Error of commission in	3 cases or 9 per cent.
Total,	31 cases

Our relatively successful dealing with the neoplasms in this table forms a sharp contrast with the shocking failures which were the rule when the diagnosis of peptic ulcer was attempted. Among the fourteen ulcers which we failed to recognize during life nine were gastric and five duodenal. In two cases (Autopsies 637 and 1077) the patient had cirrhosis of the liver (ante-mortem and post-mortem diagnosis) and the gastric hemorrhages were attributed to this. Two patients (Autopsies 2278 and 3441) entered the hospital with the history, symptoms and signs of meningitis, which was confirmed at autopsy. In one case the history distinctly suggested ulcer; in the other, a tuberculous case, there were no symptoms pointing to the gastro-intestinal tract. Seven patients (Autopsies 526, 1161, 1829, 1861, 2024, 2135, 2388) entered the hospital acutely ill with disease outside the gastro-intestinal tract (lobar pneumonia, cancer of the uterus with extensive metastases, cardiovascular degeneration, uremia, congenital syphilis, apoplexy, diabetes). One of these patients, a diabetic boy of 17, had had for three months stomach symptoms quite compatible with gastric ulcer though not characteristic of it. I doubt whether any surgeon would have wished to operate on him in his toxemic and emaciated condition. The other six of the seven patients last referred to had no gastric signs or symptoms whatever.

There remains a group of three cases out of the fourteen in which a diagnosis should, perhaps, have been made. One of them (Autopsy 1586) was seen twice by Drs. Maurice H. Richardson and F. G. Balch, who could make no diagnosis and advised against exploration on account of uncompensated heart disease (autopsy showed insufficiency of the mitral, aortic and tricuspid valves). The second case (Autopsy 1601) had a typical ulcer history, but the abdominal symptoms were obscured or disregarded on account of what was taken to be an acute pneumothorax. Autopsy showed a "subphrenic hypopneumothorax" pushing the diaphragm up to the level of the third rib in front. In view of the frequent occurrence of this type of subphrenic abscess after perforation of a peptic ulcer I think this diagnosis should have been made. The third patient (Autopsy 1064), a woman of 68, would permit no examination, far less exploration of her abdomen.

2. Pal: Gefässkrisen, Berlin, 1905.

In two men, each 35 years old (Autopsies 1238 and 1405) we made the diagnosis of peptic ulcer and were contradicted at the autopsy. One had had "dyspepsia" for four years and was seized the night before he entered the hospital with violent epigastric pain and tenderness not associated, however, with muscular spasm. At autopsy next day a cyst of the pancreas was found to have ruptured into the peritoneum with a resulting general peritonitis. The other man came to the hospital for persistent vomiting of ten days' duration. Soon after entrance he vomited 10 ounces of pure blood. He had also marked cerebral symptoms attributed by a neurologic consultant to cerebral syphilis. At autopsy the stomach showed nothing abnormal. Death was due to chronic interstitial nephritis.

VIII. MISCELLANEOUS

TYPHOID FEVER

Correct diagnosis in	53 cases or 92 per cent.
Error of omission in	0 cases or 0 per cent.
Error of commission in	5 cases or 8 per cent.
Total,	58 cases

DIABETES MELLITUS

Correct diagnosis in	19 cases or 95 per cent.
Error of omission in	0 cases or 0 per cent.
Error of commission in	1 case or 5 per cent.
Total,	20 cases

In typhoid and diabetes the percentage of errors is notably smaller than in the previous groups. This is what one would expect from the sharply cut symptomatology and semeiology of these diseases. Had these cases included any prior to the discovery of the Widal test the proportion of mistakes in the typhoid group would no doubt have been much larger.

The error in the diagnosis of diabetes occurred in a case which was under observation only a few hours before the fatal termination. What seemed to be diabetic coma turned out to be apoplexy with symptomatic glycosuria. It was afterwards learned that the urine had been examined previous to his seizure and had contained no sugar. His previous history showed nothing pointing to diabetes. It must be noted, however, that post-mortem examination is not capable of refuting a well-fortified ante-mortem diagnosis of diabetes.

The five cases in which typhoid was erroneously supposed to exist are of considerable interest and warrant brief analysis did space permit. They confirm the assertion which I have elsewhere made³ that typhoid is simulated (in New England) by only two other diseases, tuberculosis and general septicemia. In this series two of the five cases supposed to be typhoid turned out to be cases of miliary tuberculosis; the other cases were general septicemia.

SYPHILIS

Cerebral syphilis is a diagnosis quite frequently made at the Massachusetts General Hospital, but so far as I know it has never been both made and confirmed during the years (1899 to 1909, inclusive) covered by this report. Two cases with all the traditional evidences of cerebral syphilis, one of which had a positive Wassermann reaction, turned out to be tuberculous meningitis at autopsy; another case showed only chronic

interstitial nephritis; in a fourth case multiple thromboses had occurred in the great venous sinuses of the cranium without any of the recognized causes for such thrombosis. In the only case actually characterized by intracranial syphilitic lesions post mortem they were not recognized in life.

Two other cases of syphilis have recently taught me lessons. One had the ordinary evidences of Banti's disease, splenomegaly and marked anemia followed some months later by ascites. The history gave no hint of syphilitic infection. Dr. Wilder Tileston found a perforation of the nasal septum and suggestive irregularities in the surface of the scalp and of the shin bones, just in time to save the patient from splenectomy. Under potassium iodid and mercury the ascites and anemia disappeared, the spleen shrunk to one-half its former size and the patient made a complete and lasting symptomatic recovery.

The other patient, said to have malaria, had chills, intermittent fever, enlarged spleen and malarial organisms in the blood. I found the liver also enlarged, no malarial organisms in the blood, and obtained a full history of previous syphilitic infection. All symptoms promptly disappeared a year ago under antisyphilitic treatment and have not recurred since.

In order to keep this paper from extending beyond its already inordinate length, I shall try to condense the rest of my data into maxims which should have the merit of brevity if not of wit or clearness, incorporating my summary and conclusions with them.

SUMMARY AND CONCLUSIONS

1. Never make a diagnosis of uremia in a patient seen for the first time in an acute illness characterized by coma or convulsions. Such diagnoses rarely turn out right.
2. Never make a diagnosis of ptomain poisoning without definite chemical evidence. General peritonitis or a tabetic crisis is usually the correct diagnosis.
3. Make no diagnosis of hysteria, neurasthenia or psychoneurosis in a patient whose symptoms begin after the forty-fifth year. The actual diagnosis is likely to be arteriosclerosis, hyperthyroidism, dementia paralytica, or pernicious anemia.
4. Diagnoses of tertian malaria in patients whose symptoms resist quinin more than three days are almost invariably wrong.
5. Bronchial asthma beginning after 40 usually spells heart or kidney disease.
6. Epilepsy beginning after 40 usually means dementia paralytica or cerebral arteriosclerosis.
7. Typical migraine is often a symptom of unrecognized brain tumor or chronic nephritis.
8. Most cases of "bronchitis" mean tuberculosis, bronchopneumonia or multiple bronchiectasis cavities.
9. Aside from the immediate results of acute infections (such as scarlet fever, diphtheria, tonsillitis and pneumonia) "acute" nephritis usually turns out to be chronic.
10. Acute gastritis and gastralgia usually mean appendicitis, gall-stones or peptic ulcer.
11. Pus in or near the liver is often mistaken for serous or purulent pleurisy, for it produces identical signs in the right chest posteriorly.
12. An x-ray of the shin-bones may give the first hint of an active syphilitic process in the joints or internal viscera.

3. Cabot: The Three Long-Continued Fevers of New England, Boston Med. and Surg. Jour., 1908.

13. Systolic or presystolic murmurs, heard best at the apex of a markedly enlarged heart, rarely mean valve lesions.

14. Diastolic murmurs at the base of the heart are very uncertain evidence of aortic disease unless there are characteristic jerking in the peripheral arteries.

15. Myocarditis is a diagnosis which should never be made clinically.

16. Besides the direct evidence afforded by the history and the various methods of physical and chemical examination, diagnosis profits much by taking account of certain familiar pathologic chains or groups of them. Given one or two members of the group it is often wise to act as if the other were present, provided, of course, that the direct evidence in no way contradicts us.

17. Cerebral localization applied to tumors, hemorrhages and the like is still in its infancy.

18. The clinical diagnosis of the so-called diseases of the blood is the easiest and safest in medicine.

190 Marlboro Street.

THE ELECTROCARDIOGRAM IN CLINICAL DIAGNOSIS *

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AND

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BALTIMORE

In the study of cardiac function by instrumental means, a number of methods have been employed, each of which has yielded information which was not obtainable with the others. The study of the arterial pulse has taught us much regarding the relation between cardiac output and peripheral resistance; the study of the blood-pressure has taught us to estimate accurately the force of the heart-beat and the factors which control it; the *x*-ray examination has given us a means of observing the changes in volume of the four chambers of the heart; and the study of the venous pulse has enabled us to detect many changes in the origin and propagation of the cardiac contraction. In spite of the great additions which these methods have made to the study of the heart, there is still much information that they are unable to furnish, and some of this is yielded by studying the electric variations produced in the body at each beat of the heart.

Considered electrically, the human body may be regarded as a battery with the two arms and two legs as its natural and most convenient poles. Owing to processes going on in the body and in the skin, the potential at each of these poles is different; hence, if any two of these limbs are dipped into zinc pans containing salt solution and connected with one another by wires, a constant current is generated; and if a very sensitive galvanometer is placed in the circuit it is deflected by this "body current"—or, as it is usually termed, "rest-current."

The rest-current is due simply to the difference of potential between any two parts of the body and is independent of any muscular contraction. Besides this, another current (action-current) is set up whenever any muscle acts, and this action current adds its effect to that of the body current already present and

causes the galvanometer to swing each time that it is generated, that is, every time the muscle acts. Action of any muscle can cause such action-currents, and even small movements of the fingers placed in the salt solution are accompanied by very large deflections; but if the patient is kept perfectly quiet and there is no tremor the only important deflections are those caused by the cardiac action.

The electric variations accompanying the cardiac action have an intensity of from 1/1000 to 3/1000 of a volt, and consequently could not be studied accurately until an extremely delicate galvanometer had been invented. Professor Einthoven of Leyden has invented such a galvanometer, which consists of a very fine quartz

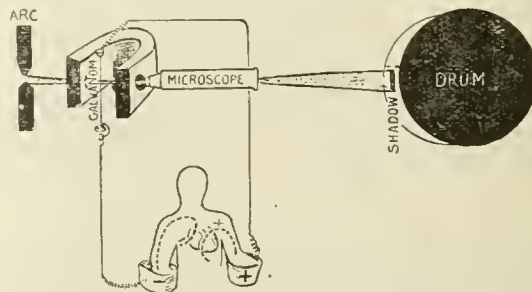


Fig. 1.—Diagram of a simplified electrocardiograph, showing also the distribution of the electrical changes about the heart. The patient is supposed to be seated with his hands immersed in the jars of salt solution (+ and —).

or platinum thread, so fine that it is barely visible and so light that it can scarcely be weighed by the most delicate balances. This thread is suspended in the field of a permanent magnet or of an electromagnet. When the current from the body passes through the thread, it charges the latter and causes it to be attracted or repelled by the poles of the magnet, and the thread is so light that it is deflected without delay by these changes in the electromagnetic field. The movements of this thread are magnified with a powerful microscope, illuminated with an arc-lamp, and the shadow is photographed on a moving drum 6 or 8 feet away (Fig. 1). By this method, it is possible to study very small currents.

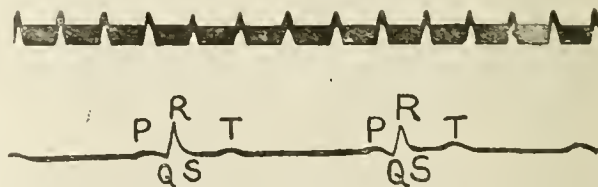


Fig. 2.—Typical electrocardiogram from a normal man. Current led off from right hand and left foot (D 2). Upper line, timer marking fifths of seconds.

It is even possible to connect distant points with the galvanometer and thus to record the hearts of patients who are lying in their beds in the wards, or to connect the laboratory with distant hospitals; but grounded circuits cannot be used for this purpose. Professor Einthoven has made most of his tracings from patients in Professor Nolan's wards of the Leyden hospital, a mile and a half away from his galvanometer.

Even 1/1000 of a volt is sufficient to cause a marked deflection. 4 mm. with our instrument, 1 cm. with the larger instruments. In Baltimore we have worked with the small permanent magnet and a platinum filament. This has given in the main very satisfactory results, but we hope, next year, to have the larger and more delicate apparatus.

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

The electrical changes during each cardiac cycle are quite characteristic and correspond to the successive activities of the atrium and the ventricle. The base where the atria are situated becomes negative before the atrial activity, which is followed by another, due to the ventricular activity.

As will be noticed, the variations in potential are a little different if they are led off at different parts of the body, and the curves thus derived differ slightly from one another. Since Einthoven's first work, it has been customary to take records from three different derivations: the right hand and left hand—designated as the first derivation (D1); the right hand and left foot, the second derivation (D2); and the left hand and left foot, third derivation (D3). The second derivation shows the greatest oscillations; the third derivation is the most important for determining hypertrophy of the left ventricle.

The typical form of electrocardiogram is shown in Figure 2. As can be seen, the first wave (P) is a small

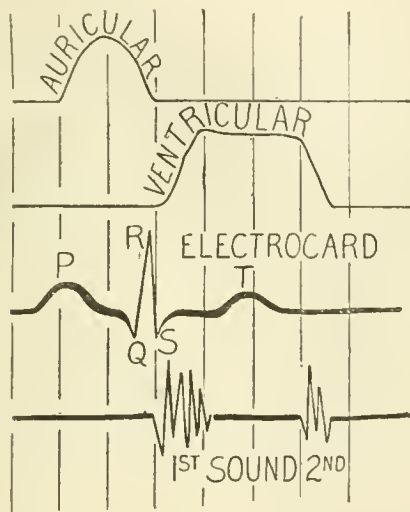


Fig. 3.—Diagram showing the time relations between the waves of the electrocardiogram, the heart sounds and the contractions of auricles and ventricles.¹ Vertical divisions indicate tenths of a second.

The most recent investigations of Kahn in Hering's laboratory indicate that the electrical variations and the mechanical action are synchronous, and that the electrical variations do not precede the contractions as was first supposed, although the former slightly precede the rises in intra-atrial and intra-ventricular pressures. We have, however, used the term "activity," rather than contraction in the above descriptions, as this leaves the matter open pending confirmation of Kahn's work.

The mode of origin of the T wave is more obscure, as there is no separate contraction which corresponds to it, but the two ventricular waves (R and T) correspond closely to the first and second waves of the di-phasic variation which is seen in the contraction of any

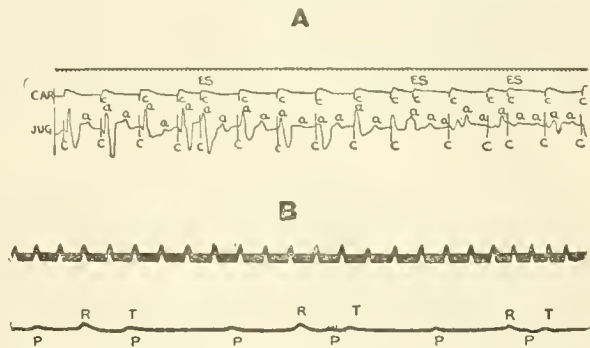


Fig. 5.—A, venous and carotid arterial pulse from a patient with complete heart-block and pulse-rate of 33 per minute. B, electrocardiogram from the same patient. Upper line, timer in fifths of seconds, lower line, electrocardiogram. The rate of the atria is about twice that of the ventricles but the complete dissociation between the two is more readily discernible in the electrocardiogram than in the venous tracing.

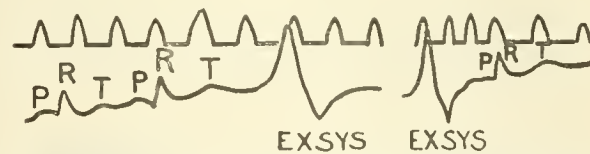


Fig. 6.—Electrocardiogram showing extrasystoles which probably arise in the right ventricle. Upper and lower lines as before.

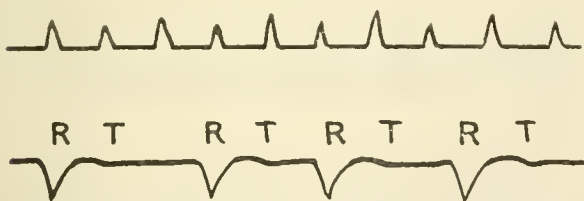


Fig. 4.—Upper line, timer, marking fifths of seconds; lower line, electrocardiogram. Inversion of the R and T waves due to hypertrophy of the left ventricle. Current led off from left hand and left foot (D3). The P wave, due to the atrial activity, is absent.

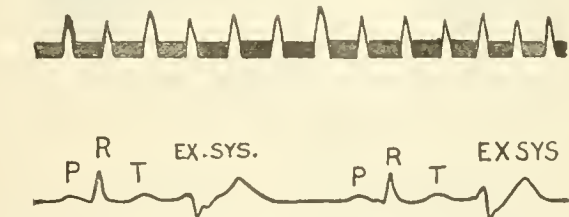


Fig. 7.—Electrocardiogram showing extrasystoles which probably arise in the left ventricle. Upper and lower lines as before.

one due to activity of the atria (P wave). This is followed by a very small depression of the curve below the base line, Q depression. Then comes the wave due to the action of the ventricles, a large wave (R), which sets in suddenly and as suddenly subsides, falling below the base line (S depression), and this wave in turn is followed by a small second wave (T) which occurs during the middle of systole (Fig. 3).

1. The short interval between the beginning of the R wave and the beginning of the rise in intraventricular pressure is interpreted by Kahn as due to the phenomena of conduction within the heart. In experimental ventricular extrasystoles the electric and mechanical changes are absolutely synchronous.

muscle whatever. Moreover, the form of the electrical curve is scarcely due to the algebraic sum of the curves of the two ventricular contractions, as claimed by Kraus and Nikolai, since the same curve was obtained by Sanderson and Page and, more recently, by Gotch in the frog and tortoise, although these animals have only one ventricle (Fig. 3.)

So much for the normal electrocardiogram. When the left ventricle is hypertrophied, the electrocardiogram undergoes a very definite change, and the first ventricular wave (R) becomes inverted (Fig. 4). Occasionally the T wave is inverted also.

The electrocardiogram is also particularly useful in the diagnosis of heart-block. Figure 5A shows a venous

and arterial tracing from a case of permanent, complete heart-block with the auricular rate about twice the ventricular. Figure 5B is an electrocardiogram of the same case, in which, as will be seen, the complete dissociation is much more easily made out.

One of the most interesting variations is that which is obtained from the extrasystoles, as is seen in Figure 6. It will be noticed that the wave accompanying the extrasystole is unusually large and slow. It is so different from the normal beats which precede and follow it that one can tell by merely watching the string just when an extrasystole takes place. It will be noticed that the first wave is very large, that it subsides very slowly and is followed by a very large depression (Fig. 6). Kraus

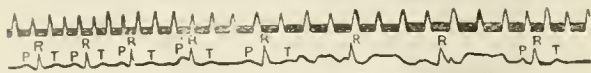


Fig. 8.—Electrocardiogram showing fibrillation of the auricles in the portion underlined. Upper and lower curves as before.

and Nikolai have shown that this type of curve is given by extrasystoles which arise in the right ventricle, whereas if the extrasystole arises in the left ventricle one obtains the exact inverse of this curve (Fig. 7). Recent investigations by Kahn have shown that stimuli which arise near the apex give about the same form of curve in either ventricle, in whichever ventricle they may arise. These types are not absolutely distinctive.

If the extrasystole arises in the atria, the curve is preceded by a P wave, and it often resembles the normal electrocardiogram much more closely.

Occasionally one encounters cases in which the P wave due to the atrial activity has disappeared, and is replaced by irregular waves of a frequency varying from 300 to 900 beats per minute (Fig. 8). As Rothberger and Winterberg and, more recently, T. Lewis have shown, this form of curve is associated with fibrillary

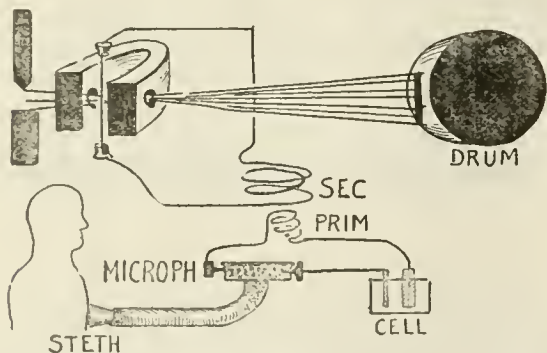


Fig. 9.—Scheme of simplified arrangement for the recording of the heart sounds. *Steth*, stethoscope; *Microph*, microphone; *Prim*, primary coil; *Sec*, secondary coil.

contractions of the atria, and is especially frequent in the permanent, absolute arrhythmia. This curve is obtained most frequently when the current is led off from the third right interpace and left interscapular regions—that is, when the circuit passes through both atria. Our own curve is obtained from the second derivation in the same patient as the left-sided ventricular extrasystoles, a patient with paroxysmal tachycardia between attacks.

Evidences of atrial fibrillation cannot be obtained with venous pulse, as the fibrillating auricle does not give any wave on it; and so the only evidences of this state can be revealed by the electrocardiogram. The

studies of Cushny and Edmunds, of Hirschfelder, of Rothberger and Winterberg, and of Thomas Lewis indicate that this may open up an entirely new field in our knowledge of the permanent irregularities of the heart and of paroxysmal tachycardia, and in the study of many functional disturbances which are at present quite mysterious.

It seems probable, therefore, that this new method will enable us to penetrate one step further into the

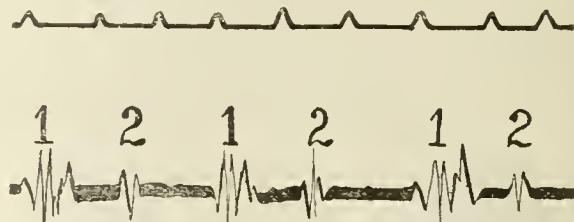


Fig. 10.—Graphic records of the heart sounds from a normal individual. Upper line, timer in fifths of seconds; lower line, phonogram.

problems which cannot be solved by the older procedures, and will bring us closer to a perfect understanding of what goes on in the diseased heart.

It is also possible to obtain graphic records of the heart-sounds by means of Einthoven's galvanometer. This procedure has nothing to do with the electrocardiogram and there is no direct connection between the galvanometer and the patient's body. The galvanometer is merely connected in circuit with the secondary coil of a very delicate telephone, or rather a microphone, so that it takes the place of the telephone receiver.

A stethoscope is held on the patient's chest and the heart-sounds are led to the microphone through a rubber tube. The sound waves cause telephone currents which are transmitted to the galvanometer and cause the string to vibrate. The vibrations of the string are photographed and graphic records of the heart-sounds are thus obtained (Fig. 9).

Figure 10 shows such records of normal heart sounds. It will be noticed that vibrations of the first sound last only about 8/100 to 1/10 second. The short pause is about 15/100 to 25/100 and the second sound lasts 5/100 to 8/100; while there is a long pause in diastole.

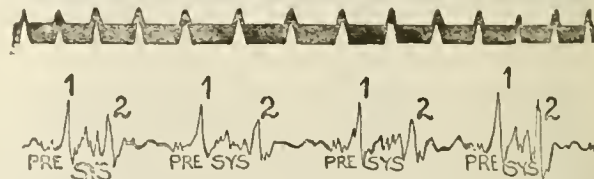


Fig. 11.—Graphic record of heart sounds from a patient with mitral stenosis and insufficiency. *Pre*, presystolic rumble; *Sys*, systolic murmur. Upper and lower lines as in Figure 10.

Figure 11 shows a record from a little girl with a presystolic rumble and a systolic murmur at the apex. The small vibrations correspond to the rumble just before the first sound, and the large vibrations correspond to the heart sounds.

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ABSTRACT OF DISCUSSION

Dr. J. A. LICHTY, Pittsburg, Pa.: I should like some information regarding the lettering of these waves; have the letters used any significance? I should like to know more, too, regarding the A-wave in particular; the A-wave is always mentioned and looked for, and I should like to know if the

lettering of the A-wave is an arbitrary lettering, or if it possesses some special significance.

DR. JOHN H. MUSSEY, Philadelphia: I should like to call attention to the importance of all these studies, not only the studies with the apparatus which has just been presented, but also the studies with the ordinary Jaquet instrument by which it is made possible to differentiate the various myogenic functions of the heart. This is very important in diagnosis and prognosis. It has also occurred to me that we can draw excellent conclusions as to methods of treatment. When we find in one man that there is an excess of stimulus production or of excitability, a depression of conductivity or contractility or a loss of tonicity, when coupled with certain blood-pressure changes, we have a guide at once for methods of treatment that is not based on empirical grounds, but is actually scientific. In the discussion on the question of heart failure and the reports of the various investigations concerning it, I had in mind to call attention to the value of morphin as a remedy in the earlier periods of heart failure, for two reasons. First, we realize, of course, that in the prevention of heart failure we should take into consideration the fact that there is a failure as well occurring in other portions of the organism, and particularly the nervous system. One of the first indications of heart failure perhaps is undue excitability or excess of stimulus production. Second, there is the immediate action of morphin on the heart. If we can uplift the condition of the nervous system, or reduce its wear and tear, both of which may be factors in the production of cardiac failure, by the use of a remedy such as morphin, we are going a long way in the prevention of cardiac exhaustion. I think therefore that morphin is a valuable aid directly and indirectly: directly by its action in lessening excitability or perhaps stimulus production; indirectly, through the nervous system. Other remedies or measures may be employed to control these disturbed myogenic functions. Furthermore, when we find that there is depression of conductivity, the remedy to be employed—atropin or belladonna—and other remedies come to our minds at once. For the depression of contractility the nitrites, among many other remedies, are necessary, and in loss of tonicity, digitalis and other heart tonics are of avail. In differentiating the remedies required, the degree of tension of the vessels is a valuable aid. I have been at sea recently and frequently in regard to the employment of remedies for the complicating conditions present in cardiac exhaustion. I have had great satisfaction resulting from studies such as these in determining the lines of treatment, and for this reason I wish to call attention to the importance of observations which help us in this matter.

DR. RICHARD WEIL, New York: I think it would be of interest to analyze the evidence offered by this new method with reference to the question of nodal rhythm. It seems impossible to determine definitely by the older sphygmographic method whether the coincidence of the jugular and the radial impulses was due to synchronous contractions of the auricle and ventricle—the nodal rhythm theory—or whether it was due simply to the propagation of the systolic ventricular impulse through the paralyzed auricle into the jugular. I should like to know whether the galvanometer method has in such cases determined the presence or absence of a true auricular contraction.

DR. A. D. HIBSCHFELDER, Baltimore: The A-wave is so called because the wave is caused by the auricular contraction. The letters P, Q, R, S and T of the electrocardiogram are purely arbitrary, but the P-wave is probably so named because it is a presystolic wave. I know of no significance of the lettering of the other waves, except possibly the letters of the alphabet following the P were used for the sake of convenience. P was selected first because it was the first letter of presystolic.

I agree with Dr. Mussey that the most important thing for us at present is carefully and with accuracy to analyze the possible effects drugs are having or are producing, studying the maximal and the minimal blood-pressures, the venous pressures, the electrocardiograms, and also any changes in the cardiac outline. We should study the changes in force and the venous blood-pressure, the tendencies to overfilling

of the heart, the changes in the tonus of the heart muscle (*i. e.*, the tendency of the heart to resist overfilling), and we should study as well the electrical changes which accompany changes in the cardiac impulses.

Many of the venous tracings, especially those having to do with the wave due to synchronous contraction of the auricle and ventricle, admit of doubtful interpretation. Some of the waves which appear during ventricular systole coincide with the C-wave and appear to be due to a fling of the lever. The electrocardiograms taken so far have not shown any evidences of nodal rhythm. Experiments with animals show simultaneous contractions of auricle and ventricle. On the frog's heart we can show contractions of the muscle ring that corresponds to the His bundle. The muscle ring can be seen contracting. When an abnormal stimulus acts first on this ring it contracts first and the auricular and ventricular contractions follow directly the contraction of the ring. The auricle and ventricle then contract simultaneously. However, this does not prove that a similar phenomenon occurs in all the cases which MacKenzie has ascribed to it in man. This whole subject is a matter for further careful investigation.

RACHITIS*

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Rachitis is a dystrophy with which the pediatrician comes into contact with a frequency which breeds contempt; on the other hand there are a certain number of physicians to whom the condition of rachitis is sufficient explanation for any and all pathologic conditions. To what may be attributed this great variation of opinion among medical men? It is undoubtedly due to the fact that there is no definite limitation in the symptomatology of this condition. The definition of rachitis as set down in most of the text-books is the following:

Rachitis is a condition of malnutrition affecting all structures and systems of the body with characteristic defects of nutrition, chiefly manifested in the bones. It is this last phrase of the definition that has caused the many errors in the use of the name. Rachitis is a dystrophy, therefore a constitutional disorder, and though the chief macroscopic and known microscopic changes do affect the bones, there are other changes which are as constant as those of bone growth. With the name "rachitis" there is indelibly associated this so-called softening of the bones, and it follows that many are apt to rely on these changes only as the basis for diagnosis of the condition. It is because of this apparent diversity in the writings of pediatricians that this subject is brought to the attention of this Section, so that the use of the term may be confined to a certain definite symptom-complex.

ETIOLOGY

In no other pathologic condition are there so many theories as to the causative factors as in rachitis. While in the main there is a degree of uniformity, there are many theories of many authors which as yet are both unproved and not disproved. It is not within the province of this paper to go into the myriad of theories or into the various factors that seemingly favor the development of rachitis. Rachitis is a diet disease; to this statement most authors will subscribe. The dietetic errors which have received the greatest emphasis have been the arrangement of the percentages in the various constitu-

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

ents of the foods: to this I cannot subscribe. Admitting that it is possible to develop this condition in the lower animals when fed on various foods, the important point is that by feeding on such mixtures there is certain to be developed a disorder of digestion; and it is this factor which is the important etiologic element in this dystrophy. While it is a daily occurrence to see rachitic infants which have been fed on any of the mixtures that are emphasized as causes for rachitis, on the other hand it is a too common experience to find this dystrophy present in infants which are being given a breast-milk in which all our present-day knowledge in milk analysis can show no shortcoming; hence the constitutional idiosyncrasy of the baby is made to serve as the excuse. It is admitted that there are many contributing factors in these cases the importance of which have not been fully interpreted.

The various contributing causes embraced within the term "malnutrition" are no doubt of vast importance but the point which should be emphasized is that many cases show this or that contributing cause, yet in each and every case there is found an indigestion.

Rachitis is a dystrophy occurring usually between the sixth and thirtieth month, and in a few exceptional cases prior to this period. It is a condition for which the advice of the physician is not sought *per se*. These cases of persistent indigestion will, when occurring at an earlier period, develop the marantic type of dystrophy and in a large percentage of the cases terminate in the dystrophy known as infantile atrophy. There is still another age in which there is apt to occur a dystrophy with characteristic symptomatology, *i. e.*, chlorosis.

CLINICAL HISTORY

The usual clinical history of rachitis is that the child is restless and more or less fretful, the sleep is disturbed, the child shows a tendency to throw off the coverings, there is a slight rise of temperature, especially at night; with this there is the tendency to profuse perspiration about the head and face. When the child is picked up after a sleep it is noticed that the pillow is wet and the perspiration stands in beads on the forehead. Hand in hand with this there is a general tenderness; this tenderness may not manifest itself in the milder type of cases. The child repels advances, manifesting a desire to be let alone. If a careful inquiry is made, it is found that the child has had some disturbance of digestion. There is flatulence, frequently large foul-smelling bowel movements, with either diarrhea or constipation.

This indigestion is always present. The reason that more stress has not been laid on it is that the disorder is not a summer disorder but is met more frequently in the other seasons. The summer diarrheas frequently usher in an attack, but as these attacks of indigestion in the summer are of a more acute type the advice of a physician is sought early and the dietetic disorder is immediately remedied, while the low-grade digestive disturbances of the colder weather are allowed to go on untreated for an indefinite period.

This group of symptoms antedates any bone changes that are demonstrable clinically, but soon the beading of the ribs and the horizontal depression just below the nipple line may be noted; later on the wrists, knees, and ankles enlarge. The enlargements of the ends of the long bones follow certain definite rules and it is found that such bones as are active during their active growth show the greater deformity. The shape of the head is often characteristic. The bones become flattened and

the general appearance is that the head is large but does not simulate the hydrocephalic head, in which there is bulging rather than flattening. The bony prominences are thickened. The head shows other characteristics—the veins on the forehead stand out prominently; the fontanel bulges and is unduly open; the frontal suture in cases occurring early is open.

Craniotabes is not a frequent accompaniment of rachitis but is found in enough cases to call for special mention. Craniotabes is that condition found in the postero-parietal region by which under moderate pressure of the fingers the bones cave inward with a feeling like that of stiff parchment. The question as to the significance of craniotabes is still a mooted point, and many still hold that it is rather associated with syphilis than with rachitis, but that it does occur in cases of simple rachitis there is little doubt. Craniotabes is quite frequently associated with laryngismus stridulus. The skull of a child affected with craniotabes shows shallow depressions at the diseased areas smoothly beveled off into the surrounding bone.

Changes occurring throughout the skeleton will be passed over, as they are too familiar to all to bear repetition.

Muscular Symptoms.—There is general muscular flabbiness and weakness. The patient may be fat and plump but the muscles feel lax and flabby. It is to this condition of the musculature that many of the deformities may be attributed, as kyphosis, scoliosis, knock-knee and talipes.

Nervous Symptoms.—Convulsions, tetany and laryngismus are more prone to occur in the rachitic. Tenderness, irritability, restless sleep, head rolling are common to the disorder and may be attributed to a nervous system rendered unduly irritable by the dystrophy.

Lymph-Glands.—These glands are usually palpable all over the body and in the prolonged and exaggerated cases the spleen is also enlarged.

Teeth.—Dentition may be delayed or irregular. The teeth are more apt to decay.

Blood.—The blood shows constant findings simulating chlorosis. This is especially true in the more severe types.

Complications.—In rachitis there is a tendency toward catarrhal disorders. All mucous membranes are prone to inflammation and many disorders of the upper respiratory tract, bronchitis and bronchopneumonia are encountered.

PATHOLOGY

In spite of innumerable opinions this question is still enveloped in a certain obscurity. The differences of opinion in regard to the causes of the disorder are reflected in a variety of opinions as to the manner in which they act. Identical conditions receive absolutely contradictory interpretations. Probably no organ or tissue of the body is exempt from changes due to this dystrophy, although the only changes which are demonstrable as caused by this condition are seen in the bones.

On examination of a long bone by making a longitudinal section of it and its adjacent cartilage, comparatively healthy bone is found on one side of the epiphysis, healthy cartilage on the other and between the two a layer, more or less thickened, of bluish translucent cartilage. The end of this bluish cartilage toward the healthy cartilage is regular, but the end toward the bone is very irregular—so much so in some cases that the cartilage appears within the bone as islands of cartilage. This

is the spongy tissue which has been considered by many as the characteristic lesion of rickets. The dimensions of the medullary are notably augmented. The modifications as revealed by histologic survey lie especially in the chondroid zone, which is manifestly thickened. At the juncture of this zone with the spongy bone there are numerous structures enveloped in a thin layer of embryonic tissue; the cartilaginous cells are proliferous; only their disposition in series is not regular and the intercellular substance which separates them is not distributed as in the normal bone. It is probable that concurrent disorders do affect the findings in many cases. For example, it is easy of demonstration that if a child passing through a mild attack of rachitis is subjected to an attack of one of the acute infectious disorders, there occurs an exacerbation in the enlargements at the ends of the long bones; so in cases coming to post-mortem from intercurrent diseases, it is not infrequent to find the specific bacteria of the acute disorder lodged in great numbers at points in proximity to the cartilage of the long bones. So it may be said that an intercurrent disorder may have special effect on bones which are undergoing rachitic changes.

The bones show a deficiency of inorganic material. In normal bone the greater portion consists of inorganic material, but in rachitis these proportions may be reversed. By reason of the changes mentioned the entire bone becomes light, spongy, and plastic, and greenstick fractures are prone to occur.

From the stimulation caused by the greater blood-supply, the enlargements at the ends of the long bones are most marked in the epiphyses subject to the greatest motion. From their constant motion in respiration the enlargements are first seen at the anterior ends of the ribs, the so-called rachitic rosary; these enlargements are greater at the fifth and sixth ribs by reason of greater range of movement. It is well to remember that these enlargements are always larger on the pleural side and may not be noticeable externally. After the termination of the rachitis the normal bone development resumes and the newly formed bone becomes harder than the normal bone.

DIAGNOSIS

No disease of early life is so common as rachitis, nor is any disorder so frequently overlooked. It is far commoner for the diagnosis to be made after the cessation of the disorder when there remain but the results of a past rachitis than to have the diagnosis made during the attack.

Rachitis is a disorder insidious in its onset with a very definite symptom-complex described under "Clinical History." This clinical history occurs before any changes in the bones can be demonstrated clinically. There may be a persistence in any or all of these symptoms until the bone-changes appear; or any of them may subside. The chief object of this paper is to call attention to the misuse of the term "rachitis" as applied to the resultant deformities rather than to the disorder itself. The term "rachitis" should be applied only to the symptom-complex above described. The misuse of the term is now so general that in the use of the word it has become necessary to qualify it by a phrase indicating what phase of the disorder is under discussion. The term "acute rickets" is now of more or less general use but this is not applicable as the disease is an insidious disorder, running an indefinite course, and there is no definite disease which may be classified as chronic rick-

ets. At just what point in the disorder it can be said that the rachitis has terminated and that there remains but the results of the rachitis may often be a debatable point, but it is obvious that in many cases of so-called rachitis the disorder has long since been overcome. That this point is well taken is evidenced by the fact that many of the history cards used by the various health authorities in the examination of the school child have this question: Has the child rickets?

It may be set down dogmatically that rachitis is a dystrophy, usually occurring between the sixth and thirtieth months, the symptoms of which are digestive disturbance, restlessness, profuse sweating, especially about the head and face, in severe cases general tenderness; and with these there occur manifold changes in the various systems of the body, with most marked macroscopic and known microscopic changes on the bones.

Of the mistakes in diagnosis most frequently made one is failure to recognize inflammatory and sanguinous effusions beneath the periosteum for simple rickets. This undoubtedly brought the term "acute rickets" into use. Another is mistaking the bone changes of congenital syphilis for those of rickets and a third considering the pseudoparalysis of rickets essential paralysis. Infantile scurvy may complicate rickets, and some authors have a classification including scurvy-rickets; but the disorders should never be confounded, as each has its distinct clinical picture.

PROGNOSIS

Children rarely die of rickets *per se*. It is usually some concomitant or intercurrent disorder that terminates life. Of these the pulmonopathies find in the rachitic child most favorable conditions, and, if survived leave the patient with permanently damaged chest and respiratory organs which may eventually terminate in an invasion of tuberculosis.

Patients with marked splenic enlargement and profound anemia may become marantic with a grave prognosis. Convulsions cause death in a large number of these cases. Laryngismus stridulus appears as a causative factor in many of the fatal cases but it is impossible to say to what extent the rachitis may be held responsible.

The active rachitic process usually ceases by the end of the second year, the length of the disorder depending largely on the ability to remove the indigestion and give an appropriate diet. In many cases the rachitis appears to develop with the advent of an improvement in diet and a clearing up of the digestive disturbance; this can easily be explained by the fact that at the beginning of the treatment of the digestive system the patient was in a condition of athrepsia and with the better hygiene the dystrophy took on a lower grade of malnutrition, namely rachitis. This form of the disorder is usually transient, lasting but a few weeks.

TREATMENT

From the above it is readily seen that rachitis is a preventable disease. The diet is of the first importance. In breast-fed children it becomes necessary to influence the mother in such manner as to make her milk suitable for the child. In many of the cases it becomes necessary to supplement the breast by suitable artificial foods. As the lack of fats has so long been emphasized as a causative factor there is danger of putting too much stress on this phase of the diet and of undoing good efforts by adding more fat than can be handled with

advantage by the child. Good hygiene with plenty of fresh air is a prerequisite. No diet can be set down that can be recommended in these cases. As a general rule cow's milk should be given, but as these cases occur in children fed on the starchy foods it must be remembered that the stomach will need much education in the digestion of this food and the initial use of milk must be in very attenuated doses. Expressed beef juice, raw eggs, orange and lemon juice all have a place in the dietary.

The use of drugs should be limited to the needs of the individual. Syrup of the iodid of iron is frequently indicated. For the digestive weakness the addition of malt or of molasses gives very favorable results. In clinical use the addition of a considerable amount of New Orleans molasses has the same effect as an extract of malt. The intercurrent disorders should be given appropriate treatment.

The tendency to deformities, such as bow-legs, knock-knee and spinal curvatures, must be borne in mind and precautionary steps be taken by preventing undue strain on these parts. In regard to remedying these deformities, it is well to remember that they are very common in childhood and rare in adult life. The tendency of Nature is toward repair.

155 North Sixty-Fourth Avenue, Oak Park.

ETIOLOGY, DIAGNOSIS AND TREATMENT OF COLONIC, SIGMOIDAL, RECTAL AND ANAL AFFECTIONS IN INFANTS AND CHILDREN UNDER TWELVE YEARS OF AGE

INCLUDING REPORT OF THREE HUNDRED AND SIXTY-
NINE CASES

WITH A DESCRIPTION OF A METHOD OF CECOSTOMY
WHICH PROVIDES A MEANS OF IRRIGATING THE
LARGE AND SMALL INTESTINE SEPARATELY OR
AT THE SAME TIME *

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A fairly large experience in the treatment of colonic and anorectal affections has convinced me that the discomfort and pain from which infants and children suffer is to be found in these localities much more frequently than is suspected by the internist, pediatricist or surgeon. When an adult suffers from a colonic or rectal ailment he is usually advised to have it treated or operated on just as soon as its nature has been determined, but this rule is not always followed when an infant or child becomes so afflicted. In many instances pathologic conditions of the colon and rectum go unrecognized; in others they are considered of minor importance, and in still others, even when serious and after diagnosis, the physician not infrequently does nothing but advise the mother to let the child alone, telling her that it will outgrow the trouble.

Now and then a case of abdominal disease is encountered in which a diagnosis cannot be made, except by ex-

clusion. Usually, however, the nature of the intestinal lesion can be determined by palpation, percussion, succussion, the x-ray, or by inflating or distending the colon with air, fluid or a bismuth solution, after first obtaining a complete history. There is no reason, however, why diseases of the rectum should not be accurately diagnosed by the physician who has perfected himself in modern methods of examination.

Most rectal ailments are located in the lower inch and a half of the rectum; consequently they can be identified by inspecting and palpating the anus and surrounding parts and by making a careful digital and anoscopic examination; but when the disease is in the middle and upper rectum, at the rectosigmoidal juncture or lower sigmoid flexure, it can be seen only through the proctoscope or sigmoidoscope.

In many quarters the opinion prevails that a digital and proctoscopic examination is impossible in very young children. Such, however, is not the case, since the sphincter can be made to relax and the rectum is sufficiently large to admit the finger or a small proctoscope.

I have treated many young people and adults for very extensive procidentia recti, invagination, mechanical constipation, colitis, stricture, abscess, fistula and other serious diseases of the lower bowel who had suffered since infancy or childhood, affections which could have been speedily cured had they been correctly diagnosed and treated in their incipiency. It would seem that the time has now arrived when physicians should take on themselves the responsibility of treating the anorectal affections of children as soon as diagnosed and no longer permit them to drift, as has been customary, with the hope that they will outgrow the lesion if it does not heal spontaneously.

The treatment in this class of cases does not necessarily mean an operation, for, in many instances, a cure can be effected by regulating the stools, keeping the bowel in a hygienic condition and by making topical applications. When surgical intervention is necessary it should cause no anxiety, because in the vast majority of instances the operation will be devoid of danger, can be quickly performed, postoperative suffering is slight and convalescence is short.

Instead of discussing at length the etiology, symptoms, diagnosis and treatment of the various colonic and anorectal diseases of infants and children twelve years of age or less, I have subdivided and tabulated my work in this field, which includes 368 cases, to show the large variety of affections encountered in these regions and the results which followed their treatment. Three tables with their summaries have been compiled: the first includes the cases of rectal diseases, the second those of anorectal obstipation and the third those of abdominal obstipation. After calling attention to the salient features of these tables and outlining the treatment of the various diseases, I shall describe my method of cecostomy which permits the small and large intestine to be irrigated separately or at the same time, a reliable procedure to employ in all cases where direct bowel treatment is indicated.

Remarks.—The age of these patients varied from birth to 12 years of age; the majority were more than 6 years old. None of the five deaths recorded is chargeable solely to the treatment instituted, because they occurred in infants afflicted with acute congenital bowel obstruction (2), cancer (2) and diphtheritic colitis (1), and the patients were moribund or in a deplorable condition when first seen.

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910

TREATMENT OF ANORECTAL AFFECTIONS

The majority of operations performed in this series of cases required less than ten minutes, and local anesthesia induced by sterile water, normal saline or a 0.125 per cent. eucain solution was employed more frequently than general narcosis, and the treatment of the different affections was in the main as outlined below.

Fissure in Ano.—Recent fissures were cured by securing daily semisolid movements and by cleansing and placing a small gauze pledget previously saturated in ichthyol or a silver nitrate solution in the rent for the purposes of drainage and stimulation. Palliative measures are of little avail in the treatment of old fissures accompanied by sphincteralgia because they do not put the muscle at rest. Divulsion of the muscle is sometimes effective, but I have discarded it in favor of division of the sphincter because the latter puts the sphincter at complete rest during the treatment and also serves to widen the anal canal and act as a prophylactic against future tears. My operation consists in anesthetizing the tissues posterior to the rent by injecting them with sterile water or a 0.125 per cent. eucain solution until white. The sphincter is then severed by scissors, one blade of which has been placed posterior to and the other in the rectum in front of the fissure, or with a bistoury.

Ulcers of the Anal Region.—Ulcers which incite sphincteric contraction are treated as fissures unless they are syphilitic, when anti-syphilitic remedies are added. Extensive ulcers in the middle and upper rectum are treated through the proctoscope with stimulating applications, the cautery or caustic. When they are numerous, superficial and scattered throughout the rectum, irrigation daily with a mild solution of ichthyol 1 per cent., permanganate of potash 1 per cent., or weak solutions of boric acid or silver nitrate. Carlsbad salts or krameria and soda work well, but when the ulcerated areas are chronic and deep, as indicated by frequent evacuations containing a large amount of pus, blood, mucus and other debris, stronger solutions are employed until there is improvement, and in addition a warm emulsion composed of olive oil, bismuth and iodoform is injected in small amounts at night for the purpose of allaying tenesmus and pain. In aggravated cases in which the colon and sigmoid are involved, and the above measures fail, appendicostomy or cecostomy is performed.

Procidencia Recti.—Where the mucous membrane only protrudes, a cure can sometimes be effected by (a) correcting a cough, diarrhea, constipation or other cause of straining; (b) securing semisolid movements; (c) having the child stool while in the recumbent posture; (d) injecting an alum, zinc or other astringent solution after each action, and (e) placing a pad of gauze over the anus and tightly strapping the buttocks.

When this treatment fails, I infiltrate the mucosa with water or a eucain solution at a number of points until glassy white welts are formed; these in turn are seized, pulled down, ligated and left to slough off as in hemorrhoidal operations. The procedure is nearly always successful because a sufficient exudate is thrown out to glue the mucous and muscular coats together, and shortening and narrowing of the rectum ensues as healing of the ulcerated areas takes place.

Where both the mucosa and muscularis protrude, I (a) remove a cuff of the mucous membrane, (b) fold and suture the muscular tunic on itself and (c) complete the operation by suturing the divided edges of the mucosa. In very extensive cases of procidencia complicated by invagination of the sigmoid flexure into the rectum, I proceed as follows: (a) the abdomen is opened, the bowel pulled up until taut and then anchored to the anterior parietes by my method of sigmoid-opexy; (b) linear cauterization is made to the middle and upper rectum through the proctoscope, and finally (c) a diamond-shaped piece of tissue, including a part of the lower rectum, the sphincter and the postanal tissues, is removed to narrow the bowel, shorten the muscle and tighten the external parts about the rectum.

Polyps.—These, when located at or near the anus, are ligated and excised after having been anesthetized at their attachment.

When situated higher up, where the mucosa is less sensitive, each in turn is exposed by the aid of the proctoscope, a Gant valve clamp is snapped on their pedicle and they are left to slough off. This method of removing polyps is admirable because it takes but a moment, is certain, causes no pain or bleeding and does not require ether. The older procedure of removing them by torsion is to be condemned because it is painful, extensively lacerates the mucosa and is frequently followed by copious bleeding and a lengthy convalescence.

In cases of long standing in which the growths are numerous, large, ulcerated and scattered throughout the colon or sigmoid flexure, nothing short of cecostomy and lavage or extirpation of the diseased bowel effects a cure.

Internal Hemorrhoids.—As will be seen by a glance at Table 1, internal hemorrhoids occur in infants and children almost as rarely as cancer. These tumors are painlessly removed in a moment by ligation after having been infiltrated with water or eucain.

Thrombotic Piles.—These are transfixed at their base with a curved bistoury, split open and packed with gauze, which arrests bleeding and acts as a drain to prevent their refilling.

Cutaneous Hemorrhoids.—These are snipped off with scissors and the wound is allowed to heal by granulation.

Stricture.—In cases in which the lumen of the intestine is diminished through swelling of the mucosa or exudates in and outside the rectal wall, the discomfort arising therefrom is lessened or completely overcome by regulating the stools, irrigating the bowel, making soothing and stimulating topical applications to the diseased intestine and by dilating the constricted bowel with the fingers or bougies.

Moderate cicatricial strictures are improved by divulsion gradually with bougies or forcibly with the fingers, but their division is preferable because more lasting results are obtained and the operation takes no longer. The technic consists in guiding a probe-pointed bistoury through the stricture and severing it and the sphincter posteriorly as it is withdrawn, and in packing the wound with gauze. Both divulsion and division are contraindicated when the stenosis is located above the peritoneal attachment, because peritonitis will surely follow rupture or perforation of the intestine.

There is but one cure for a scar stricture and that is complete extirpation, a procedure which entails some danger. Where there are multiple constrictions or a very long stricture and much perirectal thickening, extirpation will take considerable time, cause much shock and would likely prove fatal in young children, and for these reasons it is advisable to substitute colostomy for excision until the child has grown older and stronger, when the artificial anus may be closed and the stricture removed.

Congenital Deformities.—The treatment of imperforations of the rectum and anus in the newly born is varied according to the deformity. When the outlet is partially or completely blocked by a fold of skin or fibrous tissue, it is caught in forceps and removed with scissors; but when the anus is abnormally narrowed by connective tissue, it is split and the wound is drained and occasionally stretched as healing takes place. In cases of deformity in which the feces find a free exit through the vagina, bladder, buttock or elsewhere, operation is postponed until the child is older, but when the opening is small and there is danger from obstruction, it is enlarged or a temporary vent is formed in the interischial or inguinal region.

Imperforate Anus: If the cul-de-sac terminates low down and the sphincter is intact, the anus is formed at the usual location, but if the muscle is absent the anus is made further forward or backward according to indications. The operation is begun by an incision extending from the perineum in front to the coccyx behind, which splits the sphincter. The wound is deepened upward to the blind rectum, which, after being freed, is brought down and sutured to the anal skin, after which the sphincter and wound are sutured about it. The coccyx is removed when additional room is necessary, but the peritoneal cavity is not opened except when imperative, and is then closed before the bowel is anchored. When the intestine cannot be brought down to the perineum, it is sutured to the skin of the sacral or coccygeal regions. In all cases a fair-

sized rubber tube is left projecting from the rectum through which the meconium, gas and feces escape.

Imperforate Rectum: The anus may be normal and an obstruction may not be suspected until dangerous symptoms arise. In such cases, when the terminal extremity of the intestines is near the surface, it is incised, evacuated and washed out, but when the condition of the patient permits, the rectum is brought down and sutured to the anal region.

In distressing cases in which a part of the rectum is obliterated, it is freed and anchored at the most available point or a permanent artificial anus is established. When colostomy is performed, according to my intermuscular plan, the patient has fair control over the evacuations and often requires a laxative.

Sequelæ.—Sequelæ frequently need treatment to overcome constipation and prevent obstruction. Usually the trouble is caused by the small size of the original opening or a long narrow stricture which has formed where the intestine has retracted. In both conditions the lumen of the bowel is increased by incising and subsequently dilating it, or in cases where no previous attempt has been made to bring the end-sac to the anus this is done if feasible. When neither of these procedures is possible a permanent artificial anus is formed.

Fistulas.—Fortunately in children fistulas are superficial, short, and of the complete variety and require but a slight operation under local anesthesia. The following are the steps in my operation for complete fistula: (a) enough of a 0.125 per cent. eucain solution is injected into the sphincter and tissues overlying the tract to form a white line, which indicates desensitization; (b) the lower blade of a Gant probe-pointed scissors is then introduced into the outer opening and made to travel along the sinus, which, together with the sphincter, is rapidly divided by a succession of cuts, and (c), after which the wound is packed with gauze.

Abscesses.—Irrespective of their extent and location, abscesses are freely incised, curetted, cleansed and drained to relieve pain and prevent burrowing of the pus.

Pruritus Ani.—This is more frequent in children than is suspected, and may be induced by local lesions which incite a discharge, worms and foreign substances which get caught in the anal, mucous or skin folds. When due to the former the condition causing the discharge is corrected, and when to the latter, frequent cleansing of the anus with plain or salt water will afford the necessary relief. In cases in which itching has existed for a considerable time and there is a chronic dermatitis, this is remedied by applying iodine or a nitrate of mercury ointment.

Impactions.—All these are treated alike, whether composed of feces, seeds or fruit-stones, but little or nothing is accomplished toward their dislodgment or expulsion by means of oils or cathartics internally administered. Recent fecal impactions are occasionally softened and evacuated by repeated enemata of warm water, oil or glycerin alone or in combination, but these measures have no effect on mucus-covered masses. Hydrogen peroxid in full strength when injected in liberal amounts has a decided tendency toward the breaking up of the fecal concretion into numerous smaller masses so that it can be washed out. Marked impactions, which cannot be dislodged by friction, massage and enemata, are removed by force. When low they are broken up or penetrated by the finger or handle of a spoon, but when high up in the rectum or sigmoid this is accomplished through the proctoscope with a gouge, after which the impactions are quickly evacuated by irrigation. Fecoliths which become eneysted and cannot be dislodged by treatment instituted from below or by way of the mouth, are removed by enterotomy or an outlet is made above them.

Venereal Warts.—These are removed with scissors without anesthesia, or they are dried up with a mixture of equal parts of calomel and tannic acid.

Hypertrophied Anal Papillæ.—When causing pruritus and tenesmus they are snipped off under infiltration anesthesia.

Hypertrophy of the Anal Sphincter. This condition, if inducing sphincteralgia and constipation, is quickly and successfully treated by dividing the muscle exactly as in fissure

operations, and painful defecation resulting from an abnormally small anus is treated in a similar manner.

Hypertrophied Rectal Valves.—The valves are divided by placing Gant's valve clamps on them and allowing them to slough out.

Fecal Incontinence.—This condition following injuries or operations is improved either by narrowing the anus through cauterization and the production of scar tissue or by isolating and approximating the ends of the divided muscle.

TABLE 1.—ANORECTAL AFFECTIONS IN INFANTS AND CHILDREN

Diseases and Complications.	No. of Cases.	Sex M.	Sex F.	Cured.	Im-proved.	Unim-proved.	Died.
Congenital deformities.....	10	6	4	8	..	..	2
Sequelæ following opera-tions for deformities.....	9	5	4	3	5	1	..
Coccyx, tumors and cysts of	3	2	1	2	1	..	..
Coccyx, deviation of (ante-rior and posterior).....	2	1	1	2	..	..	..
Coccyx, fracture of.....	2	2	..	2	..	..	..
Coccygodynia	1	..	1	1	..	..	..
Coccyx, congenital absence of	2	2	..	2	..	..	..
Dermoid, sacral	2	1	1	2	..	..	..
Cyst (sebaceous), anal....	1	1	..	1	..	..	..
Lipoma of buttocks.....	2	1	1	2	..	..	..
Sarcoma of anus and but-tocks	1	..	1	..	..	..	1
Carcinoma, rectal	1	1	..	..	..	..	1
Procidencia (mucosa only),	27	15	12	26	5	2	..
Procidencia (mucous and muscular coats).....	7	3	4	6	1	..	..
Polyps (single).....	15	6	9	15	..	..	..
Polyps (multiple).....	6	4	2	4	1	1	..
Fissure (single 16, double 1)	17	8	9	17	..	..	..
Fleets, non-specific (single 2, multiple 6).....	8	4	4	8	..	..	..
Fleets, syphilitic (congeni-tal, of anus or vulva)...	6	2	4	5	1	..	..
Fleer, tuberculous	1	1	..	1	..	..	..
Fleer, diphtheritic	1	..	1	..	..	..	1
Stricture (congenital syph. 1, foreign body 1, in-jury 1).....	3	2	1	2	1	..	..
Chancroids, anal.....	1	..	1	1	..	..	..
Venereal warts (acuminata 1; lata, syph., 1).....	2	..	..	2	2	..	..
Gonorrhœa	5	2	3	5	..	..	..
Proctitis, acute	6	4	2	6	..	..	..
Proctitis, chronic	9	5	4	7	1	1	..
Erosions of anus and skin..	7	3	4	7	..	..	..
Abscesses (ischioanal 4, marginal 4, submucous 3)	11	7	4	10	1	..	..
Abscess, sacral (dermoid) 1	1	1	..	1	..	..	..
Fistula (complete 4, blind internal 3, blind ex-ternal 1).....	8	5	3	8	..	..	..
Fistula, rectovaginal	1	..	1	1	..	..	..
Fistula, tuberculous (local 1, with gen. tb. 1).....	2	1	1	1	1	1	..
Hemorrhoids, external thrombotic	8	4	4	8	..	..	..
Hemorrhoids, external (tan-aceous).....	5	3	3	5	..	..	..
Hemorrhoids, internal (com-plicating constipation)...	2	1	1	2	..	..	..
Impaction, fecal (rectal)...	15	8	7	15	..	..	..
Impaction, from seeds and fruit-stones	5	4	1	5	..	..	..
Injuries (severe laceration of rectum and anus)....	4	3	1	3	1	..	..
Foreign bodies (fish hooks, bones, coins, etc.).....	4	4	..	4	..	..	..
Pruritus and	3	1	2	2	1	..	..
Threadworms	3	2	1	3	..	..	..
Roundworms	2	1	1	2	..	..	..
Hypertrophied anal papillæ	1	1	..	1	..	..	..
Patulous anus (from peder-asty)	1	1	..	..	1	..	..
Sphincters, anal and urinary (paralysis of).....	3	2	1	..	1	2	..
Sphincter, hypertrophy of..	11	6	5	11	..	..	..
Defecation, painful, from abnormally small anus..	7	4	3	7	..	..	..
Defecation, difficult, from overlapping anal skin folds	3	2	1	2	1	..	..
Fecal incontinence (follow-ing operation)	2	1	1	..	1	1	..
Hypertrophy of the rectal valves	2	1	1	1	1	..	..
Rectocele, posterior	1	1	..	..	1	..	..
Bifurcated rectum	1	1	..	..	1	..	..
Total (53 affections)....	263	146	117	223	28	9	5

SUMMARY OF TABLE 1

Different diseases treated.....	53
Number of patients treated.....	263
Males.....	146
Females.....	117
Number of patients cured.....	223
Number of patients improved.....	28
Number of patients unimproved.....	9
Number of deaths.....	5
Total.....	263
Number of venereal diseases treated.....	14
Congenital syphilis (M. 2, F. 4).....	6
Chancroids (M. 0, F. 1).....	1
Venereal warts (M. 0, F. 2).....	5
Gonorrhœa (M. 2, F. 3).....	5
Total.....	14

TABLE 2.—ANORECTAL MECHANICAL CONSTIPATION (OBSTIPATION) IN INFANTS AND CHILDREN TWELVE YEARS OF AGE OR YOUNGER

Diseases and Complications.	No. of Cases.	Sex		Cured.	Im- proved.	Unim- proved.	Died.
		M.	F.				
Fissure in ano.....	10	6	4	10	..	..	..
Ulceration, non-specific....	4	2	2	3	1	..	..
Ulceration, congenital syphilitic.....	2	..	2	1	1	..	..
Stricture, congenital syphilitic.....	1	1	..	..	1	..	..
Stricture, traumatic (encysted chicken-bone).....	1	1	..	1	..	..	..
Stricture from sloughing (extravasation of urine).....	1	1	..	..	1	..	..
Congenital deformities (complete and incomplete occlusion).....	10	6	4	8	..	..	2
Congenital deformities, operations following (sequelæ).....	7	4	3	4	2	1	..
Coccyx, anterior deviation of.....	1	1	..	1	..	..	..
Coccyx, congenital absence of with anal opening at sacral termination.....	1	1	..	..	..	1	..
Coccyx, congenital absence of, causing posterior rectocele.....	1	..	1	..	1	..	..
Bifurcated rectum.....	1	1	..	..	1	..	..
Impaction from seeds and fruit-stones.....	5	4	1	5	..	..	..
Ascarides lumbricoides, impaction from.....	1	..	1	1	..	..	..
Foreign bodies.....	4	4	..	4	..	..	..
Polypi.....	4	3	1	3	1	..	..
Hypertrophy of anal papilla.....	1	1	..	1	..	..	..
Hypertrophy of sphincter.....	11	6	5	11	..	..	..
Hypertrophy of rectal valves.....	2	1	1	1	1	..	..
Sarcoma.....	1	..	1	..	..	..	1
Carcinoma.....	1	1	..	..	..	..	1
Total (21 affections).....	70	43	27	54	10	2	4

TABLE 3.—ABDOMINAL MECHANICAL CONSTIPATION (OBSTIPATION) UNDER TWELVE YEARS OF AGE

Diseases and Complications.	No. of Cases.	Sex		Cured.	Im- proved.	Unim- proved.	Died.
		M.	F.				
Hirschsprung's disease.....	3	1	2	..	12	1	..
Dilatation of colon.....	8	5	3	..	5	3	..
Colonic ptosis.....	4	2	2	..	12	2	..
Invagination of sigmoid flexure into rectum.....	7	3	4	5	1	1	..
Adhesions following typhoid.....	2	1	1	1	1	..	..
Adhesions following localized peritonitis.....	1	..	1	1	..	..	..
Adhesions following appendectomy.....	1	1	..	..	1	..	..
Angulation sigmoid flexure (congenital).....	1	1	..	1	..	..	..
Angulation hepatic flexure (cord binding to abdominal wall).....	1	1	..	..	1	..	..
Volvulus, partial (chronic).....	3	1	2	2	..	1	..
Enterospasms, chronic intermittent (foreign body in sigmoid).....	1	1	..	1	..	..	..
Mesentery, abnormally long (twisting and adhesions).....	1	1	..	..	1	..	..
Mesentery, abnormally short (angulation).....	1	..	1	1	..	..	..
Hypertrophy of O'Beirne's sphincter.....	2	1	1	..	2	..	..
Total (14 affections).....	36	19	17	12	16	8	0

COMBINED STATISTICS OF TABLES 2 AND 3

Anorectal mechanical constipation (obstipation)....	70	43	27	54	10	2	4
Abdominal mechanical constipation (obstipation)....	36	19	17	12	16	8	0
Total (35 affections).....	106	62	44	66	26	10	4

My case of posterior proctoele was relieved by removing a section of the bowel and suturing the edges of the wound, and the bifurcated rectum was treated in the same way.

Foreign Bodies.—Small, smooth and sharp-pointed objects are removed with the finger or through the proctoscope with forceps, but when large or encysted, much annoyance is saved by splitting the sphincter muscle under eucainization so that they can be quickly removed without pain.

Diseases, Injuries and Deformities of the Coccyx.—When the coccyx is displaced, fractured or inflamed and causes discomfort or painful defecation, its removal is indicated. The steps in my method of coccygeal excision consist in the following: (a) the tissues are folded between the thumb and fingers and divided transversely and down to the tip of the coccyx with one cut of the seissors; (b) a Gant coccygeal elevator is hooked in the bone and it is lifted upward, freed and removed by four cuts made at the sides, beneath and transversely through the base of the coccyx; and (c) finally the wound is closed with interrupted sutures. This procedure is superior to the older excision operation because it requires but three minutes, is practically bloodless, primary union is obtained and the only paraphernalia required are strong, blunt-pointed seissors, a needle and a piece of catgut. The success of the operation is due to the fact that the cuts are made without injury to the blood vessels, since the seissors point upward, outward and away from the rectal vessels at all times.

Sacrococcygeal Cysts and Tumors.—These require skilful handling, and routine treatment is impossible because of their variable size, composition, method of attachment and the fact that they may contain fluid, sebaceous matter, hair, or supernumerary limbs. They have been treated with phenol and iodine injections, and with the cautery, but without success. Tapping and their partial removal has given temporary relief, but when feasible the tumor or cyst is carefully dissected out and the wound drained and closed.

Sacral Dermoids.—Indicated by a dimple or moisture over the bone, sacral dermoids are operated on by infiltrating their overlying tissues with eucain or water, removing the sac and draining the wound.

Malignant Growths (Sarcoma and Carcinoma).—Malignant growths require a difficult and prolonged operation and in children recur quickly after extirpation; for these reasons the little patients should be made comfortable by palliative measures and not be subjected to operation except in very favorable cases.

From what has been said it may be correctly inferred that rectal diseases, with the exception of cancer and congenital deformities of the bowel, are readily curable, and further, that the treatment required is simple, devoid of danger, leaves few sequela and causes little suffering. If such good results are so easily obtained, has not the time arrived when the family physician and pediatricist should prepare for and treat this class of affections in a more satisfactory manner than has heretofore been done? Should they do this, I believe that much unnecessary discomfort and pain could be saved to infants and children and that many of the serious bowel affections now encountered in adults could be prevented.

COMMENTS ON TABLES TWO AND THREE (OBSTIPATION)

I wish now to direct attention to some statistics relating to mechanical constipation, a condition which is often congenital, or acquired early in life, owing to the anatomic arrangement of the bowel in infancy and early childhood (Tables 2 and 3). In Table 2 are tabulated the cases of anorectal, and in Table 3 those of abdominal obstipation.

In studying these statistics of 106 cases of obstipation, it is interesting to note the large number (35) and widely varying conditions which have entered into its causation.

In nearly all the cases of anorectal obstipation the patients were cured or very greatly benefited; in only two instances was there no improvement, and only four deaths occurred in the seventy cases. The results obtained are no better than one would expect because of the simple nature of the rectal ailments causing the trouble and their easy curability. Of the four deaths, two were due to cancer and the others to acute obstruction from congenital deformities, and all four patients were beyond saving when seen.

Fourteen different lesions were found to account for the thirty-six cases of abdominal obstipation and the results in this series show that twelve patients were cured, sixteen improved and eight not benefited. The results obtained were very good, but not so flattering as those following the treatment of rectal obstipation, but this is not to be wondered at, because the lesions were more serious and laparotomy was necessary.

About one-half of the constipated infants and children examined suffered from mechanical obstructions of one kind or another. This appears to be a startling statement to make, since habitual constipation is usually thought to be the most common type of costiveness, but it must be remembered that my work is largely surgical and for a number of years I have taken a great interest in the treatment of surgical constipation and have written much on this topic. This would naturally lead to my getting a considerable number of these cases, whereas the internist would get the atonic type. My experience, however, warrants the belief that the cause of constipation is of a mechanical nature very much more frequently than physicians and surgeons at present recognize, and occurs in about 25 per cent. of the cases.

TREATMENT OF MECHANICAL CONSTIPATION (OBSTIPATION)

The therapeutic measures, medical and physical, employed to relieve and cure ordinary or atonic constipation are, as a rule, unreliable in obstipation, because here we have a surgical disease, and nothing short of an operation will permanently correct or remove the impediment to the fecal current.

I have elsewhere¹ fully described the surgical procedures indicated in the treatment of the various forms of mechanical constipation and need not do more here than to state how the operations are performed without giving their steps.

Dilatation of the Colon and Hirschsprung's Disease.—These are corrected in the very young by scarifying and plicating the colon and sigmoid flexure longitudinally to narrow the bowel, after which it is sutured to the anterior abdominal wall at one or more points to overcome ptosis; but when there are other complications, or the bowel is paralytic, I make it a practice to sever the ileum near the cecum, close the divided ends and anastomose the proximal extremity with the sigmoid flexure or rectum (ileosigmoidostomy, ileorectostomy). In older children, who can withstand a capital operation, in whom the intestine is enormous in size, its walls thin and the propulsive power destroyed, the ileum is joined to the sigmoid flexure or the colon is resected or excised.

Colonic Ptosis and Inagination of the Sigmoid Flexure.—These conditions are easily corrected in most instances without danger by scarifying the abnormal portion of bowel, lifting it upward and anchoring it to the anterior parietes at as many places as required by suspensory sutures tied across rubber tubings.

Adhesions.—These are dealt with according to their character. When a segment of intestine is glued to another piece

of intestine or organ by exudates, separation is accomplished by wiping the intestine loose with gauze. When it is attached by fibrous bands, they are divided with scissors, but when the adhesions are extensive the bowel is carefully freed by dissection while in view, after which raw surfaces are covered with peritoneum.

Angulations and Twists (Volvulus).—Angulations and twists of the colon are straightened out by dividing adhesions, the abnormal mesentery or other structure which pulls on the bowel, or when induced by a misplaced organ or tumor, the former is replaced and the latter is removed.

Enterospasm.—When caused by impacted seeds, fruit-stones or a foreign body, enterospasm is often relieved by catharsis, belladonna, hot fomentations and enemas, but when these measures fail the offending object is removed through an opening made in the intestine.

Narrowing of the Bowel.—Narrowing, resulting from a hypertrophied O'Beirne's sphincter or stricture, is sometimes relieved by dieting, irrigation and medication, when the cause is inflammatory or ulcerative, but when the obstruction is due to cicatrization, division or excision of the stricture is practiced.

DIRECT BOWEL TREATMENT WITH DESCRIPTION OF A NEW ENTERO-COLONIC IRRIGATION

Up to the present physicians know that better results are obtained in the treatment of inflammatory, ulcerative, parasitic and other bowel affections when medication is carried directly to the lesions than when it is made to reach them indirectly, as when given by mouth.

Enteroclysis and irrigation may be accomplished from below through the anus or from above through an opening made in the intestine, and however done it will prove successful provided all the lesions are reached. Treatment from below would be ideal if this could be satisfactorily accomplished, because the patient could remain at home and not be subjected to operation. But unfortunately it cannot be so done, because of the difficulty frequently encountered in passing the tube sufficiently high to carry the fluid to all parts of the diseased intestine.

Appendicostomy, cecostomy and my operation, which provides a way of irrigating both the small and large intestine, were originated with the object of procuring a means of through and through irrigation.

Appendicostomy, once so popular, is fast falling into disrepute, because the appendix is frequently bound down by adhesions, blocked, strictured, too short, or diseased, which makes it unfit for irrigating purposes; it sloughs off, or its opening closes. When appendicostomy is practiced, the appendix should be opened and a Gant appendiceal irrigator introduced during the operation so that irrigation can be started immediately.

Ordinary cecostomy may be employed when the disease is limited to the colon, but is not effective when the small intestine is involved.

I believe that the method of cecostomy with a provision for small and large bowel irrigation as described below is superior to other operations devised for the purpose of carrying the treatment directly to the bowel, because it is applicable in the treatment of lesions located in the small intestine, the large bowel or both. The operation is simple, devoid of danger, requires but a few minutes, and provides a certain means by which the physician, intern or nurse can irrigate all parts of the bowel immediately or later according to indications. Concisely described, the steps in Gant's cecostomy are as follows:

1. Through an incision made over it the cecum is brought into the wound and three purse-string sutures are introduced

1. Gant: Constipation and Abdominal Obstruction, 1909.

into its outer surface opposite the ileocecal valve and the intestine opened within the suture line.

2. The Gant metal, or preferably rubber, enterocolonic irrigator, is now pushed across the cecum and guided through the ileocecal valve into the small intestine by means of the thumb and fingers of the left hand and is held there by an assistant until the infolding purse-string sutures are tied and a circular cone-shaped valve is formed around the tube.

3. The cecum is scarified and two suspensory sutures are introduced at the sides of the irrigator and then carried through the abdominal wall by means of a long-handled needle, where they are tied across rubber tubings.

4. After the wound has been closed by the layer method the metal irrigator is retained in position by attached pieces of tape which encircle the body, but when the rubber tube is used it is fastened in the same way, or to the skin by an adhesive strip after the irrigating tubes have been closed with cravat clamps.

5. The dressings, including an outer covering of rubber tissue, are now applied after having been split to allow the irrigator to project through them.

COMMENTS ON AND INDICATIONS FOR GANT'S CECOSTOMY

I have employed this operation since January, 1906, and published it with indications Aug. 15, 1908,² but since then slight improvements have been made in the technic.

I have performed the operation twenty-two times on adults in the direct treatment of inflammatory, ulcerative, parasitic, specific and other affections involving all parts of the intestine, and the results following this procedure have been most flattering.

It has been performed but three times on children under 12 years of age. In all instances good results were obtained, and from this experience with the operation I am convinced that it has a wide field of usefulness in the treatment of intestinal affections in infants, children and adults, and that it should take precedence over enterostomy, colostomy, appendicostomy and ordinary cecostomy in this class of cases.

In a paper read before the Medical Association of Greater New York, April 20, 1908, and since, I have maintained that cecostomy is indicated in the treatment of enteritis, enterocolitis and catarrhal, tuberculous, dysenteric, syphilitic and gonorrhoeal colitis, ptomain poisoning, intussusception, paralytic ileus, peritonitis, cholera, typhoid fever, intestinal parasites, the manifestations of intestinal autointoxication, ordinary and pernicious anemia, intestinal feeding, malnutrition; following operations on the mouth, throat or stomach, and in gastric stricture, ulcer, cancer or other disturbances where rest of the organ is desirable. I also called attention to the fact that by means of cecostomy various intestinal diseases could be investigated, and that the procedure could be used to determine the amount and nature of the intestinal juices and discharges, the character of the feces, the direct action of salines and other cathartics when injected directly into the small and large bowel, the marked, immediate vasomotor effect following hot and cold enteroclysis, to diagnose angulation, twisting, ptosis or dilatation of the intestine by x-raying the bowel after it has been coated with bismuth solution injected for the purpose, and for the study of many other interesting problems.

150 East Thirty-Fifth Street.

ABSTRACT OF DISCUSSION

DR. LOUIS J. HIRSCHMAN, Detroit: I believe with Dr. Gant that most of us have been a little more remiss in investigating rectal diseases in children than we have been in adults. It is surprising to find in how many of the little patients brought to us the examination of the rectum has been neglected by the physician. These children are brought to the rectal specialist as a last resort, but it is seldom that even ocular inspection has been employed by the attending physician. By means of the proctoscope we can make an ocular examination very readily, and we can make an examination of the rectum in an infant of one year through a female cystoscope. Digital examination will give a practical understanding of the condition in the whole abdominal cavity. One can even examine the condition of the appendix, the colon and sometimes the gall-bladder can be reached with the finger. I do not know that I agree with Dr. Gant about leaving a "buttonhole" in young children. A child has less resistance, and we must be more careful how we employ major surgery. But I believe that many patients with intestinal disturbance, who have not responded to drug treatment, have responded to colonic irrigations with simple saline solution when everything else has failed. Often a crying child that is not helped by any treatment will be found to be suffering from anal fissure. Again, often following infectious diseases, acute hemorrhoids may develop. In cases of apparent prolapse, it is well to be certain that there is not an invagination. Recently I saw a child who had a complete extrusion of the entire colon in whom a diagnosis had been made of prolapse of the rectum. The child had gone down from 18 to 12 pounds in weight in six weeks. I think children are just as often subject to disease of the lower part of the abdomen as are adults.

DR. C. F. WAHNER, Fort Madison, Ia.: I have seen men introduce colon tubes all the way up to four feet in length, presumably past the ileocecal valve; in some cases, however, the end returned and even protruded from the rectum; large quantities of solution were therefore thrown into the rectum. Does Dr. Gant consider insertion of a high rectal tube a possibility or an impossibility? In most instances, I think, it is a mere dream.

DR. G. S. HANES, Louisville, Ky.: A frequent affection of the child is constipation, and the chief cause for constipation in children, and one which is easily overlooked, is intestinal obstruction. This means irritation of the outlet of the bowel—that is, of the sphincter muscle. There are ten cases of constipation due to irritation around the anal canal to one due to all other causes combined. The next trouble we most frequently find is diarrhea. The diarrheas that occur in childhood are usually due to fermentation of food, a catarrhal condition or ulceration. Constipation and diarrhea, of course, are symptoms of other conditions. When a child has eaten food that has fermented and produced irritation, as soon as the canal is cleared out the diarrhea will disappear. But when it is due to ulceration, or to a catarrhal condition, we must be more careful in treatment. Not long ago, a child of 4 years was brought to me with persistent diarrhea that had lasted for 14 months. I found that it was a case of amebic dysentery. The rectum was dotted thickly with small ulcers. I introduced the proctoscope and curetted one of the ulcers and examined it under the microscope and found it seething with amebas. In the last two years I have treated more than fifty cases of amebic dysentery, most of which have come from Kentucky. Of this number, six patients were children under 10 or 12 years of age. All physicians know how difficult it is to cure a case of amebic dysentery in any patient. In fact, we do not know whether they are cured or not. I told the family physician what to do, and if the child was not cured it was greatly relieved. I have never found appendicostomy at all difficult. To do an ordinary appendicostomy, when there is diarrhea or constipation, or other condition that prevails in the lining of the intestine, there need be no difficulty in introducing the instrument through the appendix. One can pick up the appendix and determine whether or not it is patulous. The best treatment of amebic

2. Gant: Local and Surgical Treatment of Chronic Diarrhea, with Description of a New Operation for Irrigating the Large and Small Intestine, New York Med. Jour., Aug. 15, 1908.

dy-entery is ordinary coal oil. I have put in as much as half a gallon and allowed it to remain as long as possible. It is a sedative and does not set up peristalsis, and the patients can retain twice as much oil as they would water. I have had patients return after 24 hours and state that they were still passing coal oil. In the diarrhea, as a rule, the diseased condition is usually in the lower bowel and it can be treated through the anus.

DR. E. H. THRAILKILL, Kansas City, Mo.: Some time ago, in a paper before the Missouri State Medical Association, I said that the obstetrician before handing the child over to the nurse should examine the anus. I have seen children with stricture of the anus which would be relieved by just a little treatment by dilatation and there would be no further trouble. I have seen a number of cases of constipation due to fissure around the anus. With a very small dilator one can cure this, but the little child will have for some time fecal matter remaining there and irritating the bowel and he will not have a movement. Intussusception occurs because the colon and sigmoid are rather long in infancy, and this part of the bowel grows slowly during the first few years and is down low in the iliac region, and thus the invagination of the sigmoid into the rectum takes place. I recently saw such a case in which the child had a prolapse or invagination of the sigmoid to the third degree. If these little children are put into the knee-chest position the bowel will often drop back and the little sufferer will be relieved. As to cases of pericolicitis due to extra-colonic conditions, I think that is true of the majority of cases of constipation.

DR. S. G. GANT, New York: All proctologists agree that it is extremely difficult to introduce the proctoscope and sigmoidoscope because of the curves of the rectum and the angulations of the sigmoid. Pressure should never be exerted in their introduction. I know of three deaths from intestinal rupture and peritonitis caused by forcible attempts to push long, unyielding tubes through the sigmoid flexure. Had I the time I should like to comment on the more common types of rectal diseases occurring in infancy and childhood. A summary of them, however, has been given in the papers. I agree with Dr. Thrailkill that sometimes extra intestinal pressure may be the cause of diarrhea (obstructive type) and constipation (obstipation), but do not agree with him that it is the most common factor, because in my experience the seat of the trouble is most frequently found within the intestine.

It is difficult to understand why constipation is not more frequent when we come to study the points of difficult passage to the feces under normal conditions and appreciate the condition of affairs when they become abnormal. Such obstructive points named from below up are the anal sphincter, levator ani muscle, rectal valve, O'Beirne's sphincter, angulations of the sigmoid, swinging transverse colon, and splenic and hepatic flexures, to say nothing of the difficulty encountered by the solid feces from the cecum perpendicularly upward. Some physicians make a universal practice of divulsing the sphincter muscle in all cases of constipation—a most pernicious practice. Dilate or cut the sphincter when the anus is tight and a good result follows, but to do this when the muscle is relaxed does no good and may do considerable harm.

Surgical intervention is unjustifiable in obstinate diarrhea until medication, dieting and enteroclysis from below have been tried without benefit. Of the procedures devised for this purpose my ecostomy, which provides a quick, safe and sure way of healing the lesions causing the frequent stools, is preferable to all others, because by means of it the medicated fluid can be made to reach all parts of the entire intestinal tract. Two conditions prevail in chronic diarrhea: The first is the laxity of the bowel and surrounding tissues, which permit the easy introduction of instruments, and the second is the constantly dilated state of the rectum by gases. In these cases the finger passes into a dilated cavity, an opposite condition to that found in persons who suffer from constipation.

TUBERCULOSIS OF THE FEMALE ORGANS OF GENERATION AND THE PERITONEUM*

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HISTORICAL SUMMARY

The study of tuberculosis of the female genitalia was secondary to that of tuberculosis of the peritoneum, although Morgagni, in making a necropsy in 1744 on a young woman who had died from tuberculous peritonitis, found the uterus and Fallopian tubes filled with caseous material and considered these organs as being the primary focus of the disease. Similar conclusions were reported by others who had found similar conditions. At this time, however, tuberculosis of the female genitalia was found only in patients suffering from a constitutional invasion. The local condition was discovered only at autopsy and had no clinical interest; it was considered simply as a pathologic curiosity. This antedated the year 1825.

Christian Fenger divided the history of our knowledge of this disease into three periods. The first embraces everything antedating 1825, which I have described. The second includes the period from 1825 to 1884; during this period peritoneal tuberculosis became better known and more frequently recognized. It was thought at that time that simple peritonitis terminated in recovery; that is, in certain recognized cases of peritonitis the patients did recover, and this fact led to the conclusion that they must be simple, while tuberculous peritonitis was thought to be always fatal. The third stage, from 1884 to the present time began when Koenig proposed laparotomy as a cure for tuberculous peritonitis. It is interesting to note that Koenig reached this attitude of mind from a *priori* deductive reasoning. He had had extensive experience in successfully opening and draining knee-joints and other articulations for tuberculosis. These joints are, as we know, closed cavities lined by a serous membrane; reasoning by analogy, therefore, he concluded that, if incision and drainage cures tuberculosis of a serous membrane in a joint, it should be equally as effective in the abdomen. Acting on this conclusion he submitted four patients suffering from tuberculous peritonitis to operation, and published a paper describing the procedure, in which he reported three recoveries and one death. In 1889 he presented a second paper in which he reported 131 similar operations collected from literature and his own clinic. The results showed 107 in satisfactory condition on leaving the hospital. Of these 107, seventy-four were cured and thirty-three improved. This was the beginning of the new era in the study of this disease, and to Koenig the modern world is indebted for an entirely new concept in its treatment. Many operators in various parts of the world followed in his footsteps and thus an experience was gained that changed materially the prognosis. It was learned that cures occur sometimes spontaneously; especially is this the case with children. In the crusade for eradication of the scourge of tuberculosis the search light is being turned on every phase of the disease, and vigorous means of stamping it out are being applied wherever its head appears.

* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

PRIMARY FOCUS OF TUBERCULOSIS

The possibility of tuberculosis of the genitalia being a primary focus is a question of which most diverse views are entertained. Some of the most careful investigators positively deny it, while others as positively assert that it is possible, although all admit that it is very rare. The readiness with which women of the present day are submitting to gynecologic examinations, and the careful discriminating diagnostic acumen that is being directed to this line of research have brought to light cases in which the only lesion to be found in certain cases has been confined to the cervix, the vagina, or the uterus. The order of frequency with which the generative organs proper are involved is as follows: Fallopian tubes, uterus, ovaries, vagina, vulva.

Genital tuberculosis may be either primary or secondary. By the former it is generally understood that the focus in the genital organs is the primary seat of invading infection. Of necessity an ascending infection is generally primary, and a descending is secondary. According to Hegar the primary ascending infection is produced by penetration of germs from the outside directly to the mucosa of the vagina, uterus, tubes, and finally the peritoneum and ovaries; and the secondary, by penetration of germs into lymphatics through minute breaks in the continuity of the tissue of the genital canal, the germs being so carried to the Fallopian tubes directly or by way of the pelvic peritoneum into the tubes at the fimbriae.

The source of the infection may be the seminal discharge of tuberculous men during intercourse. This has been strongly advocated by some investigators and seems *a priori* to be quite reasonable. But so many cases of tuberculosis of the epididymis with tubercle bacilli in the urine and seminal discharge in married men are known without the wife becoming infected that the chances seem to be against this theory. Even granting that this might be the source it would require unusually favorable conditions for its success. The preparation of the soil for the implantation of the infection by gonorrhoea becomes a prerequisite. The puerperal state with its attendant traumatism offers favorable soil for primary infection. Martin has noted the fact that there is frequent coincidences between tubal pregnancy and tubal tuberculosis indicating a previous lesion.

Dührssen has had a case, mentioned by Amann, in which catheterization of the uterus to overcome sterility was followed by acute tuberculosis of the tube and peritoneum; whether infection was carried in by the catheter or whether the operative interference was simply the occasion for the acute outburst is a question.

It is possible that the street dust loaded with tubercle bacilli and swept up by a woman's skirts and thus deposited on the external genitals may be a source of infection.

TUBERCULOSIS OF THE PERITONEUM

Method of Invasion.—Tuberculous invasion of the tubes and ovaries may precede that of the general peritoneum, be contemporaneous with it or follow it. They are frequently found existing together and probably have the same origin. In tuberculous peritonitis, the disease reaches the peritoneum by three channels: first, hemic, through the blood-current, which gives rise to the acute miliary form of general tuberculosis; second, by contiguity, which form is secondary to tuberculosis of the lymphatic

system, or to ulcers of the bowel which have not yet perforated the peritoneal coat; third, by continuity, which form arises from extension of ulceration in the bowels or Fallopian tubes. This is spread over the peritoneum by lymph-currents or, as some assert, by gravity along the serous surface. The direct primary hemic method is believed to be extremely rare.

Treatment.—There is practically a unanimity of opinion among all who are experienced in handling this disease, that, if possible and practicable, the focus of infection should be removed. On this point William J. Mayo says: "The treatment of tuberculous peritonitis should embrace not only the treatment of the peritonitis, which is symptomatic, but the removal of the source of infection, which in the majority of cases will be found in the Fallopian tubes, appendix or intestine." Murphy says: "The surgical treatment of tuberculosis of the peritoneum involves the following propositions: (1) to remove or shut off the source of supply to the peritoneum of new tuberculous debris; (2) to remove the products of the infective process from the peritoneum; (3) to increase the tissue proliferation for the encapsulation of the foci already present; and (4) to avoid mixed infection."

It is therefore desirable, to say the least, that a diagnosis of the presence of tuberculosis be made in advance of operation. The investigation should embrace a careful examination of the genital organs by touch, so as to determine their exact condition. The fact that this malady is frequently discovered in young girls should be kept in mind. The history of the case with relation to heredity, loss of appetite and weight, and the possibility of venereal infection, should be carefully considered. Martin recommends the application of Koch's tuberculin injection test. He also lays great stress on the subconjunctival instillation of Pirquet-Calmette. He considers this especially important in cases of tuberculosis complicating pregnancy, for the reason that the reaction determines the amount of resistance being offered by the patient, and thereby indicates the wisdom of allowing pregnancy to continue.

But when all these precautions have been taken into consideration, surprise may await the surgeon, on opening the peritoneal cavity. Allport has voiced this in his forceful and characteristic style when he says: "Uncertainty is the characteristic element in the preliminary diagnosis of all tuberculous infection of the peritoneum; surprise inevitably awaits the surgeon as he opens the abdomen; and the unexpected sits ever at the elbow of the pathologist as he examines the specimen in the laboratory."

Operation.—In dealing with any individual patient the method of procedure must be adapted to the condition presented and so may vary with every case. Experience has evolved some pretty definite and fixed rules. First, it must be constantly kept in mind that spontaneous recovery is often possible; at the same time, it must not be forgotten that Nature in her effort to overcome the disease can be greatly assisted in many cases by the surgeon. When the operator has made the abdominal incision and recognizes that he is in the presence of a more or less extensive tuberculous peritonitis, even with distinct foci in the uterine appendages, what shall be his rule of procedure? He should not be led astray by the protean forms of the disease that reveal themselves in successive cases. The whole situation becomes clear when he recalls the fact that there is but one basic lesion

of which the case in hand is one of its stages. Nature is ever waging her war of resistance. Her line of defense may be overwhelmed in the first onset and a condition of hopeless route and annihilation may be presented. This condition obtains in cases of ulceration, perforation, cheesy degeneration, and mixed infection, with resulting hectic fever. On the other hand, we may have a picture of disseminated miliary tubercles accompanied by abundant ascites; this exudate is indicative of a protective process due to irritation of the unaffected peritoneum. If in this process the individual has gained advantage in the fight, this irritation becomes an obliterative peritonitis, the final process resulting in fibrous or cobweb adhesions. Another picture is presented when the infection has invaded the peritoneum from contiguous organs, and presents an ulcerative or cheesy form which is accompanied by fibrous nodules, cicatrizing ulcers, masses of plastic exudate possibly here and there organized into obstructing bands of fibrous tissue. Adhesions and obstructing bands may form sacculated receptacles containing tuberculous debris known as pseudocysts, which may contain pus; this indicates mixed infection, possibly a colon bacillus. The omentum may also be matted together, being an extension of the same process.

As has been said, positive diagnosis is difficult and uncertain, hence the surgeon must be ready to deal wisely with the condition found. In the practical handling of these cases they may be divided into three classes, first, the ascitic; second, the adhesive; and third, the cheesy, attended usually with debris and pus.

In the first or ascitic variety the serum should be evacuated and the wound closed without drainage. These are the cases that recover so mysteriously and so permanently. As a sequel to this surgical intervention, the patient should receive the benefit to the fullest extent of such therapeutic measures as climate, hygiene and diet. These are usually cases of general miliary peritonitis. If a definite focus is discovered in the tubes or the appendix, its removal is desirable. But quiescent adnexa which have been long buried in protecting adhesions should not be disturbed.

In the second class, or adhesive variety, if the plastic exudate is quite universal, and a tendency to organize into adhesive bands is apparent, no interference should be attempted unless a distinct focus can be easily reached and removed. The wisdom of attacking this for its removal will depend on the general condition of the patient. The wound should be closed without drainage.

In the third class of cheesy deposit, with collections of debris, some operators, acting on Koenig's suggestion of the analogy between articular joints and the peritoneal cavity, have advocated curetting, excision, suture, and dissection of the tuberculous masses. This is too radical surgery. Experience has shown that it is disastrous. Adhesions that presumably shut in intestinal ulceration should be carefully preserved, but collections of debris and pus should be as carefully cleansed and the cavity drained with cigarette drains of gutta-percha tissue. Gauze drains should be proscribed. Allport says: "Gauze drainage is a snare of the devil and is especially apt to be followed by serious and often fatal fecal fistula in the dry forms of tuberculous peritonitis. Statistics show conclusively that its practice leads to evils which are worse than the original disease."

Parker Sims in summing up an article read before the New York Surgical Society, March 13, 1907, says:

We have learned that operations should not be undertaken during the first year of infancy; we have learned that surgery offers but little hope in the adhesive variety of the disease; we have learned that the serous variety offers the best prognosis under the various forms of treatment and that the surgical treatment of this variety offers the best results obtainable in this disease. But the most important lesson we have learned is that the scientific operation of today is the one which has for its foundation the removal of the original focus of the disease, as the tuberculous Fallopian tubes, vermiform appendix, mesenteric gland, etc.

CASE REPORTS

My experience embraces seven cases widely distributed through my years of practice.

CASE 1.—Miss R. T., aged 32, referred to me as a subject of chronic general peritonitis, May, 1887. Without any suspicion of tuberculous I opened the abdominal cavity for the purpose of drainage, and with the expectation of finding pus foci in the Fallopian tubes. The entire peritoneum was covered with a moist grayish exudate agglutinating universally the omentum and the coils of intestine. Never had I seen such a case before. There was almost no literature on this subject at that time, and in my ignorance I separated the adhesions and drained freely in all directions with gauze. The result, of course, was a prompt fatality.

CASE 2.—Mrs. S. M., at the New York City Hospital, came into my service May, 1894, as a case of double adnexal disease, the adhesions filling the entire pelvis. The patient's general condition was bad, with a daily temperature of 101 F. I performed a vaginal pan-hysterectomy. On examining the specimen during its removal miliary tubercles were apparent on the peritoneum surface of tube; the uterus and ovaries were cheesy. As the patient was in no condition to withstand a laparotomy, I elevated the patient in the Trendelenburg posture, and with retractors opened wide the vaginal opening into the peritoneal cavity, after which the pelvis was drained vaginally with iodoform gauze. The patient died in less than a year.

CASE 3.—Mrs. G. L., City Hospital, June, 1894, had symptoms of almost constant pain in the left ovarian region; diagnosis, salpingitis. On opening the abdominal cavity I found a condition of general miliary tuberculous. The left tube and ovary were bound together by adhesions, the tube being large and covered with tubercles. There were no other adhesions, and no ascites. The left adnexa were removed, the patient was wheeled into the sunlight and the direct rays of the sun were allowed to pour into peritoneal cavity through the widely opened incision. The wound was closed without drainage. The patient made a complete and permanent recovery.

CASE 4.—Captain — of the Salvation Army, presented herself at my office December, 1908, giving a history of constant pain in the right ovarian region, which had grown steadily worse for about a year, with the pain intensified at menstrual periods. There was loss of strength and flesh. The abdomen was distended and tympanitic, with dullness in the flanks. A hard nodular mass filled the right pelvis, crowding the uterus to the left side. I made a diagnosis of probable tuberculous, and subjected the patient to a laparotomy at the Woman's Hospital, January, 1909. On opening the abdominal cavity I found coils of intestine firmly agglutinated together and firmly attached to the right adnexa, forming a large mass. The surrounding peritoneum and the fundus of the uterus, where the right horn could be seen peeping out of the coils of intestine, were dotted with miliary tubercles. In attempting to separate the intestines, I found that their walls were thoroughly invaded and quickly felt that the part of wisdom was to desist from further interference. I therefore sponged the cavity dry and closed the wound without drainage. Temperature ran daily to 101½ F. for about a week. Under careful and enforced diet, strength returned rapidly, and the patient left the hospital in four weeks. Outdoor life, day and night, and good nourishment were enjoined, and one year later she reported at my office greatly improved and ready to go back

to the ranks of the Salvation Army. There was no ascites and the pelvic mass had diminished to at least one-half of its former proportions. I have not seen the patient since.

CASE 5.—Miss E. D. M., aged 22½ years, was a private patient of Dr. Weiss, Mt. Vernon, N. Y., who has kindly furnished me the following history:

"I first saw the patient on Dec. 1, 1906, and found her suffering with an attack of acute lobular pneumonia (lower left lobe), with no cough but felt oppression in chest, had high temperature and felt sick.

"The history leading up to this acute condition in brief was this: The patient had been more or less tired for some five or six weeks; but still went to work, when she was suddenly taken down on or about December 1 with a chill and the acute condition above spoken of. The pneumonia took the usual course and on Jan. 24, 1907, some seven weeks after the beginning of the original illness the patient returned to work. At this time the pneumonia had resolved and, while her general condition was fair, she was still weak. The patient continued to go to her work (that of a stenographer), from Jan. 24, 1907, to Feb. 28, 1907, about five weeks, when she again noticed that she had severe pain in the left lower abdomen. She persisted in going to work, however, until February 28, when the pain became so great that she remained at home. Examination at this time showed nothing special in the thorax. There was a general swelling and distention of the abdomen. Percussion of the flanks showed some slight evidence of liquid in the abdominal cavity. There was thickening of left Fallopian tube with considerable pain on pressure; otherwise the patient's condition was negative.

"The usual hygienic and tonic treatment was instituted, the tentative diagnosis being tuberculous peritonitis. On March 18, 1907, Dr. Goffe kindly saw the patient with me and gave his opinion that an absolute diagnosis was difficult to make and advised close observation.

"Four days later patient was transferred to the Mount Vernon Hospital. The distention at this time had improved somewhat, the pain, however, in the lower left side persisted, and there was more or less fever with increased pulse-rate.

"During the following two weeks patient appeared to improve. In consideration of this fact, on consultation with Dr. Goffe, it was decided to do an exploratory laparotomy. Accordingly on April 3, 1907, under the direction of Dr. Goffe, I opened the abdomen and found the peritoneum studded with many patches, congested, and all the organs adherent. The parietal peritoneum itself was fully ⅜ of an inch thick. The left tube was found considerably enlarged and adherent. It was decided to close the abdomen without drainage and institute a sustaining and tonic line of treatment. After a few days the abdominal wound broke down and large quantities of pus came from the sinus.

"During the summer of 1907, the patient had chills with continued rises of temperature, sweats, lost considerable weight, and drained a great deal of pus. Examination showed some of these sinuses extending from 5 to 6 inches under the abdominal wall, one in particular, running up from the wound on the right side toward the liver.

"From April until October the fresh-air and hygienic treatment in every sense of the word was carried out to the letter: not only were the windows of the patient's sleeping apartment kept open day and night, but she was carried daily down to the lawn, where she passed her time either on a couch or in a hammock, thus enjoying the benefit of the outdoor treatment continuously. In addition to this she was given tonics and proper food.

"About August 1, 1907, the heretofore weak and bed-ridden patient began to show perceptible signs of improvement and, while her weight at that time could not very well be taken, her general appearance, in spite of the large amount of drainage from the wound, showed considerable weekly improvement. This went on continuously until in September the patient was permitted to walk about and take exercise. The improvement continued along these lines until October 6, when in addition to the pus drainage there were evidences of a fecal fistula.

"From October, 1907, until April, 1908, in spite of the inclement winter weather, the same open-air treatment was contin-

ued. By April 1, 1908, the patient had improved to such a degree that it was decided to transfer the patient to her own home. On the day of transfer (April 6), the patient's weight was found to be 102 pounds, as compared with 104 or 105 pounds, which was her best previous weight in health.

"From April 1 until August 1, 1908, she remained at home continuing in about the same general condition, with an occasional chill and a small break-down possibly of some gland or pus pocket as shown in the increase of drainage, improving, however, in general condition.

"She was permitted to take up some of her previous business duties. Accordingly, she accepted a position which permitted her four to six hours light work, with the coincident exercise of walking daily back and forth to her place of business. This test she stood remarkably well and, with the exception of one or two minor colds during the winter, improved to such an extent that on April 6, 1909, she appeared sufficiently recovered to be able to take up her more arduous duties as chief stenographer in a large law office in a town about ten miles away. This, of course, included not only walking to the station, but twenty miles' railroad travel as well. She stood the strain of this new occupation very well until mid-summer when she began to lose in weight. She then took a three weeks' vacation in the Adirondacks and returned to work in August considerably improved.

"From that time, August, 1909, to the time of the present writing, March, 1910, she has enjoyed very good average health, with the exception of an occasional attack of bronchitis, generally the result of some indiscretion in dress. She looks well, eats well, and is able to carry out all the duties of her position and, while she tires from time to time, it cannot be said that she does so to any greater extent than any other person might under similar circumstances.

"During this time, namely, from about July, 1907, to March, 1910, an effort has been made at all times to carry out the open-air treatment, and particular attention has been paid to regular meals, largely of the proteid type, with very little medication. An occasional tonic or emulsion or a little ordinary cough medicine has been about all the medical remedies employed. No alcohol has been used. The patient has been advised to rest as much as possible and also to get as much sleep as circumstances will allow.

"The patient now looks well, has a good color, is strong and eats and sleeps well. She weighs at time of writing 103 pounds. There remains a small fistula which discharges some pus daily and occasionally some fecal matter, showing that the fecal fistula is not entirely healed. The only trouble the patient now experiences is that, when the sinus closes, the fecal matter seems to accumulate between the intestines and the abdominal wall and, until relieved, there is more or less pain and distress. Other than that the patient has no discomfort.

"In February, 1907, just subsequent to the attack of pneumonia, when the patient again went to bed, she menstruated continuously for about three weeks before being removed to this hospital. From about March 22, 1907, to Jan. 4, 1908 (a period of ten months), menstruation ceased entirely. On Jan. 4, 1908, it recommenced and has remained regular ever since in time, quantity and quality.

"A recent internal examination showed no especially abnormal conditions, except that the uterine organs and adnexa are fixed and there is some thickening and fulness in the left broad ligament and tube.

"Examination of pus made by our pathologist, Dr. Goldhorn, showed nothing of interest.

"My interpretation of the general low-grade peritonitis which commenced in March, 1907, is that the infection was due to the pneumococcus germ secondary to the original attack of pneumonia.

"In closing a word might be said in regard to the treatment. It will be noticed that after the original laparotomy it has been entirely medical and that there has been no surgical interference. This has been done advisedly, for the reason that the patient showed continuous improvement, and the condition and the internal conditions, so far as they could be interpreted from the laparotomy and subsequent course of

the disease, were such that any surgical procedure would be fraught with so much danger that the inconvenience of a small fecal fistula was considered preferable to a possible unfortunate outcome, the result of a surgical interference."

CASE 6.—Mrs. S. R. H., aged 26, had been married five years, had never been pregnant and had always been a great sufferer from dysmenorrhœa. Four years ago the patient had an attack of pleurisy, being in bed ten days. During the following two years she complained of painful breathing and a stitch in the side. She lost flesh and became very weak. For the past two years she has suffered pain in both ovarian regions, at intervals so intense that morphin had to be used. Dec. 25, 1909, the patient entered Lawrence Hospital, Bronxville, N. Y., where I operated for salpingo-oophoritis. The adnexa of each side were bound together with plastic exudate and the tubes, as well as the neighboring coils of intestines, were freckled with miliary tubercles. The adnexa were removed with the exception of the left ovary which was apparently free from disease. There was no ascites. Recovery was prompt. Three months later, April 11, the patient reported a gain of 5½ pounds; she was never so fat in her life. She can walk now without pain, but tires easily, is living out of doors and sleeping on the veranda.

CASE 7.—Mrs. E. D., aged 44, was subjected to laparotomy for constant pain in the abdomen, which was accounted for by adhesions. There was also an old hardened chronic condition of the left adnexa. The omentum was attached to the sigmoid flexure and the fundus uteri. These adhesions were separated and part of the omentum removed, as was also the ovary and tube of the left side, which were bound firmly together. There was no evidence of tuberculous present, but the pathologist reported that the walls of the tube were pretty generally invaded with tubercles. The patient made a prompt recovery and has been relieved of her pain. This case undoubtedly stands as an example of spontaneous recovery.

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ABSTRACT OF DISCUSSION

DR. EMIL NOVAK, Baltimore: The possibility of tuberculous peritonitis should always be borne in mind in any obscure abdominal condition, especially in the presence of an abdominal tumor. An illustrative case is that of a colored woman whom I saw about four years ago. She was brought into the hospital several weeks after delivery. Her only complaint was that the abdomen was just as large after delivery as before. After examination, we decided that there was probably an ovarian cyst complicating pregnancy. Not until the patient had been anesthetized and placed on the operating-table did we notice a deep-seated mass high up in the abdomen, which made us think that the condition was not one of ovarian cyst, but possibly one of tuberculous peritonitis. At operation, we found the woman suffering from tuberculous peritonitis with an encysted ascites, while the deep-seated mass proved to be a much infiltrated great omentum. The case was particularly interesting, in view of the fact that the presence of one abdominal tumor, the encysted ascites, had misled us, and that the other tumor, the infiltrated omentum, had put us back on the right track.

In estimating the good results following operative treatment in this disease, one must bear in mind that there is a strong tendency in many cases toward spontaneous recovery. This is well illustrated in a case reported by Louis, of a young man suffering with very advanced tuberculous peritonitis, with marked ascites, emaciation, etc. In this condition he fell a victim to Asiatic cholera, and recovered not only from the cholera, but also from the tuberculous peritonitis.

DR. C. C. FREDERICK, Buffalo: Patients with acute tuberculous peritonitis sometimes do not survive the shock of operation. With the exception of that one source of fatality following operation, I have never seen a patient die as a result of operation nor fail to see a patient apparently completely recover. I have seen many who have passed through the same course as that given by Dr. Goffe in the history of his patient. I have seen them go for a period of from six

months to a year or a year and a half or two years with a stormy career, but eventually recover. I have never seen one left with a permanent fecal fistula or any other fistula, although the infection of the abdominal scar as the result of contact of the tuberculous infection with the wound at the time of operation is sometimes a source of trouble for several weeks or months after the operation. Four or five years ago, I began using drainage through Douglas' pouch in these cases almost as a routine procedure. I broke up all the adhesions in the adhesive cases in which the intestines had been lifted into the upper part of the abdomen by the accumulations of fluid beneath them and the peritoneum, all the mesentery having become adherent, so that one could see simply a mass composed of intestine in such condition that one could not see a convolution of the intestine. I free the adhesions completely, sometimes the operation being 30 or 45 minutes in duration. All the tuberculous surface is exposed to view and to contact. The abdominal cavity is sponged out. In women usually the focus of infection is the tube. Then a drain is passed down through Douglas' pouch. I always put in a big drainage tube with fenestræ at the top. The tube is kept in for weeks so as to insure free drainage from the lower part of the pelvic cavity even after the upper part may be shut off by adhesive inflammation and lymph. Such treatment is almost invariably followed by recovery in cases of tuberculous peritonitis.

DR. ROBERT T. GILLMORE, Chicago: Recently, I have been unfortunate enough to have three cases of tuberculous peritonitis or salpingitis. The symptoms are much the same as those of tuberculous in other parts of the body, though not quite typical as regards the evening rise of temperature and the night sweats. In some cases the condition comes on insidiously with slight pain if the disease originates in a tube, and it may not be greater on the side on which operation shows the greater pathologic condition. The pain is dull and there is usually some tympanitis. Besides those symptoms I have been able to get nothing characteristic. The temperature may be normal; the pulse rapid. A diagnostic point which should not be neglected is the von Pirquet reaction. This is not a positive reaction, and in adults is of negative value. If old tuberculin is used and the reaction does not occur it may be assumed that the condition is not tuberculous. Another diagnostic point is leukopenia instead of leukocytosis, which occurs with any of the pus-producing organisms. One of my patients had been treated for three months for typhoid fever; owing to similarity of the clinical picture the diagnosis was not inexcusable, but had the indefinite bilateral pelvic mass been palpated the diagnosis would have been easier. Still another point is the finding of fluid in the abdomen. Sometimes there is postural accumulation of fluid, such as is seen in non-compensated cardiac conditions or in lesions of the kidneys. If disease of these two organs can be eliminated tuberculous peritonitis may be suspected.

DR. A. MILES TAYLOR, San Francisco: I have been working along these lines for some years, and I agree with Dr. Goffe that it is very difficult without a thorough knowledge of pathologic conditions to make a correct diagnosis. However, with the means we now possess in the laboratory, and with long experience, we should be able to overcome this. I am much interested in the case of tuberculous tube with ectopic gestation, this being the only case reported so far, other than those which I reported in a monograph written ten years ago, and in a paper which I read on May 10, 1910, before the San Francisco County Medical Society, entitled "Tuberculosis of the Fallopian Tubes as an Etiologic Factor in Extra-Uterine Pregnancy," wherein I reported 64 patients operated on, and 42 of whom were proved, by pathologic laboratory examination, to have tuberculous tubes. I believe that the primary infection may be, and is, introduced through the vagina, either by examination with finger, by coitus, or through abrasions of the vulva. In the secondary form it is introduced by foci in some other organ of the body, as the lung, hip, or knee joint,

or any other organ infected with this disease. The monthly congestion of these organs certainly is a field inviting to the tubercle bacilli, as well as to any other pus-forming micro-organism. Many surgeons have reported tuberculous disease of the tubes even in girls of 17 and upward. Such men as Kaufmann, Amann, Kleinhaus, Tuffier, Pozzi, Delbet, Hartman, Faure, Sick, Bier, Murphy, Ochsner, Tuholske, Riolaus, Vassall and Regnier de Graf have reported this condition, but none of these gentlemen has associated tuberculosis of the tube as a cause of ectopic gestation previous to this time.

DR. H. T. BYFORD, Chicago: When we separate extensive adhesions in cases with but little effusion we often get ulceration and breaking down of the intestinal walls. Hence, I think, it will not do to recommend the separation of adhesions in all cases. In view of the fact that many recover without operation, we should look at the matter from a conservative standpoint. These adhesions are Nature's method of limiting the disease, and, usually, form again. You cannot drain any part of the peritoneal cavity longer than a day or two. As a rule I drain only long enough to let out the excess of material which Nature has not been able to take care of. In most cases it is enough to let out the fluid and remove the septic focus, and, if desired, let in a little air or sprinkle in a little iodoform as a local stimulant. Although the ovaries and tubes may not be the primary focus, they usually require removal in cases of pelvic tuberculosis, because the monthly congestion seems to favor the development of germs.

DR. TOD GILLIAM, Columbus, O.: I presume that most of us are influenced by our own experience in these affairs. A few years ago, Dr. Byford and I were pitted against each other in Chicago on this same subject. I am a strong advocate of operative interference in tuberculous peritonitis with effusion. I am an advocate principally from my own experience, which has been most favorable, and because one gets immediate and convincing results. When the abdomen is opened and the fluid let out, usually that is the end of the trouble. I have sometimes had reaccumulation, but even this would disappear and almost every patient with uncomplicated tuberculous effusion has been cured. I never interfere with the adhesions of tuberculous peritonitis if I can help it, and I am very particular not to do any damage to the intestines. I have never known an intestinal tuberculous fistula to heal, and I dread them greatly. If I find that the tubes are involved, and I can get them out without damage to the intestines, I remove them. In cases of this class I have had excellent results.

DR. J. R. GOFFE, New York: I believe in the conservative method of treating these patients as I indicate in my paper. In one of the cases reported, the young woman had been suffering from one to two years and was finally obliged to give up her work in the Salvation Army. I made a diagnosis of tuberculous peritonitis, with the focus probably in the right appendages, and did a laparotomy. There was considerable serum, which I carefully sponged out. In attempting to separate the adhesions about the diseased appendages on the right side, I found that the walls of the intestine were involved, and, after separating just a few "of the uppermost coils of intestine," I desisted and restored them to their original position and closed the abdomen without drainage. She made a beautiful recovery, the most satisfactory convalescence I have ever witnessed. I take the stand that in all these cases conservative work is the best. Remove the focus, if easily and safely reached, but refrain from all serious damage to the tissues, drain out the fluid and close the wound.

Rectal Fistula. Pelvi-rectal fistula may even track round and invade the bladder. In other cases the fistula may cause inflammation of the peritoneum, and from the peritoneum the inflammation may spread on to adjacent coils in the small intestine. The small intestine may even be adherent to the inflamed peritoneum in the pelvic area. F. C. Wallis, in *Clinical Journal*.

A FORECAST OF THE UNITED STATES PHARMACOPEIA IX *

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It is generally well known that the Pharmacopeia of the United States of America had its origin in the desire of the leading men in the medical profession of a century or more ago to secure for their patients medications of uniform strength and activity and to eliminate from the practice of medicine, so far as possible, drugs and preparations of unknown value or of recognized uselessness. In accordance with these intentions the first edition of the Pharmacopeia of the United States was devised by capable, broad-minded men as a safeguard to the health of the American people, and the preface to that work outlines, at some length the objects and the ideals of the founders.

As an illustration of the aims of the originators I may be permitted to quote from the initial paragraphs of the preface to the first U. S. P.:

It is the object of a pharmacopeia to select from among substances which possess medical power, those, the utility of which is most fully established and best understood, and to form from them preparations and compositions, in which their powers may be exerted to the greatest advantage.

The fault of the lists of the materia medica which have been adopted in different countries has always been their redundancy, rather than their deficiency. The number of articles necessary in the management of diseases is always far short of the catalogue afforded by most pharmacopeias.

The value of a pharmacopeia depends on the fidelity with which it conforms to the best state of medical knowledge of the day. Its usefulness depends on the sanction it receives from the medical community and the public, and the extent to which it governs the language and practice of those for whose use it is intended.

The assertion has been made that the materia medica of a century ago might be considered as "lilliputian" when compared with the variety of the materials available at the present time.

This statement should not go unchallenged in view of the fact that, despite the principles laid down in the preface quoted above, the founders of the U. S. P. nevertheless saw fit to include in that book more than 600 drugs and preparations, which they considered to be of sufficient merit to warrant continued use. In addition to this, a review of the "International Pharmacopeia," compiled by A. J. L. Jourdan, first published in 1828, will convince anyone that the materia medica of that early day was both complex and varied.

An interesting reflection of the direct effect of the compilation by Jourdan, just referred to, is found in the preface to the U. S. P. for 1830, which says in part:

It is highly desirable that uniformity in the preparation of medicines should everywhere prevail, for the benefits accruing from the mutual interchange of the medical writings of different civilized nations must be greatly affected by any material difference in the nature or composition of the remedies employed. . . . It is a duty, therefore, which we owe to the cause of pharmacy to throw our own weight into that scale which already preponderates, and thus contribute to the production and maintenance of the desired uniformity.

The introduction of proprietary medical schools in the earlier decades of the nineteenth century appears to have been accompanied by a decadence of the high ideals

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

once dominant in American medicine and the United States Pharmacopeia was among the lines of effort to be most seriously affected. Without discussing this particular influence further, it may be pointed out that the variance of opinion regarding the field of usefulness for a pharmacopeia that has been manifested in this country during recent years, has led us to overlook the rather limited field occupied by the Pharmacopeia of the United States during nearly fifty years of its existence.

From 1830 to 1880 the chief and, practically, the only direct use for the Pharmacopeia was as the basis for a commentary, the U. S. Dispensary, which was developed and continued by the chief editors and the publishers of the Pharmacopeia. During all of this period, the history of the Pharmacopeia is so intimately associated with that of the Dispensary, that many otherwise intelligent medical practitioners did not know, or at least, did not appreciate that the two books were not identical.

We should not forget, however, that the thanks of all who are in any way interested in the development of the science of medicine in this country is and ever will be due to the originators and editors of the "United States Dispensary," Dr. George B. Wood and Dr. Franklin Bache for their far-sighted policy of continuing the Pharmacopeia along the high plane on which it was founded.

The really slow deviation from the original intent of the founders of the Pharmacopeia is well illustrated by Table 1, showing the comparative number of vegetable, chemical and animal drugs and the number of Galenical preparations in the several editions of the U. S. P.

TABLE 1.—THE NUMBER OF DRUGS AND GALENICAL PREPARATIONS IN THE VARIOUS EDITIONS OF THE U. S. P.

	1820.	1830.	1840.	1850.	1860.	1870.	1880.	1890.	1900.
Vegetable	254	260	281	297	312	321	264	255	220
Chemical	109	116	124	140	176	192	233	239	268
Animal	12	15	17	19	18	18	15	18	21
Galenical	246	229	266	312	367	440	481	473	443
General Formule ..	...	...	...	...	...	...	4	5	6
Total	621	620	688	768	873	971	997	990	958

It will be noted that, in the first revision of the U. S. P., the number of official articles was actually reduced and that, following this date, the sum-total of articles increased rather rapidly to 1870 and apparently reached a maximum in 1880, from which time the number of official articles appears to be again gradually decreasing.

The evident causes for the increases in the number of articles official in the U. S. P., in the decades from 1810 to 1870 inclusive, are of course varied. Not the least among these causes, however, is the part taken by pharmacists in the several revisions including and following that of 1840, and the influence that the introduction and increase of eclectic, botanic and other "new" schools of medicine had on the practices of medicine, as well as pharmacy, in these United States.

Altogether, the several editions of the Pharmacopeia appear to reflect the decadence of the medical instruction and medical ideals in this country in a way that as yet, has not been sufficiently well recognized.

The U. S. P. VI, or that of 1880, as it is more generally known, represents a revolution in Pharmacopeia-making in this country, but, unfortunately, the revolution was originated and carried out by pharmacists, and medical men took little or no part in it.

Dr. E. R. Squibb,¹ in commenting on the U. S. P. VI, says:

It is by far the best Pharmacopeia of the time, because it is the result of more labor and research than any other, and by hands as skilful as any other.

In its general complexion and tone it is pharmaceutical rather than therapeutical. That is, while its general tendency is to both polypharmacy and polytherapy, its greatest redundancy is in its pharmacy; and this is not to be wondered at, from the constitution of the committee of revision and from the fact that the pharmacists did almost all of the work.

Since 1880 the pharmacists of the country have continued to bear the burden of pharmacopeial revision with little or no assistance from the medical profession, and the U. S. P. has continued to be, primarily, a pharmaceutical reference-book, with little or no regard to therapy or therapeutic needs.

Some indication of the comparative scope of the Pharmacopeia of the United States is evidenced by Table 2, showing the number of titles included in fourteen of the leading pharmacopeias of the world, with the comparative number of general headings, crude drugs, chemicals and Galenical preparations.

TABLE 2.—NUMBER OF TITLES, ETC., INCLUDED IN THE SEVERAL NATIONAL PHARMACOPEIAS

Pharmacopeia.	Published.	Total Titles.	General Headings.	Drugs.	Chemicals.	Preparations.
British IV.....	1898	826	0	189	186	451
German IV.....	1900	626	23	193	176	234
United States VIII..	1905	958	6	241	268	443
Spanish VII.....	1905	1073	0	269	260	544
Dutch IV.....	1905	673	17	200	182	274
Japanese III.....	1906	706	14	204	207	281
Belgian III.....	1906	722	25	185	173	329
Austrian VIII.....	1906	698	19	232	160	287
Danish VII.....	1907	489	22	142	144	181
Swiss IV.....	1907	853	29	244	227	353
Swedish IX.....	1908	583	19	144	179	241
French V.....	1908	1122	48	271	293	510
Italian III.....	1909	669	18	164	194	294
Hungarian III.....	1909	551	18	142	183	294

Excepting the pharmacopeias of Spain and France, which are dominated by conditions not prevailing in other countries, it will be noted that the U. S. Pharmacopeia excels in the total number of official titles.

Another interesting fact is that the two pharmacopeias, the Swiss and British, having the next highest number of official titles are, like the U. S. P., in a way controlled by the dispensing interests involved. The Pharmacopeia of Switzerland is published under the auspices of the Swiss Pharmaceutical Society, while the British Pharmacopeia is largely dominated by the Society of Apothecaries, which represents the more numerous and more influential "general practitioner" who, with the assistance of the "chemist and druggist" is well able to dictate the scope and content of the Pharmacopeia.

Eliminating the pharmacopeias published in countries where special conditions appear to make a large number of official articles necessary or desirable, our own Pharmacopeia is the most prolix, and, as constituted at the present time, does not reflect a satisfactory development of medical science so far as pharmaceutical therapy is concerned.

Recognizing the old adage that "a multiplicity of remedies is an indication of incompetency or ignorance" physicians and others who are interested in divorcing the science of medicine from the possible domination of commercial interests looked forward rather anxiously to the outcome of the United States Pharmacopeial Con-

vention held in Washington on May 10, 11 and 12 of this year.

That this outcome is not altogether promising, from a progressive point of view, is evidenced by the reports of the convention which have appeared in the several medical and pharmaceutical journals. Thus the *New York Medical Journal*, (May 14, 1910, p. 1020) in commenting on the outcome of the Pharmacopeial Convention, says regarding the scope of the Pharmacopeia:

The convention took the ground that the extent to which a drug was used is a safer criterion of its availability for introduction into the Pharmacopeia than the expression of opinion regarding its therapeutic value. Consequently the use rather than the therapeutic value of a drug will be taken as a guide by the committee regarding admissions and deletions.

This expression of opinion is justified by the fact that the limiting clause that, "there should not be included rarely used substances or those whose value and use has not been established" was, on motion, eliminated from the first paragraph of the general principles to be followed in revising the Pharmacopeia.

The paragraph on scope of the Pharmacopeia as finally adopted provides essentially that the Committee of Revision be authorized to admit into the Pharmacopeia any medicinal substance of known origin; but no substance or combination of substances shall be introduced, if the composition or mode of manufacture thereof be kept secret, or if it be controlled by unlimited proprietary or patent rights, and the list of substances should be carefully selected, with standards for identity and purity as far as possible.

So far as the physician is concerned, this one paragraph involves the important features of the revision of the Pharmacopeia, as the interpretation put on it by the majority of the Committee of Revision will determine whether the Pharmacopeia of the United States is to be developed solely as a legal standard for the many thousands of medicaments used by man in the treatment of disease, or whether it shall continue as a basis for medical prescribing and contain only descriptions, formulas and standards for therapeutically active or useful medicines.

In this connection, it may be well to point out that the Committee of Revision has been made responsible for the nature and content of the U. S. P. IX and that the members of the committee will not be in a position to shirk criticism should the result of its work not comply fully with the wishes of the interested owners of the Pharmacopeia or the accepted facts that are clearly evidenced at the time.

It goes without saying, therefore, that the members of the medical profession still have an opportunity to demonstrate the validity of the claim that the Pharmacopeia, being issued under the joint authority of physicians and pharmacists, should be an authoritative list of remedial agents representing the best and most active therapeutic agents known to physicians and of the purest and most reliable quality that can be furnished by pharmacists.

The question frequently heard, "Who is to determine the medicinal value or usefulness of a medicine?" is based on sheer sophistry. The value or usefulness of a medicament is to be determined according to the best light of the day, and no one will believe for a moment that the substance thought useful to-day will continue to be considered so for all time to come.

The radical nature of the changes which have been brought about in our ideas regarding the usefulness of

medicaments can be well illustrated by the following items from the materia medica of a century or more ago:

"Toad powder" was at one time a valued medicine and was said to "provoke urine and cure the dropsie, if curable. Outwardly applied, it draws out the poison of carbuncles. Blown up the nostrils, it stops their bleeding. Applied to the soles of the feet, it draws away distempers from the head, helps frenzies and fevers. It is also good against old ulcers and fistulas and biting of serpents."

Spermaceti, an article known to modern medicine less than three hundred years, was landed during much the greater portion of this period as "the sovereignst medicine on earth for inward bruises resulting from falls and similar injuries." It was also asserted to be "of considerable use in pains and erosions of the intestines, in coughs proceeding from sharp defluxions, and, in general, in all cases where the solids require to be relaxed or acrimonious humours to be softened."

No medical practitioner to-day uses toad powder as a diuretic or spermaceti as a never-failing remedy for "inward bruises," and yet he would be rash indeed who would assert that the practitioner of old was absolutely wrong and that toad powder did not contribute, in a way, to the progress of the science of medicine.

The frequently made assertion that "the Pharmacopeia is the law of the land so that its first valuation and its greatest function is to provide a standard for purity and for strength" is based on a misconception of fact and a misinterpretation of the letter as well as the spirit of the Food and Drugs Act of June 30, 1906, which specifically mentions the United States Pharmacopeia and the National Formulary.

In the discussion on the scope of the U. S. P. no one appears to have been willing to concede the fact that in law, in name and in possible scope these books are equal, with, perhaps, a number of counts in favor of the legality and usefulness of the National Formulary. In this connection we should not forget that, technically at least, the "United States Pharmacopeia" does not as yet exist.

Without going into a detailed discussion of the merits of the two books as an available legal standard it may be permissible to call attention to the Standard Dictionary definitions, as follows:

Pharmacopeia: "A book, usually published by authority, containing the formulas and methods of preparation of medicines etc. . . ."

Formulary: "1. A compilation or collection of forms, formulas, doctrines or precedents. . . 3. A ritual or formula."

As designating titles for a treatise on medicinal substances the two words are practically synonymous apart from their derivation, one being Greek, the other Latin.

So far as the practicability of developing either book as a legal standard for any and all substances is concerned, it would appear that the owners of the Pharmacopeia are, at least, divided as to the desirability of having their book used exclusively for this purpose, while the owners of the National Formulary are unanimously in favor of providing standards for all articles not included in the Pharmacopeia of the United States.

Thus the American Pharmaceutical Association in deciding on the scope of the National Formulary held that the therapeutics or therapeutic incompatibilities of the National Formulary preparations are not within the province of the National Formulary committee. "The physician may reasonably be expected to know what he wants, and if he chooses to prescribe preparations which are therapeutically incompatible it is the duty of the

pharmacist to supply what is ordered. The Committee on National Formulary feels it to be its duty to supply formulas for medicaments which may be prescribed by physicians, if the demand is sufficient to justify our attention and if an acceptable formula can be devised or obtained."

With the need for developing the Pharmacopeia as an all-embracing standard for drugs and medicines eliminated, and with at least a fair-sized minority of the members of the Pharmacopeia convention opposed to such use, it would appear as though the Committee on Revision would certainly be going contrary to the best interests of the American people in deviating from the time-honored scope and use of the Pharmacopeia.

Physicians have long since recognized that the practice of medicine is not limited to the administration of drugs and preparations of drugs, and that the prevention of disease and the prevention of further spread of disease, when it does occur, are among the requirements that the medical practitioner should not and dare not lose sight of.

With these varied requirements to prepare for it is obviously impossible for the medical student, in the limited time at his disposal, to acquire a working knowledge of all the drugs and preparations which have been used at one time or another, and it would appear that no more important public health measure could be introduced at the present time than the outlining of a therapeutically active materia medica as a basis for the instruction of medical students and for reference by physicians now in practice.

In conclusion allow me to call attention once more to the quotation from the first edition of the Pharmacopeia which asserts that "the value of a Pharmacopeia depends on the fidelity with which it conforms to the best state of medical knowledge of the day. Its usefulness depends on the sanction it receives from the medical community and the public, and the extent to which it governs the language and practice of those for whose use it is intended." Can we, on the eve of the corresponding decade of the twentieth century, do better, or will we do less?

Twenty-fifth and E Streets, N. W.

ABSTRACT OF DISCUSSION

DR. A. S. LOEVENHART, Madison, Wis.: Since the Pharmacopeial Convention left the matter to the Committee on Revision to decide, I think it would be proper for this Section to express its wish that all substances be omitted that have not a recognized therapeutic value and that are unnecessary duplications.

DR. C. S. N. HALLBERG, Chicago: I take decided objection to Mr. Wilbert's statement in reference to the makeup of the Pharmacopeia. I made a special study of the makeup of the European pharmacopeias last year. The British Pharmacopeia is dominated by the Medical Council and there is not a pharmacist on it. The council delegated the revision to Professor Atfield.

The U. S. Pharmacopeial Convention absolutely refused to listen to some of the medical delegates, because they knew that they did not have back of them the practices of 140,000 physicians of the United States. We pharmacists must cater to the physicians who write prescriptions and use medicine. While it is interesting that there are medical men, in Baltimore particularly, who have wonderful ideas on drugs, seldom write prescriptions, and rarely, if ever, prescribe medicine, they have our sympathy, but they have not our real heartfelt thanks, because they do not act as real pharmacologists. To give a concrete example: I have been told that

out of Kansas alone last year there were shipped 200,000 pounds of echinacea, nearly every pound of which went into regular and proprietary pharmaceutical preparations, to be used by physicians. Yet the Council on Pharmacy and Chemistry will not admit echinacea to New and Nonofficial Remedies. When such an army of medical men is using it as an antiseptic and astringent, by what right do you say that these men do not know how to practice medicine, or do not know what kind of medicine to use?

DR. A. S. LOEVENHART, Madison, Wis.: If usage is to be the criterion, then Peruna should be in the Pharmacopeia. I claim that we cannot afford to let certain articles go into the Pharmacopeia on the basis of usage. We do not limit physicians; they can use what they wish, but a book that is supposed to represent, as Mr. Wilbert said, the best medical thought and to have the medical profession behind it, must not include drugs on the basis of usage.

DR. C. S. N. HALLBERG, Chicago: After the U. S. P. Convention is past you cannot do anything by any action taken here to influence the committee. The committee of this Section, and I believe the committee of the American Medical Association on the Pharmacopeia, engaged in a campaign for six months trying to test the medical sentiment of this country in order to get crystallized the ideas and bring them before the convention. What was the result? Not one idea did they carry through, because the Pharmacopeial Convention represented the actual state of pharmacy and medicine in this country as near as it could be formulated, and that is why they stuck to the original principles. The Pharmacopeia is for a standard of strength, purity and quality of medicinal substances and gives directions for their preservation, valuation, preparation and compounding, and not one more syllable about it, nor can you, by any stretch of imagination, add another attribute to it, so that I do not see that any good can be accomplished by our expressions of opinion.

DR. F. E. STEWART, Philadelphia: In 1880, this whole subject came up in a discussion with Dr. Squibb, and I remember what he said, and thirty years' experience confirms it, namely: "A large part of the demand for new remedies is a fictitious demand, caused by advertising. Take antipyrin: on account of advertisement it was widely used, but after the patent expired the demand fell flat."

DR. A. S. LOEVENHART, Madison, Wis.: We want the Pharmacopeia to represent the best medical knowledge as to what drugs are useful in the treatment of disease. We would rather let much-used drugs, which are worthless according to general medical opinion, go in the National Formulary and let them be in the hands of the pharmacists who come in contact with the physicians who are handling this class of drugs. Dr. Hallberg states that the United States Pharmacopeia should be a standard for medicinal substances and that it contains nothing about therapeutics. The mere proposition that it is a standard of medicinal substances proves that there is a large element of therapeutics concerned in it. The definition of medicinal substances is: "those useful in the treatment of disease." Dr. Hallberg puts the interpretation that anything sufficiently used by the medical profession is useful in the treatment of disease. I hold that we should accept the best obtainable medical opinion as to what should be included in the Pharmacopeia. That is a simple statement of the difference between us.

Dr. Hallberg has said that the medical profession has lost its chance for the next ten years. I disagree with him; the whole thing is entirely open. The Committee on Revision can include drugs to meet the needs of the people whom it is trying to serve. Now if we, as a part of their constituents, state that we hope these things will not be continued, it will strengthen them to leave out drugs which have been included merely on the basis of usage. With regard to those who shall say what drugs are useful, we can leave them to the general trend of recognized therapeutic value. We must leave to the revision committee to determine by the general trend of medical literature and by methods which they must work out. It should be pointed out that the medical men on the revision committee are in the great minority.

DR. R. A. HATCHER, New York: There is one point that should not be altogether overlooked. There can be little doubt that the controlling influences in the convention are not in favor of restriction. It might be claimed in the future that by silence we gave tacit assent to the program, and I do believe that our protest may have considerable value, although I doubt very much whether it will have a corresponding amount of influence.

DR. C. S. N. HALLBERG, Chicago: The subject is entirely left open to the Committee on Revision, as Dr. Loevenhart states, but those that know the Committee on Revision know that the members have already made up their minds to adhere to those principles which were under discussion, and that the Committee on Revision is certainly not in favor of any radical proposition. Still I do not object to the proposed action, and I think with Dr. Hatcher that it might do some good, if for no other reason than as a matter of record to protest against the admission of some article which might possibly be objectionable.

[The Section voted in favor of the expression of opinion as suggested by Dr. Loevenhart.]

A SIMPLE BLOODLESS OPERATION FOR HEMORRHOIDS*

LOUIS J. HIRSCHMAN, M.D.
DETROIT

It is my intention to give briefly my technic for the removal of certain forms of internal hemorrhoids without the profuse hemorrhage with which this operation is usually associated in the minds of most practitioners. Having observed that most patients suffering from hemorrhoids of the internal variety are more or less anemic from the continued and constant loss of blood, as a result of their hemorrhoidal trouble, I began three years ago to use a technic which would minimize operative hemorrhage and conserve the patient's blood-supply.

With this aim in view, I have developed and have been using a very simple technic which is applicable under local as well as general anesthesia and therefore can be used in those weak, run-down patients suffering from any of the wasting diseases in whom the use of a general anesthetic would be inadvisable if not positively dangerous. The method is adapted to the removal of any variety of internal hemorrhoids and particularly to the pedunculated and prolapsing varieties.

Interno-external hemorrhoids can also be treated by this method. Very few instruments are required and in many cases dilatation of the sphincters is not necessary. The technic under general anesthesia is much the same as under local anesthesia, and inasmuch as local anesthesia is much safer and fully as satisfactory as general anesthesia for this work, I shall describe the operation as I perform it under local anesthesia.

The drugs which may be used for the production of local anesthesia in this region are various. Cocain, eucain, stovain, novocain, alpin and chlorotone, as well as their various combinations with other salts, have been used in varying strengths of solution and with varying success by different workers.

During the past six months I have been employing for this operation, as well as in many other operations on the anus and rectum, a sterilized 1 per cent solution of quinin and urea hydrochlorid. I am using this solution, which is prepared from the double salt of quinin and

urea (which is made by dissolving quinin hydrochlorid in hydrochloric acid, adding pure urea, filtering the mixture through glass wool and allowing it to crystallize), because of the following advantages over any other anesthetic drug:

First: It is non-toxic and can be given in unlimited dosage. Brewster of Kansas City has used 100 grains intravenously within six hours in a patient suffering from pernicious malaria.

Second: When a solution containing 1 per cent. or over is used the hemostatic effect produced by the deposition and contraction of fibrinous exudate around the blood-vessels is of great value in preventing postoperative oozing.

Third: The anesthetic effect is prolonged; in many cases postoperative anesthesia has lasted from four to five hours to as many days and longer.

Fourth: While equal to cocain in anesthetic power, it has the advantage of being very much cheaper, and is a drug which is almost always available.

One advantage of the operation to be described is the fact that but few instruments are required. Those necessary are: a one-half ounce aseptic hypodermic syringe provided with a fine caliber sharp-pointed needle 2 inches in length, scalpel, pointed scissors curved on the flat, blunt-pointed, long-handled, curved ligature-carrier, my pile forceps, and sometimes a Sims retractor.

The patient is given $\frac{1}{4}$ grain of morphin about twenty minutes before the operation is to be performed, a soap-suds enema followed by a boracic acid enema is given, and the patient is placed on the operating table in the right or left lateral position. After the region of the anus is washed and sterilized the sphincter is anesthetized by the injection of from 10 to 30 minims of sterile 1 per cent. solution of quinin and urea hydrochlorid. The technic which I employ is as follows:

A point one-half inch below and posterior to the posterior commissure of the anus is selected and touched with a swab moistened with pure phenol. After waiting 2 or 3 minutes, or until this point is thoroughly blanched, the needle of the syringe is passed inward, upward and laterally in a V-shaped direction for about three-quarters of an inch, gradually going down into the sphincter muscle, but not entirely through it. While doing this it is well to pull down the sphincter by the index-finger of the left hand passed into the anus while the injection is being made with the right. From 10 to 20 drops of the solution are slowly injected and the needle is retraced to the point of puncture but not withdrawn. It is then pushed up on the other side in the same manner and this side is likewise injected. Three or four minutes are allowed to elapse to allow the anesthesia to become complete. Then a mechanical vibrator fitted with a cone-shaped vibrator, which has been well lubricated, is gently pressed into the anal orifice. About 3 minutes with the rotary stroke will dilate the sphincter to about the caliber of a silver dollar, which is sufficient to allow the operation to be done in a most satisfactory manner.

It is not absolutely necessary to use the vibrator. In its place one may use the index-fingers of both hands inserted opposed to each other and well lubricated, and by separating them with a gentle massage motion the sphincter may be dilated as satisfactorily in from three to four minutes.

After dilatation has been accomplished, the most dependent hemorrhoid is injected with the 1 per cent. quinin and urea hydrochlorid solution, enough being in-

* Read in the Section on Surgery of the American Medical Association, at the Sixty-first Annual Session, at St. Louis, June, 1910.

jected to blanch the hemorrhoid and give it the appearance of a Malaga grape. The lower extremity of the hemorrhoid is then grasped with the pile forceps and pulled down so that it is on the stretch. The long-handled ligature carrier threaded with No. 2 twenty-day, chronicized catgut is passed in through the mucous membrane of one side down to the base of the hemorrhoid and around to the opposite side in such a manner as to include the upper third of mucous membrane covering the pile and the blood-vessels which run longitudinally underneath, but not encircling the whole hemorrhoid as in the old ligature operation. This ligature should be placed just at the juncture of the hemorrhoid and the normal mucous membrane of the rectum. It is then firmly tied, when it will be found that the principal blood-supply of the hemorrhoid has been included in the ligature and shut off. The hemorrhoids on either side are dealt with in like manner and lastly the anterior and upper ones.

A suppository containing orthoform, 3 grains, thymol iodid 3 grains, and quinin hydrochlorid 20 grains, is inserted and the patient kept in the recumbent position for 10 minutes and then allowed to rise from the table. There will be a certain amount of edema or swelling during the first twenty-four hours, but this gradually disappears and is of no consequence. The hemorrhoids gradually shrink until, at the end of three or four weeks, there is nothing left but a small nub of connective tissue which can be painlessly snipped off at any time or left if one so desires.

This, which is the simplest form of technic, is peculiarly adapted to those desperate cases of anemia in which the daily loss of blood from the hemorrhoids is far greater than the patient's blood production. It can be performed in 10 or 15 minutes and involves the least expenditure of endurance on the part of the patient.

In the majority of my cases, when the necessity for haste and conservation of blood-supply is not quite so imperative, I modify the technic as follows:

Anesthetization, dilatation, and ligation are performed as above outlined. The hemorrhoidal tumors are then grasped in order by the pile forceps and incised in their longitudinal axes from a point about one-quarter inch below the ligature and extending down to their distal extremities. After separation of the sides of the incision, the blood-vessels and connective tissue which make up the body of each pile are dissected out *en masse* with the curved scissors and cut off one-quarter inch below the ligature. This longitudinal wound in each case is allowed to remain open and heals in from three to five days without suture. This disposes of the hemorrhoids at once, and does away with much of the swelling which necessarily follows the preceding technic.

In those cases in which there are pedunculated prolapsing hemorrhoids, it is not necessary to dilate the sphincter. After the preparation outlined above, the patient is asked to strain while in the squatting position, or while lying on his side in the Sims position, while the operator is everting and pressing back the anus by manual pressure just outside of the margins of the external sphincters. The same technic as outlined above is carried out in regard to injection of anesthetic, ligation, and excision, and the operation is completed by the insertion of the anodyne suppository already mentioned.

The after-care is very simple. The bowels are kept confined for three or four days; on the beginning of the third day, white petroleum oil is administered in dram

doses before meals and at bedtime. This acts in a purely mechanical way, preventing the formation of hard stools and making the movements very easy. A simple soapsuds enema given through a small soft rubber rectal tube on the third or fourth day will start the evacuation of the bowels, which should be encouraged daily thereafter.

The use of quinin and urea hydrochlorid as an anesthetic possesses the great advantage over other drugs, of keeping up postoperative anesthesia of the parts, in many cases, during the entire convalescence of the patient. I consider that with the simple technic just outlined, and this newest local anesthetic, hemorrhoids can be removed without the patient suffering pain either during the operation or following it.

My experience with this technic under local anesthesia produced formerly under injections of 0.1 per cent. solutions of beta-eucain lactate and latterly under quinin and urea hydrochlorid—in all over 300 cases—leads me at this time to offer it to the members of this Section with the hope that it will prove as satisfactory in their hands as it has in mine.

604 Washington Arcade.

A CASE OF PERNICIOUS ANEMIA

B. P. ROSENBERRY, M.D.
ARCADIA, WIS.

In the following case the patient has been under my observation during the past two years, commencing June 21, 1908. The case is a typical one of the severe type and illustrates the remissions which are so characteristic of the condition and also the manner in which the condition for the time being responds to arsenic.

Patient.—D. N., unmarried, farmer, Irish, aged 58. His father died at 86; his mother died at 73 of pneumonia. Brothers all alive and well; two sisters died in infancy.

History.—He had a broken leg five years ago, otherwise he has always been healthy. He has been an exceptionally hard drinker for a number of years, and is frequently drunk for days at a time. Six months ago he took cold after exposure during a drunken spree and has not recovered. He complains of general weakness especially of the legs, shortness of breath, loss of appetite, sore mouth, dry cough and inability to undergo any ordinary physical exertion.

Examination.—Tall, thin, large frame, skin pale yellowish color; muscles flabby, mucous membranes very pale and gray. Visible forcible pulsation of arterial trunks in neck and abdomen. Teeth poor; no sores in mouth; pulse 80, regular and soft. Soft systolic heart murmur at apex. Arteries very hard; the patient has lost considerable weight, but does not know exactly how much.

Urine Examination.—Amount of sample examined, 4 oz. Very pale, clear, specific gravity 1.004, acid; no albumin, no sugar, no bile, no indican, no sediment. He had been drinking beer previous to voiding this sample.

Blood Examination.—Red blood cells, 952,000; white blood cells, 2,850; hemoglobin, 30 to 40 per cent. Tallqvist; index plus; marked poikilocytosis. Many macrocytes and microcytes; many megaloblasts and a few normoblasts seen; almost no blood plates; polymorphonuclears decreased; small lymphocytes and eosinophils increased; few myelocytes.

A diagnosis of pernicious anemia was made.

Treatment.—Tincture of nux vomica and tincture of gentian compound were given before meals for stomachic and general tonic with Fowler's solution in ascending doses after meals. The patient was told to stop work and to take full nourishing diet.

Course of Disease.—July 22, 1908: The patient gained 12 pounds and felt much stronger. R. B. C. numbered

2,050,000; W. B. C., 2,375; hemoglobin, 50 per cent.; Tallqvist, no megaloblasts and one normoblast seen.

Aug. 24, 1908: Patient gained 14 pounds in all, felt well and was doing light farm work. R. B. C. numbered 3,760,000; W. B. C., 7,725; hemoglobin, 70 per cent.

Nov. 15, 1908: The patient has gained 23 pounds since beginning treatment, and has been doing regular farm work for the last three months. R. B. C. numbered 3,728,000; hemoglobin, 75 per cent.; no megaloblasts or normoblasts; many macrocytes and microcytes; poikilocytosis. The patient has been taking Fowler's solution continuously until the last three weeks.

Dec. 13, 1908: Patient continues about the same; still doing regular farm work and taking no medicine aside from an occasional laxative.

Feb. 26, 1909: Patient feels about the same. R. B. C. numbered 3,904,000; hemoglobin, 60 per cent. Patient shows the beginning of decline.

April 10, 1909: Patient has been feeling weak again for the last three weeks. Temperature, 100 F.; pulse, 95; month feels sore; R. B. C. numbered 1,576,000; hemoglobin, 40 per cent.; few megaloblasts and one normoblast; poikilocytosis. Patient put on Fowler's solution again as before.

From now on patient got stronger and went to work again, and was not seen again until Sept. 16, 1909, when he was weak, short of breath, very pale. R. B. C., 904,000; hemoglobin, 20 to 30 per cent.; marked poikilocytosis, with many macrocytes and microcytes; one megaloblast. Patient put on arsenic again as before.

Nov. 1, 1909: Patient feeling well again; has been in the hospital in bed for the last six weeks. He has been taking Fowler's solution and has gained in weight and strength. R. B. C., 2,224,000; hemoglobin, 60 per cent.; no megaloblasts or normoblasts.

He felt well for some time after this, but did not present himself for further examination. In February, 1910, he began to show evidence of weakness and spasticity in arms and legs. This progressed until by June 1 he was confined to bed almost completely paralyzed. There was loss of control of the bladder and rectum. He became gradually weaker, until he died on June 25.

The severity of the case and the promptness with which the conditions improved on taking Fowler's solution are my reasons for reporting this case.

ADIPOSIS DOLOROSA (DERCUM'S DISEASE) IN MOTHER AND DAUGHTER

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This report of two new cases of adiposis dolorosa will shed no new light on the etiologic factors or treatment. Fifty cases have been reported;¹ eight autopsies have been performed so far. In seven the thyroid was abnormal and in five of them the pituitary body.²

Traumatism, toxemia, continued nervous strain, the menopause, alcoholism, syphilis, tuberculosis and various other causes have been duly considered by various observers. So far, in view of the autopsy findings, the abnormalities of internal secretion of the thyroid and pituitary surely play a most important part.

Cheevers reported a case in which a father and a sister were affected, and Hammond made a report of two cases in sisters. In my cases it is a mother with the disease well advanced and of five and one-half years' duration. The daughter has been affected for eighteen months.

Osler³ has shown us clearly that we must differentiate between adiposis tuberosa simplex, adiposis cerebialis, adenolipomatosis and multiple lipomatosis. Particular care was taken not to confound symmetrical adenolipomatosis with adiposis dolorosa in Case 1.

CASE 1.—(Dispensary No. 21,140. May, 1910).—*Patient*.—Mrs. B., white, housewife, aged 64. Diagnosis: adiposis dolorosa, with anacid gastritis. Family history, unimportant; one sister died of tuberculosis. Four living children, negative to cancer, syphilis or alcoholic excess, insanity, or epilepsy.

Past History.—The patient had the usual children's diseases; no scarlet fever, but she had diphtheria when she was 16 years old. In 1880 she was paralyzed on left side, and again in 1897. She has had severe spells of indigestion for about five years, with almost constant burning pains in her stomach. She is chronically constipated, vomits frequently and has choking spells on lying down. She complains of insomnia, severe pains at back of the neck, in her throat, her legs and over the xiphoid. She is excessively nervous, despondent and low-spirited at times. Her appetite is poor. She complains of "crawling sensations" under the skin.

Examination.—A rather florid woman, 5 feet 3 inches tall, weighing at present 175 pounds. Four years ago she weighed 104 pounds. Examination of head shows nothing. Bilaterally, just above the clavicles are adipose masses, standing out prominently, soft to the touch and painful on pressure. These are ovoid in shape and are about 5 by 9 cm. and 4 by 5 cm. respectively. They do not pit on pressure. A very painful mass is found at about the level of the last cervical vertebra. This is flat and not as soft as the others. There is another over the xiphoid, and others are found in the axillæ. The upper arms are covered with a thick layer of subcutaneous fat, and the breasts are quite pendulous. The mass over the xiphoid is very painful on pressure, and the patient is conscious of its presence all the time. Careful auscultation and percussion by myself and Dr. G. Wilson show no dullness in the upper thorax, and the heart sounds appear normal. The reflexes are normal. There are small areas of hyperesthesia on both arms and in the region of the neck. The lower abdominal region protrudes, forming an almost hemispherical mass, exceedingly hard, dull on percussion over the whole area. An apron of fairly solid tissue extends in U-shape in front, extending at its lowest point to below the level of the symphysis. Masses of fat in the gluteal region are pendulous. Another mass is present over the sacrum. The thighs and legs are small. There are no lumps. The ankles are slightly edematous. Although the face is florid, with numerous small dilated arterioles, the rest of the skin is fairly soft and white. There are no isolated or general areas of perspiration. The outline of the stomach cannot be made out. Neither spleen nor kidneys can be located. Hands, feet and face are normal, no fat masses. Examination of stomach contents (double test meal) shows no free hydrochloric acid and a total acidity of 30, some mucus, no lactic acid, no Oppler-Beas bacilli. Urine and blood examination negative. Hemoglobin 85 per cent. Blood pressure 165 mm. 24 hours urine 1275 c. c.

CASE 2.—(Dispensary No. 21,202. May, 1910).—*Patient*.—Mrs. D., aged 42, married, housewife; daughter of Patient 1, height 5 feet 3½ inches; weight 167 pounds (previous weight 100 pounds, a gain of 67 pounds in one and a half years). Diagnosis, adiposis dolorosa, with gastric symptoms.

Previous History.—The patient had the usual diseases of childhood and has had pneumonia four times. She has one child 21 years old. "She was badly torn and had no doctor when her child was born." She has always menstruated every three weeks; she denies any miscarriages. She came to see me because of vomiting spells which started about a year ago. These have become of late almost a daily occurrence. She has severe headaches and menstruation is very painful. She has pains in the back of her neck and pains in the legs and thighs. She feels cold all the time, and wears heavy clothing even in summer. She seldom perspires; her skin is yellowish. She has worn a pessary for a long time, and has a retroflexed uterus and a very weak perineum. Nursing her mother when she was

1. Price, G. E.: Am. Jour. Med. Sc., May, 1909.
2. Stern, H.: Am. Jour. Med. Sc., March, 1910.

3. Osler: Practice of Medicine, 1903.

paralyzed was a great strain on her, and her mother's present state of health is another burden.

Examination.—Stomach contents show free hydrochloric acid absent, total acidity 30, but no apparent atonic condition; some mucus, no lactic acid or Oppler-Boas bacilli. The bowels move every day without aid. The reflexes are normal; the pupils react to light and accommodation. Head, thoracic and abdominal examinations negative. There is one large, soft lipomatous mass over the left collar bone and a smaller one (9 by 5 cm.) on the opposite side, standing out clearly. These are painful and do not pit on pressure. A mass at the back of the neck is extremely sensitive to touch and pressure. The patient has the sensation of some live moving thing in the occipital region. She exhibits in a less marked degree, however, the same neurotic symptoms first observed in her mother. Examinations of blood and urine show nothing. Blood-pressure 149 mm. Hg; hemoglobin 80 per cent.

CONCLUSIONS⁴

If a diathesis existed in the daughter, and nervous strain is considered of etiologic importance, worry over her mother's ill health may have some bearing on her present condition. She took complete charge of her mother during the two paralytic attacks. Then it appears that the birth of her child caused extensive trauma, which is considered by some as of importance.

Most insistent but guarded questioning failed to elicit any past luetic history, in both cases, any miscarriages or any knowledge of a family history of epilepsy or goiter. Alcoholic excess can safely be excluded here as a possible causative factor. Four attacks of pneumonia and diphtheria in the mother, also the two later paralytic attacks, are to be considered.

These two cases are mild, but the symptoms are marked, much more so in the mother, however. In Case 2 the disease has occurred before the menopause. (One case in a patient as young as 12 years of age is on record.) The two hemiplegic attacks occurring in Case 1 would suggest a sclerotic condition not found present in the peripheral vessels.

Although there was a marked increase in weight in both cases, it does not appear in Case 1 to be the adiposity which Marburg found at autopsy to be associated in his case with a tumor of the pineal gland. I cannot account reasonably for the two attacks arising from a general pituitary involvement. In neither case does the thyroid exhibit macroscopic changes. The masses in the older woman are not nodular, but are firmer and less sensitive than in Case 2.

The gastritis, which was real in both cases, with age and poor mastication as predisposing factors, responded to treatment (lavage, diet, strychnin sulphate, etc.). The blood-pressure is high in both cases.

The asthenia, the gastric disturbances, areas of hyperesthesia, and the frequent attacks of melancholia, with the physical findings, convince me that we are dealing with true adiposis dolorosa.

Surgical aid has been attempted.

In one case the removal of the breasts and later a mass from the axilla was followed, for a time at least, by cessation of the distressing local symptoms.

Most observers agree that thyroid extract is a benefit in some cases. Price has seen five patients out of seven distinctly benefited by its use. The present knowledge of the pituitary is too limited to make its use of therapeutic value. Salicylates and bromids are of use. Massage of a gentle nature is advocated by some and a

properly regulated exercise and diet should be insisted on in all cases.

Most patients are obese; the heart often requires attention. The agencies suggested are of doubtful permanent benefit and until the etiologic factors causing this distressing pathologic condition, with the accompanying neurosis and psychic disturbances so markedly illustrated in most cases are discovered, we are working more or less in the dark. It is a satisfaction to know, however, that one positive cure has been brought about by the use of thyroid extract.⁵ In all, about 50 cases have been reported.

NOTE. (Sept. 21, 1910).—Patient 1 has lost weight (19 pounds in four months) is less nervous, and in a better general state of health than formerly. The "lumps" have not decreased in size, but are not so sensitive as before thyroid extract treatment was instituted.

Patient 2 shows no improvement after four months' treatment, except that lavage, diet, etc., have bettered the gastric distress. She has gained in weight. The "lumps" are as sensitive or painful as before treatment began.

ANAPHYLACTIA

A PHENOMENON CAUSED BY THE PROTEINS OF TOMATOES, CRABS, BERRIES, BIVALVES, EGGS AND OTHER FOODS. A PRELIMINARY NOTE

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Without discussing, in this brief paper, the so-called "serum-disease" of von Pirquet, and other phenomena of anaphylaxis described elsewhere, such as the anaphylactic attacks in hay-fever, after tuberculin and the like, I wish to make this preliminary report with regard to another anaphylactic disease.

When some foreign protein is first injected into, or invades, man or other animal, it makes him susceptible to a subsequent injection of the same substance. There is no outward or tangible manifestation of this first injection, but the sensitizing effect is distinctly noticeable when the injection is repeated.

This second injection may show itself as a violent shock, or in the form of respiratory disturbances, dyspnea, edema, tonic muscular spasms, joint effusions, glandular swellings, albuminuria, hyperemias, or urticarial skin eruptions. Any one of these signs, or many of them, may be observed after the second dose of protein.

The causes of the various urticarial diseases are usually classified as predisposing, external, and internal. The predisposing causes have been called "susceptibility," "indigestion," "infancy," "rickets," "jaundice," etc.

Nettles, jelly-fish, mosquitoes, wasps, caterpillars and "bugs" are among the external causes.

Internal causes are foods such as mussels, crabs, lobsters, berries, worms, mushrooms, oatmeal, tomatoes, pork, or even egg-white.

The curative treatment is to remove the offending dietetic irritant.

Now, it is my assumption that certain individuals are sensitized to tomatoes, grapes, berries, or other specific protein, and that the absorption of their particular protein from the food brings on an attack. Since in

1. For a comprehensive review and detailed description of symptoms, see Frankenhimer, J. B.: Adiposis Dolorosa, THE JOURNAL A. M. A., March 28, 1908, p. 1012.

5. Price (Am. Jour. Med. Sc., May, 1909) cites the report of Dereum on this point.

certain cases in which antitoxic horse-serum is repeated in a second dose all of these urticarial eruptions, even angioneurotic edema, have been at various times reported, there is every reason to believe that these rashes are signs of anaphylaxis.

One individual may pass through different degrees of prophylaxis (immunity) alternately with states of anaphylaxis. Thus a tomato may at one time cause no symptoms, at another time in the same individual, erythema multiforme; again angioneurotic edema.

Accordingly, those persons subject to urticarial eruptions from a definite food may be regarded as sensitized to that protein. If the proteins absorbed from the digestive tube inaugurate an attack, they are in a state of anaphylaxis.

These phenomena of hypersusceptibility to food proteins may be congenital, acquired or inherited.

The recognition of the offending protein, whether its invasion is by mouth or by injection, whether it is by the olfactory route or by the circulation direct, is of such clinical importance that internists dare no longer ignore the applications of our present knowledge of anaphylaxis.

There is another example of the clinical application of this anaphylactic reaction which I must mention before concluding this paper. It has never been recognized before. In all of the dermatologic clinics of sea-coast or river towns there is seen, in the crabbing season an erythematous, progressive cellulitis of the hands, due to abrasions from the shells of crabs, lobsters and other shell fish. Hundreds of persons are scratched, injured and "bitten" by crabs, yet only about one-tenth of one per cent. of those bitten show this erysipeloid eruption. It spreads from the point of the finger or hand scratched, steadily, just like its more dangerous analogue, erysipelas.

Dr. T. Caspar Gilchrist studied a number of these cases bacteriologically and found them sterile. There was no associated micro-organism. "Crab-hand" has been a mystery, as far as its immediate etiology is concerned.

When we realize that such a small number of those exposed to this shell reaction really exhibit it, and when all of the other factors associated are taken into consideration, I believe it will be agreed that the condition fits in exactly with what we should expect from those persons who are supersensitive to shell proteins. Two experiments that I had the opportunity of performing this summer go far to verify this. They, with others, will be published in another paper.

It is always a specific condition. Persons subject to anaphylactic shock from crabs are not affected by berries, and *vice versa*.

A further study of this new disease is yet to be completed. We are now isolating the proteins of various dietetic articles and administering them to susceptible persons. The complete results of this work will shortly be published.

1937 Madison Avenue.

Benefits of Anesthesia.—Without a reliable anesthetic where would our surgeons be? We would hear nothing of the wonderful work they are doing. They would be groping in the dark and performing only the minor work—opening boils and an occasional amputation. But to-day, thanks to a drug that robs the patient both of the sense of pain and consciousness, the surgeon unhesitatingly dares to attack the most vital parts of the body.—W. A. Onderdonk, in *American Practitioner and News*.

THE SURGICAL IMPORTANCE OF ACCESSORY RENAL ARTERIES*

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Under normal conditions each kidney is supplied by a single renal artery which arises from the side of the aorta, a little below the origin of the superior mesenteric. Each renal artery, before reaching the hilum of the kidney which it supplies, divides into from three to five branches, which enter the substance of the kidney independently at the hilum.

The primitive kidney is a segmental organ, and its primitive vessels are probably segmental, *i. e.*, one artery for each segment, so that the persistence of the embryonic condition would mean that each kidney, instead of being supplied by a single renal artery, might receive from two to five renal arteries. Such supernumerary vessels represent a primitive condition, and the accessory arteries may arise close together from the aorta, or their points of origin may be widely separated.

The varieties of accessory arteries which most frequently occur are:

TYPE 1 (Fig. 1).—Two separate renal arteries arise from the side of the aorta to supply the kidney. The two arteries enter

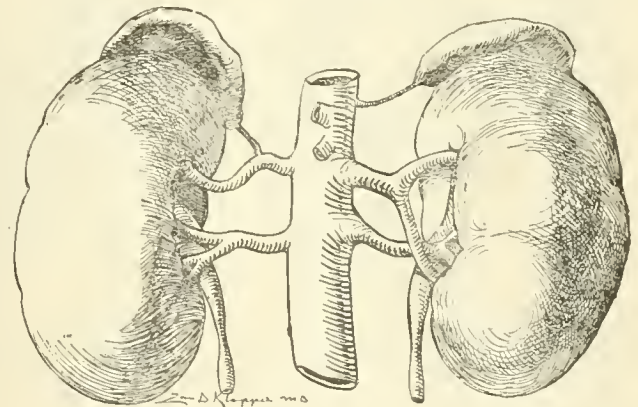


Fig. 1.—Type 1 of accessory arteries. Two separate renal arteries passing to hilum from aorta.

the hilum of the kidney, dividing, just before doing so, into two or more branches. This variety may be called the *two-artery type*.

TYPE 2 (Fig. 2).—A main renal artery arises from the aorta in the normal manner, but a second, *i. e.*, accessory, artery arises from the aorta a variable distance away, passing directly from the aorta to the upper pole of the kidney. This may be called the *superior polar type*.

TYPE 3 (Fig. 3).—The main renal artery arises from the side of the aorta and passes to the hilum in the normal manner.

An accessory renal artery arising separately from the aorta a variable distance from the main trunk passes to the lower pole of the kidney. This is called the *inferior polar type*.

TYPE 4 (Fig. 4).—Three renal arteries arise from the side of the aorta and pass separately to the hilum of the kidney. This is called the *three-artery type*.

TYPE 5.—Four renal arteries arise from the aorta and pass separately to the hilum. This is called the *four-artery type*.

TYPE 6 (Fig. 5).—The accessory artery, instead of having its origin from the aorta, close to the main renal trunk, arises from a vessel at times quite distant from the normal renal artery, most often from the common, external or internal iliaes, rarely from the hepatic, middle sacral, spermatic, in-

*Read at the annual meeting of the American Urological Association, St. Louis, June, 1910.

ferior phrenic, lumbar or even pancreatic or colonic arteries. This may be called the *extra-aortic accessory type*, and is quite rare as compared with the previously described types.

TYPE 7.—Superior or inferior polar branches arise from a single, *i. e.*, normal, renal artery just before it divides to enter the kidney.

These vessels may be called *pseudo, or false accessory, i. e.*, not arising from the aorta. They are of less importance than the true accessory vessels.

Although anatomists have known for many years that such accessory arteries are frequently found, their surgical importance is just beginning to be appreciated. Surgeons have become aware of the fact that accessory renal arteries may not only be the cause of pathologic conditions, *e. g.*, hydronephrosis, but that they may play an important part in producing serious, if not fatal, complications during or after operations on the kidney, such as nephrotomy or nephrectomy. But few books on anatomy in any language, and scarcely a single treatise on general or renal surgery mention the possibility of the presence of such accessory arteries.

The majority of anatomies, such as those of Hyrtl, Henle, Partsch, Sobotta, Poirier and Charpey, Broesike, Lernow, Bardeleben, Joessel, Deaver, Morris, Gerrish, Testut and Langer, either do not mention the occurrence

omy. He calls attention to the fact that hemorrhage after nephrotomy may be due to such accessory vessels.

Israel does not describe any variations of the renal artery, but refers to the rôle which an accessory artery to the lower pole may play in the production of hydronephrosis. In the chapter on nephrolithotomy he refers to the fact that persistent bleeding may be due to accessory polar arteries, which have either not been compressed during a nephrotomy, or from which postoperative bleeding occurs after the heart has regained its activity. He describes a case in which there was an insignificant hemorrhage from the upper pole during a nephrolithotomy, even after a rubber ligature had been placed around the pedicle. After the patient's return to bed a severe hemorrhage occurred, whose source was found at the upper pole, necessitating nephrectomy.

At the 1909 meeting of the French Surgical Association, Pasteau reported a case in which a severe hemorrhage occurred after a nephrectomy, due to overlooking an upper pole artery. He found anomalous arteries in 20 per cent. of eighty-two cases. In one case there were six renal arteries.

The polar arteries are often mistaken for adhesions, and are thus easily torn.

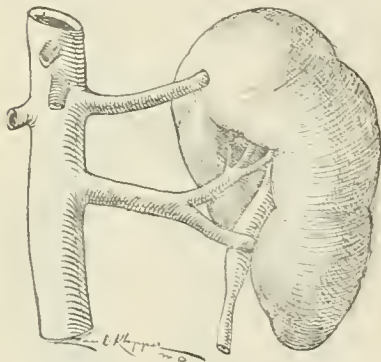


Fig. 2.—Type 2 of accessory arteries. Large artery passes from aorta to upper pole of kidney.

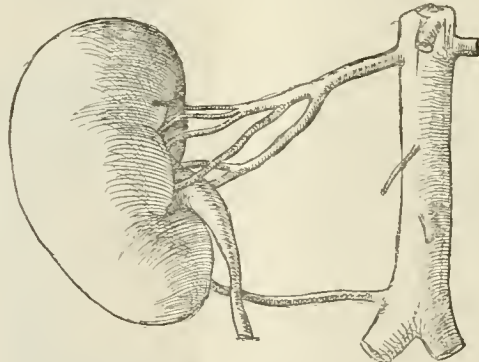


Fig. 3.—Type 3 of accessory arteries. Large artery passes from aorta, close to bifurcation, to lower pole.

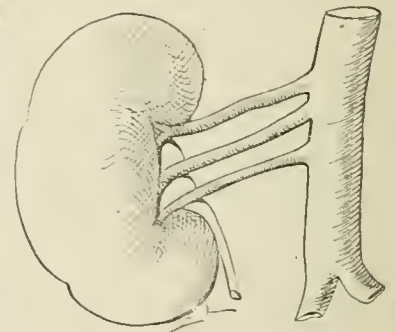


Fig. 4.—Type 4 of accessory arteries. Three separate arteries pass from aorta to hilum of kidney.

of accessory renal arteries or state that they are of no practical importance.

In the standard atlases, like those of Henke, Bardeleben, Zuckerkandl, Spalteholz, Toldt, Sobotta, and Heitzmann, no illustrations of such an anomaly are shown.

Cunningham, Quain, Gray and Piersol describe the occurrence of accessory arteries, Quain stating that they are found in 20 per cent. of bodies. The best description is that given by Piersol:

Accessory renal branches may arise from the abdominal aorta or from the middle sacral, common iliac, internal iliac or the inferior mesenteric. These accessory arteries frequently enter the substance of the kidney elsewhere than at the hilum.

The only reference to these accessory vessels in the books on renal or general surgery are in Schede's chapter in the von Bergmann "System," and in Garrès, Israel's and Albarran's books. Schede says that variations of the renal artery may be of surgical importance and that search should be made for separate vessels entering the upper or lower poles. Preliminary ligation of these accessory arteries is advised.

Garrè simply mentions the presence of double or triple renal arteries and advises ligation of an accessory artery passing to the upper pole, when found during a nephrot-

The only articles which give any accurate information as to the frequency of occurrence of the different anomalies are those of Brewer, Thomson and Seldowitsch, which will be referred to in connection with our own work.

We became interested in the subject of accessory renal arteries after having had a case of very severe postoperative hemorrhage from an overlooked inferior polar artery following a nephrolithotomy. The bleeding occurred after the patient's return to bed, as in Israel's case.

Believing that a knowledge of the frequent occurrence of accessory renal arteries should be more general, we desire to add our observations as to their frequency to those of Brewer, Seldowitsch and Thomson. During the past winter, through the kindness of Dr Bensley of the University of Chicago, Dr. Ransom of Northwestern University, and Dr. White of the University of Illinois, we dissected the kidneys in 100 cadavers, *i. e.*, 200 kidneys, and made the following observations as to the frequency of occurrence of accessory renal arteries:

TABLE 1. ACCESSORY RENAL ARTERIES

Number of kidneys examined.....	200
Accessory arteries (true), (See Figs. 1 to 5 incl.) (Types 1, 2, 3, 5 and 6).....	28
Superior polar arteries from the single renal (pseudo-accessory, Type 7).....	19
Percentage of true accessory arteries.....	14
Percentage of normal renal arteries.....	86

TABLE 2.—TYPES OF TRUE ACCESSORY ARTERIES

Type 1.—Two separate arteries from the aorta to hilus.....	14
(a) right, 7; (b) left, 5; (c) both sides, 2.	
Type 2.—Inferior polar artery from the aorta.....	7
(a) right, 4; (b) left, 2; (c) both sides, 1.	
Type 3.—Superior polar artery from the aorta.....	5
(a) right, 2; (b) left, 3.	
Type 4.—Three renals from aorta.....	0
Type 5.—Four renals from aorta.....	1
Type 6.—Accessory from iliac (common or external or internal).....	1
Type 7.—Superior polar artery from a single renal artery.....	19
(a) right, 8; (b) left, 5; (c) both sides, 6.	

TABLE 3.—PERCENTAGE OF NORMAL AND ACCESSORY RENAL ARTERIES

Observers.	Number of Kidneys Examined.	Normal Arteries, Percent- age.	Accessory Arteries, Per- centage.	Two Renals, Percent- age.	Superior Polar, Percent- age.	Inferior Polar, Percent- age.	Three or More Renals, Percentage.	Common Iliac Accessory, Percentage.
Thomson	419	74.4	25.6	7.6	6.9	4	4	0.9
Brewer	302	71.9	28.1					
Seldowitsch	300*	27	15	1.5	1.3	3.5	5.1	0.5
Eisendratb & Strauss	200	26	14					

* Only male cadavers. † Not mentioned.

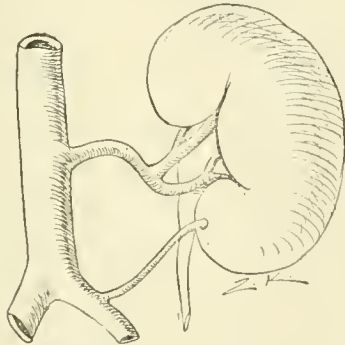


Fig. 5.—Type 6 of accessory arteries. The accessory artery has its origin from an extra-aortic artery, like the common or external iliacs.

A comparison of these statistics shows that abnormal, *i. e.*, accessory, arteries occurred in about 21 per cent. of over 1,200 kidneys. In other words, one can expect to find such accessory vessels in about one out of five kidneys. The most common form of accessory vessel is a second renal artery arising separately from the aorta, as shown in Figure 1. Next in order of frequency are the superior polar, the inferior polar and the remaining types shown in Figures 2 to 5.

This question of the presence of supernumerary renal arteries is not only of interest from an anatomical standpoint, but will be of constantly growing importance in its bearing on renal surgery.

Israel, Ekehorn, Mayo and Braasch have called attention to the rôle which an accessory artery passing from the aorta to the lower pole of the kidney may play in the production of hydronephrosis through kinking of the ureter across such an accessory vessel.

The purpose of our investigations was to direct attention especially to the possibility of severe hemorrhage occurring from such accessory vessels, either during the performance of nephrolithotomy or after the patient has returned to bed. No doubt many cases of serious and in some cases fatal hemorrhage have been due to bleeding from such accessory vessels, especially those passing to the upper or lower poles. In future it would be advisable, before incising a kidney for the removal of renal

calculi or performing a nephrectomy for any condition, to examine the upper and lower poles and the hilum of the kidney for the presence of any supernumerary arteries. If such vessels are found, it is advisable to ligate them separately from the main renal pedicle.

So far as our investigations show, the condition is present as often on one side as on the other.

103 State Street.

GANGRENE OF THE LUNG WITH TRICHOMONAS INTESTINALIS AS THE ONLY APPARENT ETIOLOGIC FACTOR

REPORT OF A CASE

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The literature in relation to the trichomonas is rather extensive, but relates to the intestinal, urinary and vaginal tracts almost entirely. Observers have noted it in connection with chronic diarrhea, cystitis without bacteria, and rarely with pulmonary abscess and gangrene.

Instances of the invasion of the respiratory tract by mastigophora are very few, so that the report of a case of gangrene of the lung in which the trichomonas was the only discoverable etiologic factor may find a place in the rather scanty records of pulmonary disease due to or associated with this protozoon.

The general consensus of opinion seems to be that the trichomonas is not capable of producing disease *de novo*, but that a previous injury to the tissues must have taken place, and that in such cases only can it play an active part in pathogenesis.

This is the evidence in the report of the following case:

History.—The family, personal and social histories present nothing pertinent to the case of the patient, Private E. C. He had had chills and fever in July, 1909. On June 21, 1910, he was admitted to the post hospital with the same trouble, diagnosed and treated as tertian malaria, and was discharged as cured July 3, 1910. In the winter of 1909-10 he injured the left side of his chest by falling on the pommel of his saddle while mounting his horse and was confined to the hospital for a week.

Present Illness.—July 10, 1910, the injured side began to give him trouble under severe drill, and two days later he began to have a great deal of pain in the left side, and felt sluggish. He also had headache and dull ache over the root of the left lung, which continued throughout the illness. On admission, July 15, 1910, besides the pain, he felt weak and was expectorating blood-tinged sputum.

Examination.—Temperature was 101.8 F., respirations 20 and pulse 80 per minute. There was an area of dulness between the left anterior and posterior axillary lines extending from the third to the fifth rib. Coarse bubbling râles were heard throughout the left chest; otherwise the physical signs were negative. The blood, urine and feces were normal; the latter contained no parasites. The sputum was thin at first, white, with blood-streaks, later much increased in quantity, dark, rusty, prune-juice color and foul odor. It contained elastic tissue, masses of epithelial cells, Charcot-Leyden and hematin crystals. Besides a few bacteria, there were numerous actively motile trichomonads.

During the first twenty-four hours the sputum amounted to but 1 fluid ounce or so, but during the course of the disease it increased to between 3 and 4 fluid ounces per day. During the last week of the disease the amount of sputum gradually lessened, the foul odor disappeared and the quantity of blood in it was reduced until there were only a few cor-

puscles present. In every examination numerous active trichomonads were noted until the last week of the disease, during which they gradually decreased in number and lost their motility. There were still a few present in the sputum on the day of the patient's discharge (August 5, 1910) from the hospital. At no time were there more than a few bacteria present in the sputum.

Course of the Disease.—At no time during the patient's confinement in the hospital did the temperature rise above normal after the first twenty-four hours, but ranged between 97.6 and 98.5 F. The pulse and respiration were normal throughout. The sputum and pain in the side and over the root of the left lung were the only noteworthy symptoms, and on discharge (August 5, 1910) only a slight soreness over the root of the lung remained, the foul and bloody sputum and the pain having quite disappeared. The patient has reported twice since discharged, at intervals of a week, for observation, and at the last visit seemed to be in perfect health.

THE NON-OVIPAROUS FEMALE HOOKWORM*

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NASHVILLE, TENN.

In every higher animal we recognize certain more or less definite periods of physiologic activity, and we roughly divide the span of life into three stages, which are in no way sharply outlined. These we call the stages of youth, adolescence, and old age. Youth, characterized by a high degree of vitality, is the period of rapid cell multiplication and growth; organs are formed and perfected, functions are unimpaired and active, and the body is a perfect living thing. The second period is characterized by functional and sexual maturity; the multiplication of tissue cells is less rapid; the organs strengthen and their functions are more perfectly correlated; growth comes to an end. In the perfected animal it is a period for perpetuation of the race, and in conformity with this great function sexual differentiation is fully established. The third period, old age, brings a marked change, the potential of vitality wanes; degenerations of all kinds appear, and cumulative weakness ends natural death. These three periods are all characteristic of all of the higher-celled animals, the last period being rarely seen in nature, because in the wild animals a violent death follows the early functional weakening and inability to fight off enemies (Calkins).

Do we find the same sequence of physiologic changes in the lower many-celled animals, and can we distinguish periods of youth, maturity and old age? Since the fundamental biologic laws are much the same, on *a priori* grounds alone we should expect to find the same series of changes in the lower metazoa and likewise in the protozoa.

Of late I have been greatly interested in the study in the development of the *Uncinaria americana* with special reference to the non-oviparous female, endeavoring to ascertain whether their inability to produce eggs is due to the "old age period" or to other influences not attributable to senile degeneracy. It is affirmed by Bass that more than 7 per cent. of females out of the 247 dissected by him failed to produce ova. He maintains that during the latter third of their existence they cease to lay eggs. This observation, if substantiated, is of paramount importance for the reason that individuals

may be harboring the worm though no ova can be found in their stools.

The limited amount of work that I have done along this line does not correlate with the result of Bass's investigations, as shown from the examinations of specimens obtained from cases coming from the Tennessee Industrial School. At this juncture I wish to express my deep indebtedness to Dr. Thomas Weaver, the physician in charge, for the privilege of studying these cases. Children are brought here from practically every county in the state and are kept under surveillance until they have attained their majority. So far as we could ascertain, there is no evidence that the disease has ever been contracted in the institution. Ground-itch, dew-poison, etc., are unknown among them and the water-supply is perfectly pure. This offers a fruitful field of research for ascertaining just how long the infection may have persisted in a given case and likewise in determining the oviparous and non-oviparous females, with especial reference to their ages. The report in detail follows:

CASE 1.—L. D., a girl, aged 17, admitted March 8, 1899, from Putnam County; eleven years in the institution without interruption; two treatments by thymol (on Feb. 15, 1910, and March 18, 1910) recovered 27 hookworms—22 females and 5 males; all of the females contained many eggs.

CASE 2.—M. G., a girl, aged 18, admitted from Rutherford County; thymol treatment recovered 19 hookworms—13 females, 6 males. The females were all oviparous.

CASE 3.—M. C., a girl, aged 9, admitted May 27, 1905, from Overton County. Only 1 hookworm recovered by thymol. This worm was an egg-bearing female.

CASE 4.—R. S., male, aged 18, admitted Feb. 12, 1904, from Pickett County; six years in school. Three courses of thymol given (March 4, 1910; March 11, 1910, and March 17, 1910). Forty-five hookworms—36 females and 9 males—were recovered. All the females contained many eggs, except one. This non-oviparous female was of average size and, so far as could be ascertained macroscopically, was perfectly normal. Microscopically, the vulva was abnormally situated just in front of the lower two-thirds of the body. The two uterine and ovarian tubes were observed to be quite atrophic, and very much shorter than normal.

CASE 5.—D. C., a boy, aged 13, admitted May 13, 1909, from Blount County. Thymol treatment recovered 18 hookworms—13 females and 5 males. All the females were oviparous.

CASE 6.—F. M., a boy, aged 16, admitted July 13, 1909, from Davidson County. Thymol treatment recovered only 1 oviparous female.

CASE 7.—W. D., a boy, aged 12, admitted Jan. 1, 1910, from Cannon County. Thymol treatment revealed only 1 oviparous female.

CASE 8.—F. C., a boy, aged 16, admitted Feb. 10, 1910, from Scott County. Thymol treatment recovered 3 oviparous females.

CASE 9.—K. B., a girl, aged 9, admitted July 1, 1908, from Macon County. Thymol treatment recovered 2 oviparous females and 1 male.

CASE 10.—B. J., a boy, aged 14, admitted Jan. 25, 1909, from Greene County. Thymol treatment recovered 2 oviparous females and 1 male.

CASE 11.—L. M., a girl, aged 13, admitted Dec. 28, 1907, from Lawrence County. Thymol treatment recovered 7 oviparous females and 4 males.

SUMMARY

In summarizing the above cases it will be seen that 132 worms were recovered and examined—101 females and 31 males. Only one non-oviparous female was ob-

* From the Pathological Laboratory of Vanderbilt University, Medical Department

served out of the entire number. The patient from whom the non-oviparous female was obtained has been in the institution for six years (Case 4). We can assume that the worms recovered from this patient are over six years of age, since there has been no evidence of infection while in the institution. Of absorbing interest is Case 1, possibly the longest infected case on record. Dr. Stiles (personal communication) related two cases in which the infection lasted about eleven years. Our patient has been constantly present at the institution for over eleven years and no outside source of infection was possible.

It is generally conceded that the average infection will last three or four years; the worms die or become dislodged from their firm attachment and are then passed out by the bowel. Two thymol treatments in Case 1 dislodged 27 hookworms—22 females and 5 males. Every female contained enormous numbers of ova. It is evident from the above case that the worms are more than eleven years old. Notwithstanding their extreme age they appear to be producing as many eggs as in the prime of life. This case, however, cannot be taken as a criterion, since it may be an exception rather than the rule.

About two years ago I recovered 89 worms from a patient giving a history of having had the disease a little more than one year. Recently I examined these worms and found 66 to be females and 23 males. Three of the 66 females proved to be non-oviparous. The history of the case follows:

CASE 12.—A boy, 12 years old, had always lived in Massachusetts except for the past year and a half. He had always been healthy and energetic. The family moved from Massachusetts to South Carolina in the early spring of 1907. During the summer the boy went barefooted and contracted ground-itch on two different occasions. Several months later he appeared not to be as well as usual, and throughout the winter months he exhibited a marked lack of energy, lassitude, and stood very poorly in his classes at school. Anemia was present, but was not very marked. In June, 1908, the family moved to Atlanta, and came to Nashville in November, 1908. The case came under my observation several weeks later. Examination of the blood showed red cells 4,115,000, hemoglobin 85; whites, 9,200. The differential leukocyte count revealed 17 per cent. of eosinophils. The increase in eosinophils led me to suspect uncinariasis, so the stools were examined, with the result that a great many hookworm ova were found. Thymol was given, which expelled 67 worms, 53 of which were females and 14 males.

One week later, another course of thymol was given, with the result that 19 worms were obtained—10 females and 9 males. Two weeks later, another course of thymol was given, which expelled 3 females. After this, repeated examinations of the stools failed to show the ova. The patient rapidly improved, and three months after the last treatment, was as healthy and robust as he had always been before the infection.

The unique feature in this case was the finding of three non-oviparous females out of 66 worms, which gave a history of being less than one and one-half years old. From this case it is evident that comparatively young females may be incapable of egg production.

I am of the opinion that the non-oviparous nature of the female is not entirely due to the "old-age period," but is, in all probability, caused by some defects in development, or occasioned by peculiarity in a given strain. Definite conclusions, however, are not warranted, as evidenced by the paucity of the material at hand. Further observations by the writer along this line will be forthcoming in the near future.

CULTIVATION OF ADULT TISSUES AND ORGANS OUTSIDE OF THE BODY*

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The solution of many problems of human pathology depends, in a large measure, on the finding of the still unknown physiologic laws of generation, growth and evolution of cells. We must, therefore, develop new methods which permit the discovery of these laws. A few weeks ago, we began to investigate systematically one of these future methods, namely, the cultivation of adult tissues outside of the body. The starting point of our researches was the beautiful work of Harrison on the embryonic tissues of the frog. Some years ago, Harrison observed the development of nerves from the central nervous system of frog embryos cultivated in a drop of lymph. In 1910, Burrows studying with Harrison improved very much this method and adapted it to embryonal tissues of warm-blooded animals. He succeeded in cultivating nerves and mesenchymatous cells of sixty-hour chick embryos.

Then, at the Rockefeller Institute, we tried to develop on this basis a general method which would be applicable to the adult tissues of the mammalia and thus to determine some of the laws of cellular physiology.

The experiments on which we wish to report now were performed on dogs and cats and an adult frog and consisted of extirpating small fragments of tissues of an animal, inoculating it aseptically into a plasmatic medium taken from the same animal, and sealing the materials in hollow glass slides. The slides were placed in an incubator, maintained at a constant temperature of 37° C. The microscope was also placed in a special thermostat which was kept at this temperature. The growth of the cells could, therefore, be observed, over a period of time, with the microscope, kept itself at the body temperature, and the multiplication of cells directly seen.

GENERAL CHARACTERS OF THE GROWTH

The plasmatic media were inoculated with many tissues or organs, of which all were found to multiply or grow. The cultures of the different tissues—as we shall call them—contain common characteristics. The time of the beginning of cellular proliferation depends on the nature of the tissue, the age of the animal and other more or less important factors. In the cultivation of glandular organs of adult dogs, the vegetation starts after thirty-six or forty-eight hours. But, if the young animal is only a few days old, new cells appear in the culture after ten or twelve hours. Four or five days after the inoculation of the medium, the cultures of thyroid, kidney, suprarenal, etc., are in full activity, and remain in this condition as long as the medium allows it. Tissues like cartilage or peritoneum grow, at first, very slowly. After three days, there are in the cultures very few new cells. But about one week after the inoculation, the cultures become very much more active, and are in full vegetation after about nine or ten days. There is also some analogies between the morphologic characters of the cultures of various tissues

*From the Laboratories of the Rockefeller Institute for Medical Research.

and organs. For all tissues, the first indication of growth is the appearance on the edges or the surface of the specimen of a few small and regular granulations. These granulations consist of the cytoplasm of cells, the nucleus and nucleoli of which soon become visible. The cells belong to two general types, spindle and polygonal. The spindle cells appear ordinarily at first and their morphology is about the same in all tissues, bone marrow or kidney, thyroid or cartilage. They are long and slender and radiate from the fragment of tissue or organ through the plasmatic medium. They are derived probably from the connective tissue framework of the organ. At the same time, or a little later, the cells of the second type appear. They are polygonal or multipolar cells in form, but their morphology varies widely according to each tissue and organ. They seem in part to be differentiated cells of epithelial nature. Cartilage produces cartilaginous cells, and thyroid generates cells which look like thyroid cells. Even in the renal cultures, this second type of cells congregates in tubular formations. By using a suitable technic, we can control the growth of one or another of these types. A small fragment of thyroid cleanly cut produces mainly spindle cells, while in tissues more finely divided (scrapings), epithelial-like cells appear.

In the first part of the work we found and studied the growth of adult tissues outside of the body. In the second part we attempted to cultivate thyroid cells in series, and also to activate the growth of a tissue by passage from one plasmatic medium to another. Connective tissue, cartilage, peritoneum, bone marrow and bone, skin, thyroid gland, spleen, suprarenal gland, kidney, ovary and lymph gland, were all cultivated successfully.

CULTIVATION OF TISSUES

Arterial Sheath.—Three days after inoculation of a fragment of arterial sheath, very delicate palm-like cells appeared on the edge of the tissue and ramified through the plasmatic medium in long filaments ending in spindle cells. Vegetation was very weak and stopped entirely after a few days.

Connective Tissue.—Most of the cultures of connective tissue remained inactive.

Conjugal Cartilage.—This started also to grow on the third day. For about one week, very few spindle and spider like cells were found slowly wandering along the edges of the cartilage. From the upper pole of the fragment of tissue, a mass of new cartilage protruded and invaded the plasmatic medium. After a few days, it became so large that it could be seen by the naked eye. Progressively, the rate of growth became faster. Many irregular cells with long arms now appeared in the plasma about the old cartilage.

After nine days, the culture was in full activity, and the old cartilage had thus generated outside of the body a piece of new cartilage two millimeters long.

Peritoneal Endothelium.—This underwent also a slow evolution. For several days, there were only a few beautiful and irregularly-shaped cells along the edges of the tissue. After a week they began to multiply more actively and many very large cells resembling endothelial cells slowly moving through the clear plasmatic medium were directly observed under the microscope. On the twelfth day, the culture was still in full vegetation.

Bone.—During the first hours of the cultivation of fragments of bone marrow and bone, the anatomic elements began to wander away from the tissue. After

three or four days, the little pieces of bone hidden in the bone marrow became visible, because almost all the cells had invaded the plasmatic medium. Around the tissue, there were radiating spindle cells and many red blood corpuscles. Leukocytes with active amoeboid motion and large cells with granular cytoplasm and long pseudopodia had reached the remotest part of the medium. A few large spindle cells were seen crawling along the edges of the fragments of bone.

Epidermis.—We studied the growth of epidermis by cultivating fragments of the skin of an adult frog. Masses of epithelial cells appeared on the edges of the cutaneous fragments after twelve or twenty-four hours. They grew very rapidly. After forty-eight hours, the area of new epidermis obtained in some cultures was twice larger than the old fragment of skin. A few cultures were fixed and stained, and it could be seen that many cells were dividing by karyokinesis.

CULTIVATION OF ORGANS

Thyroid, Spleen, Etc.—Many cultures of glandular organs were made and grew rapidly. The cultivation of the thyroid of adult dogs was very easy. After thirty-six or forty-eight hours, long fusiform cells protruded at one or several points from the edges of the tissue. Often new polygonal cells also could be seen on the upper surface or on the edges of the thyroid. After the fifth and the sixth days, the cultures were generally in full and sometimes wild vegetation, which lasted as long as the plasmatic medium was in good condition. A great many long fusiform cells or chains of fusiform cells radiated from the tissue through the plasma. Polygonal cells were generally closer to the tissue. In a few cultures there was an abundant proliferation of cells resembling epithelial cells, while the fusiform cells were in small number.

The cultivation of suprarenal and of spleen gave also excellent results.

Kidney.—But very much more important were the results of the cultivation of the kidney. Two plasmatic media were inoculated with small fragments of a kidney of a young cat. Twelve hours later, fusiform cells were protruding from the tissue. After twenty-four hours, a great many cells had invaded the plasma all about the renal substance. One day later, the cultures vegetated wildly. On the fifth day, one of the cultures was fixed and stained with hematoxylin. We saw many karyokinetic figures in the cells which had proliferated through the plasma. A tube had begun to grow from the tissue into the medium. The cells showed a condition of great activity.

The other culture was allowed to live to the sixth day and an exceedingly active growth of the cells took place. In the morning, we observed a few tubes growing from the renal substance into the plasma. In the evening, they were very much longer and curved at their blind ends. At the beginning of the seventh day, the culture was fixed and stained. Around the renal tissue a very large number of fusiform and polygonal cells had formed. A few tubes, composed of a lumen limited by epithelial-like cells, had passed from the fragment of kidney for a distance into the plasmatic medium. They had the appearance of renal tubules.

These experiments demonstrate that adult tissues grow very easily outside of the body. Tissues like cartilage, and even like renal substance, can be caused to develop in something like normal manner under entirely new conditions.

REACTIVATION AND CULTIVATION IN SERIES

The second part of our study consisted of modifying the rate of growth of tissues by passing them into a second medium. A few six and seven day old cultures of thyroid were used for the first series of experiments. The thyroid fragments were removed from the old cultures, cut into small pieces and placed into new plasma. Eleven and twelve hours after, new cells protruded from the previously inactive parts of the thyroid substance, as well as from the newly proliferated cells. We found, indeed, that the thyroid of an adult animal had now become as active as the thyroid of an animal a few days old. Afterward the cells invaded very quickly the new plasmatic medium. One of the cultures was fixed a little less than thirty-six hours after the passage into the new plasma and stained with hematoxylin. From one side of the old tissue there was a large mass of fusiform cells radiating through the plasma. From another point, several tubular formations had wandered far into the medium. The wall of these tubules was composed of epithelial-like cells. It seems, therefore, that the passage from one medium into another of the same kind increases the vegetative power of the thyroid cells.

In a second series of experiments, a plasmatic medium was inoculated with cells produced by the cultivation of a thyroid fragment, in order to obtain a second generation of cells. In several instances, this result was achieved. After twenty-four hours, we noted that a few cells had wandered from the old plasma into the new. In one experiment, less than four hours after the inoculation, the new plasmatic medium already contained new cells. One of these cells was fusiform and its activity was so great that we could follow under the microscope the motion of its cytoplasmic gravitations and the changes of its shape. In a few minutes, one end of the cell became very large, while a long tail grew at the opposite end. Finally the cell became multipolar. Other cells appeared at the same time in the new medium. Thirty-six hours later, the culture was fixed and stained and many active cells resembling epithelial and connective tissue cells were found to be present in the new plasma. We had, therefore, obtained a second generation of the first culture of thyroid cells.

CONCLUSION

The main results of these observations can be summarized in a few words: Adult tissues and organs of mammals can be cultivated outside of the animal body.

The cultivation of normal cells would appear to be no more difficult than the cultivation of many microbes. It remains, however, to be determined whether continuous series of cultures can be secured. This method can, therefore, be used for the study of many important problems. For instance, it may render possible the cultivation of certain micro-organisms in conjunction with living tissue cells or alone in plasmatic media. Then it will be of great value in the study of the problem of cancer. We have already succeeded in inoculating a plasmatic medium with sarcoma of the fowl; cells appeared in the surrounding plasma after nine hours and the culture is growing actively at present. We can assume, therefore, that the perfection of the method of cultivating adult tissues of mammals outside of the body will be helpful in the exploration of unknown fields of human pathology.

Work is in progress along the lines indicated, the results of which will be published from time to time.

Therapeutics

DIET IN TYPHOID FEVER

As typhoid fever has its most active pathology in the intestinal canal, and as all ordinary food must traverse this canal, and as in this almost invariably protracted fever nutrition is a matter of serious consideration, the character of the food given in this fever is always a live subject for discussion.

While this subject has been several times touched on in this department, the last word has not yet been said, as evidenced by the repeated discussion of the subject, both in medical journals and in medical societies.

Whether we have under-fed our typhoid patients or over-fed them, it seems that the evidence is very strong that milk alone is not the proper food for these patients. In fact, when we consider the frequent difficulty in its digestion, the large amount of it that must be given to satisfy the system either in calories or in protein, it would seem that we should rule against it as a typhoid diet. These facts immediately cause the decision that our old feeding of typhoid fever was wrong, and that we must select a new or modified food in this disease.

It can not be questioned that the high temperature, rapid pulse, delirium, and that association of nervous symptoms called typhoid are not caused by the typhoid germ alone, but by a double infection, and the double or secondary infection is due to toxins or the products of secondary germs absorbed from the intestines.

Tympanites is an indication not of typhoid fever, but of intestinal putrefaction and fermentation, and a mistake in the management of the bowels and of the food administered. Tympanites need not be a symptom of typhoid fever, and when it is present it is almost invariably a medical mistake. It is too easily a demonstrable fact to require anything more than the assertion that, if the abdomen is flat and not distended, if the bowels have properly moved, and if there is no troublesome diarrhea or obstinate constipation, then the tongue is less coated and is not dry, the temperature is less, the skin is moist, the pulse is better, the delirium is less or generally absent, and such symptoms as carphology and subsultus are absent. The temperature being lower than with such added bowel infection, there is less necessity for disturbing the patient with cold water antipyretic measures, and the less such disturbance the quieter the nervous system and the less loss of nutrition, to say nothing of the less irritation of the heart from rapidity caused by the exercise and nervous excitement due to cold applications.

It stands to reason, then, that primarily such food and arrangement of the movements of the bowels as cause the least tympanites and the least indigestion are of first importance in the management of typhoid fever. Secondly, the food which, so far as possible, satisfies the requirements of the body for nutrition and at the same time satisfies the above requirements of easy and thorough digestion, should be the food of choice.

It must always be considered, of course, that during the fever term there will be a progressive loss of weight, in other words, a denutrition. It is probably impossible to prevent this by any amount or any character of the food, as before sufficient nutriment could be absorbed to prevent loss of weight such indigestion would be caused as to preclude its administration. As it is impossible to determine exactly how much of all of the different elements of food the patient can absorb just inside of his limit of perfect digestion, we must have

a scheme or plan of nutriment that theoretically should be satisfactory to all these typhoid patients, and then individualize this plan to each patient. If we always keep inside of gastric indigestion and prevent tympanites, we are immediately reducing the ordinary fatality of typhoid fever by at least half. In other words, the nervous wear and tear is not so great and the danger of intestinal hemorrhage and perforation are reduced to a minimum.

Before considering the diet in detail, the intestinal condition should be considered, both theoretically and practically. Inflammation of any part of the intestines can not occur without causing increased secretion, increased peristalsis, and more or less diarrhea the character of which will depend on the part of the intestine in which the inflammation is located. There will always be an increased amount of mucus secreted, possibly blood-streaked; and there may actually be a sufficient number of white cells, either alive or dead, in the bowel movements to be termed pus. If there is irritation enough at any one point, irregular peristalsis may occur and pain be present. If there is irritation enough to cause a spastic condition of some part of the bowel, intestinal gas will accumulate above this part, and more pain and distention occurs. If either normally digested refuse products or products of excretion or undigested food reaches the inflamed part, it is more or less retained there by the abnormally adhesive exudate on the mucous membrane, or retained by abnormal and irregular peristalsis, and fermentation, if not actual putrefaction, occurs, with increased intestinal pressure aiding and abetting in the absorption of the toxins produced.

From all these facts, then, and they are facts, Nature's method of removing the undigested food and the products of inflammation by diarrhea should receive our encouragement and not our opposition. It is true that Nature is working just as faithfully for the pathogenic germs as she is for the patient who harbors them; consequently, we can not absolutely trust Nature to cure the patient, but we could not interfere with the natural measures taken by the patient's metabolism itself to get rid of his infection. Neither should we leave it all to Nature's doubtful processes. In other words, the diarrhea should be managed, but constipation neither allowed nor caused in typhoid fever.

The patient, then, should receive at first a cathartic, either calomel or castor oil, and then after the intestinal canal is clean, he should every other day have a dose of the laxative found best in his particular case. Whether the laxative to cause one or two good movements every other day be a vegetable (generally best) or a gentle saline (sometimes best), is a matter of unimportance. If the laxative tends to cause a diarrhea or several movements, a 1/10 grain morphin tablet should be administered after the second movement. This will inhibit peristalsis and cause no other symptoms. The laxative being given every other day, on the intermediate or alternate day a simple rectal injection of 15 c.c. (half an ounce) of glycerin and an equal amount of water should be given. This will cause an evacuation of the lower bowel and expulsion of gas.

Such a management of the bowels will keep the lower part of the small intestine as clean as possible, will prevent the fretty tire and discomfort of a diarrhea, will give rest enough for the intestinal ulcers to heal, and will prevent the stagnation of putrid products, which cause, besides the general symptoms above described, deeper ulceration into the inflamed glands.

A discussion of bowel antiseptics in typhoid fever will be found in *THE JOURNAL*, Oct. 12, 1907, page 1293. Hexamethylenamin, having been proved so harmless and yet so useful a drug, should, perhaps, in small amount, be given constantly during typhoid fever, on the theory that, even if it does not cause any antiseptic action in the bowels, it will prevent the typhoid and colon bacilli from infecting the gall-bladder and the typhoid bacillus from becoming lodged in the kidneys, to say nothing of its ability to inhibit the growth of germs on various serous membranes of the body.

The pendulum has swung from insufficient nutriment through an excessive amount of milk feeding in typhoid to the other limit of a large amount of protein and actual solid food, and now is again swinging, very slowly, however, back to a diet arranged according to food values and to the actual needs of the body. To study the diet from this standpoint it is well to review an article on this subject by Dr. Harris A. Houghton, of Bay-side, L. I. (*Am. Jour. Med. Sc.*, January, 1910). Shaffer (*THE JOURNAL*, Sept. 19, 1908, p. 974) two years ago showed that typhoid patients did not receive within 50 per cent. of the kind of food they required, viz., heat-producing and tissue-saving food or calories, while they did receive more nitrogenous food than they required.

Houghton reviews various physiologic experiments which show that during the fever process the glandular secretions of the digestive tract are more or less insufficient. Even the salivary secretion is less than normal, and may even become acid. This is one of the causes of the dry mouth, coated tongue and sordes, and is an indication for the slight salivary stimulation afforded by lemonade and orange juice. The hydrochloric acid of the stomach is greatly diminished, and it is still further decreased in amount if sodium chlorid is not given with the food. The absence of sodium chlorid from the diet was another long-continued mistake during the milk-feeding period of typhoid fever. The bile is also decreased, and, although there is no experimental evidence to show a diminution of the pancreatic secretion or the secretion of the intestinal mucous membrane, it is safe to infer that these are also diminished. In other words, it has been estimated that the ability to digest food is decreased from 10 to 12 per cent. in the typhoid patient. Hence, as the absorptive toxins are more serious in protein maldigestion than in starch maldigestion, the deduction seems rational that too much protein should certainly not be administered.

Houghton recalls to mind that Chittenden and others have proved that an increased amount of nitrogen with protein indigestion does not ordinarily add nutrition or strength to the system, but is represented by an increased output of nitrogen products in the urine, the body taking up and utilizing but a small part of the nitrogen ingested. This is certainly just as true of a typhoid patient, and, while part of his nitrogen metabolism will be passed in the feces, a large part must pass in the urine, and will enter, on account of his maldigestion, into irritating and even more or less toxic nitrogen compounds before being excreted by the urine. It would therefore seem a sensible deduction to give the typhoid patient just sufficient nitrogen for his needs as it could be approximately estimated and not an excessive amount to his harm. From this same reasoning, as soon as convalescence is established and the patient begins to put on nutrition, he must of necessity need more nitrogen, i. e., more protein. If a mistaken, ill-judged amount of protein food, carrying with it a large amount of nitrogen,

is forced on a patient who is severely ill, and at the same time an insufficient amount of carbohydrate food is given, a careful quantitative and qualitative analysis of the twenty-four hours' urine excreted will show that abnormal urinary products are the result, especially the ammonia compounds, indican and other irritants, and doubtless not only the symptoms present, but actual death may be caused by these toxins, not dissimilar to a uremic death. In other words, such feeding is vicious.

As has been above urged, Houghton reminds us that a large amount of bacterial decomposition is caused by overfeeding of protein, and the obverse is true, viz., that if the protein is limited the bowel fermentation is diminished and the danger from typhoid is reduced. Another effect of the absorption of undesired nitrogen compounds is irritation of the blood-vessels sufficient to cause vasomotor constriction. This constriction of the surface vessels during fever is undesirable, as it prevents radiation and perspiration, and the skin becomes dry and hot and the temperature is increased. If the patient receives an extra amount of protein and an insufficient amount of carbohydrate, starch, etc., during the fever, the increased amount of ammonia compounds excreted by the urine, as just stated, due to maldigestion, may develop an acidosis of the system or a diminished alkalinity of the blood, and again we have an unnecessary death.

It has been shown that during fever the glycogen of the liver is diminished, and if starch foods are not administered it may entirely disappear from the liver, all the glycogen appearing in the muscles. This is suggested by Houghton as probably to represent a need of the cells for combustible material; again, another indication for food that will readily form glycogen. It is also, and has been, a well-known fact that the part of the body that burns first in protracted fever is the fat, and the more fat the patient has, other conditions being equal, the longer will probably his muscular tissue or solid tissue be protected. Also, in the absence of carbohydrate food his body fat will burn to such acid products as diacetic and beta-oxybutyric acids and to acetones, with the result of causing acidosis and death if the food is not corrected. Hence it is wise to conserve this fatty tissue by protecting it, and to prevent acidosis, by the administration of such foods (fats and starches) as will furnish material for the fever process, even though it is probably impossible for the patient, under the conditions, to deposit new fat. In other words, he needs more calories than he has been receiving.

Houghton suggests as a possible cause of a final condition of shock or vasomotor dilatation which so often occurs as a final in typhoid fever, failure of the adrenal glands. The shock condition in ptomain poisoning from absorption of depressent toxins, and the similar condition of surgical shock after abdominal operation in which the sympathetic abdominal plexuses are often of necessity injured, seem to show that absorption, especially of toxins produced by nitrogen decomposition, probably can inhibit the activity of the adrenal glands and cause just the condition of shock which we often see. This is one more reason for preventing this kind of toxemia, viz., that from an excessive amount of protein ingestion in typhoid fever.

While it is well known that glycogen and sugar (in other words, products that burn) can be metabolized from pure protein, as evidenced in true diabetes mellitus, it is certainly a disadvantage to the system to be compelled (and especially during a fever) to make its glycogen and sugar out of protein stuff. Therefore it

seems self-evident that starch should be a large part of the typhoid patient's diet, with the addition of sugar.

The ideal estimated diet of a typhoid patient should therefore be a small amount of protein, enough to represent, if possible, his daily nitrogen loss which will persist throughout the fever but has not been proved to be a cause of final dissolution; as much carbohydrate as he can comfortably digest without the production of flatulence, given in the form best suited to the individual patient; a little sugar, cane sugar, or, perhaps better, milk sugar, for his glycogen need; sodium chlorid sufficient for his hydrochloric acid need; possibly a few drops (not more than five) of dilute hydrochloric acid three or four times in twenty-four hours after a feeding that carries with it protein. The patient should also receive some fat, perhaps best in the form of a little buttered toast or a little cream, whichever it is found he best digests. The amount of water he receives should be sufficient, and it should be enough to cause him to pass at least a quart of urine in twenty-four hours, and better a larger amount.

Houghton suggests a diet and presents it in table form with the amounts of protein, fat, carbohydrate and calories appended. For an adult of ordinary size and weight the following represents his suggestions: His feeding intervals are two hours apart, from 6 a. m. to 8 p. m. (Three-hour intervals are better, perhaps, with longer intervals during the night.) At 6 a. m. he suggests a cup of coffee with 2 heaping teaspoonfuls of sugar and a dessertspoonful of cream, and a choice of 2 thin slices of toast, a breakfast biscuit or zwieback. At 8 a. m. he would give 2 heaping tablespoonfuls of cream of wheat gruel, with a handful of oyster crackers. At 10 a. m. he gives 8 ounces of vegetable soup. At 12 noon he allows a small baked potato mashed and made tasty with a tablespoonful of cream and a piece of butter the size of a domino, 2 thin slices of toast, hot weak tea with 2 heaping teaspoonfuls of sugar. At 2 p. m. he gives 2 tablespoonfuls of tapioca pudding and a handful of oyster crackers. At 4 p. m. he gives rice seasoned with 2 heaping teaspoonfuls of sugar and another domino of butter. At 6 p. m. he gives 2 thin slices of toast, more butter and a heaping teaspoonful of sugar; at 8 p. m., 8 ounces of vegetable soup, with more oyster crackers.

The vegetable soup above mentioned is prepared as follows: "Two ounces each of green or canned French peas, white dry beans, potato, rice, and noodles, and a half ounce of carrot are boiled in water at least four hours. Enough water should be added to make a quart, which would be sufficient for four feedings. The whole yields 760 calories, of which 6.3 per cent. is protein, fat less than 0.2 per cent., and 43.9 per cent. is carbohydrate. When ready to use stir up sediment and allow the patient to eat all (including noodles) with the exception of the pea and bean skins."

Houghton urges that the patient should be fed with a spoon, and that the food should remain in the mouth as long as convenient. He would give water between the feedings, and not with the meals. He recommends the increase of nutriment (probably meaning protein) as soon as convalescence is established. At the height of the fever, if these foods are distasteful or if the patient cannot eat the full quantity, he would substitute milk sugar in considerable amount.

As this diet recommended by Houghton does not contain iron, a patient on such diet should receive a sugar of iron (*Eisenzucker*) tablet, each 3 grains, 2 or 3 times in 24 hours, or 3 or 4 drops of the tincture of the chlorid of iron, in fresh lemonade, 3 or 4 times in 24 hours.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 DEARBORN AVENUE . . . CHICAGO, ILL.

Cable Address "Medic. Chicago"

Subscription price Five dollars per annum in advance

[For other information see second page following reading matter]

SATURDAY, OCTOBER 15, 1910

FOREIGN BODIES IN THE HEART

The traditional conception of the heart as the seat of the vital spark and the home of the soul still flavors our thoughts enough to cause interest in those occasional cases in which even considerable injuries to this organ have failed to lead to sudden or even remote catastrophe. And this feeling persists in spite of the growing experience of the surgeons that operative attacks on the heart are entirely feasible, and the common procedure in laboratory work of drawing a few cubic centimeters of blood from the heart of guinea-pigs whenever desired, the last operation being equivalent to tapping a human heart with a large caliber trocar and withdrawing one or two pints of blood. As regards the effect of wounds on the heart, the determining feature is less how much injury than where and how it takes place. Large secondary tumor growths may be found unexpectedly within the heart at necropsy, having produced no effect to indicate their presence, while small gummas in the vicinity of the bundle of His give rise to profound disturbances in function. So, too, with wounds of the heart, oblique penetrating wounds in the thick walls of the ventricles may not leak because closed by the systolic contraction, while wounds in the auricles usually cause fatal hemorrhage, and wounds in the pathways of conductivity are frequently instantaneously fatal.

Perhaps the most spectacular of pathologic conditions in the heart are those in which foreign bodies persist in the heart for long periods without causing manifest harm. This condition has been observed most frequently in cattle, which sometimes take nails, needles and similar pointed objects in their food; these articles may migrate from the stomach or esophagus into the pericardium, and sometimes into the heart itself. Galen knew of a deer which lived for a long time with the point of an arrow in its heart, and Weber, in 1600, describes the finding of an encapsulated bullet in the wall of the heart of a deer. In man such a condition has not been observed so often, but Zesas¹ recently collected and classified reports of 118 cases, which number, of course, represents far less than the actually

known cases. The number is rapidly increasing of late, especially through the use of the *x*-ray, which now sometimes discloses as located harmlessly in the heart a bullet whose whereabouts would otherwise never have been suspected. Increased frequency of necropsies also adds to the number of cases, for occasionally a foreign body is thus found in the heart as a necropsy surprise, as in the case described by Koch, who found a large nail in the entirely healed heart of a man who died from an absolutely unrelated condition. Of the 118 foreign bodies found, described by Zesas, 54 were needles and 38 were bullets, all the other objects being of diverse nature, with but two or three of each sort having been found. From the predominance of needles as foreign bodies in human hearts, and of nails, needles and pins in bovine hearts, it is evident that such pointed articles do tend to migrate from the point of entrance, however conflicting the experimental evidence on this point may be. Bullets, however, sometimes reach the heart most indirectly by way of the blood-stream, there being several instances in which the missiles have entered large vessels, especially the pulmonary veins, and from here have passed by gravity or by the force of the current into the heart. There are also a few striking cases in which bullets entering the heart have after a time escaped into the arterial system and caused embolism of most unusual character.

It would seem that an aseptic foreign body within the heart wall usually causes little disturbance, but if it is within the cavities there may be considerable arrhythmia and cardiac irritability until fibrinous deposits have immobilized and encapsulated it. In one case a bullet in the heart wall caused no trouble for three weeks, then it penetrated into the ventricle, where it could be seen by radioscopy tossing about violently and causing most violent arrhythmia, until it became stationary after six months. Evidently, then, operative interference will seldom be indicated when it is found by radioscopy that a bullet or other foreign body has lodged in the heart, unless infection is feared or pericardial hematoma is present. The possibilities of cardiac surgery in such cases are shown by the case of the patient operated on by v. Mantuffel, in which, after the wound of entrance on the anterior surface of the right ventricle had been sutured, the bullet was removed from the cavity of the same ventricle through an incision in the posterior wall, recovery being uneventful.

ERRORS IN DIAGNOSIS AS REVEALED AT AUTOPSY

The interesting and instructive oration of Cabot which appears in this issue, deserves some comment because of its possible misinterpretation by medical students and by younger practitioners. A general discussion of 1,000 cases in a brief time requires the omission of much detail which would greatly alter the general effect of the paper, though not the absolute figures.

1. Zesas, D. G.: Fortschr. d. Med., 1910, xxviii, 649. Briefly abstracted in THE JOURNAL, July 23, 1910, p. 358.

In every large general hospital a considerable proportion of the cases which ultimately reach the autopsy table are under observation for too brief a time to permit of any thorough study; and, what is more important, the patients reach the hospital already moribund and in such condition that any except the most superficial examination is impossible. Under such circumstances, many errors of diagnosis are made and, as a matter of fact, are quite immaterial. The duty of the physician at such a time is often that of easing the last hours rather than that of making a diagnosis.

Much more important, however, is the fact that while Cabot divides the errors into those of omission and those of commission, he fails to point out that there are very great differences between these two groups of errors. The percentage of errors of omission is determined only by the care of the pathologist. Few bodies are examined after death without showing conditions which were not suspected during life, and it is hardly probable that the science and art of diagnosis will ever reach so high a plane that errors will not be common. Most of the mistakes of this nature are immaterial, so far as the patient is concerned, for they would not usually in any way affect the treatment which the patient received during life.

A summarization of Cabot's table shows 1,535 cases; *i. e.*, many of the 1,000 individual autopsies are included more than once, and there are 602 errors of omission. In the absence of details, it may be admitted that some of these errors are material, but in many cases they are merely defects in anatomic diagnosis. It is, for example, unimportant that in a case of valvular disease of the heart some one or more of the defects are unrecognized clinically. The fact that in a given case the patient has a double mitral lesion instead of the single mitral lesion recognized during life, would in no way affect the treatment. We would not be understood as discrediting every effort at anatomic accuracy in diagnosis, but let us keep distinct in our minds that which is material and that which is not. For example, such a condition as acute pericarditis was overlooked in no less than 38 of 54 cases. It is probable that the great majority of instances of pericarditis occurred in the course of acute pneumonia or acute sepsis with endocarditis, both being such severe diseases, accompanied by such prominent thoracic changes, that an intercurrent acute pericarditis would be easily overlooked even though sought for. In truth such an omission is, from the patient's standpoint, of no consequence at all.

No less than 64 per cent. of the cases of bronchopneumonia were undiscovered clinically; but again lack of detail does not enable one to infer in how many of these cases the area involved was too small to permit of clinical recognition, or in how many of them the bronchopneumonia was a terminal incident in the course of some such affection as apoplexy, uremic coma, typhoid fever or carcinoma.

In contrast with the 602 errors of omission are 126 of commission. In a general way, errors of this sort are of greater importance and are more difficult of explanation although many of these also are easily understood.

The paper is one of great interest, but it may give an erroneous impression which could be avoided only by the inclusion of detail which of course the author did not attempt to give.

A SUPREME COURT OF SCIENCE AND ITS RELATION TO VACCINATION

In view of the fact that many of the issues which divide the country into opposing camps have a basis in some problem coming properly within the scope of scientific investigation, Prof. J. Pease Norton¹ of Yale University suggests that it would be well if we had under government auspices a court of technical experts to decide such issues. He proposes that the cases in question should be argued by legal counsel before a jury of scientists, who should be capable of differentiating between traditional scientific knowledge and scientific knowledge based on evidence.

It so happens that the particular case which Professor Norton uses as his illustration, and the one with which he seems most deeply concerned, is that of vaccination versus antivaccination. Surely nothing could be more satisfactory to the medical profession than to have the evidence of both the efficacy and the imperative necessity of universal vaccination marshaled *en masse* against the trivial claims of those who, unable to weigh the value of evidence, have earnestly, and in most instances with honest good-will, sought to deprive human society of its only effective guard against one of its most hideous adversaries.

Professor Norton himself seems to consider the matter as essentially a financial one, for he says: "Before such a court of science all interested parties could appear with experts; on the one side the virus manufacturers, the physicians, and those public health officials who believe in the practice, and on the other side the taxpayers and the people represented by the government"; and again, "the virus makers and the physicians are not the only interests which are interested in vaccinating the people for something."

Disregarding these insinuations, which seem to bear a *New York Heraldic* device, we would call the attention of the New Haven professor to the fact that this particular problem has long since, and repeatedly, been tried in the court of science, and before just such a jury as he must approve, consisting, as it does, of those scientists who are best fitted for the weighing of the evidence in a case involving disease and human health. Surely he must know that the juries of experts on infectious diseases and immunity, epidemiology and public

health, have always, and practically without a dissenting voice, decided the case in favor of universal, repeated and, where lack of understanding requires it, compulsory vaccination.

Current Comment

COLLEGE ENTRANCE EXAMINATION BOARD'S 1910 REPORT

The tenth annual report of the secretary of the College Entrance Examination Board,¹ recently issued, contains considerable data of interest to those who are trying to solve the problem of entrance examinations to medical colleges. This board was established a decade ago by a number of the leading colleges and universities to conduct entrance examinations, and its policies are controlled by those institutions, now twenty-nine in number. The magnitude of the board's work is shown by the fact that this year 45 college-trained examiners were appointed to frame the questions used at the examination held June 20-25, 1910, and 140 readers were required to grade the papers of the 3,731 students examined. These students represented 785 different secondary schools and sought admission to 70 different colleges and universities, 26 of which have medical departments. The extent of this board's work geographically is shown by the fact that examinations were held this year in 165 different cities and in 40 states, beside Hawaii, Canada, and 4 European countries. In the last five years the board has examined 15,927 students representing 1,688 different high schools, academies and colleges. By the passing of this board's examinations admission may be secured to almost any standard university in the country. The question may fairly be asked: Would it not be advisable for medical colleges to refer to this board for examination all students who do not hold diplomas from accredited high schools? Such action would do away with much of the confusion of tests which at present are employed and would at the same time furnish a sufficient guarantee that the student actually has the equivalent of a four-year high-school education.

TESTIMONIALS

There never was a "patent medicine" firm that did not claim that it had "thousands of unsolicited testimonials," and that "lack of space" was its only reason for not publishing more endorsements of its product. As a matter of fact the testimonial does not come as easily as these claims indicate. To get most of them requires some effort and at least a small expense. The gift of a dozen pictures to the individual who will testify to belief in the curative power of the nostrum is not much, to be sure, yet it is sufficient to make the adjective "unsolicited" an untruth. The fact is, the majority of "patent medicine" testimonials are far from being "unsolicited," as there are men who make a business—and a well-paying one—of getting such endorsements. They do so big a business that it becomes necessary for them to hire men to gather the material; the

employer furnishes the information—or "leads," as it is technically called—regarding the persons to be approached and the preparation for which the testimonial is needed. During the past week the following "classified" advertisement has appeared several times in at least one Chicago newspaper under "Male Help Wanted":

MEDICAL TESTIMONIAL GATHERERS—EX-
perienced; leads furnished; give references.
Address O 355, Tribune.

It would be interesting to learn the name of the concern which requires the services of the "medical testimonial gatherers," and it would be still more to the point to know what nostrums were to get the benefit of the "unsolicited" endorsements thus obtained.

ARSENIC IN PERNICIOUS ANEMIA

The action of arsenic in pernicious anemia is often so favorable as to suggest that it is a specific remedy for this disease. The results for a time are remarkable, and if the observation were terminated when the patient was at his best a cure would undoubtedly be frequently reported. If the remedy in use were some new synthetic a cure would certainly be advertised with great *éclat* without waiting for the final result. Without doubt, there are many cases of pernicious anemia in which arsenic has produced such an apparent cure, which physicians have not put on record because the praise of an official remedy does not afford a sufficient stimulus and because knowledge of the clinical history of the disease leads them to expect a relapse, which usually, but perhaps not always, happens. A case which is reported in this issue¹ is of interest because of this marked improvement referred to and because the author recognized the temporary character of the improvement.

THE FLUELESS GAS HEATER

As a means of warming a room there are few things more pernicious, from a hygienic standpoint, than those oil or gas heating apparatus which are used without a flue pipe to carry off the products of combustion. They not only vitiate the air directly by consuming the oxygen and replacing it with noxious gases, but indirectly they put a premium on insufficient ventilation by making it practically imperative that the windows and doors be shut in order to accomplish the object attained—that of raising the temperature of the room in which they are used. In view of the obvious objections to this form of household heating apparatus, therefore, an advertisement by a gas company which has recently appeared in most of the Chicago papers is much to be deplored. This advertisement sets forth the virtues of a "gas heater" which we are told "needs no flue pipe. . . it consumes less oxygen than one person and really purifies the air by burning dust and germs." Whether the promulgation of such dangerous untruths as these is due to ignorance on the part of the public service corporation which disseminates them or to the unfettered imagination of its writer of advertising copy, makes little difference. It should be stopped.

1. Substation 84, New York City.

1. THE JOURNAL A. M. A., Oct. 15, 1910, p. 1372.

REVISION OF THE PHARMACOPEIA

Last week¹ we commended the action of the National Confederation of State Medical Examining and Licensing Boards, in suggesting a list of commonly used drugs as subjects of examination in materia medica and therapeutics. We suggest that this action should receive the attention of the Committee on Revision of the Pharmacopeia, which will have the responsible task of deciding the scope of the forthcoming Pharmacopeia. Although no one would contend that the United States Pharmacopeia should be restricted to the list referred to, there can be no question that considerable restriction and weeding-out are desirable. The adoption or rejection of the broad principle of wise restriction will determine whether the United States Pharmacopeia is to be a book of scientific materia medica or merely a book of pharmaceutical formulas and standards; or, in other words, whether the United States Pharmacopeia will be revised in the interest of medicine or in the interest of medicines.

THE INFLUENCE OF CALCIUM ON AMEBOID MOVEMENT AND ON PHAGOCYTOSIS

Recent investigations of the influence that various factors may have on phagocytosis have revealed that certain substances under suitable conditions may stimulate phagocytosis. Thus Hamburger and Hekma² found that small amounts of calcium are able to promote phagocytosis considerably by action on the leukocytes, and Eggers³ has shown that magnesium has a similar effect. These results were obtained from experiments with phagocytic mixtures outside the body; more recently Hamburger⁴ reports that minute quantities of calcium increase the activity of leukocytes in the living body as well. He placed under the skin capillary tubes containing bacterial cultures with and without calcium and then compared the lengths of the columns of leukocytes which entered the tubes; he also injected physiologic salt solutions with and without calcium into the intestinal canal and measured the columns of leukocytes attracted into capillary tubes containing bacteria and inserted under the skin of animals so treated. In both of these sets of experiments the results clearly indicated that the calcium increased the leukocytic immigration into the tubes; special experiments showed further that the calcium also stimulated phagocytic action. These effects were obtained not only with physiologic salt solution containing calcium chlorid, but also with a mineral water which contains a large amount of calcium; if a quantity of this water containing 0.06 gram of calcium was injected daily into the intestines of rabbits the number of leukocytes entering the tubes increased about 40 per cent. above that observed in untreated animals. It is possible that this biochemical property of calcium may prove of great interest from the therapeutic point of view.

Medical News

ILLINOIS

Quarantine Hospital for Moline. Plans have been formulated by Dr. August H. Arp, health commissioner of Moline for a new isolation hospital to be built immediately in the rear of the Moline City Hospital. The building will be of brick and two stories in height.

The Glidden Hospital.—The DeKalb City Medical Society has selected property just south of the city limits for the Glidden Hospital, for which James F. Glidden left a bequest of \$25,000.—The late Col. Isaac L. Elwood, DeKalb, in his will, made provision for the payment of \$25,000 to the institution.

Cases Dismissed.—The trial of Dr. William Hecker, Watseka, at Portage, Wis., charged with being responsible for the drowning of his wife at Fox Lake in August, was concluded, October 7, by the dismissal of the case.—In the case of Dr. Thomas D. Doan, Scottville, charged with an attempt to produce abortion, the jury returned a verdict of not guilty.

Personal.—Dr. Sidney G. Pratt, Buda, who has been ill for a year, has recovered and resumed practice.—Dr. Annie B. M. Alguire, Belvidere, who was operated on at the Presbyterian Hospital, Chicago, September 3, is reported to be doing well.—Dr. Karl F. Snyder, Freeport, suffered a compound fracture of the right arm while cranking his automobile, October 1.—Dr. and Mrs. Daniel B. Bobb, Dakota, celebrated their golden wedding anniversary, October 7.—Dr. Ralph E. Niedringhaus, Granite City, a member of the State Board of Health, was seriously injured in Granite City, September 28, in a collision between his buggy and an ambulance.—Dr. and Mrs. Harry H. Whitten, Peoria, left for Europe October 14.—Dr. Robert S. Denney has been appointed local surgeon of the Burlington System at Aurora, vice Dr. Augustus R. Reder.—Dr. Charles F. Smith, Kankakee, was appointed president of the Big Four Railway Surgeons' Association, at its meeting held in Indianapolis, October 4.

Chicago

Personal.—Dr. and Mrs. Samuel J. Walker and family, and Dr. and Mrs. Corcy H. McKenna have returned from Europe.

Unlicensed Practitioners Fined.—J. Kerasibowska, A. Nowagraska, Mrs. E. Bonanami, and George Drews, charged with practicing medicine without license, are reported to have been fined \$100 each.

Charity Ball.—A charity ball is to be given at the Blackstone Hotel, October 31, under the auspices of the board of managers of the Mary Thompson Hospital, for the benefit of that institution.

Old Hospital Building Demolished.—Wreckers have commenced demolition of the old building of the Presbyterian Hospital, erected in 1883, which will be replaced by a seven-story structure, provided for in the will of the late Thomas Murdoch.

Clinical Fortnight.—A clinical symposium is announced to be held in Chicago from November 7 to 19, consisting of clinics at various hospitals from 8 a. m. to 5 p. m. on each day. Headquarters for this series of clinics are to be maintained at Hotel LaSalle, where visiting surgeons may register and receive their cards of admission to clinics. Full particulars, programs, etc., may be obtained from Dr. Franklin H. Martin, 100 State Street, Chicago. Special society meetings will also be held during the clinical fortnight.

INDIANA

Personal.—Dr. Albert May, Crothersville, was painfully injured by a fall from the window of an interurban car.—Dr. John N. Hurty, Indianapolis, and William F. King, Columbia City, of the State Board of Health, began the "Health Week Campaign" in Warsaw, October 10.

Prevention of Blindness.—At the recent meeting of the Indiana State Medical Association, a committee composed of Drs. George F. Keiper, Lafayette; John N. Hurty, Indianapolis; Thomas B. Eastman, Indianapolis, and Albert E. Bulson, Jr., Fort Wayne, and Prof. Severance Burrage, Lafayette, was appointed to inaugurate a propaganda on the prevention of ophthalmia neonatorum, to work in cooperation with a similar committee of the American Medical Association.

Requests Removal of Member of Board.—The Indiana State Medical Association, at its recent meeting, endorsed the action

1. THE JOURNAL A. M. A., Oct. 8, 1910, p. 1292.

2. Biochem. Ztschr., 1908, ix, 275.

3. Jour. Infec. Dis., 1909, vi, 662.

4. Proc. Roy. Acad. of Sc., in Amsterdam, June 23, 1910.

of the board of councilors, through Dr. William H. Wishard, Indianapolis, chairman, requesting the removal of Dr. Solomon G. Smelser, Richmond, from the Indiana State Medical Board. Dr. Smelser is charged with incompetency and with not being a representative, in any true sense, of the high professional standing embodied by the State Medical Association.

MARYLAND

Chiari in Baltimore.—Dr. Hans Chiari, during his visit in Baltimore, was the guest of Dr. J. Whitridge Williams. Professor Chiari was accompanied by his daughter.

Contract for State Hospital Awarded.—The contract for the new building for the indigent insane at the Springfield State Hospital, Sykesville, has been awarded at an estimated cost of \$30,000.

Poliomyelitis.—The State Board of Health is investigating poliomyelitis, of which eight cases have been reported during the last four months. It is believed that the disease is very prevalent in Maryland. The board is preparing an exhibit showing the causes of infant mortality, including poliomyelitis, to be presented at the meeting of the American Association for the Study and Prevention of Infant Mortality to be held in Baltimore.

Personal.—Dr. John E. Legge, Oakland, sailed for Europe October 8.—Dr. Samuel Johnston, Baltimore, who was recently operated on at the Union Protestant Infirmary for appendicitis, has recovered.—Dr. John W. Chambers, Baltimore, is suffering from an infected hand due to an operation wound.—Dr. Florence Rena Sabin, associate professor of anatomy in Johns Hopkins University, has been given the degree of D.Sc. by Smith College, Northampton, Mass.

MICHIGAN

Detroit Tuberculosis Sanitarium.—The main building of the new tuberculosis sanitarium on Twelfth Street, three blocks from the city limits, is nearly finished and two cottages are practically ready for occupancy.

New Hospital.—Dr. William McBurney's hospital, Stambaugh, is finished and opened to the public. It is a three-story and basement structure and contains five private rooms on the second floor and a public ward on the floor above.

Work on Tuberculosis Hospital Well Under Way.—Good progress is being made on the Marquette County Tuberculosis Hospital at Morgan. Work on the building will be continued throughout the fall and winter and the institution is expected to be ready for occupancy by May 1 next.

Medical Inspection Starts in Saginaw.—Medical inspection of the East Side public schools of Saginaw has been inaugurated and the following medical inspectors have been appointed: Drs. G. Harry Ferguson, J. Neil McLean, Fred W. Edelman, H. Roy Wilson, David E. Bagshaw and John M. Campbell.

Milk Exhibit.—A milk contest was held in Detroit, September 26 and 27. President Larned of the Board of Commerce introduced the speakers, who were Health Officer Guy L. Kiefer and J. C. Weld, chief of the market milk bureau of the U. S. Department of Agriculture. Prizes were awarded and more than 1,600 persons visited the exhibit.

Personal. Drs. Willet J. Herrington and Charles B. Morden, Bad Axe, have returned from a trip to Great Britain.—Dr. Neal L. Hoskins, Detroit, has been appointed an ad interim member of the local board of pension examining surgeons, vice Dr. John F. Bennett, deceased.—Dr. Brett Nottingham, Lansing, has been appointed a member of the State Board of Registration in Medicine.

State Medical Society Meeting.—The forty-fifth annual meeting of the Michigan State Medical Society was held in Bay City September 28 and 29, under the presidency of Dr. J. Henry Carstens, Detroit, and the following officers were elected: President, Dr. Colonel B. Burr, Flint; vice-presidents, Drs. Charles T. Southworth, Monroe, Henry Kremers, Holland, Albert B. Simonson, Calumet, and Isaac L. Spaulding, Hudson. Detroit was selected as the place of meeting for 1911.

Appropriation for Antituberculosis Society.—The city council of Hancock has appropriated \$200 for maintenance in the city of a clinic for indigent sufferers from tuberculosis, and the Houghton County Antituberculosis Society is making preparations for the opening of a building for the clinic in Hancock.—The recent annual ball at Houghton realized more than \$650 for the Houghton County Antituberculosis Society.

New Home for Medical Society.—The new building of the Wayne County Medical Society was occupied for the first time September 12. On this occasion Dr. Angus McLean was inaugurated and a luncheon was given to the society by the retiring president, Dr. Arthur D. Holmes.

NEW MEXICO

Sanatorium Enlarged.—Dr. Abraham G. Shortle, who has been operating a sanatorium east of Albuquerque, will build additions so as almost to double the capacity.

State Tuberculosis Society Meeting.—At the second annual meeting of the New Mexico Tuberculosis Society, held in connection with the meeting of the New Mexico Medical Society at Albuquerque, September 30, the following officers were elected: president, Dr. Francis T. B. Fest, East Las Vegas; vice-president, Dr. John W. Colbert, Albuquerque, and secretary-treasurer, Dr. LeRoy S. Peters, Silver City.

Territorial Society Meeting.—The twenty-ninth annual meeting of the New Mexico Medical Society was held in Albuquerque, September 29 to October 1, and the following officers were elected: president, Dr. Francis T. B. Fest, East Las Vegas; vice-presidents, Drs. Robert L. Bradley, Roswell, and LeRoy S. Peters, Silver City, and secretary and editor of the *New Mexico Medical Journal*, Dr. George S. McLandress, Albuquerque, and member of the council, Dr. James H. Wroth, Albuquerque. The next meeting of the association will be held in Las Vegas.

NEW YORK

Medical Library Association Meets.—At the annual meeting of the Uica Medical Library Association, October 3, the following officers were elected: president, Dr. Raymond L. Baker; vice-president, Dr. Thomas C. Gifford; secretary, Dr. Angeline Martine; treasurer, Dr. John W. Rayhill, and librarian, Dr. Smith Baker.

District Medical Society Meeting.—At the annual convention of the Third District Branch of the Medical Society of the State of New York, held in Albany, October 4, Dr. Mark O'Meara, Kingston, was elected president; Dr. John B. Harvie, Troy, vice-president; Dr. Henry L. K. Shaw, Albany, secretary, and Dr. Sherwood V. Whitbeck, Hudson, treasurer. The next meeting will be held in Kingston.

Personal.—Dr. Elbert A. Palmer has resigned as secretary and manager of Dr. Strong's Saratoga Springs Sanitarium, and will open an office in New York City.—Dr. William Kemble, Kingston, had two ribs broken and sustained internal injuries in an automobile accident, October 7.—Dr. Robert G. Cook of Canandaigua has been appointed manager of the Western House of Refuge for Women.

New York City

Medical Colleges Open.—The College of Physicians and Surgeons, Columbia University, and University and Bellevue Medical College opened on September 28. Dr. William G. MacCallum delivered the opening address at the former institution, on "The Future of Medicine."

Ambulance Service for Insane.—For the first time in the history of the institution, ambulance service for handling cases in the psychopathic ward of Bellevue Hospital has been installed. Heretofore insane patients have been brought to Bellevue by patrol wagons or in private conveyances. Two trained nurses will go out with the ambulance on each call.

Personal.—Dr. Max Hulmer, Dr. Abraham L. Wolbarst, and Dr. and Mrs. Henry Koplik, have returned from Europe.—Dr. Frank E. Wilson, Brooklyn, has been nominated for Congress.—Dr. Joshua M. VanCott, Brooklyn, has been appointed a member of the State Board of Charities.—Dr. Antonio Stella has been appointed a member of the commission to consider the more normal distribution of population.

Columbia Needs Hospital.—Dr. Samuel W. Lambert, dean of the College of Physicians and Surgeons, in his annual report to President Butler and the University trustees, makes an urgent plea for a hospital in connection with the college. For this purpose he wants \$6,000,000 for building and endowment. He also states that the first report of research work done under the Crocker research fund will soon be ready for publication.

Cholera in New York Harbor.—On September 29 a man who had been taken from the SS. *Germania* from Marselles and Naples three days before, died from cholera at Swinburne Island. On September 25, a man died aboard SS. *Santa Anna* and was buried at sea. This vessel is still held in quarantine and there are two suspected cases. There was another suspect

on board the Hamburg-American steamer *Moltke*. Surgeon General Wyman of the United States Public Health and Marine-Hospital Service has conferred with Dr. Alvah H. Doty and the situation is not regarded as at all serious, but it has been deemed wise to enforce a five-day quarantine on all vessels coming from infected ports, and the force of United States inspectors has been increased abroad and passengers embarking for this port will be detained for five days before embarkation. No case of cholera has been brought to this port by a cabin passenger in forty years.

Harvey Society Lectures.—The sixth course of Harvey Society Lectures under the patronage of the New York Academy of Medicine begins October 15, when Prof. Hans Chiari of the University of Strasburg, Germany, delivers a lecture on "The Significance of Pathologic Autopsies and Other Pathologic-Anatomic Investigations." The succeeding lectures are as follows:

November 5: Prof. W. E. Castle, Harvard University, "Unit Characters in Heredity."

November 19: Prof. Jacques Loeb, Rockefeller Institute for Medical Research, "The Prevention of Toxic Action of Various Agencies Through the Prevention of Oxidation in the Cell."

December 10: Prof. Harvey W. Cushing, Johns Hopkins University, "Certain Clinical Aspects of Dyspituitarism."

January 14: Prof. Arthur R. Cushny, University of London, "Therapeutics of Digitalis."

February 14: Thomas B. Osborne, Connecticut State Agricultural Experiment Station, "The Chemistry of the Proteins."

March 25: Prof. H. Gideon Wells, University of Chicago, "Calcification and Ossification."

Work at the Budget Exhibit.—At the budget exhibit of the Board of Health, which is to be open for a month, the New York milk supply has been thoroughly discussed, and Dr. Lederle has asked for 17 additional inspectors, as inspection now must be carried into six states. Dr. Herman M. Biggs has asked for \$103,759 for research laboratory extension. He shows why this request should be granted. The entire cost of the research laboratory to the city was \$58,850 last year. If the city was not producing its own antitoxins it would have been necessary to purchase them at a cost of \$70,635, or nearly \$12,000 more than the laboratory budget for the year. Dr. Walter Benschel called attention to a serious condition at the Willard Parker Hospital, where there were only fifteen physicians last year for 1,500 patients and only 169 nurses, while 38 physicians and 300 nurses were required. He also showed that Riverside Hospital and the Kingstown Avenue Hospital, Brooklyn, were inadequate. Commissioner Drummond of the Charities Department said that the department had under its care 12,000 persons, with a working force of 2,000 in addition. He said that the department was run on a basis of such rigid economy that experts called it phenomenal. He did not see how the cost could be cut down when every day the population of the department increased.

PENNSYLVANIA

Hospital Asks Funds.—The trustees of the State Hospital for the Insane at Norristown, at their annual meeting October 8, decided to recommend to the next legislature an appropriation, aggregating \$290,000, aside from maintenance for building and improvements.

Personal.—Dr. John W. Goodsell, New Kensington, surgeon of the last Peary Expedition, is delivering an illustrated lecture on the trip, entitled "With Peary on the Dash to the Pole."—Dr. Jonathan C. Biddle, superintendent of the State Hospital for Injured Persons, Fountain Springs, was seriously injured in an automobile accident, October 1.

State Society Officers Elected.—At the sixtieth annual meeting of the Medical Society of the State of Pennsylvania held in Pittsburg, October 3 to 5, the following officers were elected: president, Dr. John B. Donaldson, Camonsburg; vice-presidents, Drs. Thomas N. McKee, Kittanning; David S. Funk, Harrisburg; Luther B. Kline, Catawissa, and John S. Mahon, Pittsburg; secretary, Dr. Cyrus L. Stevens, Athens; assistant secretary, Dr. Alexander R. Craig, Philadelphia; treasurer, Dr. George W. Wagoner, Johnstown; and trustees, Drs. Isaac C. Cable, York; George G. Harman, Huntingdon; William L. Estes, South Bethlehem, and Thomas D. Davis, Pittsburg.

Philadelphia

Portrait Presented College of Physicians.—A portrait of Dr. Adam Kuhn, one of the founders and the third president of the college, the gift of Mr. C. Hartman Kuhn, was presented to the College of Physicians at its first meeting, October 5.

Death of Dr. Shoemaker.—As we go to press, the death is announced of Dr. John Veitch Shoemaker, professor of materia medica, pharmacy and therapeutics, and clinical professor of

medicine and skin diseases in the Medico-Chirurgical College of Philadelphia, who died October 11, aged 58. Further notice will appear in the next issue of THE JOURNAL.

Cocain Seller Expelled.—At a meeting of the Retail Druggists' Association, held October 7, the name of Emil Greaff, who was recently convicted for the illegal sale of cocain, was stricken from the membership roll. A further resolution adopted by the association was to drop all "dope" preparations from the shelves of drug stores.

Pure Food Violators Fined.—Three firms of candy manufacturers, prosecuted by the State Dairy and Food Commission, for the alleged violation of the pure food laws, on September 26 paid fines of \$62.50 each in advance of hearings before Magistrate Beaton. Each was charged with manufacturing candy containing sulphurous acid. Ten other manufacturers had hearings October 1.

Seniors Work at Phipps Institute.—The senior class of the Medical Department of the University of Pennsylvania began work in the Phipps Institute for the Prevention and Cure of Tuberculosis on October 3. Four sections of the class will visit the institute each week. There are between 200 and 400 out-patients under the care of the Phipps Institute, and part of the students' work will be visits to the sick, but much time will be spent in the laboratory under the direction of Drs. Henry R. M. Landis and Dr. Paul A. Lewis. The sociological work will be directed by Alexander Wilson.

Personal.—Drs. Charles A. Oliver and William R. Newbold, and Dr. and Mrs. James A. Irwin have returned from Europe. —Dr. William W. Keen is in Berlin as the American delegate to the celebration of the one-hundredth anniversary of the founding of the University of Berlin.—Dr. John A. Kolmer, assistant bacteriologist of the bureau of health, Philadelphia, has been appointed pathologist to the Philadelphia Hospital for Contagious Diseases, vice Dr. Paul G. Weston, resigned. —Dr. DeForrest Willard, professor of orthopedic surgery in the medical school of the University of Pennsylvania, and Dr. J. William White, Barton, professor of surgery, have resigned.

Douglas Hospital Needs Funds.—The creditors of the Frederick Douglas Hospital have been sufficiently satisfied to prevent the sale of the building, but it has been announced, however, that the institution is badly in need of money to carry on its work. This hospital was founded 15 years ago by Dr. Nathan F. Mossell, for the purpose of treating persons of the negro race, opening the way for practical hospital experience to negro doctors and the establishment of a training school for negro nurses. It has treated 40,000 cases; the building it occupies was erected and equipped at a cost of \$100,000, but it bears the burden of a \$64,000 debt. Though the staff of physicians is composed of negroes, there is an advisory board of prominent white physicians. Among these are: Drs. S. Weir Mitchell, William W. Keen, G. H. MacKenzie, Howard F. Hansell, Charles K. Mills, James Tyson, Roland G. Curtin and John M. Baldy.

UTAH

Medical Inspection of Schools.—The Provo City Board of Education has adopted a system of medical examination for the city schools, and has appointed Dr. Ephraim G. Hughes, city physician, as medical inspector.

New Hospital Opened.—The Judge Mercy Hospital, Salt Lake City, opened to receive patients September 10. The hospital will accommodate a number of private patients and the third floor, devoted to employees of the Oregon Short Line, will accommodate fifty patients. The institution will be conducted under the supervision of the Sisters of Mercy.

State Society Meeting.—The Utah State Medical Association held its sixteenth annual meeting in Salt Lake City, October 3 and 4, and elected the following officers: president, Dr. Frederick W. Taylor, Provo; vice-presidents, Drs. Richard A. Pearse, Brigham City, William R. Tyndale, Salt Lake City, and Heber E. Robinson, American Fork; secretary, Dr. W. Brown Ewing, Salt Lake City, and treasurer, Dr. James N. Harrison, Salt Lake City.

WASHINGTON

Personal.—Dr. Frederick T. Hyde, Weston, Mass., has moved to Seattle to practice gynecology. —Dr. George K. McDowell, Spokane, has been elected president of the Southland Rubber Company.

City Hospital Staff Appointed.—Dr. James E. Crichton, commissioner of health of Seattle, announces the following staff

of the City Hospital: Chief medical inspector, Dr. Frank S. Borrus; medicine, Drs. Clarence A. Smith, Walter C. Lippincott and Herbert E. Coe; surgery, Dr. Park W. Willis; gynecology and obstetrics, Dr. Robert M. Stith; otology, laryngology and rhinology, Dr. C. Benson Wood; ophthalmology, Dr. Edmund B. Burwell; pediatrics, Dr. John B. Manning; neurology, Dr. Donald A. Nicholson, and dermatology, Dr. Louis H. Redon.

Hospital Notes.—The trustees of Noble Hospital, Seattle, have elected the following officers: president, Dr. Alfred Raymond; vice-president, Dr. Guy S. Peterkin; secretary, Dr. Louis H. Redon; treasurer, Dr. Frank T. Maxson, and superintendent and general manager, Dr. Charles S. Noble. The hospital will be located at Kilbourne and Woodland Park Avenues. The first section is to cost \$20,000.—The City Hospital has been opened in Montesano by Drs. Joseph H. Fitz and Guy E. Marcy. The building contains a large ward for men, a smaller ward for women and six rooms for private use.—The question is to be agitated in Seattle of the establishment and maintenance on Puget Sound of a floating hospital similar to that which is in such successful operation in Boston.

WISCONSIN

Anonymous Gift to Hospital.—The president of the board of directors of the Kenosha Hospital Association has received a draft for \$10,000 to be placed in the general fund of the hospital, with the announcement that the donor did not desire any name to be used in connection with the gift.

Women Physicians Meet.—At the annual meeting of the Wisconsin Medical Women's Association, held in Milwaukee, September 15, the following officers were elected: president, Dr. Belle P. Nair, Fort Atkinson; vice-president, Dr. Lucia Hoyer, Milwaukee; secretary, Dr. Minnie M. C. Hopkins, Oconto, and treasurer, Dr. Johanna M. Droppers, Milwaukee. The association passed a resolution authorizing the appointment of a committee to confer with the State Board of Health regarding a public educational campaign on germ carriers.

GENERAL NEWS

X-Ray Society Election.—The annual meeting of the American Roentgen-Ray Society was held in Detroit, September 28 to October 1, and the following officers were elected: Dr. Percy E. Brown, Boston, president; Dr. Frederick H. Bactjer, Baltimore, secretary, and Dr. Charles F. Bowen, Columbus, Ohio, treasurer.

Eye Men Meet.—The American Academy of Ophthalmology and Otolaryngology held its annual meeting in Cincinnati, September 19-21. The following officers were elected: president, Dr. John J. Kyle, Indianapolis; vice-presidents, Drs. F. Park Lewis, Buffalo, Samuel Iglauer, Cincinnati, Burt R. Shurly, Detroit; secretary, Dr. George F. Suker, Chicago (reelected), and treasurer, Dr. Secord H. Large, Cleveland. Indianapolis was selected as the place of meeting for next year.

Erie Surgeons Meet.—The nineteenth annual meeting of the Association of Erie Railroad Surgeons was held in Chicago, October 4 and 5. The following officers were elected: Dr. William M. Bemus, Jamestown, N. Y., president; Dr. Herbert F. Gillette, Cuba, N. Y., vice-president; Dr. Bertis R. Wakeman, Hornell, N. Y., secretary-treasurer (reelected); and Drs. John G. Kelly, Hornell, N. Y., Salem Heilman, Sharon, Pa., and H. P. Jack, Canisteo, N. Y., executive committee. The next meeting is to be held in the Astor House, New York City.

Protection of Eyes of Sailors.—A special effort is being made by the Surgeon-General of the Navy to provide for the protection of gun-pointers and other enlisted men whose duties require keen eyesight, and Surgeon Eugene J. Grow has been detailed to the U. S. S. *Solace* for special duty on this subject. The illumination of fire-rooms, of dynamo-rooms, and living spaces generally will have especial study, and recommendations will be made for the improvement of conditions. The eye-conditions of men detailed to adjust carbons on searchlights will be safeguarded in the future by special goggles or screens to cut off the actinic rays.

New Insurance Examiners Society. The Society of Insurance Medical Officers was organized in Chicago, October 3, the avowed purpose being "to establish an organized center of thought and action for the advancement of medical knowledge appertaining to life insurance by personal intercourse of its

members, presentation of papers, discussions, and such other methods as may from time to time be found desirable." The following officers were elected: president, Dr. Allison Maxwell, Indianapolis; vice-presidents, Drs. Calvin H. English, Fort Wayne, and Stephen S. Werth, Chicago; secretary, Dr. Edgar R. Hawley, Chicago, and executive committee, Dr. William F. Milroy, Omaha, C. Naumann McCloud, St. Paul, Joseph W. Johnson, Chattanooga, Russell M. Young, Des Moines, and Mason M. Lairy, Lafayette, Indiana.

FOREIGN NEWS

Cholera Death in England.—Foreign telegrams announce that the first death from Asiatic cholera in England occurred October 6, when a man who had been living in a lodging house in London, died in a public hospital.

Death of Professor Chrobak.—The cable brings word of the death of the noted Vienna gynecologist and surgeon, Professor Rudolf Chrobak, aged 70. He retired from the chair of gynecology two years ago, before reaching the age limit, as he felt the necessity of handing over the newly completed gynecologic clinic to younger men. He has been connected with the university since 1870, and has written numerous valuable articles on gynecology and obstetrics.

Death of von Leyden.—Cable dispatches announce the death, at the age of 78, of Ernst von Leyden, the eminent Berlin internist, to whom the Germans ascribe in large part the transformation in clinical instruction in the seventies. He was at first an army medical officer and then was called to a professorship at Königsberg, then succeeded Traube at Berlin and took charge of the first university medical clinic there in 1885. Since he founded the *Zeitschrift für klin. Medizin*, in 1879, his works have been published mainly in this journal. He was also instrumental in founding, in 1898, the *Zeitschrift für phys.-diätet. Therapie*, with Goldscheider, and with F. Klemperer, has published the *Deutsche Klinik* since 1900. He also, with Gerhardt and B. Fraenkel, published the *Zeitschrift für Tuberkulose- und Heilstättenwesen*, and also issued the *Zeitschrift für Krebsforschung*. All these journals used to contain frequent articles from his pen, especially on nervous diseases and cancer. He founded, in 1881, the Berlin Verein für innere Medizin and was long its president, and was the recipient of numerous honors at home and abroad during his long career.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Oct. 1, 1910.

Flies as Carriers of Infection

The Medical Department of the Local Government Board has for some time been conducting inquiries into the action of domestic flies as carriers of infections of various kinds, and has just published a third report on the subject. It contains observations by Dr. Graham-Smith on the ways in which artificially infected flies carry and distribute pathogenic and other bacteria, and there is also a summary by Dr. Bernstein of literature relating to the bionomics of *Epsiuma musca*, a parasitic fungus by which large numbers of flies are destroyed. The manner of catching and keeping flies and the general character of the experiments are described. Diagrams are given showing the anatomy of the insects and the manner in which they may deposit tainted material on any surface on which they either feed or walk. Abundant evidence of the infective power of flies which had been fed on pure cultures of disease-producing bacilli has been obtained, but it is regarded as improbable that under natural conditions such feeding could occur. The effects of contaminating flies with non-pathogenic and putrefactive bacteria have not yet been studied, and the effects of season, temperature, atmospheric conditions, different diets, irregular and scanty feeding, and other disturbing factors have not received sufficient attention. The conclusion is drawn that under exceptionally favorable conditions certain bacteria can be recovered from the contents of the alimentary canal and fecal deposits of infected flies for several days after infection and that these flies are capable of infecting certain materials on which they feed, for several days.

Suicide of a Physician in Consequence of an Unfounded Charge

Some time ago, an inquest was held on an old man whose physician committed suicide in consequence of an unfounded charge of causing the man's death. The inquest showed that

the man had died from natural causes and that the physician's treatment had been proper. The inquest on the physician himself has now been held. His name was Quodros and he was of Portuguese nationality. Under the will of the patient, he and members of his family benefited to the extent of \$1,000 in an estate of \$10,000. It is not unusual for patients to show their esteem for their physicians by legacies, but this circumstance seems to have aroused the unfounded suspicion of the relatives of the old man. They communicated with the police, but who made the communication and on what grounds was not disclosed at the inquest.

The detective who interviewed the physician said that the latter answered all questions satisfactorily but was highly nervous, which was attributed to his nationality. Next morning the physician was found dead in bed poisoned by prussic acid. He left a note stating: "I cannot face the disgrace of being charged. I am innocent." The coroner remarked that the unsatisfactory feature of the case was the fact that wrong information had been given to the police. There were, he said, persons with diseased imaginations who often did a great deal of harm by saying things without apparent cause and without understanding fully what they were talking about. The police were not bound to state who gave them the information, but he was sorry that the persons responsible had not come forward and by frankly admitting their mistake make what reparation they could to the relatives. As they had not done so he could only express his contempt at their action. The jury reached a verdict of "suicide during temporary insanity."

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Sept. 30, 1910.

Annual Meeting of French Gynecologists, Obstetricians and Pediatricians

The sixth Congrès français de gynécologie, d'obstétrique et de pédiatrie was held at Toulouse, September 22-27. Although the date conflicted with that of the International Congress of Gynecologists and Obstetricians held at St. Petersburg, there was a large attendance at the French meeting. The date had been fixed a long time beforehand, and most French specialists had remained faithful to it. In the opening address, Dr. Kirmisson, professor of clinical surgery at the Paris college of medicine, who presided, remarked that in view of the danger of depopulation, the physician ought, in all obstetrical cases, to make special efforts to save the child, and therefore it was necessary to have a full and exact knowledge of the entire history. Dr. Kirmisson proposed that a medical record be kept, which should be given to the mother at the time of the birth, in which the physician in charge of the case should have indicated the various incidents of the pregnancy and delivery.

The question of the pathogenesis and the treatment of the pernicious vomiting of pregnancy gave rise to a very interesting discussion. Dr. G. Fieux, agrégé professor at the Bordeaux college of medicine, believes that it is important, in the first place, not to forget the existence of simulators—women who are frightened by pregnancy, and who by force of desire, succeed in vomiting and growing thin to such a degree that they think that the physician's hand will be forced, and that he will be compelled to carry out their wishes. It is necessary, moreover, to differentiate vomiting which is prolonged and aggravated by toxemia from vomiting due to mixed causes, in which the toxic action is due to the nervous state of the patient. In the latter cases, while treatment is easy (suggestion, change of surroundings, isolation in a sanatorium), the condition is all the more deceptive among the patients whose vomiting seems to be really in consequence of the persistent and increasing toxemia. Treatment at the beginning should be almost entirely expectant, although we possess the means of heroic treatment, namely, evacuation of the uterus, which, however, ought not to be used until certain symptoms show that the woman's organism is unable to triumph over the toxemia. While many remedies are recommended in order to put an end to the vomiting while permitting the continuance of the pregnancy, they are mostly useless. Though we possess no means of acting directly on the toxemia of pregnancy itself, we have a means which, by preventing the digestive auto-intoxication from reinforcing the toxemia of pregnancy, will put the patient in better condition for resistance. This is a milk diet. Unfortunately in certain cases, a milk diet may augment the gastro-intestinal intoxication by the putrid transformation of the casein. In

such cases it is better to give vegetable soup, water gruels, or even a little sheep's brains. In cases in which a milk diet is not tolerated, a hydrated diet in all its forms is prescribed (mineral waters, sweetened infusions, etc.). In cases in which the stomach rejects absolutely everything, the rapid dehydration should be combated by artificial serum given by hypodermic injections, or by high enemas. Pinard's experience leads him to conclude that as soon as the pulse-rate of a woman with toxic vomiting is permanently over 100, it is necessary to bring pregnancy to an end immediately (THE JOURNAL, May 14, 1910, p. 1623). Aside from all clinical considerations, such as pulse, temperature, loss of flesh, there are, according to Dr. Fieux, two complications which constitute immediate indications for an interruption of pregnancy; these are the appearance of polyneuritis, or of true icterus, characterized by the passing of biliary pigment in the urine. Whatever be the condition in which one finds one of these patients, it is never right, he says, to refrain from operation. However desperate the situation may seem, it is the physician's duty to evacuate the uterus as soon as possible. This procedure, rapidly executed, sometimes resuscitates an almost moribund patient. The best operative technic is that which without violence will permit total evacuation with the greatest rapidity. The use of laminaria tents, Hegar's bougies, and small Champetier de Ribes' bags almost always permits the rapid, if not easy attainment of a dilatation sufficient for the total evacuation of the uterus.

Dr. Lepage, obstetrician of the Paris hospitals, objects to the essayist's conclusions as too pessimistic. He believes that by appropriate treatment (a diet of milk, or milk and vegetables, with injections of artificial serum), abortion may often be avoided, while it is necessary to watch the patient closely in order to intervene without delay if necessary. It is difficult, however, to define the precise moment at which operation is necessary. A pulse of 100 is not an absolute criterion. In certain cases, moreover, the cessation of vomiting is not a favorable symptom at all; it indicates an extremely grave condition of which it is necessary to warn the family. Dr. Lepage held that in desperate cases operation should be resorted to, and that retention of the urine was an unfavorable sign. Dr. Achard, professor of general pathology at the Paris college of medicine, emphasized the tendency toward vomiting of certain individuals, in whom vomiting persists after the disappearance of the cause. In one case which he had observed, after a prolonged and absolutely useless course of milk diet, the patient's general condition improved and the vomiting ceased on a diet of broth and raw meat. Achard concludes therefrom, that one ought not to persist in a course of treatment which seems inefficacious, but should select another one, however opposed it may seem to the usual course in such cases. Dr. Pinard, professor of clinical obstetrics in the Paris college of medicine, said that he was astonished to hear Dr. Lepage advise against operation in desperate cases. Pinard believes that one should always attempt to save life; and that even when one foresees that the woman may die on the operating table, operation should be tried after the family has been warned.

Death of Professor Raymond

Dr. Fulgence Raymond, clinical professor of diseases of the nervous system at the Paris college of medicine, has just died at the Château de la Planchette, near Poitiers. He was 66 years old. He was educated at the veterinary school of Alfort, where he became, in 1866, head of the department of anatomy and physiology. He wished, however, to become a physician, and at 33 he began the Latin studies necessary for his baccalaureate degree, and entered the medical school. In 1878 he was appointed physician of the hospitals, and in 1880 agrégé professor at the college. He was a pupil of Vulpian and of Charcot, and at the death of the latter he was almost unanimously chosen to occupy his place, which he held from 1894 until his death. He had been since 1899 a member of the Académie de Médecine. He had published his clinical lessons on the nervous system, and a book on the neuroses and psychoneuroses.

Measures Against Cholera

In consequence of the increase of cholera in Italy, the sanitary service has taken new precautions at Marseilles. All ships arriving from the infected regions will undergo quarantine at Friuli. They will be admitted into the port of Marseilles only on presentation of clean bills of health from the French consul of the port of departure. Fruits and vegetables coming from the regions affected by the epidemic will be absolutely excluded at the frontier.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Sept. 22, 1910.

Personal

Prof. L. Kuttner, medical director of the Rudolf Virchow hospital, has been appointed director in chief of the same hospital as the successor of Professor Goldscheider.

Campaign Against Ankylostomiasis

At the second international congress for industrial diseases held in Brussels a short time ago, the subject of hookworm disease was thoroughly discussed by physicians of various nations. An extensive report on this subject was made by the experienced director of the hygienic institute in Gelsenkirchen, Professor Bruns. He commented on the importance, both for prevention and treatment, of the worm-carriers. The difficulty of this task is shown by the fact that there are in the Ruhr coal districts about 350,000 miners. Microscopic examination of the stools seems to be the only reliable means of detecting the presence of the hookworm. The feces are mixed with powdered animal charcoal and placed for several days in the incubator, so that the larvæ develop from the eggs. By this means, devised by Leos, Bruns has obtained twice as many positive results as formerly. Of 8,000 persons with infected stools simple microscopic examinations gave positive findings in 40 per cent, but the cultural method yielded positive results in 90 per cent. For the treatment, extract of male fern was used with the best results. Bruns had 5 cases of blindness in 40,000 treatments. In prophylaxis, the greatest cleanliness is important; especially all contact with the stools must be avoided and no defecation permitted in the mines. As a result of application of these measures there has been a very satisfactory reduction of typhoid and dysentery as well.

Marine Convalescent Home

A seamen's convalescent home has been recently opened in a suburb of Berlin for the reception of the officers and crew of the navy and merchant marine and for the officials of the colonies who have fallen sick on the sea or in foreign countries and are in need of care during their convalescence. Sixty beds are provided; they have been endowed by private benevolence. The kaiser and kaiserin made the first contribution to this sum. The entire cost was \$180,000 (750,000 marks).

Resolutions Voted by the German Medical Press Association

The general assembly of the Freie Vereinigung der deutschen med. Fachpresse was held at Berlin September 17, under the presidency of its business manager, Dr. Spatz, editor of the *Münchener med. Wochenschrift*. His report showed the satisfactory increase of the membership to about 150. Then the first and most important item of business, namely, the "reform in medical publication" was taken up for discussion. The following leading principles were adopted:

To avoid the excessive scattering of medical literature, the concentration of all publications in the regular periodicals is advocated. Especially the issuing of *Festschriften*, special reports, annuals, etc. on the part of the scientific institutions and hospitals should be rigorously limited. The issuing of inaugural dissertations as separate publications is also objectionable. The essential content of such works should be published in brief in some periodical by the author or the director of the institution. In original communications the greatest possible brevity should be the rule. Repeated citation of compiled bibliographies is useless and exasperating. Journals should as far as possible publish only such articles as are suitable to their special field. Preliminary reports should in general present only actual facts. Their publication is to be limited as much as possible. To obtain as complete an outlook over the borderland subjects as possible, it may be advisable for journals publishing abstracts to exchange abstracts. It would be very desirable if the great special societies would favor the development of abstract work by supporting a special abstract journal. J. Schwalbe, editor of the *Deutsche med. Wochenschrift*, stated that, thanks to the united efforts of the medical press and the manufacturing chemists, there had been a marked reduction in the production of medical write-ups for pay. The drug manufacturers who formerly secured for a certain fee the publication of fraudulent articles by physicians have abandoned this mode of advertising since they have learned that the elaborate efforts of these mercenary writers will not be published in the journals belonging to the medical press association nor abstracted if they have appeared in other journals. In accordance with a resolution of the previous general assembly

by the names of physicians whose cooperation for other reasons is not desired by the journals of the association were also placed on the "black list." Finally also those journals whose editorial principles are objectionable on ethical grounds were published by name. In consideration of the fact that many of the designated authors and organs are repentant and have reformed, it was resolved on motion of the speaker presenting the report that their names be stricken from the list, from which it is to be assumed that they will hereafter abide by the principles of the medical press association. Still more important was another motion presented by this speaker which will seriously affect the drug trade. In order to counteract the deception of physicians by the false statements by manufacturers with reference to many medicinal preparations, a resolution was adopted, binding on the members of the association, that advertisements of medicines and other preparations which are objected to by the special committee in charge of the matter shall not longer be accepted by the journals which belong to the association, and of course write-ups of these objectionable preparations will be excluded from publication.

On motion of Dr. Joachim, it was resolved that at the next general assembly the adoption of a uniform method of literary references in medical publications should be discussed and he was empowered to make suggestions. Finally on motion of Dr. Schnirer, editor of the *Klin. therap. Wochenschrift*, who referred to the objectionable occurrences which had accompanied the publication of the results of treatment with Ehrlich's "606," a resolution was adopted to the effect that the association announces that it will in future refuse to accept articles from authors who have communicated to the daily press the contents of an article before its appearance in the professional journal to which it has been presented.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Sept. 29, 1910.

Information About Free Hospital Beds

The decentralization of the hospital management in this city has often led to very alarming conditions; patients have been driven to several hospitals without obtaining a bed. Recently, when on account of climatic conditions there was really a scarcity of such accommodation, it has happened that children died in the arms of their mothers while seeking help for hours and hours without being admitted to the ward. Now in the Vienna General Hospital a bureau has been installed by the government which will receive every morning and every evening from all charitable institutions in this city by telephone authentic information of all vacant beds and beds to be vacated within the next twelve hours. As soon as one of these beds is occupied again, the fact will be telephoned at once to the bureau. Thus, whenever a bed is wanted, any policeman or doctor may at once inquire when and where the patient can be accommodated. This has been done especially under the pressure of the cholera scare, in order to prevent a prolonged stay of an infectious patient in a household.

The Hungarian Institutions for the Care of Children

From the data now obtainable, it appears that upward of 50,000 children are cared for by the government in Hungary, and that an equal number have outgrown this care and either have been given back to their parents or have become independent members of society. There are sixteen such institutions in the country, and every Hungarian-born child has a right to apply for state care, if it has no maintenance or supporter; no documents are asked for, but a special inquiry office tries to find out the true reason why the child is not cared for by its family. The system of bringing up such children, if they are healthy, in suitable state-controlled agricultural households is very useful, for it provides healthy laborers, badly wanted in the country. Ill or weak children are properly cared for in hospitals and other institutions attached to the children's homes. One very commendable feature of this scheme, which altogether costs the state some \$400,000 a year, is the continuation of the family bonds between the child and its relations. The child is, so to say, only entrusted to the state for education, as it was in ancient Sparta, but still the members of the family are free to visit it as often as they choose, provided they exert no bad influence. This very modern—in fact, unique—experiment on a great scale was much commented on by the members of the last Congress in Budapest, and really is due partly to political, partly to social considerations.

Marriages

FREDERIC ATWOOD BESLEY, M.D., to Mrs. Myra E. Busey, both of Chicago, October 6.

DANA WARREN DRURY, M.D., Boston, to Mrs. Elizabeth Small Boyce, at Baltimore, September 30.

HARRY B. HAYWARD, M.D., Hammond, Ind., to Miss Josephine C. Badenoch of Chicago, October 12.

ELMER EATON CURTIS, M.D., U. S. Navy, to Miss Rose Bearwald of San Francisco, September 20.

DANIEL BERNARD HAYDEN, M.D., Chicago, to Miss Julia Howard of Faymer City, Ill., October 8.

HENRY A. PFEIFER, M.D., Jackson, Wis., to Miss Frances Murray of Manawa, Wis., September 21.

HENRY CLAY MICHIE, M.R.C. U. S. Army, to Miss Louise Robertson, at Charlottesville, Va., September 30.

WALTER J. CLUTHE, M.D., Tell City, Ind., to Miss Marguerite Moore of Indianapolis, at Chicago, September 20.

WILLIAM WELDON PASCOE, M.D., Tacoma, Wash., to Miss Helen North Wright, at Dallas, Texas, October 12.

D. E. LYBROOK, M.D., Young America, Ind., to Miss Matilda Browne of Marion, Ind., at Indianapolis, September 26.

WILLIAM BURGESS CORNELL, M.D., Hawthorne, Mass., to Miss Bettie Grace Duncan of Lutherville, Md., October 11.

Deaths

Edwin Mills Nelson, M.D. Miami Medical College, Cincinnati, 1874; a member of the Missouri State Medical Association; for ten years managing editor of the *St. Louis Courier of Medicine*; at one time lecturer in the St. Louis Medical College; clerk of the board of health, and attending physician at the Webster Orphan Asylum and St. Louis Maternity Hospital; one of the organizers of the St. Louis Training School for Nurses; died at his home in St. Louis, September 20, from disseminated sclerosis, aged 62.

Delorme W. Robinson, M.D. Kentucky School of Medicine, Louisville, 1882; a member of the American Medical Association, and the National Association of Railway Surgeons; formerly president, later superintendent and secretary of the South Dakota State Board of Health; local surgeon of the Chicago and Northwestern Railway Company, and chief of staff of St. Mary's Hospital, Pierre; died at his home in that city, September 26, from pneumonia, aged 55.

Abijah I. Beach, M.D. Western Reserve University Medical College, Cleveland, 1856; assistant surgeon of the Ninth Kansas Volunteer Cavalry during the Civil War; formerly United States pension examiner at Council Grove, Kan.; from 1881 to 1883 physician at the Tulalip Indian Reservation, Wash.; for twenty months surgeon of the Washington State Soldiers' Home; died at his home in Renton, Wash., September 25, from nephritis, aged 74.

George Little, M.D. University of Pennsylvania, 1884; a member of the Medical Society of the State of Pennsylvania; formerly president of Schuylkill County Medical Society; health officer of Tamaqua borough; deputy coroner and registrar for Tamaqua district, and local representative of the State Board of Health; died suddenly, while making a professional call in Tamaqua, October 3, from heart disease, aged 48.

Thomas Everett Alsop, M.D. Medical College of Virginia, Richmond, 1887; a member of the Illinois State Medical Society, and formerly president of the Clinton County Medical Society, and Clinton County Board of United States Pension Examiners, and coroner and member of the board of health of Clinton county, and physician to the county almshouse; died at his home in Carlyle, September 22, from heart disease, aged 50.

Hubert Barnard Gudger, M.D. University of Pennsylvania, Philadelphia, 1909; of Asheville, N. C.; died in the Grand Union Hotel, New York City, October 2, from an incised wound of the throat, believed to have been self-inflicted while despondent on account of ill health, aged 25.

Orville William Collins, M.D. Harvard Medical School, 1887; of South Farmington, Mass.; a member of the American Medical Association; local surgeon for the Boston and Albany Railroad for many years; a member of the staff of the South Farmington Hospital; died in Jefferson, N. H., September 5, from intestinal obstruction, aged 59.

George R. Vincent, M.D. University of Vermont, Burlington, 1865; a member of the State Medical Society of Wisconsin; for several years president of the village board of Topsh, and a member of the state legislature in 1879; died at his home, September 11, from cerebral hemorrhage, aged 69.

George W. Shepherd (license, Ind., 1897); a member of the American Medical Association; a veteran of the Civil War, and a member of the local board of pension examiners; the oldest practitioner of Jay county, Ind.; died in Redkey, September 26, from cerebral hemorrhage, aged 71.

Peter E. Richmond, M.D. McGill University, Montreal, 1873; of Mount Pleasant, Mich.; a member of the American Medical Association; and a member of the local board of pension examining surgeons; died suddenly in Saginaw, September 19, from fatty degeneration of the heart, aged 64.

George Franklin Witter, M.D. University of Michigan, Ann Arbor, 1856; of San Jose, Cal.; a member of the American Medical Association, and formerly president of the State Medical Society of Wisconsin; was struck by an automobile and instantly killed, October 2, aged 80.

Joel M. Partridge, M.D. Hahnemann Medical College, Chicago, 1868; of South Bend, Ind.; a veteran of the Civil War; formerly a teacher in Berea (Ky.) College; died in Epworth Hospital, South Bend, September 30, after an operation for disease of the kidney, aged 75.

Fred Norris Brett, M.D. Rush Medical College, Chicago, 1896; a member of the American Medical Association; surgeon to St. Mary's Hospital, Green Bay, Wis.; and a member of the city council; died at his home, September 23, from pulmonary edema, aged 40.

Thomas Drury Edwards, M.D. University of Tennessee, Nashville, 1884; a member of the American Medical Association, and a specialist on diseases of the eye, ear, nose and throat; died at his home in Union City, Tenn., May 15, from gastric ulcer, aged 54.

Jared Spooner, M.D. University of Michigan, Ann Arbor, 1871; University of Pennsylvania, 1890; a member of the Indiana State Medical Association, and a veteran of the Civil War; died at his home in Peru, September 25, from multiple neuritis, aged 64.

Noah Howard Burt, M.D. University of Pennsylvania, 1895; president of the board of health of Ocean City, N. J., and medical inspector of the public schools; died at the University Hospital, September 24, after an operation for appendicitis, aged 50.

Benjamin F. Redshaw, M.D. Northwestern University, Chicago, 1899; of Curran, Ill.; a member of the American Medical Association; was instantly killed in a collision between interurban trolley cars, near Staunton, Ill., October 4, aged 46.

Henry C. Ganaway, M.D. Meharry Medical College, Nashville, Tenn., 1902; of Decatur; a member of the Illinois State Medical Society; was instantly killed, October 4, in an interurban trolley line collision, near Staunton, Ill., aged 35.

Elias Bedell Boyce M.D. Albany (N. Y.) Medical College, 1858; for two terms supervisor and for one term coroner of Rensselaer county, N. Y.; died at his home in Averill Park, September 23, from cerebral hemorrhage, aged 72.

William Cowpe Gardner, M.D. Long Island College Hospital, Brooklyn, 1892; a member of the Medical Society of the State of New York; died at his home in New York City, September 28, from heart disease, aged 55.

Whitfield Stephen Coursen, M.D. College of Physicians and Surgeons, New York City, 1848; said to have been the oldest practitioner of New Jersey; died at his home in Oak Ridge, September 25, from pneumonia, aged 86.

Alexander A. Walter, M.D. Imperial University of St. Vladimir, Kieff, Russia, 1872; for fifteen years a surgeon in the Russian service; died at his home in Grand Rapids, Mich., September 19, from diabetes, aged 55.

Charles D. Moore, M.D. University of Louisville, 1850; a veteran of the Mexican War, and a surgeon in the Federal service during the Civil War; died at his home in Cane Valley, Ky., September 26, aged 84.

Charles Joseph Dowling, M.D. Baltimore Medical College, 1906; of Springfield; a member of the Massachusetts Medical Society; died in Mercy Hospital, Springfield, September 26, from uremia, aged 30.

Archie Allego Sweet, M.D. Ohio Medical University, Columbus, 1905; a member of the Ohio State Medical Association; died at his home in Mingo Junction, September 30, from typhoid fever, aged 30.

Theodore Romeyn Hornblower, M.D. College of Physicians and Surgeons, New York City, 1871; of Jersey City, N. J.; died at his summer home in Allendale, N. J., August 7, from dropsy, aged 65.

Oliver Cromwell Wilson, M.D. Starling Medical College, Columbus, Ohio, 1897; formerly of Benwood, W. Va.; died at his home in McMechen, W. Va., September 24, from heart disease, aged 37.

Archelaus Smith Davison, M.D. Eclectic Medical Institute, Cincinnati, 1891; a practitioner for thirty-five years; died at his home in St. Clair, Mo., February 20, from organic heart disease, aged 68.

Angustus Clay Lucas, M.D. New York University, New York City, 1876; of Minoqua, Wis.; died in that place, September 6, from concussion of the brain following a fall down stairs, aged 56.

John W. Huckins, M.D. California Eclectic Medical College, Los Angeles, 1886; for many years a practitioner of Vallejo, Cal.; died at his home in San Francisco, September 24, from septicemia.

Henry Robert Wilson, M.D. New York University, New York City, 1873; of Santa Barbara, Cal.; died in the Loma Linda Sanatorium, March 27, from acute gall-stone colic, aged 64.

Albert Warren Shoup, M.D. Louisville (Ky.) Medical College, 1894; of Battle Ground, Ind.; died at St. Elizabeth's Hospital, Lafayette, September 12, from hepatitis, aged 53.

Oscar F. Thomas, M.D. Northwestern University Medical School, Chicago, 1882; died suddenly at his home in Lakeland, Minn., September 28, from heart disease, aged 67.

James S. Hollopeter, M.D. St. Louis College of Physicians and Surgeons, 1893; died suddenly at his home in Houston, Ohio, September 20, from heart disease, aged 51.

Roy Samuel Porter, M.D. State University of Iowa, Iowa City, 1903; of Moline, Ill.; died in the Watertown State Hospital, August 31, from general paresis, aged 35.

Louis Edward Cook, M.D. Eclectic Medical Institute, Cincinnati, 1882; of Forest, Ohio; died suddenly in his automobile, September 23, from heart disease, aged 51.

John Erhard, M.D. Long Island College Hospital, Brooklyn, 1896; died at his home in College Point, Flushing, L. I., September 28, from tuberculosis, aged 48.

John F. McKinney, M.D. Eclectic Medical Institute, Cincinnati, 1876; died suddenly at his home in Arcola, Ill., September 14, from heart disease, aged 63.

Frank Johnston, M.D. College of Physicians and Surgeons, Baltimore, 1883; died at his home in Trenton, N. J., September 24, from nephritis, aged 55.

Daniel M. Dunn, M.D. Western University, London, Ont., 1894; a member of the Arkansas Medical Society; died recently at his home in Dell, Ark.

Thomas Andrew Dillon (license, ten years practice, Ohio); an eclectic practitioner of Dayton; died recently at his home, from heart disease, aged 53.

William Burriss, M.D. Pulte Medical College, Cincinnati, 1886; died at his home in Burrton, Kan., September 13, from general breakdown, aged 71.

William H. Woodbury, M.D. Hahnemann Medical College, Chicago, 1866; died at his home in Chicago, October 6, from paralysis, aged 85.

James K. Stout, M.D. Kentucky School of Medicine, Louisville, 1866; died at his home in Omaha, September 26, from anemia, aged 67.

Max Levy, M.D. Tulane University, New Orleans, 1876; died at his home in New Orleans, September 16, from heart disease, aged 59.

Henry S. Smith (license, forty-seven years of practice, Ky., 1894); died at his home in Woodville, Ky., September 18, aged 92.

Lewis Sterling Bowles, a practitioner of Paoli, Ind., for many years; died at his home, September 18, from meningitis, aged 76.

Thomas Hay, M.D. University of Pennsylvania, Philadelphia, 1861; died at his home in Philadelphia and was buried, Nov. 4, 1909.

James Cherry, M.D. Jefferson Medical College, 1871; died recently at his home in Eden, N. Y., from bronchitis, aged 62.

Isaac N. Van Pelt, M.D. Cincinnati; died at his home in Lamar, Mo., July 22, from rheumatism, aged 72.

Pharmacology

Solubilities of the Pharmacopoeial Organic Acids and Their Salts

The determination of solubilities is a matter of great importance and the data given in chemical works are frequently unsatisfactory. It is often assumed that the determination of solubility is a very simple matter, whereas it is sometimes a difficult undertaking and the results obtained even by good observers frequently do not agree. This is probably due to the fact that very few men have worked under identical conditions, either of the purity of the substance or of the solvent, or of equally exact temperature, or regulation or care in securing the saturation of the solution. As data on solubility will enter into the next edition of the Pharmacopoeia, it is important that they should be as accurate as possible.

The work of Atherton Seidell on the solubilities of the pharmacopoeial organic acids and their salts published in *Bulletin* 67, of the Hygienic Laboratory, Public Health and Marine-Hospital Service, is opportune and will be of great value to the Committee on Revision. Some interesting conclusions are pointed out: his results in the examination of 35 compounds show that satisfactory agreement with the figures of the Pharmacopoeia exists only in the case of benzoic, camphoric, gallic and tartaric acids, in the aqueous solutions, and of benzoic acid, ammonium benzoate, ammonium salicylate, salicylic acid and phenyl salicylate in the alcoholic solutions. Of the remaining results, the differences vary from about 5 to 100 per cent. His experiments show that impurities do not affect the solubility sufficiently to make solubility determinations reliable as tests of purity. He does not advise the introduction of a standard method for solubility determinations into the U. S. Pharmacopoeia; he finds that in no case is it possible to predict from the solubility of a substance in alcohol and water separately what it will be in any mixture of these two solvents. The pharmacopoeial statements in regard to the reaction of a number of salts toward indicators should be revised. Seidell recommends certain improvements in the pharmacopoeial methods of assay and quantitative analysis.

This work is another example of the value of the scientific investigations which are being undertaken by the hygienic laboratory, a work which is affording great assistance to the advance of medicine in all its departments.

ADVERTISING SPECIALISTS CONVICTED OF FRAUD

W. H. Hale, A. S. Dyar and Roland Register Receive Heavy Fines and Prison Sentences

Again the federal authorities have done the public a service by protecting it from the machinations of medical impostors. W. H. Hale of Jackson, Mich., a quack with a penitentiary record, connected himself with A. S. Dyar and Roland Register, two "advertising specialists" who operated separate institutions in New Orleans. The scheme was to have Hale pose as a "noted London specialist" who was visiting New Orleans and who had offered to assist each of the local "specialists" in giving professional advice to such victims as they might get as patients. The mailing lists of Dyar and Register were brought into service and a "strictly personal" circular letter was sent to several hundred past and prospective victims of these two "specialists." The letters offered the "patients" an opportunity of getting the "noted" visitor's opinion on their cases if they would call at the office of the local "specialist." The details of the case follow:

Dyar and Hale were charged and tried separately from Register and Hale. In each case the defendants were charged first, with having used the post-office of the United States in the execution of a scheme and artifice to defraud, previously formed; second, with having conspired to commit an offense against the United States, namely, the use of the mail in the execution of the scheme to defraud as set forth in the

first count. The case against Dyar will be described; that against Register was practically identical with it.

The scheme to defraud was executed by the mailing, by the defendant Dyar, in the case in which he and Hale were defendants, of a "form" letter made to appear as if in type-writing, addressed to two thousand or twenty-five hundred different persons, some of whom had been Dyar's former patients, and had ceased to consult him, and others of whom had interviewed him with a view of taking his treatment but who never took treatment from him. The letter follows:

NEW ORLEANS, Feb. 27, 1908.

"Dear Sir:—I hope you will pardon this letter, but when you have read it, I know you will. It is natural that I feel a deep interest in those consulting me regarding their physical condition, and especially in those I have treated and also in those I am still treating. I feel that you know that I have been perfectly sincere and honest in everything that I have done and said, that I have always studied your case carefully and earnestly endeavored to deserve your confidence and friendship—in other words I have tried to act out the Golden Rule.

"The fear that I have not cured you has been causing me some worry. Meeting Professor W. H. Hale, M.D., of London, England, the noted expert in genitourinary diseases, who is just now on a visit to the United States, and with whom some years ago, I had a very close acquaintance, I took the liberty of consulting this noted gentleman about your case. He gave me much light and assured me that there was a safe and permanent cure for your trouble.

"So delighted was I, that I have, after much persuasion, secured Professor Hale's promise to spend next Thursday, Friday and Saturday and Sunday, March 5th, 6th, 7th, and 8th WITH ME, on which occasion he will meet you, give you a consultation and whatever advice necessary, for which there will be no CHARGE WHATSOEVER.

"When you stop to think that as a rule Professor Hale charges from \$100 to \$1,000, for consultation alone, you can possibly understand what it means to you to get the benefit of his valued services without any charge whatever, and because of his personal friendship for me, he has consented to see a limited number of patients, of whom you are one.

"Professor Hale is regarded as one of the greatest living specialists in Nervous, Chronic and Special Diseases. I, therefore, ask you to call at my office on either of the days mentioned: Namely: Thursday, Friday, Saturday or Sunday, March 5th, 6th, 7th, and 8th, at any hour that suits your convenience, between 9 a. m. and 8 p. m., as the doctor will be with me each day during these hours.

"I can hardly express to you the pleasure and satisfaction I experience in having Professor Hale visit me, and I hope that you will avail yourself of my efforts in your behalf.

"Yours in the cause of Health,
A. S. DYAR, M.D."

This letter was evidently designed to deceive those who received it into believing that it was a special letter to each of them. This deception was emphasized by the statement in each letter that Dyar had been much worried by the fear that he had not cured each of the twenty-five hundred individuals, and further by the statement that he had consulted "Professor W. H. Hale, M.D." in regard to the cases of each of the different individuals to whom the letter was sent, and further by the statement that "Professor Hale" had given him (Dyar) much light and had assured him that there was a safe and permanent cure for the trouble of each of the various persons.

The so-called Professor Hale who was represented as being of London, England, just then on a visit to the United States, was, as a matter of fact, and had been, for the last nine or ten years, previous to the mailing of the letter in February, 1908, a resident and a registered voter of Jackson, Michigan. Some years previously Hale operated the "British Medical Institute" at Jackson. This was a typical "lost manhood" concern and did a thriving business until Hale was prosecuted under the medical practice act and his "institute" closed. He then began his itinerant career as the "great London specialist."


Physicians of prominence and standing in the branches of their profession in which Hale was represented to be an expert showed that Hale was not known and had never been heard of by them and that if he had been a noted expert in the branches of the profession mentioned and "one of the greatest living specialists," as represented in the letter, they would have known of him. The proof in regard to Hale, however, went considerably further, and showed that in 1891 he had been indicted in the United States District Court in Denver, Colorado, for the crime of having used the mails in a scheme to defraud.

Hale's method in Denver consisted in practicing under the fictitious name of a Chinese doctor, "Dr. Gun Wa," who by the use of Chinese herbs that he professed to have, claimed to make remarkable cures. After the indictment in Denver, Hale seems to have fled to England, for in 1892 he was indicted in Liverpool, England, for the fraudulent practice of medicine, in connection with some other man, who together promised to cure catarrh and catarrhal deafness, and prem-

Dr. A. S. DYAR

Physician, Surgeon and Specialist
619 Canal St., cor. Exchange Place,
New Orleans, La.

Young, middle aged and old, single and married men and all who suffer with



Lack of Energy,
Impoverished
Blood, Pimples,
also Blood and
Skin Diseases,
Syphilis, Eruptions,
Hair Falling, Bone
Pains, Sore Throat,
Ulcers, Swellings,
Effects of Mercury,
Kidney and Bladder
Troubles, Weak
Back, Burning
Urine, Stricture,
receive searching
treatment, prompt
relief and cure for
life. Both sexes
treated confidentially
and privately.
Piles, Fistula,
Fissure and

Rupture, Nervous Debility, Falling
Memory. All cases can be as successfully
treated by mail as by personal interview.
Send for Perfect Question List.
Address
DR. A. S. DYAR, "The Specialist."
619 Canal St., cor. Exchange Place,
New Orleans, La.

One of Dyar's advertisements; Register also advertised in a similar way. Hale for some years operated the "British Medical Institute" at Jackson, Mich. This was a "lost manhood" concern of the usual type.

used to furnish medicines for this purpose, all of which claims were false.

He was tried under this indictment in England, and sentenced to serve a period of eighteen months in the penitentiary at Walton, England. On his return from England to the United States, after the expiration of his sentence in England, he was arrested in New York under the Denver indictment and taken back to Denver where he was tried and convicted and sentenced to serve a period of eighteen months in the penitentiary.

After the expiration of his sentence, he seemed to have gone to New York, for in 1895, he was there indicted in connection with some other man for grand larceny of \$1,500 from one John McCallum, whom Hale told that he was suffering with serious kidney trouble, from which he would soon go crazy or die and of which they would cure him by means of what they called "radium cure." On these representations he charged McCallum \$1,500 for a small vial of "radium cure." Hale pleaded guilty to this indictment and was sentenced to a term of eight months in the penitentiary at Blackwell's Island, New York.

In addition to the above evidence, proving that Hale was not a noted expert, or one of the "greatest living specialists" as he was represented to be in the letter, several physicians from Ohio and Michigan testified regarding Hale's standing in the profession and as to whether or not he was entitled to practice medicine in Ohio where he claimed to have graduated from the American Eclectic College of Medicine, or in Michigan where he resided. The evidence of these physicians, two of whom were secretaries of the state boards of health of Ohio and Michigan, respectively, showed that the American Eclectic College had been investigated by these two states and was not in good standing, and the diplomas therefrom were not recognized as authority to practice medicine and that, although Hale had applied for re-registration under the laws of Michigan, his application had not been granted and he was not and had not been for some years authorized to practice medicine in Michigan. Of course, Hale produced physicians of his class from New York, Chicago and elsewhere, who swore to his excellent standing as a surgeon and diagnostician, and he referred to having license to practice medicine in Maine, Arkansas and Oklahoma.

Hale, Dyar and Register were found guilty and were sentenced to pay fines varying from \$1,000 to \$5,000 and to serve terms in the federal prison of from twelve to eighteen months each. United States District Attorney Charlton R. Beattie and Postoffice Inspector F. J. G. Pulsifer deserve great credit for the successful outcome of these cases; they have done the public a substantial service.

Correspondence

The Part Played by the American Medical Association in the Improvement of Medical Education

To the Editor:—It was with the keenest pleasure that I read your editorial in THE JOURNAL, May 21, 1910, on the reorganization of the Medical Department of Washington University, St. Louis. There is much that is of midnight darkness in American medical education; but, thanks to an awakening realization of conditions, there are also some rays of light, and one of them is this re-born medical school with its magnificent endowments and clinical facilities, its distinguished faculty, and chiefly its true scientific medical spirit, as evidenced in the educational standards laid down and in the selection of the men who will direct its medical destinies. As you suggest, its influence on medical education in that part of the country will be profound. May its educational requirements rise higher every year, and its light gleam brighter.

In this reorganization we see an illustration of what the American Medical Association, through its Council on Medical Education, is accomplishing for decent medical schooling in the United States. Many and diverse are the lines along which the Association is doing yeoman service; but in none of them does it appear that more credit must ultimately redound to this national Association, and a more lasting good to the whole people, than in its work for the reform of medical education.

The education and training of physicians in this country has been, hitherto, largely a commercialized disgrace and a national shame that has made the name of so-called American medical colleges, with a few exceptions, a by-word in other civilized countries. Disastrous enough has been this national crime to a credulous people. Who can compute the fearful toll in blood and life that has been exacted from them through the ignorance and incompetence of youthful, quiz-made physicians, suddenly turned loose on an indiscriminating public? How many of these men were morally and mentally unfit to assume the enormous responsibilities that are of necessity placed on the shoulders of every practicing physician? Armed with the miraculous sesame of M.D., and clothed with mystery, they have marched forth in annual armies to heal and to make glad; but alas, also, to learn many necessary things in sorrow and bitterness to themselves and to their patients. The majority of these men should have been more adequately trained for the practice of their profession, and some of them

should have been eliminated as not being especially qualified for the high calling of physician. Not the least of the advantages of a thorough preliminary and medical education is the remorseless elimination that the process silently accomplishes. A few naturally good physicians may thus fail to get their diplomas, but such an injury to few individuals is not to be compared for a moment with the great good that will come alike to the profession and the laity by the exercise of a long-continued selective and eliminative education that will well test the inherent worth of all candidates for the degree of doctor of medicine. Of course, no system of medical education can give the young doctor just stepping into private practice that knowledge which comes only with long years of experience and observation; but, other good things being equal, the more matured and the more thoroughly trained, the young practitioner, the less he will learn in his early practice at the expense of his patients.

It is high time that the profession as a whole wakes up to its great responsibility for the proper education of medical students. To condone the disgraceful standards that prevailed during the last half of the nineteenth century, and which still exist to a considerable extent, is nothing short of criminal negligence. The country is so well supplied with medical men that there cannot be the slightest danger of an under production, however much the standards for licensure may be raised. We have been paying too great heed to quantity; it behooves us in the future to look sharply to quality.

Already we have a few medical colleges of the first rank, standing out as beacon lights in the educational world; types of what medical schools should be, and will yet be in this country. We all know these schools both old and new and take a just pride in them and their high ideals, and in the power they are exerting throughout the land.

In the meantime, let a united profession strive to make for every school surviving the test, a standard in which a reasonable amount of preliminary education will be demanded for admission to its medical course; in which adequate and wholly satisfactory clinical and laboratory facilities must be furnished in compliance with minimal standards laid down by the proper authorities; in which full nine-month annual sessions are given; and in which at least a one-year hospital internship, or its equivalent, is required before the candidate is eligible to engage in private practice in any of the several states. With such standards or even approximately such standards, prevailing, I believe our dark problem of "150 medical colleges," would be solved for all time, and in an illuminating manner at that.

In conclusion, I wish to congratulate the American Medical Association and its leaders on what it has accomplished, and on the immense good that it will yet accomplish through the work of its Council on Medical Education. It has placed the medical profession and the general public deeply in its debt; and we have every reason to believe that this debt will be greatly increased in the future. The task before it of extricating medical education in the United States from the veritable slough in which it has lain these many years, is a labor and a problem worthy of the patience, perseverance, and intelligence that will finally bring about its solution.

GARFIELD G. MCKINNEY, M.D., U. S. Army.

Lumbar Puncture in Poliomyelitis

To the Editor:—Dr. Flexner's admirable paper on the important work of himself and co-workers on poliomyelitis, in THE JOURNAL, Sept. 24, 1910, p. 1105, interested me greatly. I disagree with him, however, in his advocacy of the routine and early use of lumbar puncture by physicians in suspected cases, and I cannot refrain from commenting on this question.

1. Until we have a definite serum to use, I see no value in determining by examination of the cerebrospinal fluid the presence of a slight lymphocytosis, especially since if done before paralysis has occurred, the puncture may be blamed by the relatives for the succeeding paralysis. As this lymphocytosis occurs early at a period when patients are rarely observed closely, lumbar puncture might be done later than the operator thinks he is doing it.

2. Is this slight lymphocytosis with subsequent clearing of fluid and constant increase of polymorphonuclear leukocytes characteristic of poliomyelitis only? In other words, I cannot see in what way it makes the diagnosis any more definite than the excessive perspiration, the irregular tremor, the irritability and extreme prostration, the frequent suppression of urine, etc., which mark the disease before paralysis occurs.

3. I have not had an opportunity to make many blood counts early, but have made them in over thirty cases shortly after paralysis, when an abnormal number of lymphocytes is present in the blood. Can this, a preferable method, not be used to help in the diagnosis?

4. Without any basis for my belief except personal convictions, I do not believe even so innocuous a procedure as lumbar puncture advisable in these extremely prostrated subjects with their infiltrative edema and hemorrhage of the cord and of the meninges.

Further, until a definite germ and serum or vaccine are determined I believe that physicians should observe great care to counteract flail joints, contractures and consequent deformity after the paralysis has occurred.

EDWARD E. MAYER, Pittsburg, Pa.

[The above letter was referred to Dr. Flexner, who replies:]

To the Editor:—The reason for recommending that lumbar puncture be performed in cases of doubtful infantile paralysis is in order to arrive at the earliest practical moment at a correct diagnosis. We are still very ignorant of the real extent of the epidemics of poliomyelitis and are therefore, prevented from exercising due caution in limiting its spread. What we need especially to learn is the frequency with which cases of poliomyelitis that do not develop paralysis occur, and what the leading symptoms are in these instances, since the so-called abortive cases may be found to be the insidious means of the transmission of the infection. Moreover, there occurs, not uncommonly, a form of anterior poliomyelitis which simulates epidemic meningitis so closely as to be frequently confused with that disease. I can speak with certain knowledge on this point because of the frequency with which we have been called on to supply antimeningitis serum for the treatment of cases of anterior poliomyelitis, in which meningitic irritation was an early and prominent feature.

I am of the opinion, therefore, that lumbar puncture provides the one clinical method at present known for clearing up the diagnosis of atypical cases of poliomyelitis or for determining the nature of the typical affection prior to the appearance of paralysis. Whether the increase in lymphocytes of the circulating blood will suffice for the same purpose I do not know, but the suggestion made by Dr. Mayer is valuable and should be carefully investigated. I do not believe, however, that it is necessary or desirable to defer employing lumbar puncture for purposes of diagnosis until a specific form of treatment is discovered. It would seem necessary merely to recall the great value of lumbar puncture as an aid to the diagnosis of tuberculous and some other forms of meningitis, for which there are at present no specific remedies, to justify the employment of the procedure.

The question as to whether lumbar puncture is likely to be abused in the hands of the unskilled and inexperienced is another matter. Our experience with the antimeningitis serum leads me to think that it will rarely happen that those unskilled or inexperienced will undertake to employ the puncture. Indeed, I should say rather that inexperienced physicians will call on surgeons or others who are familiar with the procedure rather than undertake to carry it out for themselves. It should be noted, furthermore, that in order to arrive at a diagnosis by this means, laboratory knowledge is required, since the fluid secured must be submitted to microscopic and chemical examination, a fact which, in itself, introduces a limitation that would tend also to confine the method to the skillful.

I believe, however, that Dr. Mayer's warning to exercise great caution so that a misunderstanding does not arise on the part of the friends of the patient, who might otherwise attribute the development of paralysis to the puncture, is timely, and I also agree with him in advising that the puncture

be not carried out in instances in which there is danger of such misinterpretation.

In conclusion, I would like to add a word on a point foreign to this letter. Since the publication of my paper in THE JOURNAL, I have learned of the prevalence of epidemic poliomyelitis during the past summer in three southern states, namely, Virginia, South Carolina, and Georgia.

SIMON FLEXNER.

American Medical Association of Vienna

VIENNA, Sept. 26, 1910.

To the Editor: No doubt a great many of the readers of THE JOURNAL, especially physicians who are contemplating coming to Vienna for graduate work, and also those who have studied here, will be interested in hearing that on September 21 the American Medical Association of Vienna left its old quarters in the Café Klinik, where it had been for six years, and moved into new and permanent club rooms at 28 Schloßergasse, opposite the main entrance to the General Hospital.

The club rooms consist of five large, handsomely furnished rooms most conveniently located, and will fill a long-felt want among the physicians who come to Vienna. The lounge-room is furnished with large armchairs, leather-covered divans, piano, etc. The reading-room and library is done in red, and the secretary's or business room in green. A pretty room has been arranged for the ladies, not only for the use of those studying medicine, but also for the wives and daughters of visiting physicians. Beautiful rugs cover all the floors and handsome curtains adorn the windows. The color schemes in each room have been worked out carefully, everything is harmonious and in good taste, and the A. M. A. of Vienna now has a home in which its members take pride. The association is greatly indebted to Dr. C. L. Chambers of Bismarck, N. D., Dr. D. B. Phemister of Chicago, Dr. W. H. Burmeister of Great Falls, Mont., Dr. F. W. Barton of Danville, Ill., and Dr. M. W. Jacobs of St. Louis, as it was owing to their efforts that the club rooms were established. The association selected Dr. Chambers for the presidency at an election held September 9. A good reference library is in the process of formation; a number of valuable medical works have already been contributed, and it is hoped that in a short time all the leading medical journals will be found on the library table.

The club rooms were formally opened with a large reception on the evening of September 21, and it was attended by nearly five hundred guests, including American physicians studying in Vienna, people from the American colony, and the various professors and instructors in the hospitals.

The present officers of the association are: Dr. C. L. Chambers, Bismarck, N. D., president; Dr. N. L. Linneman, Duluth, Minn., vice-president; Dr. M. W. Jacobs, St. Louis, secretary; Dr. R. F. Davis, Seattle, treasurer.

H. F. BENNETT.

Interstate Reciprocity in License to Practice

To the Editor: The subject of interstate medical reciprocity is perhaps trite but is one, I am afraid, which will constantly recur until it is settled right and to the satisfaction of higher-class graduates of from ten to twenty five years' standing. At present the bulk of the state laws are entirely in favor of the inexperienced tyro and the compend brigade. I am thoroughly in favor of good, stringent laws calling for high preliminary and professional requirements and I do not think any older practitioner should expect reciprocity unless he has above the average attainments which were in vogue at the time of his graduation. It is not to be expected that any physician of many years' standing, no matter how good a school he came from or how good his previous education, can successfully complete a state board examination on those fundamentals which he has long since forgotten save in their more or less practical application. In my opinion, boards were created to keep poorly qualified men out, not to harass those in good professional standing.

The question might arise: "How are we to know those of good standing without examination?" In answer I would say: Any man who can show evidence of having had a good preliminary education at the time of commencing the study of medicine and having subsequently graduated from a standard medical college, so recognized at that time, should be permitted to practice anywhere in the country. Any other course, short of a practical examination in the practical subjects, is a tyranny against which the masses of the older practitioners should rise up. A physician, after years of practice, may want to change his location for many reasons, among which may be unsuitable climate, unsuitable surroundings, lack of success owing to undue competition or because he desires to take up a specialty which is precluded in his present location. Now, under such conditions, no man or body of men has the right to say to a competent man, as measured by the standard above laid out: "You cannot practice here until you go through any examination we may prescribe." Take the men of the highest standing and best reputations in this or other countries, put them to such a general test and they will "fall down." See the fuss some of the physicians and surgeons of St. Louis made when it was hinted that they be given a practical examination on the subjects in which they were supposed to be expert. If a lot of theoretical stuff had been suggested they might have had reason to complain. The young graduate is primed for such examinations and it is right that he should take them, but the older competent physician of from ten to thirty years' standing should be exempt from such ordeals. A man of such years has business and family cares which prevent his preparing for examinations and it ought not to be required of him.

Reciprocity as we have it to-day is not reciprocity at all and the older, qualified members of the profession should be recognized, peacefully if possible, but they should be recognized.

H. E. DUNLOP, M.D.

Grim Advocate of Death

To the Editor:—In the Department of Medical Economics, in THE JOURNAL, October 8, page 1313, is an article written in reply to Senator Webster Grim, whose statements were published in the *North American* concerning the Pennsylvania Board of Health. That a board of health, that medical research, that proper hygiene and sanitary work was very important to any state, all this was admitted by Senator Grim, but the expensive scale and the manner in which Pennsylvania was conducting the said work is what Senator Grim denounced. I desire to ask the writer of the above article in THE JOURNAL of the A. M. A. what amount of money he is now receiving either directly or indirectly from the Pennsylvania Board of Health.

J. M. JOHNSTON, M.D., Huntingdon, Pa.

[COMMENT:—We fear that our correspondent did not carefully read the article referred to, or he would have seen that the entire article, with the exception of the introductory paragraph, was quoted from an editorial in the *Philadelphia North American*. As to how much the writer of the article receives from the Pennsylvania Board of Health, we suggest that the question be referred to the editor of the *North American*.—Ed.]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DETAILS OF THE WASSERMANN REACTION

To the Editor:—Please give an explanation of the Wassermann reaction and the reason for the different steps.

D. I. W., Cincinnati.

ANSWER. The Wassermann reaction rests on the phenomenon known as fixation of complement. The name "complement" has been given to a substance found in all animal serums. This substance is necessary for the action of the lytic antibodies which are formed in the blood by reaction against various pathogenic agents

or antigens. An antigen is any substance capable of provoking the formation of an antibody. It is believed that complement combines with the antibody and the latter with the antigen, making the reaction of lysis possible. Thus a hemolytic substance in the presence of complement attacks and dissolves red blood cells, setting free hemoglobin and rendering transparent an opaque suspension of red blood cells by taking the blood. If no complement is present the hemolytic antibody will have no effect on the red cells and no apparent change in the blood mixture will take place. Complement is destroyed by heating and may thus be removed from serum containing it.

Bordet and Gengou showed that the union of the antibody with the antigen (infectious virus) removed complement from the serum. Wassermann applied this discovery to the diagnosis of syphilis on the following assumption: If syphilis is active the serum of the patient must contain antibodies and if syphilitic virus or antigen is added to such serum it will combine with these antibodies and with complement and remove the complement from the serum. Later investigations showed that the antigen need not be a specific syphilitic product, although such an antigen is best for use. To test whether complement has been combined, Wassermann employs a hemolytic system consisting of the serum of a rabbit which has been injected with sheep's red blood corpuscles until an antibody has been formed in the animal's serum which is hemolytic against sheep's red blood corpuscles. If the serum of such a rabbit be mixed with sheep's red blood cells the hemolytic agent in the serum, with the aid of the complement in the serum, will destroy the red blood cells and liberate hemoglobin. But if such a serum be heated before it is mixed with red blood corpuscles complement will be destroyed and the serum will no longer be able of itself to cause hemolysis. Such serum is said to be inactivated, because it can no longer act after complement is destroyed. If, to an inactivated hemolytic serum, a serum containing free complement be added, the mixture again becomes capable of causing hemolysis and by this means it becomes possible to determine whether a serum under investigation contains free complement or not.

In order to make a Wassermann test it is necessary first to put together a syphilitic antigen, a serum suspected of containing syphilitic antibodies, and a small amount of guinea-pig serum to furnish the complement. This mixture is incubated for a certain period (45 minutes) at 37 degrees C. At the end of this time if there are syphilitic antibodies in the suspected serum they will have combined with the antigen and with the complement so that there will be no longer be any free complement in the serum. If this serum is now added to a mixture of sheep's blood corpuscles and inactivated hemolytic serum, no hemolysis will take place because complement has been removed. On the other hand, if the suspected serum contained no syphilitic antibodies no combination with the antigen will have occurred and complement will remain free, so that when sheep's corpuscles and hemolytic serum are added, the free complement will cause hemolysis.

A positive Wassermann reaction causes no change in the mixture of blood corpuscles and inactivated hemolytic serum, but in case of a negative reaction hemolysis occurs and the mixture of blood corpuscles and inactivated hemolytic serum becomes transparent and red from the liberated hemoglobin.

For the performance of the reaction the following are needed:

1. The syphilitic antigen obtained from syphilitic liver or extract obtained from the heart of the guinea-pig. These can be obtained ready prepared from certain laboratories. If made by a physician the organ should be ground with sand and warmed in a water bath at 60 degrees C. for an hour with 50 c.c. of 95 per cent. alcohol for each gram of the organ and filtered.
2. Guinea-pig serum to serve as a source of complement.
3. Hemolytic serum. Inject a 5 per cent. mixture of washed sheep's blood corpuscles into a rabbit every week or 10 days for 4 or 5 times. A week or 10 days after the last injection the blood may be removed from the heart, the serum collected, inactivated by heating at 56 degrees C. for half an hour, and kept on ice ready for use. This is also known as an amboceptor. It contains amboceptor (lytic antibody) but no complement.
4. Sheep's blood obtained from the jugular vein of a sheep in a sterile flask and defibrinated by glass pearls. It is washed with salt solution 2 or 3 times and then mixed with salt solution either in the proportion of 5 per cent. or 50 per cent., according as one adheres to the cubic centimeter plan or drop method for measuring quantities.

The blood serum of the patient to be tested is obtained as follows: Collect blood from the vein or finger, allow it to clot; remove the separated serum; centrifugate to clearness; pipette off into test tube and inactivate at 56 degrees C. for one-half hour.

Before the actual performance of a reaction it is necessary: (1) to standardize the amboceptor; (2) to see that extract alone does not bind complement or hemolyze sheep's corpuscles; (3) to see that the blood corpuscles have not hemolyzed; (4) to see that the complement is active.

The performance of the test is as follows: For each serum two small test tubes are required and several tubes for controls of the materials as above, these being repetitions of the tests of the material made before beginning the test. Add 10 drops of salt solution to each tube. Add a drop of serum to each of the 2 tubes used for a given serum. Then add 2 drops of organ extract to one of them. To one of the control tubes add 2 drops of organ extract. To each add a drop of complement. Shake tubes and place in incubator for one hour. Remove and add to each a drop of standardized amboceptor and one drop of 50 per cent. suspension of sheep's

blood corpuscles. Incubate for an hour and a half and then read the result. All controls with serums alone, with normal serums and with organ extract alone should be hemolyzed. If hemolysis has occurred in tubes containing suspected serums and organ extract, they are regarded as negative. If hemolysis has not occurred at all, or only incompletely, the result indicates that the patient furnishing the serum is affected with syphilis.

A list of articles on this subject was published in THE JOURNAL, April 9, 1910, p. 1226.

HOUSEHOLD APPARATUS FOR DISTILLING WATER

To the Editor:—I desire information concerning apparatus for distilling water which may be used in the household.

1. Which is the best type of apparatus?
2. What general principles should such apparatus have?
3. Is distilled water used in the navy and on steamship lines?
4. Are there any serious disadvantages in the use of distilled water for drinking purposes?

CLEVELAND FERREIS, New York.

ANSWER:—1 and 2. Small stills for this purpose can be obtained of chemical supply houses and are usually constructed so as to conduct steam from the tea-kettle or other vessel into a worm surrounded by cold water by which the steam is condensed. Lead pipes and vessels should be carefully avoided. The tubing through which the steam passes should preferably be of pure tin.

3. We understand that distilled water is used in the navy and on some sea-going steamers, but not on steamers plying the Great Lakes.

4. It has been asserted that distilled water is injurious on account of its osmotic properties. Animal cells are unfavorably affected by it and it is supposed that the effect on the mucous membrane of the stomach may be unfavorable. As a matter of fact, however, distilled water is seldom taken into the stomach without the presence of solids, which increase its molecular concentration, and experiment has shown that when distilled water is taken into the empty stomach, solids are secreted from the blood so as to approximate the molecular concentration to that of the blood. Its moderate use, therefore, probably does no harm. The principal sanitary advantage of distilled water can be more economically obtained by simply boiling and filtering.

EXAMINATION OF WATER FOR COLON BACILLI

To the Editor:—Please answer the following questions:

1. In the examination of water for colon bacilli what is the ratio between the total number of bacteria and the number of *B. coli*?
2. Does the increase or decrease in number of fish influence the total number of bacteria? I refer to our lake fish.
3. (a) Is there any fish bacillus known which closely resembles the colon bacillus? (b) If so, how are they distinguished?
4. Can you refer me to any literature on the subjects of Questions 1 and 2?

F. W. LINN, M.D., Cleveland.

ANSWER:—1. In sewage, roughly speaking, about one-tenth of the colonies which develop on ordinary media belong to the colon group. In a relatively pure or uncontaminated surface water there may be only one colon germ to one hundred or even one thousand of other kinds. There is never any constancy of ratio.

2. No such effect has ever been traced. Migrations from polluted to unpolluted waters may possibly explain the occasional presence of *B. coli* in certain waters, since fish living in sewage-contaminated streams have been found to contain *B. coli* in the intestinal contents.

3. No. As stated above, typical *B. coli* have been found in fish inhabiting sewage-contaminated waters.

4. Consult Amyot: "Is the Colon Bacillus a Normal Inhabitant of the Intestines of Fishes?" *Transactions of the American Public Health Association*, 1901, xxvii, 400.

ACUTE INDIGESTION AND SUDDEN DEATH

A correspondent who notes the reference in this department on the above subject, August 20, 1910, calls attention to an article by Dr. Douglas H. Stewart of New York, in the *American Journal of Obstetrics*, vol. lix, No. 3, 1909. The subject of the article is "The Protection of the Accoucheur and His Patient," and the above subject is taken up in the last paragraph. Dr. Stewart believes that acute dilatation of the stomach is responsible for sudden death in pregnant women and states that he has seen two sudden deaths which he cannot attribute to anything else. He further says:

"Theoretically, in a pregnant woman the sudden expansion of the stomach between an immovable uterus and a partly movable heart may be imagined. I am now washing out all painful stomachs and carry a stomach-tube as part of my armamentarium for use at the first symptom of cardioventral disturbance. After an interval of quite characteristic pressure symptoms, varying from one to three hours, the tympanites becomes very marked, the patient gasps and

gives up her life. If the patient has not been stripped and the abdomen examined, the accoucheur may be mortified and regretful. The whole matter may be summed up thus: If a pregnant woman has a dilated stomach with tension, pass the stomach-tube too early, for when the pressure effects show on the pulse at the wrist it will be too late. Never leave a tympanitic abdomen until the stomach-tube has been passed and there is a certainty that the stomach is not distended, for when death does occur it takes place with speed and without warning other than the symptoms of a 'little indigestion.'"

The Public Service

Medical Department, U. S. Army

Changes for the week ended Oct. 8, 1910:

Graham, George D., D.S., Sept. 15, reported for duty at Ft. Shafter, H. T.

Brown, Polk D., M.R.C., Sept. 28, left Ft. Sam Houston, Texas, en route to Ft. Logan H. Roots, Ark., for temporary duty.

Frick, Euclid B., R.-col., will take charge of the office of the medical superintendent, Army Transport service, during the absence of Col. H. S. T. Harris, at Camp Atascadero.

Wells, F. M., R.C., granted leave of absence for two months, to take effect about Nov. 15.

Gapen, Nelson, capt., ordered to report on Oct. 15, 1910, to the commanding officer, Army and Navy General Hospital, Hot Springs, Ark., for duty.

Hanson, Louis H., capt., ordered to Ft. Hamilton, N. Y., for duty, on being relieved by Captain Gapen.

Ford, Joseph H., major, relieved from duty at Ft. Riley, Kan., and ordered to Ft. Wadsworth, N. Y.

Richards, Robert L., capt., granted leave of absence for four months, with permission to go beyond the sea, effective about Oct. 3, 1910.

Brown, Polk D., R.C., ordered to Ft. Logan H. Roots, Ark., for duty during the absence on leave of Major Robert N. Winn, medical corps, which takes effect about Oct. 1, 1910.

Sherwood, John W., R.C., will proceed to Ft. Strong, Mass., for temporary duty.

Davis, William B., col., granted leave of absence for two months, with permission to visit China and Japan.

Medical Corps, U. S. Navy

Changes for the week ended October 8, 1910:

Kennedy, J. T., surgeon, detached from the *Indiana* and ordered to the *Louisiana*.

Olmesorg, K., surgeon, detached from the *Louisiana* and ordered to the *Virginia*.

Dennis, J. B., surgeon, detached from the *Virginia* and ordered to the navy yard, Philadelphia.

Gates, M. E., surgeon, detached from the navy yard, Philadelphia, and ordered to command the *Solace*.

Pickrell, G., surgeon, detached from command of the *Solace* and ordered home to await orders.

Lawrence, H. F., asst.-surgeon, ordered to Washington, D. C., for examination for promotion and then to wait orders.

Casto, D. H., P. A. surgeon, commissioned passed asst.-surgeon from July 12, 1910.

Hightower, C. T., acting asst.-surgeon, resignation accepted, to take effect Oct. 1, 1910.

Pratt, R. B., acting asst.-surgeon, detached from instruction at the Naval Medical School, Washington, D. C., and ordered to the marine recruiting station, Philadelphia.

Huff, E. P., asst.-surgeon, detached from the *New York* and ordered to the Naval Hospital, Camacao, P. I.

Hart, S. D., asst.-surgeon, detached from the *Albany* and ordered to the naval station, Olongapo, P. I.

Wickes, G. L., P. A. surgeon, ordered to the *New York*.

U. S. Public Health and Marine-Hospital Service

Changes for the seven days ended Oct. 5, 1910.

Ranks, Charles E., surgeon, directed to assume temporary charge at Portland (Quarantine), Maine, during the absence of Surgeon J. M. Eager.

Eager, J. M., surgeon, directed to proceed to Naples, Italy, on special temporary duty.

Nydegger, J. A., surgeon, detailed to represent the service at the meeting of the Medical Society of the State of Pennsylvania to be held in Pittsburg Oct. 4-6, 1910.

Lavinder, C. H., P. A. surgeon, granted 7 days' leave of absence from Oct. 1, 1910.

Grubbs, S. B., P. A. surgeon, granted 11 days' leave of absence from Sept. 25, 1910, on account of sickness.

McClintic, T. B., P. A. surgeon, granted 7 days' leave of absence from Sept. 28, 1910, under paragraph 191, Service Regulations.

Rucker, W. C., P. A. surgeon, directed to proceed to Elizabeth, N. J., on special temporary duty. Leave of absence for 10 days from Sept. 14, 1910, amended to read 7 days from Sept. 15, 1910.

Porter, Joseph Y., quarantine inspector, leave of absence for 30 days from Sept. 20, 1910, revoked.

Bean, L. C., acting asst.-surgeon, granted 5 days' leave of absence from Oct. 1, 1910.

Gustetter, A. L., acting asst.-surgeon, granted 6 days' leave of absence from Oct. 1, 1910.

Hallett, E. B., acting asst.-surgeon, granted 7 days' leave of absence from Oct. 1, 1910.

McDaniel, S. E., acting asst.-surgeon, granted 14 days' leave of absence from Oct. 18, 1910.

McLarty, A. A., acting asst.-surgeon, granted 7 days' leave of absence from Oct. 3, 1910.

Small, E. M., acting asst.-surgeon, granted 8 days' leave of absence from Oct. 3, 1910.

Tappan, J. W., acting asst.-surgeon, granted 20 days' leave of absence from Oct. 1, 1910.

Townsend, F., acting asst.-surgeon, granted 4 days' leave of absence from Oct. 6, 1910.

Weimore, W. O., acting asst.-surgeon, granted 1 day's leave Sept. 19, 1910, under paragraph 210, Service Regulations.

Board of Medical Officers convened to meet at Stapleton, N. Y., Oct. 7, 1910, for the purpose of making a physical examination of a cadet of the United States Revenue Cutter Service. Detailed for the Board: Surgeon H. W. Anstin, chairman; Passed Assistant Surgeon W. A. Korn, recorder.

Society Proceedings

COMING MEETINGS

Am. Assn. for Study and Prev. Infant Mort., Baltimore, Nov. 9-11.
American Association of Railway Surgeons, Chicago, October 19-21.
Hawaiian Territorial Med. Assn., Honolulu, November 26-28.
Ohio Valley Med. Assn., Evansville, Ind., Nov. 9-10.
Southern Medical Assn., Nashville, November 8-10.
Virginia, Medical Society of, Norfolk, October 25-28.

KENTUCKY STATE MEDICAL ASSOCIATION

Fifty-fifth Annual Meeting, held at Lexington, Sept. 27-29, 1910

(Continued from page 1309)

Officers Elected

The following officers were elected for the ensuing year: president, Dr. James G. Carpenter, Stanford; first vice-president, Dr. Joseph W. Pryor, Lexington; second vice-president, Dr. Byron E. Gianinni, Coalmont; third vice-president, Dr. David O. Hancock, Henderson; orator in medicine, Dr. William W. Anderson, Newport; orator in surgery, Dr. John R. Wathen, Louisville; delegates to the American Medical Association, Dr. Curran Pope, Louisville; Dr. William W. Richmond, Clinton, and Dr. Arthur T. McCormack, Bowling Green.

Paducah was selected as the place for holding the next annual meeting.

President's Address: Preventive Medicine

DR. J. E. WELLS, Cynthiana: Not all we have aimed at in public health problems has been accomplished, but our hopes have been realized in regard to medical education, and a higher degree of qualification is now required of those who are to become members of the medical profession. Medical societies have been doing work which has evidently been appreciated, as in the Kentucky State Medical Association the increase in membership since 1903 has been from 290 to 2,000. In view of all that has been accomplished in the method of prevention and treatment of such scourges as cholera and yellow fever, typhus and typhoid, scarlatina, diphtheria and epidemic meningitis, it needs little argument to prove the value of quarantine and of efficient medical inspection and protection. The conscientious physician of the present day is devoting his life not only to treating individuals who are already ill, but to combating epidemics. He does this by educating parents and children as to the prevention and spread of disease, and by impressing on them the need of clean and sanitary surroundings. In addition, he preaches the importance of pure food laws, the protection of the water supply, the extermination of parasites and disease germs, the protection of the sex relations, the future legislation of marriage and the crying need of a valiant fight against tuberculosis and other virulent and infectious diseases that are abroad in our land.

The public school should become the object of the physician's solicitude. Hygiene should be taught and a local physician elected as a member of the school boards, whose advice should be sought. Each county should have a paid medical inspector. The aim of modern education should be to foster the physical as well as the intellectual and moral development of the child. A good system of inspection and instruction would soon elevate the standard of our future citizens, as well as promote health and happiness. One of the most

important things within the scope of the doctor's work is the part he can take in medical legislation. Three important bills became laws at the last session of the state legislature: the bill to appropriate \$30,000 to maintain the State Board of Health, and the criminal abortion and the vital statistics bills.

We are proud of all that has been done, yet when we contrast this with what we wish to do, it creates a feeling of sadness among us. The spread of tuberculosis could be easily averted if state and county sanatoriums were established, and free dispensaries were maintained in smaller cities. The law against expectoration in public places should be made more stringent; laymen should be taught the dangers lurking in the public drinking cup and the communion cup; women should be urged to discontinue promiscuous kissing as a greeting, and the kissing of babies should be discouraged. The prevention of marriage between diseased and mentally deranged persons is not impracticable. The time may come when candidates for matrimony will have to produce certificates from physicians stating that they are free from all diseases and fit to perpetuate the race. The sex problem is perhaps the most far-reaching one of the age, and it lies with the physician to aid in solving it, as it is only to him such matters are confided. The world's idea of greatness has changed and it will change more. The great warriors who wore the laurel wreath because they had slain their thousands will not be comparable in greatness with the noble men of science who have laid down their lives for the advancement of the cause they loved.

Kentucky's Opportunity for Vital Statistics—How the Medical Profession Can Aid

DR. CRESSY L. WILBUR, Washington, D. C.: The value of the entire body of statistics collected by the state will depend on their completeness. Ninety physicians out of a hundred may comply with the law, and yet the total results for the entire state may be vitiated by the other ten who refuse or neglect to do so. If one leading physician in a community refuses to take the trouble to register his births, he will soon have imitators, who, very reasonably, will fail to see why there should be any discrimination of persons under the general statute; and in a short time, the whole registration law will become a farce. The remedy for such a condition is the prompt enforcement of the law, in all cases of known violation, and utterly irrespective of the social or professional prominence of the violators. Remember, such a violator of the act is overriding the law of the commonwealth for his personal convenience, impeaching the reputation of the profession for faithful observance of the legislation that it has itself urged, and, perhaps, working an irreparable wrong on the future of a helpless infant, from whose family he has taken money for discharging his proper professional service, which includes the registration of the birth. If any leniency is to be shown in such cases, it should be exhibited toward midwives, whose ignorance may account for neglect, and not toward enlightened physicians, whose knowledge of the scientific and sanitary uses of complete birth registration should render them less excusable for failure to comply with the provisions of a reasonable registration law. Nevertheless, the almost total lack of complete birth registration in the United States is due to the failure and neglect of physicians to observe such laws, and of other physicians, in the executive capacity of health officers, to enforce them. It is frequently true that midwives are much more particular about registering births than physicians. The remedy for this condition lies in the hands of physicians, and, starting out with a new organic law, it should be easy, through state and county organizations, to hold up the hands of the local registrars and of the state registrar in securing such a thorough compliance with the law for the registration of births, that the reproach now resting on the profession in this respect will be removed. It should not be said that physicians prescribe registration laws for others and refuse to obey them themselves. It should be considered professional misconduct to violate such statutes, and the county societies should take pride in scrupulous observance, by their members, of these necessary requirements.

DISCUSSION

DR. W. L. HEIZER, New Haven: It is unfortunate that at present we have no term that would include the sum total of the loss by death, or the loss by sickness, and the mental suffering entailed by diseases that are preventable and that are not prevented. The striking feature of Dr. Wilbur's paper is that only 53 per cent. of the area of the United States is a registration area. In the last analysis it is unquestionably proved that the preservation and perpetuation of human life is the most important factor to be considered. This is true, whether we consider it from the personal, social, state or national standpoint.

DR. W. W. RICHMOND, Clinton: The importance of vital statistics has never been fully appreciated by the average physician. It has been generally regarded a matter of curiosity and satisfaction, belonging chiefly to the statistician as a record for reference, with no direct personal benefit to the public. The prevention of disease and premature death depends largely on the successful operation of a law of vital statistics. A recognized nomenclature is very important, little less than necessary in the operation of the law, and thanks to the American Medical Association, which has brought so many blessings, the great need will doubtless be supplied.

DR. WALTER BYRNE, Russellville: That Kentucky has been one of the first Southern states to enact laws, to gather and compile such valuable assets, is very gratifying, and the enforcement of these laws bearing on vital statistics should be the duty of each and every physician in the state.

The Necessity for Properly Selected and Compensated City and County Health Officers

DR. J. N. McCORMACK, Bowling Green: As previous legislation had made the other health machinery almost perfect, on paper at least, the possibilities for practical life-saving work in every county and community are limited only by the extent to which the local fiscal authorities and people will co-operate in it. It should be known, however, that even with this advanced legislation and liberality there is little promise in this field in any county which does not have a well-trained health officer who can devote his entire time to the duties of his office. In order to make it easier to bring this about, and in the interest of both efficiency and economy, it is suggested that, except in cities of the first class, systematic efforts be made to combine the city and county health offices, so that both may be held by the same person. It should not be a political office, and the tenure should depend on the betterment of sanitary conditions, as shown by a steady decrease in the sick-rate and death-rate. As no one can be a health officer of the kind for which I am pleading and practice medicine, the salary should be such as is given to circuit judges and other officials in whom a high order of capacity and unceasing devotion to duty are required. In fact, it would be just as reasonable to expect judges to support themselves by the practice of law while serving on the bench, as to expect health officers to do their far more important and exacting work, requiring the highest order of training and judgment, and to practice medicine at the same time. Let us no longer deceive ourselves, or permit the people to be deceived, about a matter so vital to them. Until we can have a health officer in each county and city so selected and supported that he can afford to qualify himself fully for it, and make the prevention of sickness his life work, most of what this board and the medical profession stand for is but an idle dream in that jurisdiction. It should be known, too, that all this is even more important to country people and to those of small towns than to the residents of cities. Necessity forces the latter to some observances of the laws of health and, in consequence, the preventable sick-rate and death-rate is much lower with them than with the farmers, who ought to be the healthiest people in the world.

DISCUSSION

DR. JOSEPH M. MATHEWS, Louisville: Dr. McCormack pleads for a well-trained health officer in each county, who can devote his entire time to the duties of his office. There is but one way to bring about this ideal state of affairs, namely,

select the proper man, let him become educated in health affairs, and then compensate him for his labor.

DR. J. G. CARPENTER, Stanford: The health officer should be paid for his services, and the ignorance of the public is the reason that these officers have not been paid in the past. The people do not understand the great financial problems that are confronting them. They do not understand the great taxation we are subjected to from time to time; hence it is necessary to educate them in regard to the efficiency of boards of health and what can be accomplished by them.

DR. W. W. ANDERSON, Newport: As a united profession, let us make it unpleasant for the health officer who is a petty politician, who procures and holds on to his job on this account, and then we shall be able to get men who are sanitarians; or let us make sanitarians out of men we have.

DR. B. W. SMOCK, Louisville: No health officer can do good service and attend to a general practice any more than a physician can divide his time between the practice of medicine and the duties of a minister of the gospel. I have learned one very important fact from experience, and that is that a man is paid according to his ability for the work performed and the results obtained. The services of a good health officer are more valuable to the people than those of the circuit judge.

The Nature and Treatment of Splenic Anemia

DR. B. E. GIANNINI, Coalmont: The employment of drugs for the permanent or temporary relief of splenic anemia cannot be said to have been such as to inspire confidence in our ability to cope with the affection by that class of weapons. Still one reliable author (Taylor) has obtained temporary relief in the simultaneous administration of arsenic, potassium iodid and oxygen gas to the amount of 30 liters daily. The conservative physician will always follow paths that others have found to lead to desirable ends, and I hold that patients treated medically should be given potassium iodid and arsenic, while the inhalations of oxygen should be persevered in. Fowler's solution should be given in doses of 7 minims after meals, while potassium iodid is to be taken in doses of 5 grains in solution an hour before meals. I have great faith in the action of oxygen inhalations, and the patient should, in all cases, receive 30 liters daily.

DISCUSSION

DR. S. R. YORK, Center: I have seen only one case of splenic anemia. The patient was a colored man, aged 65, well developed, weighing about 180 pounds, and living in a malarial district in Tennessee. His previous health had been good. He complained of weakness, and of a large tender spleen. I thought that he had chronic malaria, and put him on quinin, iron and arsenic, but his disease went on, until I thought there was some malignancy about the case. At last he had purpuric spots and hemorrhages from the gums and stomach, when a true diagnosis was made, as we thought; death occurred in about two months after the appearance of the hemorrhages.

DR. J. T. McCLEMONDS, Lexington: I have seen two cases in the last ten years in Lexington. One patient, sent to me with a diagnosis of ulcer of the stomach, had had six hemorrhages, none being under 800 c.c. A diagnosis was not made. None of the symptoms of ulcer of the stomach was present, but an exploratory incision showed the entire mucus membrane of the stomach covered with small hemorrhagic points. The spleen was about one-third larger than normal. It showed a good deal of scarring and many adhesions. These adhesions were broken up; but a diagnosis was not made until two days after the operation, and it was hoped that starting up collateral circulation would have some effect on the disease. The patient died in a month following the operation.

DR. FRANK BILLINGS, Chicago: There are reports of cases on record in which the patients suffered from all the typical signs of splenic anemia, and in which thrombophlebitis, either of the splenic or portal vein, was the primary lesion. This was first written about by Dr. George Dock and by Dr. Warthin. Splenomegaly of the primary form, or splenic anemia, has no distinctive blood picture, except that there is a smaller percentage of hemoglobin than of the red cells. Usually, unless there is some infective process going on at the

same time, the white cells are small in number, and not large. There is a tendency in many patients to pigmentation of the skin, and at the same time these patients are apt to have other points or areas of the skin in which the pigment disappears. I have had several patients showing that feature. Hemorrhage from the stomach is due, in all probability, to the congestion of the splenic vein.

(To be continued)

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS

Twenty-third Annual Meeting, held at Syracuse, N. Y., Sept. 20-22, 1910

(Concluded from page 1313)

Puerperal Wound Intoxication and Wound Infection; A Historical and Critical Review of Childbed Fever

DR. HENRY SCHWARZ, St. Louis: Isolated cases of puerperal fever have occurred at all times among civilized nations, but the epidemics of this disease appeared with the advent of lying-in hospitals and they became more dreadful when frequent necropsies were made in search of the cause. Oliver Wendell Holmes, in 1843, pointed out the contagiousness of puerperal fever and the means for preventing it. Semmelweis, in 1847, insisted on the same points, and demonstrated the correctness of his views by reducing the mortality from childbed fever in his Vienna clinic.

The medical profession of the United States has almost forgotten that Holmes has equal, if not greater claim, to be remembered as the discoverer of the nature of puerperal fever. Most text-books do not mention him, while they do justice to Semmelweis; the one pleasing exception is that of Barton Cooke Hirst.

At present the medical profession is fully acquainted with the nature of puerperal infection and with the means which will absolutely prevent it. In well-managed institutions, infection has been driven out, but nevertheless thousands of young mothers die yearly in the United States whose lives could be saved. The cause lies partly in the inadequate obstetrical training which the medical schools until recently provided; this cause, however, is now rapidly disappearing.

The principal cause lies in the fact that throughout the United States in the large cities the greater part of the obstetrical work is done by midwives, and that, with few exceptions, no laws exist regulating the practice of midwives. Such laws should be enacted and the schools for midwives should be under control of state boards. In Missonri, Louisiana, Ohio, Wyoming, Utah and the Philippine Islands, the laws provide for examination and registration, but not for control of these schools. Maine and Mississippi especially declare that their medical practice acts do not apply to midwives; the law of Mississippi says: "Females engaged in the practice of midwifery are not prohibited from such practice, but are entitled to engage therein without a license."

Scrotherapy and Bacterial Vaccines in Puerperal Septicemia

DR. HENRY SCHWARZ, St. Louis: Since 1895, I have used the various anti-streptococcus serums in cases of severe acute puerperal sepsis, which seemed hopeless under other forms of treatment. In the first case, in 1896, one of severe pyemia, the patient recovered; no bacteriologic diagnosis had been made. In all other cases cultures made from the blood proved the presence of streptococci; every patient died. When bacterial vaccines were recommended in acute infections, I not only considered such treatment hopeless and illogical, but feared that it would injure the reputation of vaccines in their legitimate field. In acute streptococcus infections billions of streptococci are found in the blood; they die by millions and their bodies are dissolved, liberating thereby the endotoxin. The formation of antibodies under such conditions is very feeble or at a standstill; to inject millions more of dead germs, with their endotoxins, shows as much sense as the injection of morphin into a patient dying with morphin poisoning. To

prove my contentions, I caused to be undertaken a series of experiments on rabbits, which prove the following points:

1. Vaccination after inoculation has no influence on the infection; all animals died in three days, the same as the control animal.
2. Vaccination simultaneously with inoculation has no influence on the infection; all animals died in three days, the same as the control animal.
3. Prophylactic vaccination produces immunity, but it must extend over a considerable period and vaccination must be stopped ten days before inoculation.

Intraperitoneal and intravenous vaccination prolonged the duration of the infection, so that animals so vaccinated died two days later than the control animal. Subcutaneous vaccination alone is effective and animals vaccinated every four days, from July 24 to August 28, and inoculated September 7, remained well, while the control animal died in three days. Excessive vaccination (from 50 to 200,000,000 in average weight animals) produced no ill-effect beyond a temporary refusal of food. The experiments are being continued.

Eight Cases of Acute Hemorrhagic Pancreatitis

DR. JOHN W. KEEFE, Providence, R. I.: These cases are of interest from several standpoints. Two patients recovered. 2 were operated on twice, 1 was operated on for acute hemorrhagic pancreatitis and 1, one-half year later, was again operated on and 4 gall-stones removed from the gall-bladder. Dr. Gile of New Hampshire reports a similar case. He operated for acute hemorrhagic pancreatitis and his patient was operated on about one year later by Dr. Irish and a number of gall-stones were removed. Another patient in this series was operated on for acute hemorrhagic pancreatitis and some months later a pancreatic cyst was removed. The events were reversed in one of the cases: 32 gall-stones were removed, but a stone was left in the common duct. Some months later the patient died from acute hemorrhagic pancreatitis. We should keep in mind the close relationship between infection of the bile passages and disease of the pancreas. While we should strive to make more accurate diagnoses in lesions of the upper abdomen, in obscure conditions, we should not delay but should operate early, as most of the conditions that simulate pancreatic disease require surgical interference.

Two Cases of Perforated Gastric Ulcer Causing Peritonitis

DR. T. B. NOBLE, Indianapolis: The pathology and symptomatology are analogous to perforation of any hollow viscus of the abdomen. The diagnosis must depend on the recognition of a demonstrable peritoneal insult, as evidenced by sudden, severe pain about the umbilicus or epigastrium, with local tenderness, followed by vomiting and the general symptoms of shock. Careful inquiry reveals a period of gastric disorder antecedent to the acute attack. Symptoms of acute peritonitis, more or less general in character, rapidly ensue, and it may be that they will overshadow all others at the time of observation, as happened in his first case. The vomiting of general peritonitis due to other causes has been continuous in my experience. But in these cases it occurred only once, and that very early at the time of perforation. It was not present in either case during the progress of the peritoneal inflammation.

Public and Private Hospitals

DR. JOSEPH PRICE, Philadelphia: Hospitals are extremely important in the education of young physicians and nurses, and in the clinical instruction of practitioners. The private hospital is largely responsible for the important specialties, and I value it most highly for the good work it has done along special lines. In the great medical educational centers—New York, Boston, Baltimore, Philadelphia, Chicago and New Orleans—the specialties should be advanced. If it is necessary for any one to have his wife or child operated on, the best is bad enough in the most refined specialty that we have. We should aim at that refinement of knowledge and skill that obtains in the treatment of diseases of the eye or in other special lines of work.

Cesarean Section

DR. J. H. CARSTENS, Detroit: Mrs. M., aged 40, mother of three children, widow for 10 years, married again one year

ago; she grew very fleshy. She became pregnant and toward the end it was found that the uterus was in a hernial sac and the abdomen pendulous, hanging down to the knee. On vaginal examination the uterus could not be felt. It was pulled up. Cesarean section was resorted to and followed by a smooth recovery.

High Operation vs. Cesarean Section

DR. WILLIAM H. HUMISTON, Cleveland: I believe that Cesarean section should be substituted for the high-forceps operation, which is attended with a mortality to the mother of 10 per cent, and to the child of nearly 21 per cent. The technic employed in the modern Cesarean operation has been so perfected, and the indications for the operation so widened that it is now frequently resorted to in order to give both mother and child greater chances for life. The rapidity with which this operation can be safely performed by an experienced abdominal surgeon is an important factor. Modern aseptic technic and favorable surroundings are essential and will insure practically a *nil* mortality, provided the mother has not already been infected by repeated examinations and efforts to deliver. In all cases in and near a city or town in which hospital accommodations are modern, the patient should be transported to such an institution for operation and convalescence. Many practitioners throughout the United States resort to the use of forceps needlessly, and are not impressed with the fact that the high-forceps operation is a major one, that it requires the hand of an expert obstetrician and a trained mind to avoid serious if not fatal injury to the mother and the sacrifice of the life of the child. Many physicians resort to the high-forceps delivery who would not think of undertaking a Cesarean section. If a physician did, and his technic was as careless as in the high-forceps operation, his mortality would be appalling. The general practitioner should not resort to the high-forceps operation without consultation with and the aid of an expert obstetrician.

Cesarean Section by the Small Median Incision Above the Umbilicus

DR. A. B. DAVIS, New York: Of the 78 Cesarean sections performed by me, the first 3 were done in tenements; the uterus was removed. Since Aug. 12, 1903, I have done the operation 75 times, and in no instance has the uterus been removed from the abdomen. Beginning with Case 4, a much smaller incision was used, half above and half below, and to the left of the umbilicus. In the 7 cases following this one, I gradually made the incision smaller and carried it higher up; until, Nov. 20, 1904, I, so far as I know, first independently conceived and practiced the small, high median incision, entirely above the umbilicus, in a woman, the twelfth in my series, being the second Cesarean section on this woman, the same as in Case 4. More than 2 years after this date the following allusion to the high incision was brought to my attention in Blundell's *Midwifery*, published in 1842. He says:

Some might think, perhaps, that in removing the fetus by the Cesarean incision we ought to make the opening above the navel instead of below. To this opinion, however, I can by no means accede; for if we make the incision above the navel the intestines will protrude more copiously, the region of the placenta will most probably be divided and on the abstraction of the ovum the uterus collapsing into the pelvis will sink below our reach, disappearing beneath the intestines, which fall over it. Place the incision, therefore, below the navel; by this collocation you will avoid these impediments.

Except in very recent writings, this is the only mention of the high incision above the umbilicus known to me. There is no reason why this operation should be singled out from all others as one which must be performed in great haste. It should be done with the deliberation called for in any other abdominal operation. There is great danger in doing otherwise. Several times I have found the intestines in front of the uterus; once it was injured. The incision should be long enough to allow easy delivery of the child, but the abdominal wall at this point in the full-term woman is thin and stretches easily. The small, high incision does not allow easy exposure or escape of the abdominal contents. Not infrequently all that we see is the uterus and a small portion

of omentum. This wound is away from the site of greatest strain on the abdominal wall, at a point reinforced by the recti muscles as they approach each other toward their upper attachments. It is small. I have never seen hernia following it. The liability to adhesion between the abdominal wound and the uterine wound is greatly diminished.

Secondary Repair of Complete Perineal Lacerations; Technic and Results

DR. E. J. ILL, Newark, N. J.: There are still many failures resulting from repair of complete laceration of the perineum. My first operation after the method to be detailed was done Feb. 1, 1891. The patient in a doubtful case of improvement had perfect retention power within a few months. Altogether, 56 cases showed remarkable and uniform success; 26 were complicated by other operations. In my operations I followed the principle laid down by Sanger as the Tait operation in 1887. The operation is essentially a flap-splitting operation, and can be divided into six distinct steps: (1) the incision; (2) the flap splitting; (3) suture of the rectum; (4) suture of the perineum; (5) suture of the vagina; (6) twisting of perineal sutures. Careful attention should be given to the bowels, and the diet should be free from residue as possible. Thorough aseptic conditions before, during and after operation should be had. I operate under constant irrigation. The finger should touch neither the wounded tissue nor the rectum; all handling of tissue should be done by sterile instruments. Incisions are H-shaped, beginning at a point just outside of the orifice of Bartholin's gland, extending downward and backward, just outside of the retracted sphincter. The cross-bar of the H is carried exactly across at the mucous membrane of the rectum and vagina. Two flaps are formed, an anterior and posterior, the posterior one demarcating the ends of the torn sphincter. The suture of the rectum is done with the finest catgut in the denuded tissue of the posterior flap. I prefer silver wire for the perineum. Three sutures take care of the sphincter. The fifth step consists of suturing the anterior flap of the vagina. Exactness must be exercised in coaptation of the wound when twisting down the sutures of silver wire. These sutures are cut on the ninth day. The after-treatment consists of moving the bowels in 48 hours, preceding the act of defecation by a sweet-oil injection. It is best to have the first movement with the patient on the left side, the nurse supporting the newly made perineum. Urination is usually normal. The patient should be well aware of her retention powers at the time the sutures are removed.

Intussusception in Infants

DR. HERMAN E. HAYD, Buffalo: This condition is much more common than is usually accredited, owing to ignorance and carelessness in making first examination. The diagnosis should be made early, as the symptoms and history are frank and dramatic in their onset. Too much importance is placed on the presence of a sausage-shaped tumor. Treatment is surgical and the mortality increases the longer the operation is delayed. Injections, irrigations and insuflations are too uncertain to be practical and scientific, but in recent cases they are often of value in assisting subsequent reduction after the abdomen is opened. The operation should be done quickly and no time should be lost in fruitless manipulations of the bowels. It is better generally to eviscerate at once and reduce the mass outside, than try to effect its reduction within the abdomen. Contrast the terrible mortality of appendicitis and extrauterine pregnancy of 25 years ago under medical treatment with the splendid results of to-day, due in no small measure to the work and teachings of this society, and we must not rest content until the same claim can be made for intussusception in infants.

Conservatism in Operations on the Uterine Appendages

DR. LEWIS C. MORRIS, Birmingham, Ala., read a paper on this subject, in which he drew the following conclusions:

1. No woman under 40 should have all of both ovaries removed except in the presence of tuberculosis or cancer.
2. Resection or amputation of diseased parts and plastic work on the tubes will occasionally be followed by conception.

3. Even in the presence of infection and more or less involvement of both tubes and ovaries plastic work, followed by pelvic drainage and the Fowler position, may be followed by regeneration.

4. Radical or sacrificial surgery and conservative or conservation surgery have about the same mortality but a vastly different morbidity.

5. Occasionally a secondary operation may become necessary which might have been avoided by doing radical work.

Intravenous Injection of Magnesium Sulphate in Bacteremia

DR. R. R. HUGGINS, Pittsburg, Pa.: In the study of drugs causing hyperleukocytosis, it was determined to find out, if possible, whether magnesium sulphate might act in this manner when administered intravenously. After a careful study in both rabbits and the human, it was decided that it did not produce a regular increase in the leucocytes when thus administered. During this study a number of intravenous injections were administered to human beings, and it was determined that the drug could be given intravenously without any apparent harm to the patient. Experiments show that a 1 per cent. solution in a normal saline solution will not produce hemolysis of the human blood. It will not precipitate the globulins when given in this dilution, nor have I seen any effect on the specific gravity of the urine. It was decided that 30 grains of magnesium sulphate in 8 ounces of normal saline solution could be safely administered intravenously to the average individual. It must be given slowly into the vein at a temperature of from 105 to 108 F., the time occupied in allowing this quantity to run into the vein being 20 minutes. If allowed to flow into the vein rapidly respiration becomes embarrassed and the patient complains of heat all over the body. It has been given in this manner 50 times either by me or by my assistants, and the result in many instances has been gratifying. It has been given at intervals of 24 hours for several days. It was during this study that it was determined to try the use of this drug in a patient suffering from puerperal infection. In a number of cases which were beginning a typical course, similar to that in patients who died in spite of all treatment, the patients have been treated by intravenous injections of magnesium sulphate with apparent benefit. Its use has been limited almost entirely to the treatment of puerperal infection, and the number of cases treated are too few to draw any conclusions.

Fibromyomata of the Uterus, Complicating Pregnancy, Labor and the Puerperium

DR. R. W. LOBENSTEIN, New York, read a paper which was based upon a study of one hundred cases occurring at the New York Lying-In Hospital. The chief deductions from this series of cases are:

1. A myomatous condition of the uterus predisposes to sterility. Parvin states that while the average sterility is 1 in 8, it is 1 in 3 in women with myomata. Charpentier's figures correspond closely to these.

2. The tendency to abortion is increased. In the bad cases, both spontaneous and artificial abortion may prove difficult to handle by the natural channel and most dangerous to the life of the individual. In the severe cases in which it is difficult to gain access to the cavity of the uterus proper, and in the presence of real hemorrhage, laparotomy is the operation of choice.

3. The majority of the patients who do not abort early proceed through pregnancy, labor and the puerperium with few or no symptoms; therefore, operative interference is rarely indicated during pregnancy and is as a rule middle-aged midwifery. This statement is made cautiously, as in the minds of many it will be open to criticism. The operation of myomectomy during pregnancy is just now very popular, but it is rarely indicated. The results of myomectomy are none too good. Consider, for instance, the report of Carsten's 150 cases: The operations were performed before the seventh month. There were 22 abortions; 13 deaths. Occasionally it may be wise to do a myomectomy, and occasionally necessary to do hysterectomy, but as a rule conservatism should be the watchword.

4. Nature accomplishes wonders at the time of labor, overcoming any apparent dystocia, in a large percentage of cases; when delivering avoid all possible trauma to the tumor.

5. Finally, with the development of the symptoms of gangrene in a myoma, in the puerperium, operate early, to save the life of the patient.

Puerperal Eclampsia

DR. E. C. ZINKE, Cincinnati, read a paper on this subject, in which he gave a brief analysis of ninety cases of puerperal eclampsia, and a critical review of the treatment of this disease. He drew the following conclusions:

1. Not all cases of puerperal eclampsia are alike; much depends on the extent to which the kidneys and liver are involved. The so-called malignant form, as the term implies, is fatal from the beginning; the so-called benign variety ends in recovery, sometimes in spite of the treatment adopted. The variety of mean gravity is without doubt favorably influenced in its course by careful and judicious treatment.

2. The prognosis for both mother and child is much worse when the convulsions supervene during pregnancy, the maternal mortality ranging from 35 to 50 per cent., and the fetal mortality from 65 to 75 per cent. The prognosis of intrapartum convulsions is more favorable, maternal as well as fetal, and amounts to about 25 per cent. The maternal mortality of postpartum convulsions is as a rule about 7 per cent. In my experience, having had but 2 cases, it is 50 per cent.

3. The most important treatment of puerperal convulsions is prophylaxis before the appearance of symptoms as well as before the eclamptic attacks when prodromal signs exist. The patient must be protected from injury during the convulsions and the duration and frequency of the paroxysms should be controlled and abbreviated, medicinally rather than surgically. Veratrum viride in sufficiently large doses is the remedy *par excellence* to reduce the blood-pressure and the pulse frequency. Hot baths and hot packs judiciously employed, and free but not excessive catharsis, strict milk diet, and the recumbent position are of almost equal importance.

4. Chloral in large doses by rectum, if the patient is very restless during the interval of the attacks, is a good remedy. Chloroform inhalations, especially if of long duration, should be regarded as a source of great danger. The same may be said of frequent and large doses of morphia, both of these drugs having their ardent advocates.

5. Antitoxin treatment may play an important part in the future in the treatment of eclampsia.

6. Saline solution and sugar water instillations can do no harm and may do a great deal of good.

7. If, of late years, the maternal mortality of puerperal eclampsia has been reduced at all, it is the direct result of careful prophylaxis and intelligent medical care. Surgery has contributed nothing to it. The dictum, "assist in labor, but do not induce it," or "treat the convulsion and let the pregnancy take care of itself," is better than the dictum, "empty the uterus as soon as possible in every case of puerperal convulsions, no matter what the period of gestation."

8. Decapsulation of the kidneys, manual, balloon and instrumental dilatation, especially the old-time accouchement forcé, are in my opinion hardly justifiable, and should have no place in the treatment of puerperal eclampsia.

9. If, however, the symptoms are very threatening and the medical care above described fails to bring about prompt amelioration in the patient's condition, an early delivery may be desirable. If the patient be near term, but not in labor, the conservative Cesarean section should be selected. If the patient is just within the period of viability, vaginal hysterotomy is the proper procedure. If the fetus is not viable, before the end of the sixth month of gestation, deep cervical incisions will easily relieve the uterus quickly of its contents.

10. No one has a right to perform any of these three operations unless experienced and familiar with the technic of each. And in every instance the patient must have the benefit of strict asepsis. Without these requirements it is best to rely entirely on the medical care above outlined.

Pelvic Reflexes

DR. ROBERT T. MORRIS, New York: In a certain proportion of patients with pelvic reflexes, there is the neurotic habit. These patients are neurasthenics. If a surgeon takes out one ovary for the pelvic pain the patient is just as badly off as before the operation. If the other ovary is removed she is just the same. The surgeon must deal with neurotic patients with a great deal of intelligence. They represent a class calling for surgery, but the surgeon should beware of patients with pelvic pains, ovarian and tubal troubles, and neuralgic pains, particularly those of the neurotic or neurotic type. We have a group of disturbances proceeding from a sear of the cervix. Most women who have borne children have torn cervixes. Does the cervix require operation for its repair? Do we do the right thing if we operate because we find tears and scars? No. We are not to operate in such cases unless we have definite reasons for doing so. If one should press on a sear of the cervix with the finger nail or with the sharp point of a retractor and bring out instantly that reflex, then the case is one requiring operation for reflex disturbance, but, if one should press on a sear and the patient does not know it, or if one should press on another sear and the patient does not know it we should not operate in that case for relief of reflex disturbances, no matter how much the cervix is torn. One may operate for repair of a torn cervix on general mechanical principles, but not for the purpose of relieving the efferent reflex.

Other Papers Read

The following papers were also read: "Tumors of the Bladder," by Drs. J. F. Erdmann and J. F. McCarthy, New York; "Adenocarcinoma of the Kidney," by Dr. J. G. Sherrill, Louisville; "Torsion of the Great Omentum," by Dr. W. J. Gillette, Toledo, O.; "Two Right-Sided Femoral Hernias in the Same Patient," by Dr. N. S. Scott, Cleveland, O.

State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, Little Rock, November 8-9. Sec., Dr. F. T. Murphy, Brinkley; Eclectic, Little Rock, November 8-9. Sec., Dr. G. A. Hinton, Hot Springs.

CONNECTICUT: Regular, City Hall, New Haven, November 8-9. Sec., Dr. Charles A. Tuttle; Homeopathic, Grace Hospital, New Haven, November 8. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave.; Eclectic, Hotel Garde, New Haven, November 8. Sec., Dr. Thomas S. Hodge, 19 Main St., Torrington.

FLORIDA: Palatka, November 9-10. Sec., Dr. J. D. Fernandez, Jacksonville.

ILLINOIS: Coliseum Annex, Chicago, October 19-21. Sec., Dr. James A. Egan, Springfield.

LOUISIANA: Regular, New Orleans, October 18-19. Sec., Dr. A. B. Brown, 108 Baronne Street; Homeopathic, New Orleans, November 7. Sec., Dr. John T. Crebbin, 1207 Maison Blanche Building.

MAINE: City Council Rooms, Portland, November 8-9. Sec., Dr. Frank W. Searle, 806 Congress Street.

MASSACHUSETTS: State House, Boston, November 8-9. Sec., Dr. Edwin B. Harvey.

NEBRASKA: State Capitol, Lincoln, November 9-10. Sec., Dr. E. Arthur Carr, 141 S. Twelfth Street.

NEVADA: Carson City, November 7-9. Sec., Dr. S. L. Lee.

NEW JERSEY: State House, Trenton, October 18. Sec., Dr. H. G. Norton.

TEXAS: Palestine, November 22-24. Sec., Dr. R. H. McLeod.

WEST VIRGINIA: Morgantown, November 14-16. Sec., Dr. H. A. Barbee, Point Pleasant.

Louisiana Homeopathic May Report

Dr. John T. Crebbin, secretary of the Louisiana Homeopathic Board of Medical Examiners, reports the written examination held at New Orleans, May 2, 1910. The number of subjects examined in was 9; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 2, both of whom passed. Three candidates were licensed through reciprocity. The following colleges were represented:

College.	Year of Graduation.
Chicago Homeopathic Medical College.....	(1897)
Pulte Medical College, Cincinnati.....	(1897)

LICENSED THROUGH RECIPROACITY

College	Year Grad.	Reciprocity with
Hering Medical College	(1903)	Missouri
Hahnemann Medical College and Hospital, Philadelphia, (1904) Virginia; (1908) Pennsylvania.		

Mississippi May Report

Dr. S. H. McLean, secretary of the Mississippi State Board of Health, reports the written examination held at Jackson, May 10-11, 1910. The number of subjects examined in was 8; total number of questions asked, 64; percentage required to pass, 75. The total number of candidates examined was 192, of whom 59 passed, including 31 non-graduates and 133 failed, including 87 non-graduates and one osteopath. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Examined.
University of Alabama		(1910)	1
Howard University, Washington, D. C.....		(1902)	1
University of Louisville.....		(1910)	1
Tulane University of Louisiana.....		(1910)	2
Mississippi Medical College		(1908) (1, 1910)	5
Albany Medical College.....		(1861)	1
University of Pennsylvania		(1907)	1
Vanderbilt University		(1909) (1910)	2
College of Physicians and Surgeons, Memphis.....		(1910)	2
Memphis Hospital Medical College.....		(1910)	6
Meharry Medical College		(1909)	1
University of Tennessee		(1907) (1909)	2
Universities of Nashville and Tennessee.....		(1910)	1
Medical College of Virginia		(1899)	1
University of Virginia		(1905)	1

FAILED

Harvey Medical College, Chicago.....	(1897)	1
Tulane University of Louisiana.....	(1910)	2
Baltimore Medical College	(1893)	1
Mississippi Med. Coll.	(1908) (2, 1909) (8, 1910)	11
St. Louis College of Physicians and Surgeons.....	(1908)	1
Memphis Hospital Medical College (1894) (1891) (1906) (1907) (2, 1908) (2, 1909) (9, 1910).....		17

Universities of Nashville and Tennessee.....	(1910)	2
University of the South	(1903)	1
College of Physicians and Surgeons, Memphis.....	(1910)	2
University of Nashville	(1902) (1906) (1909)	3
Meharry Medical College	(1907) (1908)	2
Knoxville Medical College	(1908)	1
Gate City Medical College	(1906)	1

Michigan June Reports

Dr. B. D. Harrison, secretary of the Michigan State Board of Registration in Medicine, reports the written examinations held at Battle Creek and Ann Arbor, June 14-16, 1910. The number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75, and at least 50 in each subject.

At the examination held at Battle Creek, the total number of candidates examined was 9, all of whom passed. The following colleges were represented:

College.	PASSED	Year Grad.	Per Cent.
American Medical Missionary College (1904)	84.5;	(1910)	79.2,
	84.6, 85.3, 85.7, 86.8, 87.5, 88.2, 89.7.		

At the examination held at Ann Arbor, the total number of candidates examined was 75, of whom 74 passed and one was conditioned. The following colleges were represented:

College.	PASSED	Year Grad.	Per Cent.
Chicago Homeopathic Medical College.....	(1878)		90.5
American Medical Missionary College.....	(1905)		78.4
Louisville Medical College	(1902)		79.2
Harvard Medical School	(1910)		87.4
Trotter College of Medicine.....	(1903)		77.3
University of Michigan College of Medicine and Surgery (1910)	78.4, 78.5, 78.7, 79.2, 79.3, 79.8, 80, 80.1, 80.1, 80.2, 81, 81.1, 81.1, 81.5, 81.5, 81.7, 81.8, 82.5, 82.6, 83, 83.1, 83.5, 83.6, 83.8, 83.9, 84.1, 84.1, 84.3, 84.4, 84.5, 84.6, 84.6, 84.7, 84.8, 84.8, 84.8, 85, 85.1, 85.2, 85.2, 85.3, 85.4, 85.4, 85.5, 85.9, 85.9, 86.1, 86.1, 86.5, 86.7, 87.2, 87.5, 88.5, 88.8, 88.9, 89.		
University of Michigan Homeopathic College (1910)	78.2, 79, 79.4, 80.3, 82.5, 82.5, 82.8, 83.1, 85, 87.1.		
University of Buffalo	(1909)		85.9
Jefferson Medical College	(1910)		81.7

CONDITIONED

Univ. of Michigan, Coll. of Med. and Surgery.....	(1910)	*75
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* Condition; fell below 50 per cent. in chemistry and toxicology.

New Jersey Reciprocity Report

Dr. H. G. Norton, secretary of the New Jersey State Board of Medical Examiners, sends us a report of those licensed through reciprocity from November 6, 1909, to July 12, 1910. The following colleges were represented:

College.	PASSED	Year Grad.	Reciprocity with
Georgetown University	(1909)		New York
Baltimore University.....	(1901) New York; (1903)		Illinois
University of Maryland	(1909)		Delaware
Baltimore Medical College (1906) Maine; (1907) New York; (1908) Vermont.			
Maryland Medical College	(1906)		Vermont
Atlantic Medical College.....	(1909) Delaware; (1909)		Maine
Harvard Medical School	(1909)		New York
Albany Medical College.....	(1904) (1905) (1908)		New York
Syracuse University	(1906)		New York
New York University Medical College.....	(1896)		New York
Eclectic Medical College of the City of New York (1905) (1906) (1909) New York.			
New York Homeopathic Medical College and Hospital (1905) (1907) (3, 1909) New York.			
Long Island College Hospital (1897) (1898) (1899) (1907) (1909) New York.			
Cornell University Medical College (1900) (1906) (2, 1907) (1908) (3, 1909) New York.			
University of Buffalo.....	(2, 1907)		New York
Columbia University, College of Physicians and Surgeons (1896) (1905) (1906) (1908) (3, 1909) New York.			
University and Bellevue Hospital Medical College (1906) (2, 1907) (4, 1908) (7, 1909) New York.			
University of Pennsylvania (1901) (1903) (1904) (1909) New York.			
Jefferson Medical College.....	(2, 1908)		New York
Hahnemann Medical College and Hospital, Philadelphia (1896); Pennsylvania; (1909) New York.			
University of Virginia	(1904)		New York
McGill University, Montreal, Canada.....	(1904)		Maine
University of Naples, Italy	(1902)		New York
University of Bukharest, Roumania.....	(1900)		New York

Indiana January and July Reports

Dr. W. T. Gott, secretary of the Indiana Board of Medical Registration and Examination, reports the written examinations held at Indianapolis, January 11-13 and July 12-14, 1910.

The number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75.

At the examination held in January, the total number of candidates examined was 21, of whom 19 passed and 2 failed. The following colleges were represented:

College.	PASSED	Year Grad	Per Cent.
Chicago College of Medicine and Surgery	75.1; (1909) 75.9, 86.5, 88.		
Jenner Medical College		(1907)	75.2
College of Physicians and Surgeons, Chicago		(1909)	80.3
Northwestern University Medical School		(1909)	77.81.8
Indiana Medical College		(1898)	82.9
Indiana University		(1909)	84.8
Louisville Medical College		(1905)	86.6
Harvard Medical School		(1908)	87.6
Univ. of Michigan, Coll. of Medicine and Surgery		(1904)	88.7
University of Michigan, Homeopathic College		(1910)	85.6
University and Bellevue Hospital Medical College		(1907)	83.8
Medical College of Ohio		(1882) 75.5; (1907)	83.5
University of Pennsylvania		(1906)	84.8
Woman's Medical College of Pennsylvania		(1902)	75.6

FAILED

Indiana University	(1909)	68.5
Medico-Chirurgical College of Philadelphia	(1906)	68.4

At the examination held July 12-14, the total number of candidates examined was 86, of whom 79 passed, including one osteopath, and 7 failed. The following colleges were represented:

College.	PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1909) 81.8; (1910) 84, 84.4.		
Bennett Medical College		(1910)	91.3
Hering Medical College		(1910)	88.6
Hahnemann Med. Coll. and Hospital, Chicago		(1908)	75.2
Illinois Medical College		(1910)	87.9
Indiana University	(1909) 75; (1910) 75.9, 79.5, 79.5, 80.6, 81, 81.4, 81.5, 82.1, 83, 83.2, 84.3, 84.4, 84.6, 84.7, 84.7, 85.5, 85.5, 85.6, 85.7, 85.7, 86, 86.1, 86.5, 86.6, 87.1, 87.2, 87.3, 87.3, 87.9, 88.2, 88.3, 88.5, 88.6, 88.7, 89.3, 89.5, 89.6, 89.6, 90.2, 90.2, 90.4, 90.5, 90.5, 90.7, 90.9, 91.1, 91.5, 91.8, 92.3, 92.9, 92.9.		
University of Louisville	(1910) 80.8, 81.9, 84.2, 84.3, 85.1, 85.8, 86.5, 88.8, 91.6.		
Baltimore Medical College		(1907)	86.8
Johns Hopkins University		(1910)	86
University of Michigan, Dept. of Med. and Surg.		(1909)	85.5
St. Louis University		(1910)	90.3
Eclectic Medical College, Cincinnati		(1910)	82.2
Pulte Medical College		(1910)	81.2
Hahnemann Med. Coll. and Hospital, Philadelphia		(1909)	83.8
University of Pennsylvania		(1910)	89.6, 92.3
Queen's University, Kingston, Ontario		(1908)	88.4

FAILED

Hahnemann Med. Coll. and Hospital, Chicago	(1907)	72.8
Indiana Medical College	(1890)	66.9
Southwestern Homeo. Coll. and Hospital, Louisville	(1906)	63.4
Kentucky School of Medicine	(1889)	64.8
St. Louis College of Physicians and Surgeons	(1907)	61.4
Eclectic Medical College, Cincinnati	(1910)	56
Regia University, Pavia, Italy	(1891)	69.2

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

A PRACTICAL BUSINESS BUREAU FOR COUNTY SOCIETIES

H. G. Langworthy, M.D.
DUBUQUE, IOWA

A movement to establish business bureaus for county societies with an attorney who will make a systematic attempt to collect old bills, will doubtless meet the approval of physicians. Older members may not at first regard such a system with favor. They will say, and with some truth, that "such schemes have been tried and failed." This does not prove that the plan is fundamentally wrong, but that it must be practical and sound, or it is pretty sure to fail. But even failures have their lessons.

The plan which I present for your approval and which I have succeeded in having adopted by the Dubuque County Medical Society, simplifies as much as possible the ordinary plan of business cooperation and applies it to county soci-

ties in smaller cities, where it is often badly needed. An elaborate self-running bureau adapted to a city of a million population is not fitted altogether for a business bureau in small communities, I hope that some such plan may be adopted by every county medical society.

The reasons for the creation of a collection bureau for county societies are: 1. If all collections are made by the collection department patients cannot take offense against physicians for collecting through this bureau bills running over twelve months. 2. Many patients now regarded as subject of charity (not through necessity, but simply through unwillingness to pay a doctor's bill) would be induced to pay their bills. 3. The attorney representing the society would be able to make systematic quarterly collections better than anyone else. While the placing of bills in the hands of the attorney should be optional, it would seem clear that an able attorney, making a special business of this work, could handle medical accounts better than some unknown and irresponsible outside collection agency.

I will briefly outline the plan of the bureau at Dubuque, the result of two years' work on this subject. Modifications must be made as time and local conditions demand. I will furnish printed copies of the abstracted plan in detail on application.

INSTALLATION AND PLAN OF BUSINESS BUREAU FOR COUNTY SOCIETIES

WHEREAS, It is deemed advisable that the _____ County Medical Society should adopt a business bureau; therefore, be it

Resolved, In meeting duly assembled, this _____ day of December, A.D. 19____, that the same be, and is hereby, adopted, and known as the business bureau of the _____ County Medical Society, and that the said bureau be conducted along the lines and governed according to the following:

1. That _____ shall act as attorney for the _____ County Medical Society in the capacity of conducting the business of the "Business Bureau" of said society, and pursuant thereto said attorney will call every three months on physicians who are members of the _____ County Medical Society for statements of accounts and will give receipts for same. That he will keep a separate and private file for each physician's accounts and correspondence. That he will keep a complete system on which will be notated the exact status and progress of each account. That he will make quarterly returns direct to the physicians as the business bureau committee may direct. That he will not bring suit on accounts without authorization and private arrangement with the physician. That he will assist the committee in auditing accounts. That each physician's account will be open to his inspection at any time, but to no other physician; and that all other business matters will be kept absolutely private. That due diligence will be exercised in collecting all accounts turned over, and prompt settlement made after collection.

2. That the respective physicians will submit itemized statements of such accounts as they desire to place in the collector's hands. That physicians will receive remittances made directly to them from debtors. That on remittances made directly to the physician on accounts in the attorney's hands, commissions will be paid, but no commission will be allowed on bills remaining unsettled or on money not collected.

3. That the committee of the business bureau of the _____ County Medical Society may, at any time, audit the accounts in the hands of the attorney, and shall in cases of dispute distribute to the attorney the amount of his commission and to the physician the amount due him on such accounts. That the commission to the attorney on accounts collected shall be scheduled as follows, and on accounts collected in payment or installments the schedule per cent., per payment, will prevail:

Collections of \$2 or under	50 per cent. commission
Collections of \$3 or under	40 per cent. commission
Collections of \$4 or under	30 per cent. commission
Collections of \$5 to \$10	25 per cent. commission
Collections over \$10	20 per cent. commission

4. That all expenditures in conducting the collections by way of record files, all paper, envelopes, stamps, etc., shall be borne by the attorney.

5. That said attorney, _____, shall be appointed by the committee for a term of three years, subject, however, to removal by the business bureau committee or society for unwarranted neglect, dishonesty or general incompetency.

6. That the attorney shall arrange a reference list as to financial standing and responsibility of patients, accessible to members of the _____ County Medical Society, but to none others. This list, together with such additional lists and information deemed justly the private property of the society, shall be turned over to his successor in case of withdrawal, dismissal, or for any other reason.

7. These articles and the power given the business bureau committee may be altered or curtailed by a two-thirds vote of members present and voting at any regular meeting, previous notice of such action having been given all members sixty days in advance.

It will be noted in the foregoing that the bureau has been established by the adoption of a simple resolution, and that no iron-clad contract is entered into between the society or the business bureau committee and the attorney. The commission schedule here adopted is the one furnished me by the manager of the Business Bureau of the Chicago Medical Society. While unquestionably a little high, it probably forms the best working basis of any present schedule, especially as many of our first accounts are most undesirable.

REPORT OF BUSINESS BUREAU OF THE DUBUQUE COUNTY MEDICAL SOCIETY FOR FIRST SIX MONTHS

The following report of the attorney to the Business Bureau Committee of the Dubuque County Medical Society will be found of interest:

I herewith submit a statement of money collected by the said bureau for the first six months of the year 1910, ending July 1, 1910, as follows: January, \$105.50; February, \$161.50; March, \$228.50; April, \$109; May, \$23; June, \$29; total, \$656.50. In addition to the above, the bureau has collected in partial payments on bills not yet fully paid the sum of \$213.15. The total amount of bills turned in to the bureau for the first six months was \$8,176.53. There is represented in this amount many dollars of accounts that are absolutely worthless, for the reason that some debtors have left the city, a few cannot be located, some refuse to pay—in that they claim to be unable to make even a very small payment on their bills and will not make any promise of any definite time they will pay even a part, and other bills are what is known as outlawed.

The \$656.50 in money paid into the bureau represents \$958.50 of accounts turned in to the bureau. In other words, in order to collect \$656.50 it was necessary to make reductions in the bills of \$293, which is about a 45 per cent. reduction, which goes to prove the character of the bills so far as collecting them is concerned. In each instance the physician is consulted and the bureau authorized before a compromise or reduction is made. All debtors whose bills have been turned in to the bureau have been written to from one to three or more times, and nearly all who have not responded materially or came in person to the office of the bureau have been personally interviewed. At the end of one year from the time of placing bills the bureau will have been able to collect or report same uncollectable. Of the \$656.50 collected all has been turned over to the physician due him therefrom, excepting \$3, which is still in the hands of the bureau.

Among the experiences of the bureau may be mentioned: (1) Most of the members have at some time availed themselves of the use of the bureau. (2) All bills placed in the hands of the bureau have been carefully investigated in each case and the large majority of debtors visited personally by the attorney. (3) Debts have been divided into the two divisions: (A) collectable, and (B) uncollectable. (A bill on which 50 cents or \$1 a week is being paid is placed in Class A.) (4) Almost without exception early bills turned in have passed through other hands for collection, in some instances repeatedly, without results, making it hard for the bureau to get a good start. (5) A considerable number of first accounts handed in were legally outlawed by the time limit of five years on book accounts. (6) Our attorney has found in some instances families charged practically the usual rate who ought to be considered little better than charity subjects. Doctors should discriminate carefully, and should not overcharge the poor laborer or the struggling clerk. (7) The establishment of a county society business bureau in Dubuque has resulted in a saving to the society of a considerable amount of money the past six months.

Occasionally physicians have thought it best not to hand in accounts unless they have been reported as worthless in other hands, the idea being that the commission rate charged

would not warrant the placing of easy bills with the bureau. We hope that in the future physicians will find it to their interest to call up the bureau and discuss the matter thoroughly before using other agencies. At present our bureau sees no way to lower this scale, which, while a trifle high, forms the best working basis of any schedule which could be adopted. The future must demonstrate the advisability of lowering our scale; the past certainly has not. Whether the bureau will be able eventually to cooperate with the physicians on a slightly different basis should they wish to turn in on the first of every month all fair bills within their possession, remains to be seen.

The bureau has been of value in dealing with delinquents, as it always stands ready to collect at once or to bring early suit in court at a minimum cost without inconveniencing the physician.

In conclusion, I would like to emphasize the value of our bureau in educating delinquents by stirring up the careless and listing those who are really unworthy of credit. The optional feature, allowing physicians to turn in only such accounts as they desire, is also of value. The society is under no expense, as many young attorneys will take up the work on the basis outlined. A business bureau is not necessary in small communities, where each physician knows all about his families or can tell the other doctors the names of the shiftless and unworthy.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Third Month—First Weekly Meeting

General Subject for the Month: Surgery of the Kidney and Ureter

ANATOMY

KIDNEY: Situation, surface markings, important relations, size, weight, surfaces, borders, extremities. Means of fixation, by three capsules. Relation of structures entering hilum. Relation of vascular supply to pelvis and calyces. Brödel's white line.

URETER: Structure.—Location, length, diameter, constrictions, dilatations, course, relations. Pelvic relations in male; in female.

SURGERY OF THE URETER

SURGICAL LESIONS OF THE URETER: Surgical injuries, puerperal injuries, congenital fistula, tuberculosis, pyoureter, calculus, malignant disease.

DIAGNOSIS: Pain, urine or purulent discharge in fistula, examination of ureteral orifices by cystoscopy, catheterization of uterers. X-ray in calculus.

TREATMENT

SURGICAL INJURIES: Immediate treatment: technic of ureteral anastomosis; end-to-end, lateral and end-to-side; uretero-vesical anastomosis. Late operations; treatment of ureteral fistula.

CALCULUS OF URETER: Localization of stone. Site of incision. Variations in technic.

TUBERCULOSIS OF URETER: Secondary to renal tuberculosis. Indications for surgical treatment. Technic of nephro-ureterectomy, of ureterectomy.

STRICTURE OF URETER: Diagnosis; treatment.

REFERENCE BOOKS FOR THE THIRD MONTH

- Kelly and Noble: Gynecology and Abdominal Surgery, vol. II.
- Watson and Cunningham: Diseases and Surgery of the Genitourinary System.
- White and Martin: Genitourinary Surgery and Venereal Diseases.
- Caspar: Genitourinary Diseases.
- Morris: Surgery of the Kidney and Ureter.
- Edwards: Surgical Treatment of Bright's Disease.
- Garceau: Renal Tumors.
- Keen: Surgery.
- Bryant and Buck: Surgery.

Book Notices

PRÉCIS DU TRAITEMENT DES FRACTURES PAR LE MASSAGE ET LA MOBILISATION. Par Dr. Just Lucas-Championnière, Chirurgien Honoraire de l'Hôtel-Dieu. Paper. Price, 3.50 francs. Pp. 267. Paris: G. Steinheil, 2 rue Casimir-Delavigne, 1910.

In this little treatise Lucas-Championnière amply justifies his claim to the title of pioneer in the treatment of fractures by massage and mobilization. The first half of the book is largely devoted to a general consideration of massage in its application to fractures and the manner of performing the various passive and active motions. The advantages of these maneuvers are enthusiastically lauded, and justly so, when one recalls the dire functional results of too long immobilization. While the text, on the whole, would be improved by being condensed, and much detail could be omitted, the careful reader will find much in the way of sound advice and wisdom, the fruit of long clinical experience. The author very properly refers to the frequent errors which are made in the interpretation of radiographs, mere shadow pictures, and cautions against disregarding clinical phenomena and the findings of a careful clinical examination.

The book is too radical for the use of students, but should prove both interesting and profitable reading for surgeons interested in fractures. The following are a few extracts from its pages: "It is not immobilization which favors the formation of callus, but motion"—"immobilization interferes with the vitality of the limb."—"Pain is relieved by certain forms of motion. Immobilization is a secondary factor."—"There can be delayed union in spite of immobilization. Stiff joints and useless limbs follow immobilization."—"A certain amount of motion between the fragments favors the development of callus."—"Reduction is in many cases unnecessary, in others positively dangerous." The author admits that he sutures the patella, because the fragments cannot be approximated. In Colles' fracture, reduction is regarded as generally useless unless the deformity is great. Daily massage and motion are indulged in, and the patients are urged to use their arms. The principle throughout the book seems to be to disregard the cosmetic result in favor of restored function, even in the presence of overriding. With the *x*-ray controlling our results nowadays, how long could a surgeon last who went on that principle in America?

Fractures about the elbow in children, and fractures of the clavicle, are daily massaged. The effect of the treatment is to relieve the spasm and relax the muscles, thus eliminating the traction on the fragments, which fall into place.

The enthusiasm of the author has unquestionably carried him too far in attempting to apply to all fractures the principle of massage to the exclusion of all else. The description of the technic in individual fractures is frequently so brief and vague as to preclude imitation. Yet the little book will have fulfilled a most valuable mission if it will recall to the average practitioner and surgeon that he is immobilizing too strenuously, and keeping splints on entirely too long, that the latter can be more often removed for the purpose of massage and passive motion, and better results obtained.

FACTS AND PROBLEMS OF RABIES. By A. M. Stimson. Bull. 65, Hyg. Lab., U. S. P. H. and M.-H. S., June, 1910. Paper. Pp. 90, with illustrations. Washington: Government Printing Office, 1910.

A timely and most excellent review of the "Facts and Problems of Rabies" has just been issued by the Hygienic Laboratory of the Public Health and Marine-Hospital Service, from which the following statements are selected for the purpose of emphasis: "There has been handed down from the ages, when superstition and ignorance had as yet received but little counterbalancing check from the influence of reasonable or scientific investigation, a mass of erroneous belief which, in its extent and fantastic distortions, probably exceeds that to which any other malady has fallen heir." "There still remain persons who are skeptical concerning, or even deny the existence of, rabies as a distinct disease. If they are fair-minded and possess an average amount of intelli-

gence, a visit to a laboratory where scientific work in this direction is being done will suffice to dispel their objections, even if their faith in human nature is so slight that they are able to regard those investigators who have devoted years of disinterested study to the subject as untruthful or very badly mistaken."

"Since it has been demonstrated that, by comparatively simple measures, the disease can be reduced to a minimum or even wholly eradicated, it is raised to an importance disproportionately great to the frequency of its occurrence compared with that of less remediable maladies. The continued existence, not to say increase, of rabies in animals and man is a reproach on the efficiency of organized medical bodies for the suppression of disease." "We have now, and have had for a long time, all the knowledge of rabies necessary to effect its entire suppression. This knowledge can be summed up in a single sentence, to wit: Rabies is perpetuated in the dog through the infliction of bites by a rabid dog, and does not arise spontaneously. If all rabid dogs could be prevented from biting other animals, rabies would in the course of a year be a mere historical curiosity of medicine, an illegitimate field of research for the investigator in pure pathology, a plaything for the controversialist. There are few infectious diseases the prevention of which rests, as in rabies, on a single definite measure."

AN INTERNATIONAL SYSTEM OF OPHTHALMIC PRACTICE. Edited by Walter L. Pyle, M.D., Philadelphia, Member of the American Ophthalmological Society, Therapeutics. By Dr. A. Darier, Paris. Translated by Sydney Stephenson, F.R.C.S., London, Late Honorary Secretary of the Ophthalmological Society. Cloth. Price, \$4 net. Pp. 444, with illustrations. Philadelphia: P. Blakiston's Son & Co., 1910.

This portion of Pyle's "System of Ophthalmic Practice" is devoted to therapeutics and was written by Dr. A. Darier of Paris, who is peculiarly fitted to present this subject. Dr. Darier is fortunate in having his work translated into English by Mr. Sydney Stephenson. The more recent diagnostic methods, both general and special, are dealt with as well as the general treatment indicated in those eye diseases associated with general disease. The complications and after-treatment of surgical procedures on the eye are discussed exhaustively. Nothing is offered regarding the important relations existing between the eyes and the nasal cavities; otherwise the book merits approval. It is compact and practical and presents the latest methods of ophthalmic practice in a clear, concise manner.

A MANUAL OF PERSONAL HYGIENE. Proper Living on a Physiological Basis. By American Authors. Edited by Walter L. Pyle, M. D., Member of the American Ophthalmological Society. Fourth Edition. Cloth. Price, \$1.50 net. Pp. 472, with 131 illustrations. Philadelphia: W. B. Saunders Co., 1910.

This book is for the layman and deals with "the one subject which every fair-minded person admits should be taught thoroughly—namely, how to keep healthy . . ." The way in which this subject is handled by the various authors who contribute to this work is eminently sane, catholic and generally admirable. To the chapters on the hygiene of the digestive apparatus, of the skin and its appendages, of the vocal and respiratory apparatus, of the ear, of the eye, of the brain and nervous system and on physical exercise that appeared in the previous editions have been added ones on body-posture and domestic hygiene. There is also an appendix, and a glossary of such technical terms as have been unavoidably used.

PRÉCIS D'AUTO-SUGGESTION VOLONTAIRE. Par le docteur Geraud Bonnet, d'Oran, Officier de l'Instruction Publique. Paper. Price, 3 francs. Pp. 300. Paris: Jules Roussel, 1, Rue Casimir-Delavigne, 1910.

This book seems to have been written for the layman. The author has great belief in free will and in the power of the individual to control his thoughts in any direction. There are some valuable suggestions, especially in the chapter on concentration of the thought. The book adds nothing to our knowledge. It states in a manner tended to make its point appreciated the strength and value of hypnotism and suggestion whether from without or within.

Medicolegal

Points From Suit Against Alienists for Damages for Alleged Negligence in Examination as to Sanity

The Second Appellate Division of the Supreme Court of New York says that the case of Warner vs. Packer and another (123 N. Y. S. 725) was for negligence. The plaintiff had been confined for a time in an insane asylum on her husband's petition, to which was annexed a certificate of the defendants as examiners in lunacy that she was insane and was a proper subject for custody and treatment in some institution for the insane as an insane person. She complained that the defendants had made a false, pretended, and grossly negligent examination of her as to her mental condition, that she was not insane then or at any time, that the defendants willfully failed and neglected to use or to exercise reasonable and ordinary care, skill, and diligence to ascertain her true mental condition, or to make a prudent and careful inquiry and proof whether she was sane or insane, and failed to exercise their best judgment as to her sanity, but with gross and culpable negligence based their opinions on false and pretended statements made to them by her husband. She gained a verdict for \$25,000, and the defendants appealed from the judgment thereon.

The defendants were feebly by the husband to make an examination. Thereupon they impliedly represented that they possessed the reasonable degree of learning and skill ordinarily possessed by the average examiners in lunacy, and in the rendition of the services they undertook to use such skill and learning, to exert their best judgment in the application thereof, and to exercise reasonable care.

The burden was on the plaintiff to show that the defendants fell short in their qualifications or their obligations. The plaintiff did not advance the proposition that the defendants were not qualified. On the other hand, the evidence showed that they were educated in their profession, alienists who as such had filled important public positions, and were of large experience gained from thousands of examinations. The court therefore need not consider that ground of liability. The question on the appeal was whether the plaintiff made proof to justify the verdict of negligence in the ascertainment of her true mental condition. The defendants testified in detail as to their professional conduct.

The plaintiff's case consisted largely of testimony of lay witnesses, her acquaintances and friends, that in their opinion specified words and acts of hers were rational. She contended that at all times she was sane. Such contention, so far as it related to the time of her examination, was essential, inasmuch as she could not have been harmed by a certificate of the truth unless her insanity did not require restraint and treatment. A certificate of her insanity when she was sane could establish error of judgment, but for that the defendants were not liable; and it could be considered as evidence bearing on the defendants' qualifications or indicating failure to fulfill their obligations as to skill, learning, care, and best judgment in the case. But no presumption of negligence in the defendants arose solely on the establishment of her sanity at the time of her examination by the defendants.

A striking feature in the plaintiff's case was the omission of any scientific or expert evidence as to the course pursued by the defendants in the examination, as to what was done that the average examiner in lunacy would not have done, or as to what was not done which such an examiner would have done under the circumstances of the case.

We know insanity is a mysterious disease, that it may exist without physical indications, is often cunningly concealed so as almost or altogether to baffle detection even by a specialist, or may be so occult as to cause most eminent alienists to clash as to its existence in an instance. The diagnosis of it is recognized as a difficult task. It seems to the court that the very nature of the subject—the question of negligence is a diagnosis—would almost preclude a jury from passing on it by their common knowledge unaided by any scientific or expert information whatever, or by the testimony of any witnesses of special knowledge and skill. Yet there

was not in evidence any standard for comparison of the conduct of the defendants with that which was required of them.

Nor does the court think that any negligence could be imputed in this case to the omission to make further inquiries, although it was recognized in a leading English case (Hall vs. Semple, 1 F. & F., 337) that such obligation might exist. The husband's narrative was of the relations between him and his wife—this plaintiff—of her conduct and her bearing towards him. Husband and wife appeared as living under the same roof, and there was no indication that there was any one whom the defendants could have consulted in corroboration of the husband, save of course, the wife.

There was ground for surmise that the jury found negligence from the premise that the plaintiff was sane at the time the defendants certified that she was insane, for the minutes showed that they "returned their verdict in which they find that Mrs. Warner was, on the 13th day of July, sane and rational and find doctors guilty of negligence and fix the damages at \$25,000." But the finding of sanity was no more a part of their formal verdict than would be a finding in a verdict for the plaintiff in a negligence case that the plaintiff was not chargeable with contributory negligence. On consideration of the case in the light most favorable to the plaintiff, as was her due, the court fails to find sufficient evidence to support the verdict. Wherefore, the court reverses the judgment appealed from and grants a new trial.

Matters on Which Expert Witnesses may be Questioned

The Supreme Court of Florida holds, in Pensacola Electric Co. vs. Bissett (52 So. R. 367), a personal injury case brought by the latter party, that, although an expert witness may not be questioned, either on his direct or cross examination, on an hypothesis having no foundation in the evidence, yet it is not required that the hypothetical case put to him should be an exact reproduction of the evidence, or an accurate presentation of what has been testified to. Counsel may present to him any hypothetical case in accordance with any reasonable theory based on the evidence; but, in the event that the jury should find that the facts on which such hypothesis or theory of the case was based have not been proved, the answer of the expert necessarily falls with the hypothesis.

An expert witness who has given his opinion on any question or hypothesis submitted to him may be further interrogated on his cross-examination as to the reasons for such an opinion. And for this purpose it is within the discretion of the trial court to widen the range of such cross-examination, even so as to include matters not strictly pertinent to the issues, in order to test the witness' means of knowledge, the extent of his information, memory, accuracy, or credibility, and an appellate court will not interfere with the exercise of such discretion, unless a clear abuse thereof is made to appear.

Insufficient Evidence to Sustain Conviction of Wrongfully Going on Street While Afflicted with Small-Pox

The Court of Appeals of Kentucky in Lawrence vs. Commonwealth (127 S. W. R., 1013) reverses a conviction had under the statute of that state which provides that "any person who, having reason at the time to believe himself afflicted with the disease of small-pox, shall voluntarily go on any public highway or street, shall be guilty of a misdemeanor, and, on conviction, shall be fined not less than one hundred nor more than one thousand dollars." It says that the statute states that anyone having reason at the time to believe himself "afflicted" with the disease of small-pox, going on the public highway, etc., commits the offense. There was very slight evidence conducing to show that the accused might have had the small-pox, but there was none to show that he had reason to believe that he had it when he went on the streets and public highways. A Mr. Brown, the man with whom he boarded while working at a rock quarry with more than 50 persons, said to him one evening that he (Brown) believed that he had small-pox, and that he could not let him stay in the house that night, but that he could go to the barn and sleep in the hay. The accused went to the barn, but got so cold during the night that he had to get up and leave. None

of the persons who worked with him at the rock quarry took the smallpox, but several of Brown's family did have it. There was no evidence showing that he went on the streets or public highways after Brown told him that he believed that he had the smallpox, and Brown's statement to him was the first thing to indicate to the accused that he had any reason to believe that he had the smallpox, and he went to the barn, as Brown told him, to sleep, but grew so cold during the night that he had to leave, and went to his home in another county. The accused testified that he did not believe at the time that he had the smallpox, and stated that he did not have it; that the eruption he had on his face was common to him yearly from infancy. He was corroborated in this statement by both his father and brother, and there was no evidence to the contrary. As stated, there was but very slight evidence to the effect that he had the smallpox and none that he had reason to believe that he had it when he voluntarily went on the streets and public highways, and the court should have instructed the jury peremptorily to find him not guilty.

Physician Prevented from Testifying to Account

The Supreme Court of North Carolina says, in the case of Knight vs. Everett, as administrator (67 S. E. R. 328), that it was an action for medical services rendered by the plaintiff, a physician, to the decedent of whose estate the defendant was administrator. The physician was offered as a witness in his own behalf to prove that he attended on the decedent, had an account against him therefor, to prove the items of the account, the number of visits he made, the sum due therefor, and the value of his services. Each of these questions was objected to, and the evidence was properly ruled out. Such evidence was clearly as to "personal transactions" with the deceased, and incompetent under the terms of the North Carolina statute, the defendant administrator not having testified as to these matters, and the statute providing that a party to, or interested in the event of, a suit shall not be examined as a witness in his own behalf or interest against the administrator, etc., of a deceased person "concerning a personal transaction or communication between the witness and the deceased person," except where the administrator, etc., is examined in his own behalf, or the testimony of the deceased person is given in evidence concerning the same transaction or communication. The plaintiff physician could not prove by his own testimony either an express contract, which would be a "communication" with the deceased, nor an implied contract, by showing a "personal transaction," as services rendered.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

October

- 1 Street Dust as a Factor in Spreading Disease. J. M. Anders, Philadelphia.
- 2 Surgery in Relation to Nervous Patients. L. N. Lanehart, Hempstead, N. Y.
- 3 Gonococcus Infection of the Kidney. F. R. Hagner, Washington, D. C.
- 4 Carcinoma of the Splenic Flexure of the Colon Treated with Neoformans Vaccine. C. D. Aaron, Detroit, Mich.
- 5 Diagnosis of Incipient Pulmonary Tuberculosis. H. H. Pelton, New York.
- 6 The Metroventer Incision of Dührssen in Treatment of Placenta Previa. S. W. Bandler, New York.
- 7 Neuritis. W. B. Snow, New York.
- 8 Stricture of the Male Urethra. W. B. Brouner, New York City.

New York Medical Journal

October 1

- 9 Importance to Physicians of the New Employers' Liability Law. J. J. Moorhead, New York.
- 10 Twilight Talks by the Doctor. G. F. Butler, Chicago.
- 11 Bubonic Plague in Ground Squirrels. G. W. McCoy, San Francisco.
- 12 Scarlet Fever. J. Sobel, New York.
- 13 Acute. J. Knott, Dublin, Ireland.
- 14 Case of Double Tertian Malarial Infection. D. H. B. Ulmer, Philadelphia.
- 15 The Modern Brown Bread Pill. J. J. Buzzell, Brooklyn.

- 16 Postoperative Complications in a Case of Acute Secondary Glaucoma, A Case of Mature Senile Cataract, and A Case of Sudden Death While Performing Iridectomy for Acute Glaucoma. D. F. Harbridge, Philadelphia.

Boston Medical and Surgical Journal

September 29

- 17 *Plastic Surgery of the Ovaries and Tubes. W. C. Seelye, Worcester, Mass.
- 18 *Postoperative Pneumonia Without Mortality in Two Thousand Consentive Surgical Operations at the Free Hospital for Women. W. P. Graves, Boston.
- 19 *Analysis of Seventy-two Cases of Pneumothorax. J. B. Ayer, Boston.

17. **Plastic Surgery of Ovaries and Tubes.**—The patients on whom Seelye has operated in the past two years, 9 single and 12 married, or 21 in all, represent cases of dysmenorrhea and irregularities in catamenia; 10 patients had resection of one ovary; 5 had double resection of ovaries; 6 had resection of one and extirpation of the other ovary. Of these, all but one woman had marked immediate relief from dysmenorrhea, and the relief has held to the present time. In 2 of these cases dysmenorrhea was so severe that the patients had to go to bed for several days at each period. The intervals were shortened, and the patients had only about one week free from pain between periods. These women were not only relieved of dysmenorrhea, but the periods became normal in time. The one patient unrelieved was among the first 10 and one in whom Seelye, says, resection or extirpation of the untouched ovary ought to have been done, for it was large and cystic.

Of the remaining 14 patients, 4 were over 40 years of age and had chronic inflammation of both tubes and ovaries. Total extirpation was performed in each. One had a large cyst combined with a pus tube on one side, which was removed with the tube; 8 had resection of one or both tubes on account of occlusion from past inflammation—the lumen was left patent, and the ovary brought into close contact with the proximal end of the tube. In these 14 patients, the late results in 4 are unknown; the rest have been in good health with no symptoms. No pregnancies have yet been reported. Seelye pleads for more abdominal operations on the pelvic organs in cases of severe dysmenorrhea, and, emphasizes the importance of classification as an aid in determining the mode of procedure in a given case for operation on the ovaries and tubes.

18. **Postoperative Pneumonia Without Mortality.**—As a result of an examination of these cases, consisting of over 1,000 laparotomies, Graves concludes that postoperative lung conditions occur somewhat more frequently and are more fatal in patients previously septic or desperately ill or in the aged and feeble. Operative shock, method of administration, length of time of the anesthesia, age of the patient unless extreme, physical type of the patient, had behavior under ether, wound sepsis, pulmonary embolism, do not seem to bear any constant relationship to the causation of postoperative pneumonia. Postoperative pneumonia and bronchitis occur with great constancy during the cold weather months, and are rare during the summer months. Pre-existing foci of infection in the lungs are almost invariably lighted up or aggravated by operations under ether anesthesia. The following theory of causation is suggested by Graves. Most of the cases of postoperative lung complications are caused by the lighting up or the aggravation of pre-existing focal infection. Many postoperative pneumonias might be avoided by a more careful and more expert preoperative examination of the respiratory tract.

19. **Pneumothorax.**—Tuberculous cases comprised 69 per cent. of all cases of pneumothorax at the Boston City Hospital in twenty-eight years. Most patients were young or middle-aged men, and most had a recent history of less than six month's illness. The left side was most often affected. Pain and dyspnea were by far the most common symptoms at onset. A number of acute symptoms were less frequently of prime importance. The treatment in these cases was for the most part essentially that of the fluid present; the prognosis was anything but encouraging. Two rare cases are reported, one from subphrenic-intrathoracic abscess and one due to echinococcus. Artificial pneumothorax oc-

curred in 19 per cent. and possibly in 32 per cent. of the cases. Roentgen-ray examination has frequently made difficult cases clear, rendered diagnoses more exact, qualified prognosis and explained the effect of treatment. Since this form of examination has come into more constant use in the hospital, pneumothorax has been more frequently diagnosed.

Lancet-Clinic, Cincinnati

September 23

- 20 *Diagnosis of Surgical Lesions of the Kidney. L. Frank, Louisville, Ky.
 - 21 Cause and Pathology of Glaucoma. C. H. Castle, Cincinnati, Ohio.
20. Abstracted in THE JOURNAL, Oct. 1, 1910, p. 1220.

Detroit Medical Journal

September

- 22 The Owen Bill for the Establishment of a Federal Department of Health and Its Opponents. S. A. Knopf, New York.
- 23 *Should the Physician Do His Own Dispensing? H. B. Garner, Detroit.
- 24 Arithmetic in Medicine. R. Wallace, Louisville, Ky.

23. **Physician's Dispensing.**—The reasons which are given by Garner why the physician should not dispense his own medicines are in brief as follows: He is a physician and not a pharmacist. His time with a patient must, if it results in the greatest good of the patient, be devoted to the diagnosis and treatment of his case. The country is loaded with an inferior class of goods and he is apt to employ cheap remedies in preference to the better qualities of pharmaceutical preparations. He cannot devote a proper amount of time to the preparation of active and reliable drugs and carry on a general practice successfully. His drugs of necessity must deteriorate. He falls into a routine way of prescribing pills, the formula of which has been studied by someone else, and often does not fill the bill. On the other hand, it is equally important to bring up objections urged against prescription writing. Druggists substitute. Druggists secure the business that rightfully belongs to the physician by counter-prescribing. Patients pay the physician for the prescription and have it refilled any number of times without the physician's knowledge or advice. Garner urges that the medical and pharmaceutical professions join hands, having for their aim honesty, quality, and perfection. The hearty cooperation will bring forth apothecary shops that will be an honor to the owner and a credit to the employes.

Kentucky Medical Journal, Bowling Green

September 15

- 25 General Anesthesia. D. W. Barrow, Lexington.
- 26 Preventable Diseases. S. E. Hampton, Milton.
- 27 The Bühsssen Operation for Cystocele and Prolapse of the Uterus. D. W. Barrow, Lexington.
- 28 Report of Some Malignant Cases. J. T. Dunn, Louisville.

Virginia Medical Semi-Monthly, Richmond

September 23

- 29 Differential Diagnosis and Treatment of Rheumatic Arthritis and Arthritis Deformans. J. C. Walton, Richmond.
- 30 Case of Acute Lymphatic Leukemia. E. F. Cooke, Houston, Texas.
- 31 *Cancer in Virginia—Trustworthy Vital Statistics The Foundation of Public Health—The Organization of a Cancer Association in Virginia. S. Harnsberger, Catlett.
- 32 Passing of the Intern as Anesthetist in Washington, D. C. C. N. Chipman.
- 33 Early Celiotomy for Ovarian Tumors. J. E. Rawls, Suffolk.

31. Published in the *Charlotte Medical Journal*, August, 1910, p. 87.

Northwest Medicine, Seattle, Washington

September

- 34 *Acute Anterior Poliomyelitis. W. House, Portland, Ore.
- 35 The Medical Practice Law. F. P. Witter, Spokane, Wash.
- 36 Life-Insurance from the Medical Examiner's Standpoint. E. V. Silver, Salt Lake City, Utah.
- 37 Postoperative Treatment. G. N. Pease, Portland, Ore.
- 38 Early Operation in Acute Intestinal Obstruction. C. N. Suttner, Walla Walla, Wash.
- 39 Trials of the Country Physician and His Relations to the Specialist. W. Appleby, Anacortes, Wash.
- 40 Relation of the Specialist to the Family Physician. H. V. Würdemann, Seattle.
- 41 Circulation in the Nose and Throat and Its Relation to the Rest of the Body. L. K. Klemptner, Seattle.
- 42 Toxemia and Eclampsia, with Special Reference to Its Etiology and Medical Treatment. S. H. Johnson, Bellingham, Wash.
- 43 A Case of Pellagra. W. B. Scott, Seattle, Wash.

34. **Acute Anterior Poliomyelitis.**—Throughout the winter of 1909-10, patients continued to come for after-care, but always reported the acute trouble as having occurred before the end of November, except in two instances, in which the disease developed in December. House saw 31 patients. They came from Portland, from along the lines of the Southern Pacific Railroad, from down the Columbia as far as Astoria, and one from near Weiser, Idaho. The lesion was in the lumbar region in 23, all children under 7, with consequent paralysis of the legs. One case was purely of the cerebral type. The patient, a child of 7, was unconscious and died without exhibiting any characteristic palsy. But the clinical picture seemed typical. Necropsy, performed 4 days after death, after decomposition had begun, revealed absence of gross pathologic lesion, which would be expected under the circumstances. House feels, confirmed the diagnosis. The remaining 6 patients exhibited symptoms of cervical involvement and 3 of them showed marked cerebral symptoms. These 3, all young children, died. Of the 3 patients in whom the lesion appeared to be entirely cervical all were girls of from 16 to 20 years of age. One died from respiratory insufficiency, and the others recovered with palsies to be later described.

So far as House's observations are concerned, there were no definite foci and no definite method of spread, except that the cases from out of Portland all came from along the line of the S. P. and O. R. & N. railroads. Roseburg appears to have been the center of an unusually large number of cases. In Portland the patients came from all parts of the city, without any apparent source of infection which could in any way account for the distribution and without any possibility of direct contagion from one to the other; nor does House know of any household in which two or more cases occurred. Personally, his belief in the infectious nature of this disease is strong, but is not based on any confirmatory evidence obtained from the recent epidemic.

Many of his patients derived relief from mild mustard plasters to the spine. If they were restless, bromids were used in moderate dose, supplemented with codein if pain was severe. If the lesion was in the lumbar region a little phenacetin was used, but never if the lesion was higher up, because of the danger to the already embarrassed respiration. House suggests that in patients in whom the lesion is cervical with the resulting impairment of respiration, atropin will be indicated, and inhalations of oxygen, together with artificial respiration, appear to have a just place in treatment. Rest in bed and quiet was urged, and throughout, a nutritious, easily digested diet was ordered. Attention was given to insure that the bladder was properly emptied. All attempts at massage were discouraged until pain had subsided. At this time small doses of strychnin will be helpful. House states, and electricity is indicated, but must be given with great care. The faradic current apparently is valueless, but the slowly interrupted galvanic current seems to do much good. Treatments should be given daily and should be short, not more than from 3 to 5 minutes to each affected limb. House used about 60 interruptions to the minute and feels confident that most patients derived great benefit from this treatment.

Ophthalmic Record, Chicago

September

- 44 Trephining for Glaucoma. G. Young, New York.
- 45 Choked Disc Possessing Some Unique Features. C. M. Harris, Johnstown, Pa.
- 46 Ossification of the Hyaloid Membrane. N. Vassiliades, Beirut, Syria.
- 47 Homatropin. L. Emerson, Orange, N. J.
- 48 Use of the Schiotz Tonometer. W. B. Marple, New York City.

Cleveland Medical Journal

August

- 49 *So-Called Spontaneous Gangrene. R. Dexter and A. W. M. Ellis, Cleveland.
- 50 Tuberculin Reaction in Diagnosis of Tuberculous Conditions in Children. W. P. Lucas, Boston.
- 51 Hodgkin's Disease with Recurrent Fever. J. Phillips, Cleveland.
- 52 *Is a High-School Education Sufficient Preparation for the Study of Medicine? F. C. Waite, Cleveland.
- 53 Professional Duty. J. G. Spencer, Cleveland.
- 54 Traumatic Insanity. H. H. Drysdale, Cleveland.
- 55 Scientific Research in State Institutions. C. H. Clark, Cleveland.

September

- 56 Management of Scarlet Fever in the Home. E. F. Cushing, Cleveland.
- 57 Location and Nature of Injuries of the Gastro-Intestinal Tract Following Abdominal Trauma. C. E. Briggs, Cleveland.
- 58 Stokes-Adams Disease. M. J. Lichty, Cleveland.
- 59 Nephritis, a Complication of Impotigo. J. Phillips, Cleveland.
- 60 Clinical Manifestations Among the Insane. J. D. O'Brien and G. D. Tatge, Massillon, Ohio.
- 61 Biliary Lithiasis and Inanition. M. Schott, Cleveland.
- 62 *Technic for Closing the Urinary Bladder After Suprapubic Opening. W. E. Lower, Cleveland.
- 63 *An Abnormality in the Form of the Femur. C. A. Hamann, Cleveland.
- 64 *Treatment of Varicose Ulcer of the Leg. M. Coplan, Cleveland.

49. **Spontaneous Gangrene.**—A review of the literature of this subject disclosed to the authors 73 cases, which they consider undoubted examples of spontaneous gangrene: 69 patients were males and 4 females. Two patients were under 20 years old, 7 were between 20 and 30; 9 between 31 and 35; 22 between 36 and 40; 12 between 41 and 45; 10 between 46 and 50; 10 between 50 and 60; 1, age not mentioned. Although the symptoms in one case were present for over 20 years—the average duration was from 3 to 5 years. In the 68 cases in which the location was mentioned, the condition occurred 53 times in the legs alone, twice in the arms alone, and 13 times in both upper and lower extremities. In more than one-third of the cases, the pulse in the femoral and all the vessels distal to it, was lessened or obliterated, while in nearly two-thirds the vessels as high as the popliteal were involved. Neither syphilis nor the use of tobacco seemed to play any part in the causation of this condition. The authors report one case seen by them. They believe that it was a case of general arterial thrombosis, exactly similar to that found in the extremities in the condition known as spontaneous gangrene.

52. **Preparation for the Study of Medicine.**—We may assume, says Waite, that everyone preparing to enter the medical profession hopes to work out a successful career. The medical career is one of many points of contact. It is not alone technical; it has its social, sociologic and public relations. Physicians and surgeons are not mere practitioners; they are also human beings. The physician is by his profession a semipublic servant; much more so than are members of most other professions. His calling brings him into contact with all conditions of men and his relation to these is very intimate. He is a factor in the general welfare of the community; not only in its physical welfare, but in its moral, mental and social prosperity as well. He is more than a technician or a tradesman, and he must if he is to succeed be prepared to discharge efficiently all these correlated obligations as well as to execute his main purpose of combating disease. He cannot confine his activities to diagnosis and the giving of medicine. He must be ready as adviser and friend. He must be prepared for public service. He needs the power of trained personality if he is to protect his entire constituency the public at large—in the maintenance and advance of public health. And since he is more than a physician, he needs more than merely a medical training. The high school has given him a certain sort of training of a routine nature. Such is essential at that developing period of a boy's life, but not all-sufficient for the various demands of a medical career. It is different in kind from the college training and it needs supplementing before the technical studies of the medical curriculum are begun. A college training gives the student a breadth of view not obtainable in any other way.

Medicine is no longer an art but has become a science. It is more and more coming to be applied biology, chemistry, physics and psychology. The high school teaching of these subjects must needs be extremely elementary and superficial, and it is by no means adequate as a preparation for the studies of the medical curriculum. Nor can the medical school give these preparatory subjects properly and in logical order. A full four years is needed for the medical studies, without consuming time and energy in doing the preliminary work. The consensus of opinion after all the discussion of the past ten years on the various phases of medical education is that a high school education alone is not enough preparation to enable a student to get a medical education

that is efficient and adequate, and that, if a boy is absolutely prevented from further preparation, he had best not attempt to enter the profession by the back door of the low-grade school, for his hope of a successful career following such a training will probably never be realized. Under these circumstances, it is to his own advantage to seek some other field of effort.

62. **Closing the Urinary Bladder.**—Lower has opened the bladder suprapubically 69 times for various causes, and has made an immediate closure in 35 and has employed drainage in 34. In the drainage cases the patients required from 3 to 4 weeks longer than the immediate closure cases, and generally had an annoying period of convalescence with dirty bladders which required irrigation afterwards. In the closure cases the patients averaged from 2 to 3 weeks for convalescence and generally were up and about in from 10 days to 2 weeks. The bladders were irrigated through the urethra from the start and by the time the patients were ready to leave the hospital, the infection (when present) had progressed well toward recovery. The technic employed is as follows: The bladder is thoroughly washed with a boracic solution and then filled with the same before the patient is anesthetized. Nothing is inserted into the rectum as is often done.

The patient is placed in the Trendelenburg position, a vertical or transverse incision is made, depending on whether or not there is much adipose tissue. After cutting through the sheath of the rectus and separating the muscle, the peritoneum is pushed out of the field and the bladder exposed extraperitoneally. A curved two-pronged tenaculum or hullet forceps catches the bladder on each side, the bladder is lifted and an incision made longitudinally between the two tenacula into the bladder. The tenacula are now removed and the edges of the bladder incision retracted with small smooth retractors (if greater retraction is needed), but at no time, and this is important, are the cut edges caught by a crushing forceps, e. g. like a hemostat. If this is done, it will be impossible to get a close approximation of the cut edges. When the wound is ready for closure, a round, half-curved needle threaded with 00 chromic catgut is used, never linen or silk. Stones almost invariably form if the ligature is nonabsorbable. The first suture is passed through the muscular coat down to the mucosa and a free end is left long for traction; a tenaculum is inserted at the other end of the opening and the cut stretched. The first row of sutures is then made parallel with the cut muscles, never through the mucosa, and is drawn only tightly enough to approximate nicely the cut edges. The next row of sutures is made transversely to the cut and penetrates all the layers of the bladder except the mucosa and is then tied to the free end of the first layer. By keeping the bladder on the stretch and placing the transverse sutures closely together, when the bladder contracts it makes the wound still more firm, but if sutured when the bladder is contracted, then, when the bladder becomes distended, the sutures will be stretched apart and there will be great danger of leakage.

63. **Abnormal Femora.**—These bones were taken from a tall, thin, male adult who had apparently died of tuberculosis. There are no abnormalities in the other bones, with the exception that the upper thirds of both tibiae are rather thicker in the transverse diameter and the curves in the bone were somewhat greater than is normal. The femora are perfectly symmetrical; the surface of the bones is smooth and there is no evidence of periosteal or osteal inflammation; the articular extremities show no evidence of disease. At about the middle of the shaft, each femur begins gradually to flatten anteroposteriorly and the transverse diameter increases till the condyles are reached, thus differing markedly from the more rounded form of the normal femur. A transverse section of the bone would therefore present a transversely oval form. Hamann says that these bones do not correspond in shape or appearance to any of the pathologic modifications of the femur that have been described, indeed as stated above there is no evidence of any inflammatory or hyperplastic process. The density of the bone seems normal, no section has been made to show the interior however,

64. **Varicose Ulcer of Leg.**—The non-surgical treatment of the disease alone is discussed by Coplan. The general treatment employed by him consists in attention to the bowels, building up the general system; removing the cause, if possible, and regulating the habits and diet. Rest for the limb is essential. An elastic stocking should be ordered at once and the patient made to wear it whenever he is on his feet. The treatment of the ulcer itself consists in thorough antiseptics of the wound and surrounding skin, procured by first washing the entire leg with soap and water and then with 1-1000 bichlorid solution, or a saturated solution of boric acid; brushing the ulcer with carbolic acid, then covering it with cotton dipped in alcohol, drying it carefully and dusting on rather thickly bismuth subnitrate and starch powder, in equal amounts; a dressing consisting of a small pad is applied and held by a gauze bandage or by small strips of adhesive plaster. The elastic stocking is then put on. The powder is changed every morning by the patient, the wound is washed once every two or three days as stated above, inspected, and, if necessary, the carbolic acid and alcohol application is again made and the powder reapplied. The indications for the carbolic acid and alcohol applications are when the retrograde changes equal the reparative, or when the former exceed the latter. When the surface of the ulcer is covered with a layer of healthy granulation tissue composed of round cells closely packed together and supplied with a rich capillary network of blood vessels, the above treatment is all that is necessary. If the granulations are irregular, protruding above the edges of the wound, with ill-smelling purulent or seropurulent discharges, the surfaces should be everted thoroughly before the above applications are made.

Southern California Practitioner, Los Angeles

September

- 65 Nature and Treatment of Hysteria. C. L. Allen, Los Angeles.
- 66 Care of the Ears of Infants and Children. W. H. Dudley, Los Angeles.
- 67 A Year's Work at the Eye Hospital of the United States Indian School at Phoenix, Ariz. A. Martin, Phoenix.
- 68 Open or Surgical Treatment of Fractures. C. P. Thomas, Spokane, Wash.

University of Pennsylvania Medical Bulletin, Philadelphia

September

- 69 The Patience of Surgery. A. P. C. Ashhurst, Philadelphia.
- 70 Sciatica as Caused by "Rheumatic" Myositis in the Gluteal Region. N. S. Yawger, Philadelphia.
- 71 Serous Meningitis. S. Leopold, Philadelphia.
- 72 The Medical Side of Benjamin Franklin. W. Pepper, Philadelphia.

Long Island Medical Journal, Brooklyn

September

- 73 Fakes and Fakirs in Medicine. M. B. Heyman, Central Islip, L. I.
- 74 Sanitary Investigation of Oyster Production and Distribution. H. D. Pease, Manhattan, N. Y.
- 75 Wassermann Reaction for Syphilis. J. I. Wiseman, Kings Park, New York.
- 76 Plea for the Prevention of Adenoids. J. E. Sheppard, Brooklyn.
- 77 Epigastric Incisions in Dealing with Cancer of the Breast. L. S. Pletcher, Brooklyn.

Journal of the Oklahoma State Medical Association, Muskogee

September

- 78 Diagnosis and Treatment of Diabetes. H. E. Brees, Henryetta, Okla.
- 79 Diseases of the Respiratory Tract. W. M. Sanger, Oklahoma City, Okla.
- 80 Prevention of Disease. T. F. Renfrow, Billings, Okla.
- 81 Etiology and Treatment of Inguinal Hernia. W. J. Frick and R. D. Ireland, Kansas City, Mo.
- 82 What the Woman's Club Can Do in the Campaign Against Tuberculosis. J. M. Brynn, Shawnee, Okla.

American Journal of Physiology, Boston

September

- 83 *Influence of the Removal of Fragments of the Gastro-intestinal Tract on the Character of Nitrogen Metabolism. III. Excision of the Stomach. A. Carrel, G. M. Meyer and P. A. Levene, New York.
- 84 Pharmacologic Action of Uranium. D. E. Jackson, Indianapolis.
- 85 Fate of Saccharose After Parenteral Introduction in Animals. L. B. Mendel and I. S. Kleiner, New Haven, Conn.
- 86 Concentration of Ammonia in the Blood of Dogs and Cats Necessary to Produce Ammonia Tetany. C. Jacobson, Chicago.
- 87 *Healing of Wounds in Denervated Skin Areas and Its Bearing on the Theory of Trophic Nerves. C. Jacobson, Chicago.

- 88 Separation and Estimation of Aspartic and Glutamic Acids. I. B. Osborne and L. M. Liddle, Washington, D. C.
- 89 Congenital Thyroidism: An Experimental Study of the Thyroid in Relation to Other Organs of Internal Secretion. R. C. Hoskins, Boston, Mass.
- 90 *Prophylactic Action of Atropin in Immediate Anaphylaxis of Guinea-Pigs. J. Ancer, New York.

83. **Excision of the Stomach.**—A previous communication by Levin, Manson, and Levene on the nitrogen metabolism after gastro-enterostomy, showed that when stomach digestion was lacking, the power of the animals to retain and to assimilate the nitrogen of the food was diminished. In the present experiments, Carrel, Meyer, and Levene have attempted to determine the effect of complete excision of the stomach. In one animal they found a high nitrogen retention in experiments performed early after the operation, but no retention in the experiments performed after the tenth week following the operation. They suggest that in this case not only the gastric secretion was missing but also the pancreatic and intestinal secretions were much reduced and at that period the absorbed protein had the character of parenterally introduced protein, i. e., it had undergone only very slight changes by digestion and hence was retained. They think that at the later period the pancreatic and intestinal digestions were restored to their normal power and that the characteristic effect of failure of stomach digestion was exhibited. In the second animal the stomach was completely removed and the experiments were begun on the twelfth week after the operation. Three experiments were performed on the animal and no nitrogen retention was noted in any of them. The necropsy revealed a hypertrophy of the upper end of the duodenum developing after the operation.

87. **Healing of Wounds in Denervated Skin Areas.**—Jacobson operated by cutting first the sensory nerve roots in pigeons and then noting the rate of healing of wounds made in the anesthetic area. Later the motor nerve roots were cut and similar observations made. The author sums up her results in the following conclusions: 1. the results of the experiments reported indicate no diminution in the rate of healing of wounds in a denervated (sensory or sensory and motor) skin area as compared directly with that in a normal area. 2. The variations in the results obtained by different investigators may be explained on the grounds of individual variation among animals. 3. It seems that so-called trophic disturbances may be due to vasomotor changes with increased susceptibility to infection or to the loss of protective reflexes from loss of sensibility to injurious agents.

90. **Prophylactic Action of Atropin.** Auer finds that a prophylactic injection of atropin sulphate in guinea-pigs sensitized by the subcutaneous injection of horse serum saved 18 out of 25 from the lethal effect of the toxic injection; while out of 24 adequate controls only 6 survived. Stated otherwise: the death-rate with atropin was 28 per cent.; without atropin it was 75 per cent. These figures, Auer says, show the distinct therapeutic utility of atropin in immediate anaphylaxis.

Journal of the Indiana State Medical Association, Fort Wayne

September 15

- 91 Dermatitis Pediculoides Ventricosus. H. A. Ray, Grabill, Ind.
- 92 *Applying Thiersch Grafts to the Orbital Cavity. F. A. Morrison, Indianapolis.

92. **Applying Thiersch Grafts to the Orbital Cavity.**—Over the part to be covered, whether within or without the orbit, is laid a piece of sterile gutta-percha tissue and an exact pattern made of this surface by the use of small scissors. This pattern is now removed and laid aside for further use. Next a piece of gutta-percha tissue two or three inches square (for convenience of handling) is laid in a bowl of normal salt solution. The Thiersch graft is cut in the usual way but is allowed to remain on the razor blade and is transferred directly to the gutta-percha tissue. To effect this the tissue is removed from the salt solution and spread evenly on a sterile towel. The upper surface of this tissue must be kept quite moist to facilitate the even application of the graft. The razor blade carrying the graft is dipped gently into the normal salt solution to loosen the adhesion between them preparatory to the next step. The graft is

then applied, raw surface up, to the tissue by holding the edge with a small spatula and gradually drawing the razor backward and dislodging it. The spatula is now brought into play and all wrinkles carefully smoothed. Should any difficulty be experienced a few drops of water sufficient to float the graft may be dropped on its surface.

The gutta-percha tissue should then be lifted slowly by taking hold of one end and the excess of water on its surface allowed to drain away slowly. This will cause the graft to become intimately adherent to the surface of the tissue and permit handling without any fear of wrinkling or dislodgment. With a pair of small and sharp scissors the tissue and the adherent graft are cut at the same time to correspond to the size and shape of the pattern previously described. In case great accuracy is demanded the pattern may be placed beneath the tissue while this shaping is proceeding. The graft thus shaped, together with its companion piece of gutta-percha, is then placed face downward on the surface to be covered and pressed into place with the spatula or any convenient instrument. Here the two may be left in contact or if desired the tissue may be removed by gently insinuating the edge of a spatula.

Bulletin of the Johns Hopkins Hospital, Baltimore

October

- 93 The Life and Work of Lister. C. G. W. Judd, Baltimore, Md.
94 Decussation of the Pyramids—An Historical Inquiry. H. M. Thomas, Baltimore.
95 An Historical Sketch of Blood-Letting. J. T. Smith, Baltimore.
96 *Importance of a Thorough Teaching of Infectious Diseases of Childhood in the Medical Curriculum. C. F. von Pirquet, Baltimore.
96. Abstracted in THE JOURNAL, May 21, 1910, p. 1719.

Pennsylvania Medical Journal, Athens

September

- 97 Diagnosis and Surgical Treatment of Gall-Bladder Diseases. D. Guthrie, Sayre, Pa.
98 Is Induced Abortion Justifiable? If so, When? From the Religious View. A. R. Steck, York, Pa.
99 Is Induced Abortion Justifiable? If so, When? From the Legal View. G. H. Kain, York, Pa.
100 The Rights of the Unborn Child. W. S. Carroll, Erie, Pa.
101 Hypertrophy of the Adenoid and Other Tonsillar Glands as a Factor in Arresting Development of the Teeth and Alveolar Processes. S. M. Weeks, Philadelphia.
102 Relation of the Society Secretary to the Increase of Membership. L. B. Kline, Catawissa, Pa.
103 Value of the Secretary to the County Society. P. P. Breeman, Lancaster, Pa.
104 Relation of the County Secretary to the Business of the State Society. W. R. Davies, Scranton, Pa.
105 Ethics and Business in Medicine. R. W. Bailey, Germantown, Pa.
106 The Problem of Gonorrhoeal Infection. R. T. Barnett, Lewis-town, Pa.
107 Anesthetics: A Report of One Thousand Cases. F. Sebill, Johnstown, Pa.
108 The Nostrum Cure. J. C. Jenkins, Litz, Pa.

Gulf States Journal of Medicine and Surgery, and Journal of the Southern Medical Association, Mobile

September

- 109 Impress of English Thought on Medicine. F. A. Jones, Memphis, Tenn.
110 Serodiagnosis of Syphilis. A. Litterer, Nashville, Tenn.
111 *Rare Case of Appendicitis. H. T. Inge, Mobile, Ala.
112 Clinical Observations on Hemoglobinuric Fevers. W. H. Dead-erick, Helena, Ark.
113 Pathology of Hemoglobinuric Fever. G. H. Whipple, Baltimore.
114 Digestive Physiology and Some of Its Clinical Bearings. J. T. Halsey, New Orleans, La.
115 Whooping-Cough. C. Thornton, Montgomery, Ala.
116 The Owen Bill for the Establishment of a Federal Department of Health, and Its Opponents. S. A. Knopf, New York City.

111. A Rare Case of Appendicitis. This is a case of appendiceal intussusception. The appendix was found to contain literally thousands of small round bodies that varied in size from a small shot to that of an English pea. They were detached one from another and from the inner appendix walls. They exhibited a pearly luster, were quite firm, opaque and elastic.

West Virginia Medical Journal, Wheeling

October

- 117 The Owen Bill and Its Opponents. S. A. Knopf, New York.
118 Uncinariasis. J. E. Burns, Wheeling.
119 Alcohol Only a Nerve Poison. G. H. Benton, Chester.
120 Spina Bifida and Congenital Tumor of the Sacrolumbar Region. J. Schwinn, Wheeling.

- 121 Early Diagnosis of Incipient Tuberculosis. J. L. Pyle, Chester.
122 Uses of Glycerin in Medicine. G. D. Lind, Greenwood.
123 Appendicitis as a Complication of Pregnancy. S. D. Hatfield, Jaeger.

Archives of Pediatrics, New York

September

- 124 *Clinical Features of Epidemic Poliomyelitis. L. E. Holt, New York.
125 *Chronic Rheumatoid Arthritis of Childhood. H. Koplik, New York.
126 *Bacterial Vaccines in Children's Diseases. J. Howland and B. R. Hoobler, New York.
127 Role of the Visiting Nurse in the Reduction of Infant Mortality. C. Herman, New York.
128 *Cytodiagnosis of Tuberculous Meningitis. C. H. Dunn, Boston.
124. Abstracted in THE JOURNAL, June 4, 1910, p. 1889.

125. Chronic Rheumatoid Arthritis.—Koplik thinks that in children what has been described as arthritis deformans so closely resembles another form, the so-called Still's form of rheumatoid arthritis, that they both are probably the same form of disease and are peculiar to children alone. He has been led to this conclusion by a study of a number of these cases of rheumatoid affection of the joints. Six such cases are reported.

126. Abstracted in THE JOURNAL, June 11, p. 1996.

128. Abstracted in THE JOURNAL, June 4, p. 1889.

Journal of Advanced Therapeutics, New York

September

- 129 Static Treatment of Rheumatoid Arthritis. W. D. McFee, Haverhill, Mass.
130 Radiant Light in Treatment of Rheumatoid Arthritis. S. Abbott Franklin, Mass.
131 Heat in Treatment of Rheumatoid Arthritis. G. Z. Goodell, Salem, Mass.
132 Roentgen-Ray Treatment of Rheumatoid Arthritis. F. B. Granger, Boston.
133 Treatment of Rheumatoid Arthritis. C. J. Walsh, Cambridge, Mass.
134 Dietics in Rheumatoid Arthritis. W. H. Hitchcock, Boston.
135 Rheumatoid Arthritis Treated by Manual Therapy. E. C. Thompson, Roslindale.
136 Case of Chronic Congestion of the Prostate. H. F. Pitcher, Haverhill, Mass.
137 Effects of Electric Currents on Blood Pressure. E. Sayer, England.

American Journal of Public Hygiene

August

- 138 *Improvement of Public Health Through Teaching of Hygiene in the Elementary Schools. I. F. Hyams, Boston.
139 *Teaching of Hygiene and Sanitation in the Schools. J. W. Ritchie, Williamsburg, Va.
140 *Teaching of Hygiene in Normal Schools. A. de Garay, Mexico City, Mexico.
141 Organization of the Public School Hygiene Service in the Federal District of Mexico. A. Pruneda, Mexico City, Mexico.
142 Instructive Inspection. E. H. Richards, Boston.
143 Value and Scope of Exhibitions and Museums. A. M. Wilson, Boston.
144 Sanitary Education in California by Means of Traveling Railroad Exhibit. H. O. Jenkins.
145 *Scope and Nature of Publicity as a Factor in Popular Educational Movements in Public Health. J. A. Kingsbury, New York.
146 *Necessity of Efficient Means of Checking Syphilitic and Gonorrhoeal Contamination. J. Breza, Zacaracas, Mexico.
147 *Necessity of Isolating Prostitutes Who Suffer from Syphilis. J. Huel, Mexico City, Mexico.
148 *Vaccinal Syphilis. F. Bernaldez, Mexico City, Mexico.
149 *Second Decennial Revision of the International Classification of Causes of Death. C. Wilbur, Washington, D. C.
150 *Cooperative Efforts in the Supervision and Control of Milk Supplies. F. D. Bell, New York.
151 *How an Enlarged and More Uniform National Health Administration May Be Secured. J. Y. Porter, Key West, Fla.
152 *Maritime Prophylaxis of Pulmonary Tuberculosis. A. Mattenzo, Tampico, Mexico.
153 *Prophylactic Measures in Exanthematic Typhus. G. Escalona, Mexico City, Mexico.
154 Relations Between the Sanitary and Politico-Administrative Authorities in the Mexican Republic. D. Orvnanos, Mexico City, Mexico.
155 *Facts Indicating that Malaria May Be Spread Through Other Agencies Than the Anopheles Mosquito. J. Chico, Guana-jato, Mexico.
156 *Investigation of the Extent of the Bacterial Pollution of the Atmosphere by Mouth-Spray. C. E. A. Winslow and E. A. Robinson, Boston.
157 Sanitary Education of the People. G. T. Swarts, Providence, R. I.
158 Utilization of Bacteriologic and Microscopic Methods in Inspection of Milk. J. O. Jordan, Boston.
159 Organization of Municipal Health Department at Vera Cruz. M. S. Iglesias, Vera Cruz, Mexico.
160 *What May Be Done to Improve the Hygiene of the City Dweller. S. A. Knopf, New York.
161 Police Health Census of the City of Baltimore, 1906. C. H. Jones, Baltimore.
162 Studies on Inhibition, Attenuation and Rejuvenation of *B. coli*. F. E. Hale and T. W. Mella, Boston.

- 163 Microscopic Investigation of Hematozoon Malaria. O. Gonzalez-Fabela, Mexico City, Mexico.
- 164 Bacteriologic Methods for Air Analysis. J. Weinziri and M. V. Fos, Seattle, Wash.
- 165 Pancreatin-Bile Salt Medium for Detection of *B. Coll* in Water. L. R. Swain, Mount Kisco, N. Y.
- 166 Longevity of *B. Diphtherie* on Swabs. F. H. Slack, B. L. Arms and E. M. Wade, Boston.
- 167 A Standard Fumigating Outfit for a Single Room. A. W. Freeman, Richmond, Va.
- 168 Importance of Standard Methods for Testing Disinfectants. W. Dreyfus, New York.
- 169 An Analytic and Epidemiologic Study of Farm Water Supplies. K. F. Kellerman, Washington, D. C., and H. A. Whittaker, Minneapolis, Minn.
- 170 Control of Algal Pollution in the Reservoirs of the Canal Zone. K. F. Kellerman, Washington, D. C., and J. O. Meadows, Oconomowoc, Wis.
- 171 Artificial Milk: A Substitute for Ordinary Milk as a Laboratory Medium. H. W. Hill, Minneapolis.
- 172 Importance of Contact Infection. C. V. Chapin, Boston.
- 173 Modern Methods of Quarantine. M. J. Rosenau, Boston.
- 174 Personal Hygiene. P. G. Stiles, Boston.
- 175 Veterinary Hygiene. W. L. Beebe, St. Cloud, Minn.
- 176 Sanitary Engineering Notes. R. S. Weston, Boston.
- 177 Biologic Laboratory Notes. F. P. Gorham, Boston.

138, 139, 140, 145 to 148, and 150 to 153. Abstracted in THE JOURNAL, Nov. 27, 1909, pp. 1843 to 1846.

149. Abstracted in THE JOURNAL, Nov. 20, 1909, p. 1761.

155. Spread of Malaria Through Other Agencies Than the Anopheles Mosquito.—Chica claims that in Guanajuato popular opinion uniformly accuses the fruits of being the cause of malaria in its worst aspect and people who go to Tierra Caliente ("Warm Land") as the coast is colloquially called among them, assert that if they keep clear of fruits and add brandy to the water they may remain free of malaria. Up to this time the search for malaria germs in fruits has yielded but negative results; but he thinks one thing remains: the anopheles is not the only vehicle for the spread of malarial diseases.

156, 160. Abstracted in THE JOURNAL, Nov. 27, 1909, pp. 1844 and 1845.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

September 17

- 1 *Spinal Analgesia by the Stovain-Strychnin Method of Jonnesco. L. McGavin.
- 2 Anesthetizing Patients for Operations on the Throat, Nose and Accessory Sinuses. S. V. Stock.
- 3 State Insurance and the Poor-Law Commission. J. H. Keay.
- 4 State Invalidity and Sick Insurance. E. R. Potbergill.

1. Spinal Analgesia.—McGavin tried this method in eighteen cases with almost uniformly disappointing results. He says that four successful cases of high puncture serve, so far as analgesia above the phrenics is concerned, to show that the method has at least some element of possibility in it; it is, however, uncertain, imperfect at present, and of doubtful value in replacing general anesthesia. The unsuccessful cases of high puncture show it to be fraught with danger, and from the human standpoint unjustifiable. The cases of low puncture serve to show very little else than that strychnin can be injected into the spinal canal without inducing spastic symptoms, and that it undoubtedly results in a shortening of the period of analgesia usually resulting from the use of stovain alone. The effects of the analgesic on the cranial nerves appear to be irregular. So far as McGavin has been able to see, the first, second, third and fourth remain unaffected; the fifth is at times under control, as is also the seventh; the sixth, eighth, ninth, tenth and twelfth are unaffected, while the eleventh may or may not be paralyzed. He can see no object in adding strychnin in cases of low spinal analgesia, since he has found no difficulty in carrying out operations under stovain analgesia without it, even when such analgesia has been pushed to the level of the clavicles.

Lancet, London

September 17

- 5 Vaccine Therapy: Administration, Value and Limitations. A. E. Wright.
- 6 *Chondrocarcinoma of the Testicle. W. Sheen, H. A. Scholberg and R. L. M. Wallis.

- 7 Enucleation of Tonsils with the Guillotine. S. S. Whillis and F. C. Pybus.
- 8 *Verminous Appendicitis. H. A. Lediard.
- 9 Toxicology of Carbon Monoxid. W. J. Wilson.
- 10 Ventilation of Ships, Particularly Merchant Ships. W. E. Home.

6. Chondrocarcinoma of the Testicle.—Wallis' patient was a man, aged 30, with a strong tuberculous family history, three sisters and one brother having died from phthisis between the ages of 19 and 30. The patient was struck by a hockey stick on the left testicle in February, 1908. He had pain, stopped playing for two minutes, then finished the game. Swelling of the testicle appeared at once and gradually grew larger, and he wore a suspensory bandage; he had no pain and did not lose flesh. In February, 1909, the left scrotum contained a smooth, ovoidal mass, roughly as big as the adult fist, hard, uniform, elastic, not tender and not translucent. Veins were not dilated, testicular sensation was retained at the upper and front part of the swelling, and there was no thickening of the cord. Rectal examination showed nothing abnormal. The testicle and cord were removed through an inguinal incision, the inguinal canal being opened to its outer end. The cord was apparently normal. The patient left the hospital in 14 days with the wound soundly healed. Four months later he noticed an abdominal swelling, hard, elastic, smooth, prominent, slightly tender, reaching from the umbilicus to the symphysis, and from the left anterior superior spine to three inches to the right of the middle line. Slight frequency of micturition was present. There was a slight yellow tinge on the cheeks. The patient died two months later. The tumor was an embryoma in which the hypoblastic layer had undergone a malignant change giving a spheroidal-celled carcinoma.

8. Verminous Appendicitis.—A girl, aged 7, complained of abdominal pain and distention, fever, vomiting and tenderness in the appendix region. The appendix region was more tender, and persistently tender, than any other part of the abdomen, but the pain was diffused over the abdomen and the distention was suggestive of general peritoneal infection. The child was submitted to operation. The cecum was found to be inflamed, but no lymph was present. The appendix, when brought to the surface, was swollen and redder than normal. It was not until the appendix was slit up that a nest of actively moving threadworms was seen, some of which escaped. They were the oxyuris vermicularis. After the operation the usual remedies were given, and a careful search was maintained for a week or more, but no sign of a worm was visible in the motions, which were washed, strained and examined with a lens. Films of blood taken showed a marked polymorphonuclear leukocytosis, but the eosinophil cells were not increased in number, being rather fewer than usual.

Journal of Tropical Medicine and Hygiene, London

September 15

- 11 The Investigation of Pellagra. L. W. Sambon.

Australasian Medical Gazette, Sydney

August

- 12 Trachoma in Western Queensland. E. T. Smith.
- 13 Family Syphilis. R. H. Marten.
- 14 *Syphilis of the Central Nervous System. C. T. Champion de Crespigny.
- 15 Exclusion of Tuberculosis in Diagnosis. F. C. Griffiths.
- 16 *Hysterectomy and Appendectomy in a Patient Twelve Years Old. W. Hoare.
- 17 Suggestions for Better Organization of the Profession. F. W. Harlin.
- 18 Value of Pituitary Extract. E. J. R. Holder.
- 19 Typhoid Bacillus-Carrier Detected in Connection with an Epidemic of Typhoid Fever. C. S. Willis.

14. Syphilis of the Central Nervous System.—DeCrespigny examined the cerebro-spinal fluid of 50 patients suffering from various forms of nervous disease, by means of the Ross and Jones reaction. The results of the investigation are as follows:

- (A) The reaction was positive in the following cases: (a) Parasymphylis: general paralysis, 6; tabes, 8. (b) Tertiary syphilis: cerebral syphilis, 5; syphilitic paraplegia, 1. (c) Probable cerebral syphilis, 2. (d) Non-syphilitic: tuberculous meningitis, 1; secondary carcinoma in vertebra, 1; lead encephalitis, 1.
- (B) The reaction was negative in the following: (a) Probable cerebral syphilis, 2. (b) Non-syphilitic: insanity, 4; vascular cere-

bral lesions, 4; traumatic concussion, 1; neurasthenia, 1; uremic hemiplegia without vascular lesion (verified at autopsy), 1; delirium due to pyemia, 1; idiopathic epilepsy, 2; paralysis agitans, 1; Mènière's syndrome, 1; hydrocephalus, 1; disseminated sclerosis, 2; idiopathic spastic paraplegia, 1; pernicious anemia with combined degeneration, 1; transverse myelitis (unknown cause), 1; syringomyelia, 1; plumbic peripheral neuritis, 1. DeCrespigny regards the test as being of considerable help in the diagnosis of obscure nervous affections.

He concludes: 1. Absence of reaction negatives the existence of general paralysis or tabes. 2. Its presence usually means syphilis of the central nervous system in the absence of tuberculous meningitis or malignancy. 3. Deeply situated cerebral syphilis does not necessarily produce the reaction. 4. Tuberculous meningitis may give the reaction even with a clear fluid. 5. The simplest explanation of the test seems to be as follows: Rapid degeneration of cells in the neighborhood of the cerebrospinal space sets free in the fluid a substance of the globulin class. In the absence of acute inflammation, syphilis, tubercle and cancer are the conditions most likely to cause this degeneration, and consequently to give rise to the reaction.

16. **Hysterectomy and Appendectomy.**—The patient, aged 11 years and 6 months, was abnormally developed. The mammae were well-formed; pubic hair, external genitals and general contour were those of a young woman. Menstruation, though free at first, was apparently normal; there were no clots and absolutely no pain. A fortnight after the first period she again menstruated and the flow continued for a fortnight. Treatment proving ineffective, it finally became necessary to remove the uterus, sections of which showed typical fibromyoma structure.

Journal of Obstetrics and Gynecology of the British Empire,
London

September

- 20 *Induction of Labor and Manual Dilatation of the Cervix Uteri. H. M. Little.
21 *Ovarian Pregnancy with Diffuse Intraperitoneal Hemorrhage. A. W. W. Lea.
22 Conservative Operations on the Internal Female Genital Organs. E. B. M. Haarblicher.

20. **Induction of Labor.**—Little says that the necessity for emergency measures in obstetrics varies inversely with the care given to the patient during pregnancy. Timely induction of labor will prevent many mishaps incident to the progress of most of the usual or unusual complications of pregnancy. Such induction is best accomplished by the modification of Krause's method—the use of the large soft bougie introduced with the aid of the stylet. Pelvic contraction is not to be considered as an indication for induction of labor. Prolongation of pregnancy, on the other hand, is more frequently an indication for its employment. The passage of the bougie and the introduction of the pack will usually bring on pains within a few hours, and the labor may be allowed to proceed, or it may be terminated artificially. When the cervical canal is obliterated its dilatation by Harris' method is usually easy and, when carefully done, is safe. The danger from hemorrhage and infection is slight; laceration of the cervix will occur frequently, and such laceration should be immediately repaired. Apart from the fact that the method can be employed without assistance other than the anesthetist and nurse, its advantages are its universality of application, its simplicity, the limitation of the force employed to the fingers of one hand, and, finally, the ability of the hand to recognize and estimate the resistance to be overcome.

21. **Ovarian Pregnancy.**—Lea reports a case of early rupture of an ovarian pregnancy causing symptoms of diffuse intraperitoneal hemorrhage.

Dublin Journal of Medical Science

September

- 23 Therapeutic Qualities of Calcium Permanganate. G. A. Stephens.
24 Mouth-Breathing. M. A. Dlenont.
25 Present Position of Tuberculin Therapy. W. Leggett.

Australian Medical Journal, Melbourne

August

- 26 Study of Monotremes and Marsupials to Determine Changes in the Structure of the Cecum and Its Vermiform Appendix. W. Stapley and W. MacKenzie.

- 27 Surgical Aspects of Dyspepsia. G. A. Syme.
28 *Medical Treatment of Cholelithiasis. A. V. M. Anderson.
29 *Medical Treatment of Pyloric Obstruction. J. F. Wilkinson.
30 Surgery of Gastric Ulcer. D. Shields.
31 "Indigestion" from a Surgical Standpoint. J. T. Mitchell.
32 Quinsy. T. K. Hamilton.
33 Fatal Cases of Hematemesis. W. E. Wilson.
34 Problems of the Milk Supply. S. S. Argyle.
35 *Abnormal Ribs as a Cause of Lumbar Pain. S. S. Argyle.

28. **Medical Treatment of Cholelithiasis.**—Anderson recommends the use of hexamethylenamin together with the other dietetic and hygienic measures in early cases of cholelithiasis, or in cases where the indications for operation are not urgent. If operation has to follow, the antiseptic action of the drug on the bile may be helpful in preventing septic complications.

29. **Treatment of Pyloric Obstruction.**—Wilkinson tries to show that, after all, surgical treatment of these patients has not yet been of a sufficiently satisfactory character to displace the older, carefully considered and adopted medical means.

35. **Abnormal Ribs as a Cause of Lumbar Pain.**—The patient, a man aged 45, complained of pain in the left renal region for some years. He was an amateur swimmer, and frequently noticed that after a swim the pain in the back was worse. There was no history of hematuria, albuminuria or pyuria. An examination of other negatives revealed to Argyle the presence of abnormal ribs in 6 cases out of 143 radiographic examinations of the renal region. An examination of these plates showed that in some cases the extra rib exists on one side only, while on others there are lumbar ribs on both sides. In all cases, the transverse processes of the first lumbar vertebrae are rudimentary in character, or rather resemble those of the dorsal vertebrae.

Archives des Maladies de l'App. Digestif, Paris

August, IV, No. 8, pp. 433-466

- 36 Roentgen-Ray Examination of Gastric Ulcers (Radioscopie des ulcères de l'estomac.) Cerni and Delaforge.
37 *Study of One Hundred and Four Cases of Cancer of the Esophagus and Cardia. L. Lamy.

37. **Cancer of the Esophagus and Cardia.**—In 78 of the 104 cases of cancer of the esophagus reported, progressive difficulty in swallowing was the first sign of trouble. There was no pain in 61 cases, but in 5 cases pain preceded the dysphagia by a few days and in 11 cases they came on together. In 29 cases there was no pain until a month or two after the difficulty in swallowing had developed. In 19 of the 40 cases with pain it occurred only while food was being swallowed; in the others it was continuous. Regurgitation was the rule; it was absent in only 17 of the total 104 cases. The appetite remained good in 70 per cent, and there was distaste for meat in only 4 cases. The cancer proved fatal in most cases between 6 and 12 months, but in a few, in from 2 to 4 months. In 7 cases the inability to swallow the food came on suddenly, the patients being apparently in perfect health; one was a man of 32. In 2 of these cases intense pain accompanied the sudden dysphagia, which in 1 case was accompanied by profuse salivation. In 8 cases the sudden difficulty in swallowing proved permanent and no solid food could be swallowed thereafter; in 2 other cases neither solids nor fluids could be swallowed. Cancer is differentiated from spasm of the esophagus by the rapid sequence of the disturbances, gastrostomy becoming necessary in from 1 to 4 months, while spasm of the esophagus may persist for years without requiring this. Copious salivation and mucous vomiting are aids in diagnosing. In one case a woman of 28 had an evident spasm of the esophagus but its persistence, notwithstanding great fluctuations, indicated an underlying organic lesion, confirmed by direct visual inspection and death 5 months after the first symptoms. In 6 cases the cancer did not prove fatal for from 1 to 2½ years. Twelve of the patients developed tuberculosis. The report issues from Mathieu's service at Paris.

Archives des Maladies du Cœur, etc., Paris

September, III, No. 8, pp. 529-576

- 38 Pathologic Changes in the Ganglion Cells of the Heart. L. Stimon.
39 Aneurysm at the Base of the Left Ventricle Coinciding with Subacute Parietal Endocarditis. J. Bret and C. Roubter.

Archives de Médecine des Enfants, Paris

September, XIII, No. 9, pp. 611-720

- 40 *Malaria in Children. J. P. Cardamatis.
- 41 Bacteriology of Noma. M. Bruer.
- 42 *Fatigue as Cause of Nocturnal Enuresis in Children. N. B. Nicoletopoulos.
- 43 Multiple Exostoses in Three Children. Le Pontois.
- 44 *Tenia Vana* in Children. J. Comby.

40. **Malaria in Children.**—A somewhat similar article by Cardamatis was abstracted in THE JOURNAL, Oct. 9, 1909, p. 1225. His further experience confirms the assumption that young children are immune to malaria, and that the parasites are unable to traverse the placenta. In 20 cases in which the mother's blood swarmed with them none was in the infant's blood. It seems evident that there is some antitoxic substance on the fetal side of the placenta which not only kills the hematozoa arriving from the maternal blood but confers immunity on the infant for a year or two. In 838 children with malaria, only 87 were under 2; the tertian form of malaria predominates among children as among adults in Greece, but all forms are encountered at various ages. In 1,287 cases fully 75 per cent. were of the chronic form. The spleen is not always much enlarged in the children, even with grave cachexia.

42. **Fatigue as Factor in Nocturnal Enuresis.**—In a number of cases encountered by Nicoletopoulos the enuresis was evidently the result of sleep so profound by the exhausted children that the desire to urinate did not awake them as under ordinary conditions. In the cases reported, a little care on the part of the parents and children to prevent over-fatigue speedily cured the tendency to enuresis.

Lyon Médical, Lyons

August 28, CIV, No. 35, pp. 317-356

- 45 Tuberculous Cavities in a Three-Months-Old Infant. Collet and Delachanal.
- 46 The Individual School Sanitary Record Book for the School Children at Lyons. (Le carnet sanitaire individuel.) C. Lesieur.

Pressé Médicale, Paris

September 3, XVIII, No. 71, pp. 665-672

- 47 Protracted Subacute Cerebrospinal Meningitis. (La méningite cérébrospinale prolongée à forme cachectisante.) R. Debré.

Semaine Médicale, Paris

September 7, XXV, No. 36, pp. 421-432

- 48 Evolution of Medicine from 1830 to 1870. R. Lépine.
- 49 *Cardiolysis in Treatment of Adhesive Pericarditis. J. L. Roux-Berger.

September 11, No. 37, pp. 433-444

- 50 *General Peritonitis from Unknown Cause. (Péritonites cryptogéniques.) R. De Bovis.

49. **Operative Treatment of Adhesive Pericarditis.**—Roux-Berger reviews the history and applications of cardiolysis or precordial thoracotomy as it is better entitled, stating that there are records now of over 28 cases in which this operation has been done, besides 2 from his own experience. In 21 cases the results were favorable, the improvement being evident even during the course of the operation in some of the patients. In 7 cases the operation failed to benefit, and study of these cases shows that the intervention is applicable only in the cases of actual adhesive mediastino-pericarditis, and only when the symptoms observed depend on the adhesion of the heart to the chest wall. Unless the myocardium is in good condition there is little prospect of much relief from the operation. This can be estimated by the strength and regularity of the pulse and by the influence on the disturbances in the circulation of rest in bed, dieting and heart stimulants. The persistence unmodified of dyspnea, cyanosis and edema, notwithstanding vigorous medical treatment, should contraindicate the operation as proving that it has little chance for success. His review embraces European literature only.

50. **General Peritonitis from an Unknown Cause.**—De Bovis comments on the way in which the field of idiopathic peritonitis is being reduced by discovery of previously unsuspected causes for peritonitis. With the exception of a few still unexplained cases, such as Cull's case of primary pneumococcus

peritonitis, it seems evident that peritonitis is always secondary to some lesion elsewhere, but it may be preceded by a general infection—most often due to the pneumococcus or streptococcus—or it may be secondary to some abdominal lesion. In the case of general infection a laparotomy is of doubtful utility. In any event, it should be restricted to simple evacuation of the pus. When the peritonitis is secondary to some abdominal lesion its gravity depends on the character of the latter. If migration of germs from the stomach into the gastrohepatic omentum has led to glandular suppuration, as in Dahlgren's case, it is evident that the peritonitis may be threatening and an early laparotomy is usually indicated. But if, on the other hand, some mild enteritis seems to be the cause of the diffuse peritonitis and the latter seems moderate, expectant treatment may be justified; Lennander advocates this. In case there is severe paralysis of the bowel, enterotomy may be applied with multiple Witzel's fistulas or lavage of the intestine. Monks successfully applied the latter in a streptococcus peritonitis, flushing the intestinal canal with a salt solution through multiple enterotomy openings. De Bovis reviews in detail the recent literature on this so-called idiopathic peritonitis.

Berliner klinische Wochenschrift

August 29, XLVII, No. 35, pp. 1609-1648

- 51 Ehrlich's "606" in Syphilis. (Kritische Bemerkungen zur Ehrlich-Hata-Behandlung.) A. Blaschko.
 - 52 Lipoid Substances in Blood and Urine in Tuberculosis. (Ueber den biologischen Nachweis lipoider Substanzen durch die Komplementbindungsmethode im Blut und Harn bei Tuberkulose und deren Bedeutung.) J. Citron and D. Klinkert.
 - 53 Biology of Tubercle Bacilli. III. H. Aronson.
 - 54 *Pathogenesis of Diarrhea in Exophthalmic Goiter and Diagnostic Importance of Ferment Content of Stools. R. Balint and B. Molnar.
 - 55 Two Cases of Hypernephroma. (Zwei Tumoren aus Nebennierenmarkgewebe.) S. Suzuki.
- September 5, No. 36, pp. 1649-1692
- 56 Stab Wound of Large Vessel. (2 Fälle von Stichverletzung grosser Gefässe.) S. Hadda.
 - 57 Theory and Practice in Tuberculin Treatment. (Ueber die Beziehungen zwischen der Theorie der Tuberkulinwirkung und der Tuberkulintherapie.) A. Wolf-Eisner.
 - 58 The Wassermann Reaction after Treatment of Syphilis with Ehrlich's "606." C. Lange.
 - 59 Laboratory and Clinical Research on the Wassermann Reaction. J. A. Finkelstein and W. J. Dawydow.
 - 60 Vaccine Therapy of Gonorrheal Complications. W. Friedländer and H. Reiter.
 - 61 Present Status of Cesarean Section. (Zur Kaiserschnittfrage.) E. Runge.

54. **Diagnostic Importance of Ferments in the Feces.**—Balint and Molnar conclude from their study of the diarrhea in exophthalmic goiter that it was not due to insufficiency of the external secretion of the pancreas. On the contrary, this secretion seemed to be unusually copious. The stool resembled that with pancreatic insufficiency but the large ferment content contradicted this assumption. The phenomena observed suggest that there is an overproduction of a peristaltic hormon in exophthalmic goiter which would explain the azotorrhea and steatorrhea with abundance of ferments. It seems plausible that the excessive functioning of the thyroid is responsible for this, especially as obstinate constipation seems to be the rule with myxedema. Further research showed that tests for the diastase in the stool are useful in diagnosis of cancerous obstruction of the outlet to the pancreas. In conclusion, they urge further study of the physiologic secretion of the pancreas which may throw light on many dark points in the pathology of the pancreas. It is better for this purpose to take the total diastase for the 24 hours as the standard.

Deutsche medizinische Wochenschrift, Berlin

September 8, XXXVI, No. 36, pp. 1641-1688

- 62 Indications for Pubiotomy. (Die Berechtigung der Pubiotomie.) P. Kroemer.
- 63 *Toxemia of Pregnancy. (Schwangerschaftstoxämie.) J. Hofbauer.
- 64 *Bronze Diabetes. W. O. Ridder.
- 65 Slight Clinical Value of Pinoff's Levulose Reaction in the Urine. F. Fleischer and K. Takeda.
- 66 Suffocation Leukocytosis. (Zur Erstickungsleukozytose.) P. Fraenckel and Hochstetler.
- 67 *Tuberculin in Treatment of 682 Patients with Open Pulmonary Tuberculous Lesions. E. Löwenstein.
- 68 *Normal Skiagraphs of the Heart. ("Normalaufnahmen" des Herzens und ihre klinische Bedeutung.) W. Bloch.

- 69 *Influence of Momburg Belt Constriction on the Heart and Circulation. J. Tornai.
- 70 Sterilizing Action of Tooth Pastes. (Desinfizierende Wirkung einiger gebräuchlicher Zahnpasten.) R. Bassenge and E. Sclander.
- 71 *Castor Oil Plant in Ancient Egypt. (Verwendung der Rizinus-pflanze in der Medizin der alten Aegypter.) G. A. Wätzold.

63. **Pregnancy Toxemia.**—Hofbauer has been studying the toxicity of the placenta by anaphylaxis reactions; the results show that there does not seem to be any great biologic difference between the albumin of the mother, of the fetus and of the placenta. At the same time the development of the fetus and its membranes reacts on the maternal organism in such a way that severe auto-intoxication may result. This is evident in the degenerative processes in the kidney and liver, liable even with a normal pregnancy; also a hyperplastic process occurs in the glands with an internal secretion. Eclampsia and pernicious vomiting are the extreme manifestations of the toxemia of pregnancy on which histologic and biochemical research have thrown much light and now point the way to prophylaxis and treatment.

64. **Bronze Diabetes.**—Ridder had opportunity to observe the development of bronze diabetes in a man of 35, four years after pigmentation on the extremities and slight edema of the legs with some physical depression. A year later, signs of liver disease became apparent and it was diagnosed as hypertrophic cirrhosis of the liver with brownish pigmentation of the skin; there was no diabetes or intolerance of sugar. This condition persisted for nearly 2 years when typical bronze diabetes developed and the patient died in 4 months. Ridder ascribes the bronze diabetes to injury of the liver cells from some unknown cause. The pancreas measured 19 by 3 by 2 cm. and was bronze colored and of a tough consistency.

67. **Tuberculin Treatment in Open Pulmonary Tuberculosis.**—Löwenstein states that 989 patients have been given specific treatment at Beelitz since the beginning of 1908 and that 682 received the Koch tuberculin alone. The tubercle bacilli vanished from the sputum in 57.94 per cent. of the 409 patients treated with old tuberculin; in 42.05 of the 204 treated with new tuberculin and in 55.07 per cent. of the 69 treated with both combined. This specific treatment was restricted to patients free from complicating affections and the old tuberculin was given the preference when a tendency to production of connective tissue was apparent and in the cases with recent destructive processes, the aim being to help the organism in throwing off dead tissue and walling off the lesions by a vigorous local reaction. The expectoration was promoted by inhalations, etc., to help in throwing off the infectious material; the local reaction, he states, is one of the most important curative factors in the response to tuberculin under these conditions. The new tuberculin was given the preference when it was necessary to avoid much of a local reaction, especially with extensive destructive processes with much breaking down of tissue. The patients were about equally divided among the various stages of the disease.

68. **"Normal" Skiagraphs.**—Bloch accepts as progress the system of standard radioscapy with the tube exactly 70 cm. from the body, on the median line, for Roentgen examination of the heart. This does not give the actual size of the heart, but it supplies a standard which is much more instructive for purposes of comparison. The exact measurements are facilitated by an L square, one arm on the median line and an adjustable arm pivoting about the center of the horizontal arm to outline the outer margin of the side of the heart, a graduated circle at the base of the pivoting arm indicating the number of degrees in the angle thus formed. As the skiagraphs are always taken under the same conditions they can be superposed for estimation of the progress under treatment in each case and for comparison with normal findings.

69. **Influence of Momburg Belt Constriction on the Circulation.**—Tornai has applied the Momburg technic in 20 cases, merely to study the effect on the heart and circulation. The subjects were mostly young and with normal circulation and nervous system or with well-compensated heart defects. In every case the number of systoles and the blood-pressure were notably increased by the procedure. As the constricting

belt was removed, the pulse grew weaker, in some cases becoming very weak and irregular. His experience suggests the necessity for careful examination of the functional capacity of the heart beforehand, testing it by the Katzenstein or other reliable method. Any suspicion of heart disease or arteriosclerosis, exophthalmic goiter, nephritis or plethora should contra-indicate the method. He tabulates the findings in one typical case as recorded at 10 intervals.

71. **The Castor-Oil Plant in Ancient Egypt.**—Wätzold gives some quotations from a recently published translation of the Berlin papyrus, showing the extensive use made of the ricinus in ancient Egyptian medicine. The crushed seeds seem to have been used for local application in headache and to cure baldness, and many references are to the purgative action of the oil. He adds that there are many of these ancient papyrus manuscripts awaiting translation in the Berlin museum, which are sure to contain much of interest to medical men. The one just published dates from fifteen centuries before Christ.

Jahrbuch für Kinderheilkunde, Berlin

September, LXXII, No. 3, pp. 243-372

- 72 *Suppuration in Infants' Urinary Tract. (Ueber die eitrigen Erkrankungen der Nieren und Harnwege im Säuglingsalter.) H. Thiemich.
- 73 Antibodies for Diphtheria Toxin in Human Serum. (Gehalt des menschlichen Serums an Schutzkörpern gegen Diphtherietoxin.) M. Karasawa and B. Schick.
- 74 The Ferments and the Absorption of Fat in Infants. (Fermementuntersuchungen und Fettresorption beim Säugling.) E. Hoffmann.
- 75 Congenital Stenosis of the Pylorus in Infants from Disturbances in Development of the Gastro-Intestinal Tract. F. Toporski.
- 76 *Study of the Heart Functioning in a Case of Extrathoracic Heart. (Untersuchungen über die Herzfunktion an einem Fall von Ectopia cordis congenita.) M. Pekar and E. Tezner.
- 77 The Nourishment for and Weight of Nursing Women. (Gewichtsbestimmungen während einer Stillperiode nebst Bemerkungen über Nahrungsmittel für Stillende.) M. Weissbart.
- 78 Prognosis and Symptomatology of Inherited Syphilis in Infants. (Hereditäre Lues im Säuglingsalter.) L. Heine.

72. **Suppurative Processes in Kidneys and Urinary Passages in Infants.**—Thiemich has encountered a number of cases of suppuration in the urinary apparatus in young infants. The trouble was a pyelocystitis and generally of hematogenic origin. Pyelocystitis seems to be of a milder nature than pyelonephritis in infants; the latter, in his experience, occurred only in very ill infants with very low vitality. The urine does not accumulate in the infant's tiny kidney pelvis to such an extent as in adults, and the passage can be effectually flushed by artificially induced diuresis. But this, even with antiseptics, does not seem to influence materially a pyelonephritis as the urine does not flush the foci in the kidney tissue. As they do not tend to confluence but rather to spontaneous healing by absorption, not much benefit can be anticipated from surgical measures, especially in view of the difficulty in diagnosing multiple abscesses in the infant kidney and the depressed state of the child thus affected, even apart from its kidney trouble. Treatment therefore should be directed to the underlying cause. If this succeeds, and dietetic measures here are the main reliance, then the pyelonephritis may be likewise arrested and even heal. In one of his two cases of the kind the child succumbed to the progress of its dyspeptic disturbances which it proved impossible to check; necropsy showed well-advanced healing processes in the kidneys. In the other case the child was restored to health on breast milk and the urine findings showed the progress to a complete cure. The child's illness lasted for several months but seemed to be closely and exclusively connected with the kind and success of the dietetic measures, the influence of the urinary affection being scarcely perceptible. In several of his cases there seemed to be some connection between the exudative diathesis and the urinary disease. The possibility that the healed pyelonephritis or persisting latent bacteriuria may cause trouble in later life must not be forgotten; this may be the source of pyelitis in adults in some cases. His necropsy findings indicate that the kidney becomes infected by the creeping up of an infectious process in the urethra in girls, but in boys the infection is probably by way of the blood. He reports the details of 5 cases in male and 3 in female infants with 3 other cases

in female infants who had died from pneumonia and necropsy unexpectedly revealed a suppurative process in the kidneys—the multiple abscesses were as extensive in this latter group as in any of the others.

76. Heart Functioning with Extrathoracic Heart.—The heart was entirely outside of the body and presented a rare opportunity for study of the functioning of its various parts, the apex lying outside on the left hypogastrium. The third day after birth fibrinous pericarditis developed, proving fatal on the sixth day. The right auricle continued to beat rhythmically for 5 minutes and irregularly for 15 minutes longer after the death of the rest of the heart. The electrocardiograms and other findings are reported and discussed. Once during the first day of life the heart stopped beating in consequence of being accidentally hit, but resumed its regular action after 2 minutes of direct massage.

Medizinische Klinik, Berlin

September 11, VI, No. 37, pp. 1133-1170

- 79 Present Status of the Trachoma Question. K. Stargardt.
- 80 Recognition of Mental Weakness, especially in Recruits. (Zur Erkennung des Schwachsinn durch Truppe und Arzt.) Weyert.
- 81 Two Epidemics of Influenza in Infants. (Influenza bei Säuglingen.) S. Weiss.
- 82 *The Tuberculin Focal Reaction. (Zur Tuberculin-Herdreaktion.) G. Wolfsohn.
- 83 Wassermann Reaction among the Inmates of Asylums for Feeble-Minded. (Verbreitung der Syphilis in den Schwachsinnigenanstalten Württembergs auf Grund von Blutuntersuchungen mittels der Wassermannschen Methode.) R. Körner.
- 84 Indications for Interrupting Pregnancy on account of Tuberculosis. (Zur Unterbrechung der Schwangerschaft bei der Tuberkulose.) S. Kämmer.
- 85 Dispensing with Plate and Film in Skiagraphy. (Röntgenaufnahmen auf Bromsilberpapier.) W. Katz.
- 86 A Plea for Manual Massage. (Die unbewaffnete Hand des Arztes.) A. Bum.
- 87 *Responses to Question Blank Sent to Physicians Using Ehrlich's "606" in Syphilis. (Umfrage über die Wirkung des Ehrlich'schen Arsensubstanz bei Syphilis.)
- 88 Tubercle Bacilli in Cutaneous Lesions. (Ueber Tuberkelbazillennachweis bei Hauterkrankungen.) W. Lier.

82. The Tuberculin Focal Reaction.—Wolfsohn regards as the greatest advance in tuberculin treatment the recent tendency to avoid any reaction, either local or general, but he thinks that much further progress may be realized if internists and surgeons will work together in cases of surgical tuberculosis under tuberculin treatment. In the surgical affections, under direct inspection the focal reaction to the tuberculin may afford most instructive information which will apply to the lungs. As a typical instance he reports the case of a woman of 34 with multiple tuberculous abscesses in the left breast and the sear of a tuberculous hip-joint affection which had healed 22 years before. The abscesses were evacuated and a course of tuberculin instituted under which the breast process rapidly healed, but the old hip-joint process flared up again. He regards the breaking out anew of the old coxitis as a specific focal reaction to the tuberculin in the strictest sense of the term. The tuberculin had been given in minutest doses for two months and was suspended at the first signs of redness in the old hip sear. The case shows that a clinically latent focus may respond to tuberculin and may progress even on suspension of the tuberculin. Such an occurrence in the lung could not be so readily controlled as with an accessible surgical lesion, as in this case. It is not impossible, he concludes, that the tuberculin treatment may fan an old latent apical process into a flame, and this focal reaction in the lung might terminate fatally. In his case the promptly favorable influence on the breast affection was remarkable, suggesting a local fluctuation in the defensive processes in favor of recent lesions.

87. Symposium on "606" in Syphilis.—The second of the 10 questions asked in the question blank sent out by the *Medizinische Klinik* is in regard to by-effects, and 7 of the 9 writers report occasional higher temperature and local pains as the only by-effects observed. But from Klingmüller's clinic at Kiel and by F. Pinkus of Berlin are reported 1 case of gangrene, 3 of local necrosis, 2 of abscesses, 3 of toxic erythema, 1 of detrusor paralysis, 1 of tenesmus and a case in which pre-existing diabetes became aggravated and still persists thus to date.

Münchener medizinische Wochenschrift

September 6, LVII, No. 36, pp. 1865-1920

- 89 *Experiences with Surgery of Blood-Vessels and Transplantation of Organs. E. Enderlen and W. Borst.
- 90 *Therapeutic Puncture of the Brain in Chronic Hydrocephalus. R. W. Finkelnburg.
- 91 Technic for Mixed General Anesthesia. (Ein Verfahren zur Stickoxydulsauerstoffnarkose.) M. Neu.
- 92 Roentgen-Ray Diagnosis of Miliary Pulmonary Tuberculosis. (Röntgendiagnose der miliären Lungentuberkulose.) W. Abels.
- 93 Action of Ehrlich's "606" on Psoriasis and Lichen. (Wirkung des Ehrlich'schen Arsensubstanz auf Psoriasis und Lichen ruber planus.) K. Schwabe.
- 94 Coagulation Time of Blood in Pregnancy. (Ueber Blutgerinnungszeit in der Schwangerschaft.) P. Mathes.
- 95 General Amyloid Degeneration in Japan. V. Tanaka.
- 96 *Technic for Artificially Induced Pneumothorax. (Zur Technik der Kompressionsbehandlung bei Lungentuberkulose.) J. Holmgren.
- 97 Industrial Accidents to the Hands. (Ueber Maschinenverletzungen der Hand.) E. Schümann.
- 98 *Peritonitis from Local Drug Irritation in Gonorrhoea in a Male. H. Bodenstern.
- 99 Study of the Pulse during Physical Labor. (Plethysmographische Untersuchungen bei körperlicher Arbeit.) E. Weber.
- 100 *Diagnosis of Pulmonary Tuberculosis. (Kritische Beiträge zur Diagnose der Lungentuberkulose.) F. Köhler.

89. Surgery of the Blood Vessels and Transplantation of Organs.—The extensive work reported by Enderlin and Borst confirms the importance of biochemical individual conditions. These are sufficient to interfere with the success of homoplastic transplantation of organs. Only those of autoplasmic origin promise complete success. He doubts whether it will ever be possible to overcome this difficulty of the biochemical individual peculiarities in transplanting organs.

90. Therapeutic Puncture of the Brain.—Finkelnburg reports a case of chronic hydrocephalus in a youth of 16, evidently the result of a trauma of the head 6 years before. The symptoms indicated progressive compression of the brain, some of them suggesting a tumor in the cerebellum, especially the pain in the back of the head, the stumbling gait, deafness, etc.; the pulse was only 56, the pupil reflex was sluggish, the eyes protruding, with extreme choked disc and nystagmus. The brain was punctured near the left motor centers to a depth of 5 cm., and about 20 c.c. of fluid was released under high pressure. The headache and vomiting subsided and the patient was able to walk without support and by the sixth day the choked disc was much less pronounced, while the hearing also had improved. Improvement continued to progress so rapidly that no further operation was attempted and the young man is now, 3 years after the operation, apparently well with a suspicion of nystagmus and slight exaggeration of the knee-jerk as the only traces of his former trouble. The necropsy in another case, the patient dying before puncture of the brain had been heard of, showed the feasibility of operative treatment in these cases. The only explanation of the rapid improvement after release of such a small amount of fluid is that the accumulated fluid by its compression had induced a kind of valve-like closure of the opening between the skull and the spinal canal.

96. Technic for Artificially Inducing Pneumothorax.—Holmgren states that it is possible to apply this method of treatment of unilateral pulmonary tuberculosis even in cases in which the adhesions between the sheets of pleura apparently contra-indicate it. This can be accomplished by injecting physiologic salt solution under pressure sufficient to detach the adhesions and spread apart the walls of the pleural sac. Without removing the needle it is then connected with the tank of gas which can then be injected without further difficulty to make the therapeutic pneumothorax.

98. Peritonitis with Gonorrhoea.—Bodenstern explains the peritonitis in the case reported as due to chemical irritation from the silver nitrate solution injected so high as to reach the seminal vesicles and thence the peritoneum.

100. Diagnosis of Pulmonary Tuberculosis. Köhler is in charge of a large sanatorium for pulmonary disease and his experience has shown that the tendency is to diagnose tuberculosis in many cases in which it does not exist. He warns that nervous-toxic processes, in combination with a special excitability of the heat center, play an important part in the reaction to the tuberculin test. They may induce a positive reaction even in the non-tuberculous. He obtained a positive reaction in 21.7 per cent. of numerous patients given a sup-

posed injection of tuberculin when either nothing was injected or merely sterilized water. The reaction to this sham tuberculin test could not be distinguished from the ordinary positive reaction. Lorenz has reported similar findings; he ascribes them to a neurasthenic or hysterical tendency. Elliesen has also reported recently positive reactions with chlorosis and once, in a case of Werlhof's disease, the intense tuberculin reaction and slight physical anomalies in the lungs indicated tuberculosis but not a trace of it could be detected at necropsy. Neumann and others have obtained a positive reaction in syphilis alone, others in actinomycosis, carcinoma and leprosy, and A. Fränkel obtained an unusually large proportion of positive reactions with patients with various diseases. However, when a positive reaction is obtained with minute doses, up to a maximum of 1 or 2 mg., the presumption is in favor of tuberculosis. In industrial accidents the shock to the whole nervous system may promote a positive reaction in the absence of tuberculosis. In one such case 4 test injections of 0.2 up to 1.5 mg. elicited an intense positive response each time, but the lung findings were normal and the course of the case confirmed the absence of tuberculosis. In another case the trauma had lacerated the lung and aggravated an existing tuberculosis process, but repeated tuberculin tests up to 8 mg. were negative. A positive response to the tuberculin test merely indicates that the heat-forming apparatus is unusually excitable, and this is peculiarly marked in the tuberculous, but it does not follow that every one with excitability of this apparatus is necessarily tuberculous. He has also observed numerous cases in which the symptoms of the tuberculosis persisted unmodified although there was no apparent response to tuberculin. New foci may develop even in the course of tuberculin treatment and without disturbing the sensitiveness to the tuberculin. Even more important than the physical signs and the tuberculin reaction, is a tendency to loss of weight or increasing anemia. Köhler warns further that not every deviation from normal in the auscultation findings is necessarily of tuberculous origin. The changes with mouth breathing or dropping back of the tongue or as the patient swallows must not be ascribed to tuberculosis. Repeated examination on different days will disclose the inconstancy of the findings from these causes. Accumulation of fat in the corpulent may induce a pseudocrepitation over the apices. Even constant râles may be induced by a chronic streptococcus process as he cites by several examples, necropsy demonstrating the absence of all traces of tuberculosis, even in one case in which there had been repeated hemoptysis. It was explained finally as hemosiderosis from destruction of blood corpuscles from pernicious anemia. Everything in this case had pointed to pulmonary tuberculosis and the necropsy findings were a great surprise as there had been nothing to suggest the necessity for examination of the blood. With a tuberculous process in the lower lobe the patients may keep well nourished; he has had a case of this kind under observation for 6 years. This patient, now 21, could not stand tuberculin treatment as he reacted with high fever to the smallest doses, but his general health is still good, although he has 2 or 3 moderate hemorrhages every year. Köhler emphasizes that the physical findings merely indicate the physical condition of the lung but not the underlying cause of the changes observed, whether old or recent or whether due to the pneumococcus, streptococcus, or tubercle bacillus. The predominantly central tuberculous processes are more frequent, he declares, than is generally recognized. Enlargement of the glands in the neck is an important aid in diagnosis, as also the subjective disturbances, particularly a continuous sense of fatigue. One is tempted to ascribe such merely to a neurasthenic origin when in fact some concrete organic cause is responsible for it.

Therapeutische Monatshefte, Berlin

September, XXIV, No. 9, pp. 461-516

- 101 *Heart Disease. (Zur Beurteilung von Herzstörungen, und ihre Behandlung.) A. Plehn.
 102 *The Lung Suction Mask and Its Therapeutic Application in Pulmonary Disease, Anemia, Asthma, Weak Heart Action and Insomnia. (Die Anwendung der Lungen-Saug-Maske.) E. Kuhn. Commenced in No. 8.
 103 Serotherapy of Epidemic Meningitis. (Die Serumtherapie bei Genickstarre.) F. Goppert.

101. Heart Disturbances.—Plehn calls attention in particular to the disturbances ascribed to the heart when its outlines are normal in every respect and a dozen knee-bending exercises do not make the patient breathe much faster and, although the pulse may increase by 10 or 20 beats, yet there is no shortness of breath. These findings exclude actual organic disease, and for all forms of heart disease determination of the shape and size of the different parts of the organ is of primal importance; this alone, he declares, permits correct interpretation of the auscultation findings. It must be borne in mind, however, that the compensating dilatation and hypertrophy after an endocarditic process take some time to develop so that during or after acute articular rheumatism a systolic murmur and weak heart action require extreme caution and strict bed rest until normal heart action is restored. The biologic relations between the innervation and the muscles are particularly close in the heart, he continues, and the action of toxins, tobacco and alcohol, of the toxins generated in exophthalmic goiter, and of emotions is the main factor in heart disturbances without enlargement of the organ. The reflex heart neuroses proceed from the gastrointestinal or genital sphere, either directly or from emotional depression. The connection between the heart and the stomach is closer than is generally recognized, he states. Acute pericarditis, for example, is usually accompanied by violent gastric symptoms and dilatation of the stomach by serious symptoms on the part of the heart. A mild pericarditis is a frequent occurrence and may pass unsuspected unless the physician examines the heart when he will find the dulness extending a little farther than usual and sharply defined while careful percussion will reveal that the heart-liver angle can no longer be detected. With an exclusively nervous heart disturbance, angioneurotic edema of the ankles is common; mechanical disturbances in the peripheral circulation occur comparatively late and only after such have developed in the liver, kidneys and lungs. If there are no signs of this or of organic changes in the heart, moderate edema need not be regarded with pessimism. He treats acute articular rheumatism so perseveringly with the salicylates that endocarditis rarely develops among his patients, and he suggests prompt salicylic medication to be resumed again with every infectious sore throat in persons who at any time have displayed a tendency to endocarditis during acute rheumatism or other infection. Energetic salicylic medication may ward off endocarditis and valvular defects even after pericarditis or myocarditis is already installed. He adds that any one who has ever had acute rheumatism should guard carefully against getting chilled or wet through and against over-exertion. An extra-hygienic life should be followed by persons with a family tendency to arteriosclerosis, apoplexy, obesity, diabetes or gout, and the obese should bring their weight down before the heart has suffered severely. At the same time he warns that too severe restrictions are liable to bring on hypochondria which may react unfavorably on the organic trouble.

102. Mask to Induce Passive Hyperemia in the Lungs.—Over four years have now elapsed since Kuhn introduced his "lung suction mask" to induce passive congestion in the lungs by obstructing respiration. He here reviews his own and others' experiences, all confirming the absolute harmlessness of the measure and its efficient action in impeding the inspiration, which is nasal, while expiration proceeds unobstructed both by mouth and nose. As Tileston explained, in THE JOURNAL, April 11, 1908, page 1182:

The effect of impeded inspiration is to produce negative pressure in the thorax, lasting almost throughout inspiration; the inspiratory muscles are brought into strong contraction, inspiration is prolonged, and the rate of respiration is lowered. The most important effect, however, is the marked aspiration of blood from the right side of the heart into the lungs, due to the prolonged negative pressure. The lungs are, therefore, supplied with an increased amount of blood. Moreover, since expiration is not obstructed, it will be short, and the blood will not have time to escape entirely to the left side of the heart. Thus, after wearing the mask for a while, a considerable degree of congestion is obtained, as has been proved by animal experimentation. This hyperemia differs, of course, from the passive congestion of heart disease, in that there is no obstruction to the pulmonary circulation. The increased amount of blood in the lungs is of the greatest benefit, for it is conceded that it is the relatively poor supply of blood or lymph to the apices which predisposes those parts to tuberculosis.

Not only is the blood aspirated into the lungs but the circulation of the lymph also is materially promoted; other methods of inducing passive hyperemia in vogue check the lymph current. The promoted circulation of lymph and blood induces rapid absorption of effusions while toning up the tissues in every way. Another advantage Kuhn claims for the method is that as the number of inspirations becomes reduced, the lungs are correspondingly rested; the respiration is exclusively costal but the diaphragm is sucked upward by the prolonged negative pressure above and thus the space for the lungs is even less than with ordinary unobstructed breathing, as he shows by a number of illustrations and skiagraphs. The ribs expand mightily, Kuhn states, and this in time has naturally a most beneficial influence on tuberculous lesions in the lungs. At the same time the blood-producing apparatus feels the effect of the lower oxygen tension and responds as it does to the air of high altitudes, the number of red cells in the peripheral circulation becoming permanently increased. He insists that no other measure has yet been discovered that proves so effectual in promoting blood-production as this simple partial obstruction of the respiration. On account of the negative pressure in the chest, the blood pours more abundantly through the heart and the myocardium becomes better nourished and works more effectually, as can be traced by the auscultation and other findings. Zabel has reported great benefit in two cases of severe cardiac defects and others in pericarditis, bronchial asthma, emphysema, pleurisy, bronchitis, anemia and hemoptysis. Cough and dyspnea are allayed, râles, expectoration and bacilli subside in the tuberculous, the complexion and appetite improve, and a gain in weight naturally follows. Except for a slight feeling of oppression in the head for the first day or so, there are no by-effects, Kuhn says, unless the muscles of the chest may ache a little at first from the unwonted exercise. An interesting effect of the impeded respiration is the drowsiness that ensues. Dogs drop promptly to sleep even when suspended in uncomfortable positions, and patients wearing Kuhn's mask lie drowsy most of the time, so that it is proving excellent in combating insomnia. When the dogs with the mask are roused from sleep they are lively at once, which demonstrates that the drowsiness can not be due to carbon-dioxid intoxication; it is evidently the result of the aspiration of blood away from the brain plus the diminished oxygen tension in the respiration center. The respiration is sometimes reduced to 7 or even 6 inspirations a minute in animals under the influence of the mask. The mask is a celluloid cap tied over the nose and mouth, with an adjustable arrangement shutting off more or less of the intake of air to the nose while valves permit its free outward escape. The application of this method of inducing passive hyperemia does not conflict with any other measures that may be applied, but for permanent benefit it is evident that it must be used for many months to modify the conditions in the chest permanently. The only contra-indication, he says, is a very weak heart, and even with this the mask is useful, but it should be applied only for brief periods at a time. In conclusion we quote again from Tileston who states that he found an extraordinarily low percentage of pulmonary tuberculosis in 128 cases of mitral stenosis and in no case was there any evidence of active tuberculosis. This relative immunity is due, he thinks, to the passive hyperemia of the lungs consequent on the mitral lesion.

Wiener klinische Wochenschrift, Vienna

September 8, XXIII, No. 36, pp. 1279-1306

104 Ehrlich's "606" and Enesol in Treatment of Malaria. (Behandlung der Malariainfektion mit Enesol "Clin" and Ehrlich's Dioxidiaminoarsenobenzol.) R. Fleckseder.

105 Case of Paratyphoid A Infection. P. Purjesz.

106 *Sensitization to Light as Factor in Pellagra. W. Hausmann.

107 *Experiences with Operations on the Neck. (Die Krankheiten des Halses.) K. Ewald. Commenced in No. 35.

106. Etiology of Pellagra.—Hausmann has been conducting extensive research on the sensitizing action of hematorporphyrin, a product of the decomposition of hemoglobin, seen in the urine after destruction of red-blood corpuscles. The phenomena observed seem to prove that it has a sensitizing action so that exposure to the light afterward induces various

pathologic changes. He is convinced that this sensitization plays an important part in the production of pellagra, and quotes certain other writers whose recent research has led to the same conclusion.

107. Operations on the Neck.—Ewald reviews the experiences in this line at the Sophia Hospital at Vienna since 1902. The list includes 96 operations on the thyroid, for exophthalmic goiter in 7 and carcinoma in 3. Only 23 of these patients were males, pregnancy being probably responsible for enlargement of the goiter in many instances. In some cases the enlargement occurred suddenly, threatening suffocation, and being probably the result of hemorrhages in the gland. It seems evident that the thyroid may become enlarged under nervous influences alone. In 65 cases he operated under local anesthesia, but this has so many disadvantages that now he always gives a sedative beforehand. There was some fever during healing in all but 4 cases, but no tetany in any instance and severe postoperative pneumonia appeared in only 2 cases; the sputum was hemorrhagic in these cases, suggesting an embolic focus. Three of the patients succumbed soon after the operation on the thyroid; one was a young man, a semi-imbecile, with persisting thymus and enlargement of the lymph follicles, especially at the base of the tongue. This hypoplasia of the organism seems to reduce the resisting powers. The general anesthesia was not responsible for the fatality in this case as was shown by the second fatality in which the operation had been done under cocaine local anesthesia. This patient was a woman of 62, with goiter for 15 years, rapidly increasing in size towards the last, with a suspicion of malignancy. She seemed to be doing well during the night after the operation and the next morning breathing was superficial but not labored and there was no trace of dyspnea. An hour later she died suddenly without stridor, and necropsy disclosed unsuspected edema of the glottis. Only laryngoscopy would have revealed the trouble and nothing was observed to suggest the necessity for this. In the third case, a man of 50 required both cocaine and chloroform and roused from the anesthesia with left hemiplegia; he soon became unconscious and died the third day; necropsy revealed 2 foci of acute leptomeningitis but nothing to connect it or the fatality with the operation. Ewald discusses the ultimate cosmetic outcome of the various operations on the neck, 72 of the patients being examined several years later. The goiter recurred in 20 cases, and in 7 a second operation was necessary. The ultimate outcome in exophthalmic goiter was disappointing in all but one case. In 10 other cases the operation was required for acute inflammation in the thyroid, without preceding goiter in 5 cases. In the 6 cases of torticollis good results were obtained although no attempt at systematic after-treatment was made, the patients being merely instructed to exercise the neck muscles after the contracting fibers had been severed. Only a few patients with enlarged tuberculous glands were operated on, as he does not approve of opening up a lymphoma unless it has persisted for years unmodified, isolated and never softening. Under other conditions an operation is liable to be followed by recurrence, while the opening up of the lesion exposes it to secondary infection. So long as the glands are growing in size, general hygienic measures alone are applied, the patients tranquilized, and when the glands enter a quiescent stage, they are generally so small that their removal is no longer desired. If the gland softens and the inflammation compels interference, he cruettes out the cheesy masses, avoiding sound tissue, believing that as the disease is not local but general, it is impossible to eradicate it by removal of even all the infected glands.

Zentralblatt für Chirurgie, Leipzig

September 10, XXXVII, No. 37, pp. 1217-1238

108 *Subcutaneous and Intravenous Nourishing Infusion of Sugar. (Ernährung mit Traubenzucker nach Kausch.) J. Berendes.

108. Alimentary Infusion of Sugar Solution.—Berendes reports the experiences in 40 cases in which the patients were nourished by subcutaneous or intravenous infusion of a 5 or 7.5 per cent. solution of grape sugar in 0.9 per cent. salt solution. This represents from 200 to 300 calories to the

liter. The infusion causes no more pain or inconveniences than saline infusion, and seemed to be free from any by-effects. There was no glycosuria unless the infusion was repeated for several days in succession and then it was slight. The temperature was not affected except in 2 cases in which there was a chill and the temperature rose to 39.5 and 40 C. after the intravenous infusion of 1 liter of an 8 per cent. solution of grape sugar; in both these cases a little adrenalin had been added to the fluid. The sugar thus introduced is evidently oxidized in the body, and it is thus possible to supply a considerable amount of nourishment in this way.

Zentralblatt für Gynäkologie, Leipsic

September 10, XXXI, No. 37, pp. 1209-1232

- 109 Cesarean Section in the Flank. (Zur Kritik und Anatomie eines nach Solms operierten Falles von Flankenkaiserschnitt.) W. Liepmann.
110 Drainage of the Abdominal Cavity. (Zur Technik der Drainage der Bauchhöhle.) J. Fabricius.

Gazzetta degli Ospedali e delle Cliniche, Milan

September 1, XXXI, No. 105, pp. 1105-1112

- 111 Advantages of Carbon Dioxid Snow for Local Anesthesia. (La neve carbonica in sostituzione del cloruro di etile nell'anestesia locale.) G. Malan.
September 4, No. 106, pp. 1113-1128
112 *Congestion and Hemorrhages in the Viscera in Influenza. (Contributo alla conoscenza delle congestioni ed emorragie viscerali influenzali.) G. Ghedini.

112. Congestion and Visceral Hemorrhages in Influenza.—Ghedini gives a long list of records of various forms of congestion and visceral hemorrhages observed by numerous authors, all due to influenza, and then reports a case in which the influenza bacillus was cultivated from the blood and was evidently responsible for the swelling, congestion and hemorrhagic tendency in the lungs, stomach, intestines, liver, spleen and kidneys. The patient was a young man and the severe syndrome ran its course to apparently complete recovery in less than a month.

Riforma Medica, Naples

August 28, XXV, No. 35, pp. 953-980

- 113 Recurrence of Kala-Azar in the Spring. (Intorno alla recidiva primaverile dei casi di Kala-azar.) U. Gabbi.
114 *Experiences with Nephrectomy. (Casi della nefrectomia.) P. Federici.
115 Acute Yellow Atrophy in Secondary Syphilis. (Ittero grave con esito in atrofia giallo-acuta del fegato nella sifilide secondaria.) G. Antonelli.
116 *Amputation of the Breast by Tansini's Technique. (Una nuova indicazione del processo Tansini per l'amputazione della mammella.) G. Cignozzi.
September 5, No. 36, pp. 981-1008
117 Study of the Physiology and Pathology of the Stomach. (Gastropatie dinamiche ed organiche.) G. Rummo.
118 Hepato-choleangio-enterostomy. D. Taddel.
119 Anaerobic Germs in Suppurative Processes. V. Gaudiani.

114. Nephrectomy.—Federici states that Tansini has lost only one out of 51 patients on whom he has done nephrectomy, and this fatality was in 1895. In his last 4 cases the kidney was removed on account of tuberculosis, concretions or deformity. The results were good in each case. He does not lay much stress on the findings of the functional tests, although he never fails to apply them. One factor in his success is his method of clamping the hilus after exposing the kidney by an incision parallel to the ribs, resecting if necessary the twelfth and eleventh ribs. Clamping the hilus permits the rapid mobilization of the rest of the organ, so that the whole operation is complete in a few minutes as no time is wasted in ligating the vessels separately.

116. Amputation of the Breast for Tuberculosis.—Cignozzi reports a case in which he removed the breast and axillary glands for an extensive tuberculous process, and covered the defect left by a large flap drawn around from the back, according to Tansini's method. The results were unusually good, the patient being able to use the arm and shoulder even after 2 weeks, and in 45 days, under iodid treatment, she was dismissed apparently cured.

Hospitalstidende, Copenhagen

August 3, LIII, No. 31, pp. 905-928

- 120 *Long Survival of Cholera Germs in Sea Water. (Undersøgelser over Koleravibrionernes Levedygtighed i Havvand.) K. A. Jacobsen.
121 Serotherapy of Tetanus. C. Hansted.

August 10, No. 32, pp. 929-952

- 122 Localization of Tuberculous Processes in the Lungs. (Hvilken Lunge angribes fortrinsvis af Tuberkulose?) N. J. Strandgaard.

August 17, No. 33, pp. 953-984

- 123 The Wassermann Reaction in Leprosy. (Undersøgelser over Komplementbinding med Serum af Spedalske.) O. Theisen and S. Bjarnhjedimsson.

120. Viability of Cholera Germs in Salt Water.—Jacobsen writes from the Serum Institute at Copenhagen to relate the results of tests to determine how long cholera germs will survive in salt water in ship ballast tanks and also in tanks after they have been thoroughly rinsed out with sea water and filled anew with non-contaminated water. The vibrios were found alive in some of the tests up to 47 days, showing the danger from this source if a ship, for instance, fills its tanks with harbor water at St. Petersburg and reaches its destination in less than this number of days. The tests further showed that flushing the tanks with fresh sea water is not sufficient to free them from cholera germs lurking in the slime and crevices. The last epidemic of cholera in Holland and Belgium, he states, was traced to infected water taken from the river at St. Petersburg and brought in the ballast tanks to the other countries. The tests made during the summer showed a comparatively brief survival of the germs, from 7 to 17 days, the presence of other microbes, more prevalent during the summer, probably checking the growth of the vibrios.

Ugeskrift for Læger, Copenhagen

September 8, LXXII, No. 36, pp. 1069-1098

- 124 Diagnosis of Enlargement of Bronchial Glands. (Bronkialglandelsvulst.) H. J. Bing

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

MOTHERHOOD. A Manual on the Management of Pregnancy, the Preparation for and Conduct of Labor and the Principles and Methods of Infant Feeding up to the Third Year of the Child's Life. Prepared especially for Mothers, Nurses and Students of Medicine. By Hudson D. Bishop, M.D., Visiting Obstetrician to the Maternity Hospital, Cleveland, Ohio. Price, \$1.50 net. Pp. 244. Cleveland: Rose Publishing Co., 1910.

GENESIS. A Manual for the Instruction of Children in Matters Sexual, for the Use of Parents, Teachers, Physicians and Ministers. By B. S. Talney, M.D., Former Pathologist to the Mothers' and Babies' Hospital and Gynecologist to the Yorkville Hospital, New York. Price, \$1.50. Pp. 194. New York: The Practitioners' Publishing Co. (1910).

THE PRACTICE OF MEDICINE. A Guide to the Nature, Discrimination and Management of Disease. By A. O. J. Kelly, M.D., Assistant Professor of Medicine in the University of Pennsylvania and Assistant Physician to the University Hospital, Philadelphia. Cloth. Price, \$4.75 net. Pp. 945, with illustrations. Philadelphia: Lea & Febiger, 1910.

TRANSACTIONS OF THE THIRTY-SECOND ANNUAL MEETING OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION. Held at Washington, D. C., May 3, 4 and 5, 1910. Cloth. Pp. 277, with illustrations. New York: American Laryngological Association [James E. Newcomb, Secretary, 118 West Sixty-ninth Street], 1910.

A TREATISE ON DISEASES OF THE EYE. By John E. Weeks, M.D., Professor of Ophthalmology in the University and Bellevue Hospital Medical College (Medical Department of New York University). Cloth. Price, \$6 net. Pp. 944, with 553 illustrations. Philadelphia: Lea and Febiger, 1910.

FIFTH ANNUAL REPORT OF THE ASSOCIATED COMMITTEES OF THE MASSACHUSETTS MEDICAL SOCIETY FOR THE PREVENTION AND CONTROL OF TUBERCULOSIS. John B. Hawes, Corresponding Secretary, 3 Joy Street, Boston. Paper. Pp. 46. September, 1910.

BIOLOGY, GENERAL AND MEDICAL. By Joseph McFarland, M.D., Professor of Pathology and Bacteriology, Medical College of Philadelphia. Price, \$1.75 net. Pp. 440, with 160 illustrations. Philadelphia: W. B. Saunders Co., 1910.

PROCEEDINGS OF THE NATIONAL CONFERENCE OF CHARITIES AND CORRECTION. At the Thirty-sixth Annual Session held in the City of Buffalo, N. Y., June 9 to 16, 1909. Edited by Alexander Johnson, Fort Wayne, Ind. Cloth. Pp. 606.

A FLESHLESS DIET. Vegetarianism as a Rational Dietary. By J. L. Butner, M.D. Cloth. Price, \$1.35 net. Pp. 287. New York: Frederick A. Stokes Co. (1910).

ANNUAL REPORT OF THE CHIEF OF BUREAU OF MANUFACTURES TO THE SECRETARY OF COMMERCE AND LABOR FOR THE FISCAL YEAR ENDED JUNE 30, 1910. Paper. Pp. 23. Washington: Government Printing Office, 1910.

THE PRACTICE OF SURGERY. By James G. Mumford, M.D., Visiting Surgeon to the Massachusetts General Hospital. Cloth. Price, \$7 net. Pp. 1015, with 682 illustrations. Philadelphia: W. B. Saunders Co., 1910.

The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOL. LV, No. 17

CHICAGO, ILLINOIS

OCTOBER 22, 1910

CERTAIN POPULAR BUT ERRONEOUS NOTIONS CONCERNING ANGINA PECTORIS*

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Severe substernal pain coming on after exertion, radiating to the left arm, lasting a brief moment, yet compelling the patient to remain immobile from the physical suffering and from a mental anguish that overwhelms him with a sense of imminent death—this picture is looked on by all as that of typical, true, cardiovascular angina, and especially when the arteries are found to be sclerotic and the blood-pressure high. A prognosis is made of sudden death in the near future from a recurrence of the paroxysm, a prediction only too often correct.

So indelibly is this image of the phenomena and course of the affection fixed in the minds of many physicians that they are unable to admit any deviation from its details as consistent with this disease. In this way there have become prevalent several notions concerning angina pectoris that are more or less erroneous, chiefly in that they fail to recognize the atypical manifestations.

It is the object of this paper to present some of these views that seem to me erroneous, chiefly because they are too narrow and do not give room for the exceptional case.

Considering the lack of definite unifying knowledge of the pathogenesis of angina pectoris, one is not surprised to find that there is confusion in the interpretation of the symptom-complex. This confusion is seen especially when the attempt is made to separate an organic cardiovascular form from a toxic or from a neurotic type. I have no intention to discuss the necessity or advisability of making such a distinction, but shall limit what I say to the so-called "true angina" of organic cardiovascular origin. This tacitly assumes that a grouping of somewhat similar symptoms on a purely neurotic basis, no matter how closely resembling true angina, is not the real disease; that to this unreal disease the term "neurotic angina" or "pseudo-angina" is not inapplicable. In taking this position one realizes a certain inconsistency in the use of terms, and that one is open to the charge of not being in line with the latest trend of thought, of being at variance with the views of many leading medical men, and of exposing oneself to the shafts of ridicule of such a master of physis and English as Sir Clifford Allbutt. "Either a case is angina or not angina," says MacKenzie. "Pseudo-angina is pseudodiagnosis," says Allbutt. With all of which I agree, but feel that a clinical distinction between true and false is justified on practical grounds.

DEMONSTRABLE ARTERIOSCLEROSIS, HIGH BLOOD-PRESSURE, AND AORTIC VALVE LESIONS

Since Jenner proved that John Hunter, who died of angina, had coronary sclerosis, the conception of coronary sclerosis as the essential underlying lesion has been deeply rooted. That coronary sclerosis is often associated with sclerotic aorta, roughened aortic valves and wide-spread arteriosclerosis is also well known. From this frequent association has arisen the expectation of finding in all cases of angina evidences of this wide-spread arterial change, with its accompanying high blood-pressure and cardiac hypertrophy. But this, as has been pointed out by many, is by no means always the fact. Arterial change may be wide-spread and the coronaries sclerotic, yet there may be no hypertrophy of the heart and no rise in blood-pressure, the very sclerosis that is probably the cause of the angina producing also, through obstruction to blood-flow, poorly nourished, weakened or fibrous myocardium. Or the sclerotic or atheromatous process may be quite limited, involving only the first portions of the aorta, but encroaching on the coronary arteries. Particularly in syphilis are the changes thus localized to the beginning of the aorta. In these cases the peripheral vessels may be normal.

Even with markedly sclerotic coronary, the peripheral vessels, and aorta as well, may show little or no change from the normal. Such a heart I saw in a man of 60, dying in his first attack of angina, or, rather, in his second, which came on twelve hours after the first. The coronaries were stiff-walled from calcareous deposits, and his heart not large. One may rightly urge the presence of peripheral sclerosis, murmur over the aorta, and large heart as strongly suggesting coincident sclerosis of the coronary, but one cannot exclude such sclerosis in the vessels of the heart or pronounce a cardiac pain as non-anginal because the peripheral vessels are normal.

Not a few seem inclined to discredit the possibility of angina unless the blood-pressure is persistently high, or at least is high just preceding or during an attack. That there is often persistently high blood-pressure is true. It is often true that preceding an attack there may be a rise. In some instances one may predict an oncoming attack because of the rise in pressure. In a case which I was privileged to see, the physician had the opportunity of measuring the change in pressure in the fatal attack. He had just finished reading the pressure, 160 mm. Hg, when the pain occurred and the mercury rose to 190 mm., death occurring before a hypodermic could be administered.

But one must be prepared for normal or subnormal readings. In some of the most serious cases, in fact, there is low blood-pressure, indicating perhaps a weakened myocardium. In a man of 54, with no general arteriosclerosis, I have seen the rough-walled left coronary plugged in its anterior branch with a thrombus,

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

producing sudden excruciating precordial pain. For the fifty hours that the patient lived the heart tones were barely perceptible, and the peripheral pressure extremely low. But in cases in which there is no such acute and extensive myomalacia cordis as was present in this instance, the pressure may be low for a long time and the patient busy about his work, though interrupted at times by the attacks.

Most physicians regard the existence of an aortic valve lesion of a sclerotic character as tending to strengthen their belief in the organic origin of the painful attacks, that is, such a finding points toward a true angina, and away from a so-called pseudo-angina. The same is true if the arch of the aorta is dilated uniformly, or in circumscribed aneurismal manner. The sclerotic or atheromatous lesion of the aorta or the valves leads one to suspect a similar trouble in the coronaries, or perhaps only at their mouths. And those who, like Allbutt, see in the aortic ring the seat of anginal pains, naturally interpret evidence of anatomic change in this locality as proof of the organic origin of the attack. Much depends on one's conception of the cause and nature of this disease. Some, however, hold so rigidly to the theory of coronary origin that, if aortic regurgitation or aortic aneurism be made out, or if there be strong reason to suspect aortitis, they will not call the seizures anginal, though the pain and other phenomena may be classic in every respect. They speak of such seizures as merely "the pain due to aneurism, aortic regurgitation," etc., but not the pain of angina pectoris; that is, coronary disease. This view, while held by only a few, is too narrow.

NUMBER AND DURATION OF ATTACKS

Another fallacy is connected with the number of attacks. Not a few physicians have been heard to express the opinion in concrete cases that, because the attacks were frequently repeated, they could not be anginal for, they assert, an individual never has more than a few; he succumbs if there are numerous recurrences. This is utterly wrong. Repeated attacks of severe type may occur during periods varying from many days to many months. And it is no uncommon experience to meet patients whose milder attacks—the angina minor of some—are repeated several times in a single day. Neusser mentions a woman with twenty attacks a day. In one patient seen many times I witnessed over a period of three years the sufferings of this disease, there being at times as many as six and eight paroxysms in a day.

The attack is usually brief, being over in a few seconds or a few minutes. But in other instances it is more prolonged. After the acme of pain has been reached, there is a moderation, but still a residual pain, a soreness of skin in the precordia, and a numbness or pain extending down the arms, especially the left, to the elbow or fingers. The patients may suffer, therefore, for many minutes, or the pain may last for hours. In the patient already referred to, the one who had coronary thrombosis, the agonizing substernal pain lasted three hours, though death did not follow until fifty hours. Morison describes a case of coronary thrombosis with anginal pain, lasting twenty-three hours. This patient had previously suffered from milder attacks of angina. Opinions might differ as to the propriety of speaking of this more chronic state as angina, though it has the characteristics of the acute paroxysm, only less in degree, and longer drawn out as to time.

Where the status anginosus exists, one attack is rapidly followed by another, even on the slightest provo-

cation or after no appreciable cause; some pain and soreness persist between the attacks, so that the patient is in a state of continuous pain and suffering, with frequently recurring exacerbations.

EXCITING CAUSE

The exciting cause of the attack is usually exertion, especially rapid walking. Some strange anomalies are at times seen. Thus a man may have an attack that is brought on by the mere effort of walking about the room, while he dresses, or simply by stooping to lace his shoes. After his breakfast he may be obliged to stop two or three times on his way to take his train; yet for the rest of the day he is free, even though he may walk a considerable distance and eat rather freely at luncheon and dinner. One of my patients, in a suburb, could ride a bicycle to the station with fewer seizures than if he walked, though the streets were level and when afoot he never hurried. Another patient, a woman, has for two or three years been unable to walk two blocks without pain, necessitating her stopping to rest or to take nitroglycerin. She can remain for days together free from pain if she sits or lies still. Charles Sumner had attacks that at times seemed to be brought on by some sudden move, as by turning in his revolving library chair. Yet at other times, as when speaking in the Senate, he could be on his feet for hours, with all the mental excitement, bodily activity and gesticulation of earnest debate, and still be free from pain. It is well known that a fit of anger, a breath of cold air, an overloaded stomach, may precipitate a seizure.

These irregularities are to be remembered, and they are here referred to, because the opinion is at times expressed that attacks come on only after exertion; and, on the other hand, that, if an individual with supposed angina is able to walk briskly without an attack, it is proof against the existence of angina. While exertion and the other causes mentioned are the common provocative ones, these causes may produce an attack at one time and not at another, and often no cause can be clearly assigned for the outbreak any more than for some epileptic seizures.

INFREQUENCY IN WOMEN

All agree that true angina is comparatively rare in women, some statistics showing less than 5 per cent. Heberden saw three women in one hundred patients with angina. Undue importance is sometimes attached to the infrequency in women, and one may thus be influenced away from a correct diagnosis. The error is easily understood, too, when in an individual case there are evidences of a strong neurotic taint. The undue excitement, the tendency to introspection and to exaggeration of symptoms, the desire for attention and sympathy, perhaps even the pronounced hysterical manifestations, may easily mislead one to the diagnosis of a functional, neurotic or so-called false angina. No inviolable rule can be given for the sure differentiation, but a study of the cardiovascular condition, the age, the exciting cause, the radiation of pain, the behavior and attitude during rather than after the attack will all be of help. It is certainly a cause for regret and chagrin to diagnose pseudo-angina and in a week or two have the woman die in an attack. In the case of a woman seen by many different physicians, all agreed as to the existence of a cardiac valvular lesion, and all agreed as to the existence of a marked neurotic, even hysterical, element, aggravated by a free habitual use of morphia. There was, however, a wide divergence of opinion as to the organic

basis of the anginal attacks, some regarding them as wholly of the false type. A rest-cure, with breaking off of the morphin habit and marked improvement in every respect, lent color to the theory of pseudo-angina, but the woman died suddenly some two or three years later, as in angina. One has to keep clearly in mind what has been often said, but what is easily forgotten, that the cardiopath is often a neuropath. The hysterical woman may have underlying the nervous manifestations a serious pain-causing disease.

PAIN, UNCONSCIOUSNESS, IMMOBILITY, ETC.

Certain facts concerning the pain itself are worth repeating, for it is easy to have a stereotyped picture in mind, while in reality there are not a few variations.

I have never seen a case that I recognized as angina sine dolore, but since its description by Gairdner, it has been a recognized form, and one cannot question its existence. Not long ago I heard Dr. J. M. Patton describe his experience in being called to the home of a colleague whom he found lying on the couch. In answer to the question as to what was the matter, the reply of the patient was that he did not know, he had no pain, but an indescribable sensation in the cardiac region, and an appalling sense of the presence of death, and "I'm mighty glad to see you," he said. In a minute more he suddenly expired. There was no feeble, rapid, irregular pulse; no dyspnea; no cyanosis; no pain—apparently angina save the pain.

It is surely wrong to state dogmatically that pain, in order to be anginal, must be severe, excruciating, unbearable. There are milder degrees. What is called angina minor must be viewed as in its essence of the same nature as the angina major. In one sense its recognition may be of greater importance than that of the major type, for it may lead to appropriate advice that may prolong life in cases in which were the disease unrecognized, a faulty mode of life might lead to early death.

The most typical radiation of pain is to the left side of the neck and down the left arm. But one must be prepared for odd radiation. The radiation is often down the right arm. In one of Morison's patients the right arm radiation was associated with sclerosis of the right coronary only. The pain may run down both arms. It often goes down the ulnar side. It may stop at the elbow, the wrist, or run to the little finger. Pain may start in the fingers, run up the arm, and finally centralize at the heart, seemingly a centripetal rather than centrifugal course. Pain, numbness and tingling may be complained of in the intervals between the attacks, and may be regarded as rheumatic and articular in origin. Pain to the jaw, to the ear, to the back may be described. And particularly confusing are the cases in which such odd radiations as to the epigastric, lumbar, renal and testicular region are seen. Tenderness of the skin, as described by Head, may at times be made out. One of my patients, a woman, often has most profuse salivation with the substernal pain, that radiates to the left shoulder and arm. MacKenzie mentions this same salivation in his experience.

Unconsciousness, though unusual, is yet seen at times. On two occasions I have known a sufferer from angina to become unconscious, once at the climax of a paroxysm. Osler and others mention the same occurrence.

Immobility is a characteristic feature. The patient is afraid to move for fear the pain will be aggravated. He sits or stands motionless, at times almost statue-like; he will not lie down. Yet there are exceptions to these rules. Charles Sumner often walked about his library

during an attack. An old colored man whom I recently had under my care in the County Hospital usually lay down, on the sidewalk or porch, or wherever he was taken, until the attack was over. His sudden death, two weeks after describing to me and to the class in clinic the typical manifestations of the disease, and the finding of sclerosed aorta, aortic valves and coronaries, confirmed the diagnosis of angina. This is, I think, the only patient I have seen who by choice would lie prone during an anginal seizure, though I have several times seen patients in a half-sitting posture, or have had such position described to me as the one assumed. A woman of 45, who had definite loud basic murmur, apparently due to roughened aorta and aortic valves, would, during the pain of angina, get on her hands and knees in bed. She was neurotic and admitted that there was a hysterical element in her case, but insisted that the pain was real and that this position gave her the greatest relief.

Once or twice I have had the diagnosis of angina questioned because of the prominence of eructation or vomiting. Flatulence or vomiting may be marked. At times the attack ceases with the belching of gas or the raising of the contents of the stomach. That a stomach distended with gas or food may cause epigastric or precordial distress is a well-known fact, but it should also be remembered that true angina not infrequently follows a hearty meal, or is accompanied by striking gastric symptoms.

PROGNOSIS

A word about prognosis. There is in some quarters the opinion that the disease is not only inevitably fatal, but that death is sure to follow in a short time, or after two or three attacks. There is surely good reason for viewing this condition as one of extreme gravity. Death, and often sudden death, is the common result. But it is also worth noting that the fatal termination may be deferred for years and, exceptionally, complete recovery seems to ensue. If one includes under the head of angina pectoris the toxic, as for example, tobacco angina, and the neuroses with precordial angina-like pains—the so-called pseudo-anginas—the mortality percentage, while high, would not be so startlingly large. But even excluding the neurotic forms and limiting the statement to the true cardiovascular types, the mortality is not 100 per cent., as some think; and even in the fatal cases death may be postponed for many years. In a paper recently presented to the Chicago Medical Society, Dr. Forchheimer of Cincinnati cited one of his cases, in which the first attack had been seventeen years before death. Dr. Billings had seen a patient live fifteen years after the first paroxysm. A physician whom I cared for had his first severe and nearly fatal angina seven years before his fatal attack. Morison describes a case in which the pains recurred at intervals for seven years. Stokes had a case in which for ten years the patient suffered from attacks of excruciating severity. John Hunter had attacks for twenty years.

The recognition of the malady, the regulation of the mode of life to that most suited to the cardiovascular condition, involving, as it often does, change in diet and habits of work, the proper use of remedial drugs; in a word, appropriate treatment may materially alter the prognosis. The condition of the heart and vessels as to aneurism, valvular disease, general sclerosis, myocarditis and fatty changes, must determine to a marked degree the length of life. And so, too, does the condition of the kidneys.

NITRITES AND DIGITALIS

I wish to refer briefly to certain fallacies concerning the use of nitrites and digitalis.

The nitrites have, especially of late, been held by some in less repute than formerly, because they fail completely in some instances to relieve or ward off the attacks. Others seem so convinced of their efficacy that, when in a case of supposed angina the nitrites fail to relieve the suffering, and to relieve it promptly, they conclude that they are dealing with something different from true angina. Now, the truth seems to be that nitrites in some cases give most prompt, marvelously prompt relief. The testimony of many physicians is available on this point. It is hard to understand, then, how some good men—Romberg, for example—regard this remedy as either of no benefit or of very insignificant value, at least during a seizure. Unless convinced by repeated trials as to its uselessness in the attacks, no patient should fail to keep in his pocket either the pearls of nitrite of amyl or the pill or tablet of nitroglycerin, gr. 1/100 to 1/50. Some attacks are surely cut short by the use of these remedies, and often the patient has a slight warning of the onset, and the timely use of the drug may prevent a paroxysm.

No matter how strong the prejudice against the use of digitalis in cardiac hypertrophy and general arteriosclerosis may be; no matter what may have been said against its employment in weakened myocardial states, there can be no question that in some cases of angina—not easily described, either—this drug does more good than all the iodids or nitrites.

SUMMARY

These views may be summarized by making the statements as a series of negations:

1. With "true," organic cardiovascular angina pectoris there cannot always be made out peripheral arteriosclerosis, cardiac hypertrophy and high blood-pressure.
2. The finding of aneurism or lesion of the aortic valves does not exclude angina, but rather argues in its favor.
3. The attacks are not always few in number and brief in duration; they do not occur solely after exertion.
4. While the prognosis is grave, life is not necessarily limited to a few months.
5. The disease is by no means to be excluded because the symptoms are found in a woman, even in a nervous or hysterical woman.
6. The pain is not necessarily severe; it may be mild or even lacking; its radiation is variable.
7. The statement that the patient is always conscious, that he is always immobile and erect must be modified so as to read "usually" instead of "always."
8. Eructations or vomiting during an attack do not argue conclusively against the cardiovascular origin of the angina.
9. It is not correct to look on the nitrites as of no benefit in relieving symptoms; nor, on the contrary, is one justified in concluding that a case unrelieved by nitrites is not angina.
10. Digitalis is not necessarily contra-indicated; it is often of very great value.

Closer observation of the atypical as well as the typical cases, with collocation of the results with those of anatomic and experimental studies will lead to unifying knowledge concerning the pathogenesis of this disease, to greater precision in its recognition, and to more appropriate treatment.

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ABSTRACT OF DISCUSSION

DR. JOSEPH L. MILLEE, Chicago: If we followed the statements made in text-books regarding angina pectoris, the diagnosis of this disease would frequently not be made. A statement often made is that patients suffering from angina pectoris always remain quiet, whereas, many patients with typical attacks of this disease will move about. I believe that the term "pseud-angina" should be entirely abandoned. Patients with symptoms resembling angina pectoris, in whom we can exclude an ordinary neuritis, should be considered as suffering from true angina. I do not believe that the value of digitalis in angina pectoris is fully appreciated; I think that there are many patients who receive permanent benefit when taking this drug, the attacks recurring less frequently. It has been shown experimentally that a much more extended ligation of the coronary artery may be made without serious consequences when the animal is under the influence of digitalis or strophanthus, and I think that the same holds true in human beings. There may be obstruction of a coronary artery with less serious consequences if the heart is under the influence of digitalis.

DR. GEORGE W. McCASKEY, Fort Wayne, Ind.: I had under observation last year a patient who had anginous attacks occurring sometimes during exercise, but the majority occurred during the night. The patient awakened in the night with this precordial pain and a sense of approaching death, etc. These attacks were as typical during the night as during the day. This patient referred to finally died and came to autopsy. The heart was exhibited to the Fort Wayne Medical Society, and showed both coronary arteries extensively involved. There is a group of cases which has interested and troubled me very much, in which this precordial pain is more or less persistent, with occasional severe exacerbations. Whether such cases should be placed in the group of angina pectoris is a question that must be answered according to the definition of angina pectoris. But there are some cases, indistinguishable by their symptoms, in which there is serious organic disease and in which the heart is able to adjust itself to the new conditions. If the nutrition be improved, some of these patients will make a relative recovery.

I recall the case of a patient, aged 60, who came to me about four years ago, suffering from severe typical attacks of angina pectoris. His family physician, on several occasions when called in to attend him, thought he would die. I placed him on the usual treatment. He was given the nitrites, small doses of digitalis, and iodids. This patient made a complete symptomatic recovery. I saw him within the last six months and he apparently is in good health.

Another patient that I now have under observation has more or less persistent pain. This man is very intelligent and cooperates with me in observation of his case. He says that he never was free from a sense of constriction, but what annoys him most is this pain, which at times is almost continuous; at other times he has a sense of pressure. If he exercises he brings on an attack. He has no paroxysms during the night. Still another case of an entirely different type was in a boy of 11, who, about 3 years ago, had what apparently were typical attacks of angina pectoris. The precordial pain lasted a few minutes and the attacks occurred mostly during the night, though they also occurred at times after exercise. One would not expect any trouble with the coronary arteries in a boy of this age; he made a complete recovery and is well to-day.

I think that the majority of these cases occur about middle life or later, and are due to changes in the coronary arteries. But what causes the pain in angina pectoris? I think there must be some interference with the circulation in the heart muscle or disturbance of the neuromuscular mechanism of the heart. This is certainly far from a satisfactory explanation, but is the best we have at present.

DR. GUSTAV BAAR, Portland, Ore.: Some years ago, Billroth said that in cases of angina pectoris he gave one-half grain of digitalis leaves every day and that the patients could then keep at work. Since then, I have employed this agent in this form and dosage, and with very good results. At the same time I must caution against the promiscuous

use of digitalis in heart disease. I have seen a number of "bronchial asthma" patients in collapse—cold extremities, imperceptible pulse, etc. In these cases I have injected 1 mg. of strophanthin, intravenously. A young woman, after injection of this amount of strophanthin, within three minutes displayed bounding and rapid pulse and is alive to-day. Through my experience in this case I was much encouraged in the use of strophanthin. Some time later, I was called to see a patient with "angina pectoris," who had been under the digitalis treatment for three years. I found this patient in collapse and injected 1 mg. of strophanthin; after injecting the drug I left, but was called back at the street corner: the woman was dead. Undoubtedly, the death was due not to the angina pectoris, but to the strophanthin. Since then, I have given up the use of strophanthin in any case of arteriosclerosis, a condition which is usually associated with angina pectoris.

DR. SCOTT P. CHILD, Kansas City, Mo.: I should like to report a case of angina pectoris in support of Dr. Herrick's contention that many cases are atypical. The patient was an active Episcopal bishop of western Missouri, aged 70, height 6 feet 2 inches, weight 180 pounds. While attending to the duties of his diocese, and following an evening meal, he ran upstairs and was immediately taken with what he termed the most severe pain he ever suffered. The pain, beginning at the base of the heart, back of the sternum, ran up into the neck and jaws of both sides and down both arms to the finger tips. The pain lasted an hour and a half, being relieved only by a hypodermic injection of morphin. During the attack of pain the patient suffered from intense cold, which was followed by profuse perspiration. Two days following the attack, the pulse was quite regular, the rate varying from 120 to 130; the blood-pressure in the right arm was 140 mm. Hg, that of the left 126 mm. Hg. This patient has been under my observation for two years (no previous attack suffered), with a well-established myocardial insufficiency, the heart being enlarged well beyond the nipple line and down to the sixth interspace. So far, no valvular signs have developed. This patient for several years has had evidence of interstitial nephritis, with a constant albuminuria, hyaline, and frequently granular casts. Two days following this attack of angina, the urine revealed 0.5 per cent. of albumin and numerous hyaline and granular casts. At the end of a week, with rest in bed and a regulated diet, the pulse was down to 92 and regular, the blood-pressure was low, and the urinary findings very much improved.

DR. JOHN A. WITHERSPOON, Nashville, Tenn.: It is unfortunate that so many physicians are looking for such cases of angina pectoris: they look for cases of such severity that the patients are made perfectly quiescent, with fixation of the body, cyanosis, and so forth. They do not seem to realize that there may be cases of angina pectoris, with intermittent attacks of mild character, which have been threatening the patients for years. I learned long ago that the pulse in angina pectoris was unreliable; I have found a low pulse and a rapid pulse in bad cases, as well as in mild cases of this disease. If these cases are properly conducted and properly managed between the attacks the attacks will become less severe. Like Dr. McCaskey, I like to give the iodids with the digitalis.

I doubt very much the diagnosis of angina pectoris made in the case of the boy of 11 years: I have yet to see a true case of angina pectoris occurring in a patient so young. We are likely to get an increase in the blood-pressure, with evidences of an accentuated second sound of the heart, but no evidence of atheroma of the coronary arteries. Many of these cases may be explained and will be found not to be due to angina pectoris. The nitrites act happily in some cases, but when most needed they most often fail to give relief. It is especially in the bad cases that the nitrites seem to fail us.

DR. ALLEN A. JONES, Buffalo: We cannot always judge of the condition of the coronary circulation in the heart from the condition of the peripheral circulation as we see and feel it. I have now under observation a patient with typical attacks of angina pectoris. He has suffered any number of attacks; he is an individual in middle life, and pulse, blood-

pressure, and heart are practically normal. The pain may be present in an unusual situation, and not in the classical situation, precordial and running to the left shoulder and left arm, or to the wrist and thumb. In a paper read at a session of this Association in Atlantic City some years ago, I called attention, in discussing "Abdominal Symptoms of Thoracic Disease," to the fact that we might encounter epigastric pain as well as cardiac. The pain may be typically epigastric, and may be called gastralgia; in fact it often is. Between the attacks of angina pectoris it is not an uncommon experience to find individuals complain bitterly of gastric symptoms, and more especially of a collection of gas in the stomach, a "pneumatosis," the pressure of which on the diaphragm frequently leads to an attack. I think that one should exercise great caution in his choice of cases; in a patient with high blood-pressure, with cardiac hypertrophy and with a competent heart, digitalis is not to be used except under extreme watchfulness. On the other hand, given a case of angina pectoris with opposite conditions, in a frail and spare individual with low blood-pressure, and with attacks often coming on after exercising, then the administration of small doses of digitalis over a long period frequently does good.

DR. JAMES B. HERRICK, Chicago: The question of treatment I purposely omitted from my paper, except the few words concerning digitalis and the nitrites. I agree, however, with what has been said in regard to the use of the iodids; they certainly are of great benefit.

THE VISCERAL ANESTHESIAS OF TABES DORSALIS IN RELATION TO THE DIAGNOSIS OF ACUTE INFLAMMATORY CONDITIONS IN THE ABDOMEN

WITH AN ILLUSTRATIVE CASE *

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The value of pain as an element of safety in the body economy and the disastrous effects of the absence of the normal sensibility of a part are illustrated in the destructive ophthalmia which so frequently follows a lesion of the trigeminal nerve, and in the familiar "Charcot joint" of tabes. Although trophic disturbances probably have some part in the development of both of these conditions the absence of the normal sensibility seems to play an important rôle in determining the progressive and destructive character of both processes. Slight injuries pass unfelt and unheeded. In the case of the tabetic arthropathy the absence of pain results in the absence of all reflex protective contraction of the muscles controlling the joint movements; the continued free use of the limb increases constantly the existing damage and there ensues a gradual, painless disintegration and destruction of the joint. A recent experience has brought home to me the fact that sensory disturbances in tabes may, indirectly, lead to grave damage to the body in ways other than by the development of "Charcot joints" or perforating ulcers of the foot. The following case illustrates this fact:

FATAL PERFORATIVE APPENDICITIS IN A TABETIC WITH COMPLETE ABSENCE OF PAIN, TENDERNESS AND MUSCULAR RIGIDITY

Patient.—A brakeman, aged 42, was admitted to the medical service of the New York Hospital on August 14, 1909, with an acute febrile attack of three days' standing. His history as given at that time was as follows: Family history is un-

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

important. The patient had measles in childhood; malarial fever twenty years ago; chancre seventeen years ago; treatment for a few weeks only; indefinite secondary symptoms; gonorrhoea twice; last time four years ago. He was a heavy drinker up to eight years ago; since then has used no alcohol. For the past year has had some difficulty in controlling his bladder and rectum and has had frequent sharp, darting pains in the legs. About four weeks ago he began to have a "weak, tired feeling" in the legs; could not feel distinctly with his feet and would stumble when attempting to walk in the dark. Three days ago he began to be very feverish. Since then he has had several shaking chills and some profuse sweats. There has been no regularity in the appearance of the chills; no pain; no other symptoms except prostration and malaise.

Physical Examination.—Male subject, large frame, poorly nourished. Skin and mucous membranes of good color. Admission temperature 104.6 F., respiration 24, pulse 108.

Eyes: Left pupil smaller than right. No reaction to light in either pupil. Prompt reaction in accommodation. Tongue moist and clean. Superficial lymph-nodes not enlarged.

Pulses: Equal, regular, rapid, of good size and force, moderate tension. Arterial walls slightly thickened.

Heart: Apical impulse diffuse. Seen and felt in fourth and fifth intercostal space 13 to 14 cm. to left of mid-line. Right border of relative dullness not satisfactorily determined; left border 13 cm. to left of mid-line. Heart sounds clear except at apex, where a short, soft systolic murmur is heard.

Lungs: Percussion gives everywhere a somewhat short, "wooden" resonance. Lungs voluminous. Respiratory murmur is everywhere vesicular. No adventitious sounds.

Abdomen: Flat, soft, thin-walled. No rose spots. Liver dullness extends from sixth intercostal space to free border of ribs. Edge of spleen can be indistinctly felt just above the costal border. In the right iliac fossa a soft, elastic, elongated and freely movable mass (cecum?) can be distinctly felt through the soft, relaxed, abdominal wall. In the left iliac fossa a similar, somewhat smaller object can be felt. Neither mass is tender on palpation. No tender points can be elicited anywhere in the abdomen, nor is there anywhere muscular rigidity.

Genitals: Small scar on glans.

Extremities: A number of pigmented, depressed scars over both shins. Knee-jerks and Achilles jerks cannot be elicited. Plantar reflex absent. Marked diminution in tactile and pain sensibility over feet and legs.

Course of Disease.—On August 15 the patient vomited several times. The temperature continued high and irregular. The mind was clear. The patient complained only of the fever and general malaise; required catheterization. Urine contained a trace of albumin and a good many hyaline and granular casts but no pus. Leukocytes were 9,700; polymorphonuclear cells 83 per cent.; lymphocytes 17 per cent.; hemoglobin 85 per cent. The Widal test was negative. There were no malarial plasmodia. The abdomen was soft, flat and entirely free from tenderness.

During the next six days the patient's condition grew slowly but steadily worse. The temperature fluctuated between 100 and 104 F.; the respirations between 24 and 32, and the pulse gradually grew more rapid and feeble. The patient continued to vomit frequently, the vomited matter consisting usually of bile-stained fluid. The bowels were readily moved by laxatives or enemas. The patient complained of no pain whatever, and frequent examinations of his lungs, heart and abdomen failed to supply any clue to the diagnosis. The Widal test was repeatedly negative. Two examinations of the scanty sputum failed to reveal tubercle bacilli. The urine gave no evidence of a pyelitis or cystitis. The soft elastic mass in the right iliac fossa seemed rather to diminish in size, could be readily displaced under the finger and was never tender to pressure or manipulation. It seemed to be only the normal cecum felt through an unusually thin and relaxed abdominal wall.

The stomach contents, expressed after an Ewald test breakfast, showed nothing abnormal. Examination of the stools was negative for blood, mucus or ova. Rectal examination revealed nothing abnormal.

On August 17 the leukocytes numbered 18,800 and the percentage of polymorphonuclear cells was 83. A blood culture taken on this day remained sterile. On August 20, the leukocytes were 37,800 and the polymorphonuclears 92 per cent. The abdomen at this time was somewhat tympanitic but was free from muscular rigidity and tenderness. The area of liver dullness remained unchanged. The heart sounds also had not changed. A few crackling râles could be heard at the bases of both lungs; the tongue was dry and brown.

It was evident that the patient was suffering from some severe septic condition but the nature and site of the trouble was still altogether obscure.

August 21, the patient failed rapidly, passed into a stupor, developed pulmonary edema and died at 9 p. m. In the light of the subsequent autopsy findings it is to be regretted that a systematic examination of the sensibility of the trunk should not have been made, but our attention was centered on the acute, febrile condition which seemed to be quite unrelated to the antecedent tabes.

Autopsy.—Fifteen hours after death. Dr. Symmers (condensed report). On opening the peritoneum about 500 c.c. of milky fluid escaped. The peritoneum is diffusely opaque, swollen, edematous and in many places covered with an abundant fibrinous exudate. The serosa of the intestines is opaque and the intestines are in many places matted together by fibrinous exudate. In the appendix a round perforation, the size of a 10-cent piece, is found. The edges of this are necrotic and covered with fibrinous exudate. A probe passes directly into the lumen of the appendix, the mucous membrane of which is necrotic and discolored.

Pleura and pericardium normal.

The heart is moderately increased in size and flabby. The endocardium is in good condition. The aorta is large, the intima presents many yellowish plaques alternating with pale, hyaline, wrinkled areas. Heart muscle shows post-mortem changes.

The lungs show only emphysema and edema.

The spleen is increased in size, soft and friable. The Malpighian bodies are not visible.

The kidneys are moderately increased in size. The capsule is thin, strips readily and leaves a smooth, pale surface. Cortex and medulla are well differentiated. Cortex is broad, swollen, opaque. Markings very indistinct.

Liver considerably increased in size. Cut surface smooth, yellowish in color and very friable. Markings indistinct.

Stomach presents the lesions of atrophic gastritis.

Intestines show little change.

Bladder and prostate fairly normal.

The spinal cord shows considerable grayish discoloration, involving the posterior and lateral tracts, which is chiefly confined to the dorsal region.

Microscopic Examination (Dr. Schlapp).—From the sacral region up into the upper part of the dorsal there is a very marked degeneration involving practically the whole of the posterior columns, showing that the root zones in the dorsal region were involved as well as those in the lumbar and sacral region. The fibers in the cornucommissural tract are partly normal as are also a few fibers in the root zones. The root zones and the column of Burdach are intact in the cervical region. In both of Clark's columns the fibers are missing. On one side of the cord most of the cells are missing and those that are present show an abnormal condition in that they are very much smaller than is the normal cell in Clark's column. The cell-body has shrunk, the nucleus has also shrunk and most of the cells in both of Clark's columns contain a large amount of pigment. The cells in the anterior horn seem to be normal except that they contain quite an amount of pigment. The fibers in the posterior nerve-roots are almost entirely degenerated. The anterior nerve-roots throughout the sections of the cord are normal with the exception of a small bundle on each side which shows a marked degeneration. This degeneration, however, is sharply confined to this small bundle of fibers. The lesion extends up to the nucleus of Goll and Burdach, confining itself more or less to the column of Goll in the cervical region.

Here, then, was a man in good health, except for the rather mild symptoms of tabes, in whom an acute appen-

dicitis developed, progressed to perforation and a diffuse peritonitis and ended in death, without there having been at any time spontaneous pain, tenderness or protective muscular rigidity.

Instances of the almost complete absence of these three symptoms in the peritonitis which follows the perforation of a typhoid ulcer are not very rare, but they occur only in patients showing profound prostration and apathy as a result of the severe intoxication of the primary disease. In the present case, on the other hand, the appendicitis developed in a man in his usual health and with an alert mind and a clear sensorium. Under these circumstances it can hardly be doubted that the explanation for the absence of these three cardinal symptoms must be sought in the sensory disturbances of the tabes.

DISTURBANCES OF VISCERAL SENSIBILITY IN TABES

Disturbances of visceral sensibility in tabes manifest themselves in (1) the well-known painful "crises" of the stomach, intestines, bladder, larynx, heart, etc., and (2) a loss or diminution of the normal sensibility of certain of the viscera.

That such organs as the bladder, urethra, rectum and testicle may sometimes become anesthetic or analgesic has long been recognized. Gowers,¹ writing twenty-five years ago, notes the occasional loss of testicular pain, and adds that "the anesthesia may extend to the viscera when the trunk is involved. In consequence of the loss of sensation grave injuries to the limbs, such as burns, may be unperceived, and visceral disease may be unattended with the customary pain. Pleurisy, for instance, may be absolutely painless."

In recent years the subject of visceral anesthesia in tabes has received much attention from the French writers. It has been shown that complete anesthesia of both testicles occurs in about half of the cases and incomplete anesthesia in many more.

Normally, deep pressure or blows on the epigastrium cause a peculiar, painful sensation, with distress, collapse and sometimes even death. In about 20 per cent. of the cases examined this sensitiveness was completely lost.

In many cases there is a disappearance of the pain and distress usually produced by deep pressure on the trachea.

The pain occasioned by pressure on the globe of the eye and on the mamma is also frequently lacking.

Carrez,² who has reviewed the whole subject of the visceral anesthesia in tabes, concludes (1) that there exists no connection between the enfeeblement or abolition of the deep sensibility, testicular, mammary, epigastric, tracheal, ocular; and the superficial analgesia or anesthesia and (2) that there is no necessary relation between the deep analgesias and preexisting painful crises.

THE NATURE OF VISCERAL PAIN

Although it seems clearly established that in locomotor ataxia there is frequently a complete loss of the normal painful response to irritation of certain of the viscera, the mechanism by which, under normal conditions, visceral pain is produced is by no means well understood.

It is a fact familiar to physiologists and surgeons (see Lennander³) that such organs as the heart, stomach, intestines, liver, gall-bladder, uterus, etc., are usually entirely insensitive to procedures (cutting, pinching, burning, etc.) which in the superficial tissues would

cause severe pain; and it has always been difficult to harmonize this fact with the every-day experience that in disorders of these viscera pain is a common symptom. Mackenzie⁴ has recently offered a hypothesis to explain this paradox, and supports it by many interesting facts. He believes that the pain excited by disturbances in the viscera is due, not to the propagation of true sensory impulses from the viscera themselves, but to the reflex stimulation of the cerebrospinal nerves supplying the tissues overlying these viscera; in other words, that the pain and tenderness are felt, not in the organ itself, but in the tissues of the thoracic or abdominal wall over it. Afferent impulses passing from the viscus along the sympathetic fibers to the cells of the spinal cord excite there the neighboring centers of the sensory and other cerebrospinal nerves. "If a morbid process in a viscus gives rise to an increased stimulus of the nerves passing from the viscus to the spinal cord, this increased stimulation affects neighboring centers, and so stimulates sensory, motor and other nerves that issue from this part of the cord. Such stimulation of a sensory nerve will result in the production of pain referred to the peripheral distribution of the nerve whose spinal center is stimulated, so that visceral pain is really a viscerosensory reflex. If the increased stimulation affects a motor center, then a contraction of a skeletal muscle results, and thus is produced the visceromotor reflex."

This view of the nature of the pain excited by visceral irritation accords well with the familiar facts that such pain is often felt far beyond the boundaries of the affected organ, and that there is often an associated hyperesthesia or tenderness of the skin and underlying tissues. In angina pectoris, for example, not only is the pain often felt in one or both arms but there is frequently also hyperesthesia of the chest wall and of the inner surface of the painful arm.

If this theory of the nature of visceral pain is correct (and there is much evidence to support such a view) it is obvious that the absence, in tabes, of the normal painful response to visceral irritation might be explained by assuming a destruction either of the sympathetic fibers bearing the afferent impulses from the viscera to the spinal cord, or of the spinal centers of the corresponding sensory cerebrospinal nerves. In the case cited here a lesion of the sensory cells of the cord alone would not, indeed, account for the conspicuous absence of muscular rigidity.

A lesion of the sympathetic fibers with interruption of the afferent impulses to the cord would, however, explain the absence both of sensory symptoms and of the reflex muscular rigidity. Is there evidence that such lesions of the sympathetic fibers occur in tabes?

LESIONS OF THE SYMPATHETIC IN TABES

Little was known concerning the condition of the sympathetic system in tabes until Roux,⁵ in 1900, published his investigations on that subject. In all of the seven cases of tabes examined he found atrophy of a large proportion of the small myelinated fibers in the cervical, thoracic and abdominal sympathetic trunks, whereas in ten subjects dead from various other diseases no such changes could be found. He believes that he is justified in concluding that this destruction of the small myelinated fibers is a special pathologic condition of tabes, and that this lesion is responsible for the disturbances

1. Gowers: Diseases of the Nervous System, 1. édition 3, p. 454.

2. Etude clinique de quelques analgésies viscérales profondes dans le tabes. Thésis, Paris, 1903.

3. Observations on the Sensibility of the Abdominal Cavity, Translated by Baker, London, 1903.

4. Symptoms and Their Interpretation, London, 1909.

5. Les lésions du système grand sympathétique dans le tabes et leur rapport avec les troubles de la sensibilité viscérale, Thésis, Paris, 1900.

of visceral sensibility in that disease. In this view he has the support of Déjerine and Thomas.⁶

In the case recorded here no examination of the sympathetic system was made.

Whatever may be the true cause of the disappearance of visceral sensibility in certain cases of tabes, the fact that such visceral anesthesia does sometimes occur seems to be well established. That this fact has a practical application is evidenced by the fate of the patient under consideration, whose life was lost because of the failure to recognize an acute inflammatory process in the abdomen, demanding immediate surgical relief, which under ordinary conditions would have been only too obvious.

Concerning the frequency with which the abdominal viscera, in tabes, lose their normal, painful response to visceral irritation we have at present no data. It is known that complete loss of testicular pain is found in about half of the cases and a loss of "epigastric sensibility" in 20 per cent, or more. If the lesions of the sympathetic trunks found by Roux are as frequent as his investigations seem to indicate, it is not unlikely that disturbances of visceral sensibility in tabes may be much more common than has been supposed.

Concerning the means of recognition of such anesthesia of the abdominal viscera little can be said. Carrez concludes that there is no relation between the disturbances of visceral sensibility and of that of the overlying skin. The absence of testicular pain and of that produced by deep pressure on the epigastrium would at least suggest that there might be similar sensory disturbances in the abdominal viscera.

SUMMARY

The purpose of this report is to direct attention to the fact that in locomotor ataxia a loss of the normal sensibility of the viscera sometimes occurs, and that in such cases acute inflammatory diseases of the abdomen, such as appendicitis or peritonitis, may develop and run their course without at any time presenting any of the three symptoms of pain, tenderness and muscular rigidity. The loss of painful response to visceral irritation in tabes probably depends on a lesion of certain of the sympathetic fibers passing between the affected viscera and the spinal cord.

53 East Forty-Ninth Street.

ABSTRACT OF DISCUSSION

DR. LAWRENCE LITCHFIELD, Pittsburg, Pa.: I should like to ask Dr. Conner whether there was distention of the abdomen in the later stages of the man's illness, and, further, I should like to emphasize the point which he did not bring out sufficiently, that there was no relation between the superficial sensory nerves and those of the deeper structures. Within the past week I have seen a case of Pott's fracture in a tabetic, a man about forty-two years old, a syphilitic, who had been walking on his broken leg apparently for about two weeks before seeking advice. He had no anesthesia of his feet, he had no analgesia, he had barely appreciable hypalgesia of feet and limbs. He had good joint sense. Manipulation of the fragments elicited no pain. There was excessive swelling, which subsided after rest, with the application of icebags, after which the fragments were brought into alignment without the slightest sensation of pain.

DR. JOHN H. MUSSER, Philadelphia: It is one of the tragedies of appendicitis that it may frequently occur without either pain or tenderness or reflex spasm, and I have observed, in common with others, absence of these phenomena. Cer-

tainly, I have seen a number of these cases in various periods of life that I feel bound to say were not attended by or accompanied by locomotor ataxia. I am not stating this to disprove the statement of the author of the paper. I merely wish to emphasize the fact that these symptoms may be absent, and particularly is this the case in the gangrenous forms of appendicitis, in which, on account of the intensity of the infective agent, there has been an absolute cut-off of the nerve paths, consequently bringing about an absence of tenderness and an absence of reflex spasm. The one case that comes to my mind at the present time is that of a healthy adult who had various attacks. At first, the usual preliminary characteristics of slight gastro-intestinal disorder ensued, with vomiting, some slight distention, a little pain, slight fever and then disappearance of symptoms in forty-eight or sixty hours, no abdominal reflexes, no tenderness, no pain. The man was quite an athlete and amused himself by contracting his own abdominal muscles in order to show us that he was absolutely free from pain. Notwithstanding the fact that we urged operative procedures, he refused until the onset of symptoms of peritonitis in two or three days, which were then characteristic. The toxemia was sufficient to carry him off inside of forty-eight hours, notwithstanding the fact that we had an operation and found that he had a gangrenous appendicitis. The only serious symptom that he had was that due to distention of the abdomen. Of course, the peritonitis was recognized by the other phenomena of disease.

DR. C. F. HOOVER, Cleveland: The dissociation of sensory percepts in tabes brought out by Dr. Litchfield, recalls to me a similar experience with a patient with Pott's fracture which was perfectly painless. The man could perceive the vibration of the tuning fork perfectly well. If the fragments were rubbed together he would say "I can feel a grating, but can feel no pain."

DR. LEWIS A. CONNER, New York: The patient had, in the last two or three days of his illness, moderate distention, although the abdomen still remained soft. Of course, as Dr. Musser says, cases of appendicitis do sometimes occur, especially in children, in which the usual symptoms of pain, tenderness and muscular rigidity are almost entirely lacking; but, in my experience at least, some one or other of these symptoms has always appeared at some time in the course of the disease. In the case under discussion, it was the complete absence of these symptoms throughout the entire illness that made it seem so remarkable.

TEACHING THE PRINCIPLES OF SURGERY *

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The surgical practice of twenty-five years hence will be what the surgeons of to-day make it, but the teachers of our medical schools cannot accomplish needed reforms until the members of the profession as a whole recognize the importance of such changes and give their support. When we consider the conditions in medical education twenty years ago—no preliminary requirements for medical study, a two years' course and little clinical and laboratory teaching—we realize how much has been accomplished. The higher place of the profession in public regard, better medical care for our own families and friends, larger fees, with the increased comfort and pleasure in living that they bring, have resulted from the efforts of the veteran leaders in the profession of to-day. These changes have not been brought about in a day, but are the result of long-continued and united effort. There is no possibility of standing still; we must advance or

6. *Maladies de la moelle épinière*, Nouv. traité de méd. et de thérap., 1909, xxxiv, 585.

* Read in the Section on Surgery of the American Medical Association, at the Sixty-first Annual Session, at St. Louis, June, 1910.

fall back. It is difficult or impossible to influence the work of the older members of the profession. Our chief hope for better things lies in more efficient training of the students who are to make up the body of practitioners ten years from to-day.

SOME FAULTS OF PRESENT SURGICAL TEACHING

One great fault of present-day teaching is that too little consideration is given to the relative value of what is taught. In practically all of our medical colleges surgery is taught as if all the graduates were to become surgeons. In much the same way instruction in nose and throat, eye and ear, or in anatomy, is given as if our medical graduates were all to be specialists. Relatively few graduates will actually practice major surgery, yet in several schools the students are taught to perform gastro-enterostomy on animals, in many cases apparently to the neglect of instruction how to treat a carbuncle, felon or lacerated wound, which every graduate, whether a surgeon or a general practitioner, should know how to handle. This is true of many other of the common surgical diseases and injuries, which are more or less neglected while the students are taught the technic of major operations which most of them will never perform. It seems almost unnecessary to insist that medical students should be taught most thoroughly those things which all practitioners should know, whether they specialize in surgery or not. Among these important fundamental topics may be mentioned anesthesia, antiseptics, the arrest of hemorrhage, more thorough training in surgical diagnosis, symptomatology and prognosis, and the treatment of common forms of surgical disease and injury. Such men as are ambitious to specialize in surgery should give themselves the years of training in hospitals and as assistants to experienced surgeons which alone will fit them to undertake major surgery safely.

The clinical teaching of to-day has undoubtedly many advantages over the strictly didactic teaching of former years, but there is still too much teaching at long range. A clinical lecture before an amphitheater full of students too far away really to see anything is not necessarily a better form of teaching than the didactic lecture; the subject is far less likely to be well thought out and to be clearly and systematically presented. In both the general clinic and section teaching there is always the temptation to present the unusual and rare conditions, conditions which interest the teacher, to whom the ordinary disease and injury are commonplace. As a result of this tendency many of our present-day graduates are quite as likely to be better posted on the latest technic of blood-vessel suture or brain surgery than on the diagnosis of appendicitis or gall-stones, to say nothing of the treatment of leg ulcer. And, finally, the value of student acquirement is tested by a written examination in which the man with the glibest gift of language succeeds best, but which is really scarcely a more rational way of testing a student's practical knowledge than it would be to test a tailor's ability to select good material and make a well-fitting suit of clothes by a written examination. As long as the student knows that the chief criterion of his work is to be a written examination he will devote a large part of his time to cramming for such examination at the expense of those facts with regard to diagnosis and treatment which will serve him best in actual practice. Experience of many years in Germany has demonstrated that there are other ways than the written examination of testing the fitness of a student. There, clinical and

laboratory examinations are regularly given, and it is encouraging to note that many of our hospitals and some state boards are beginning to require some such tests.

TOO LITTLE ATTENTION TO TEACHING SURGICAL DIAGNOSIS

Nearly all who are familiar with the situation in modern surgery will admit that a very large number of patients whose best interest demands prompt surgical care fail to get to the surgeon early enough and in many cases not at all. In the acute diseases, especially abdominal and bone diseases, the results to the patient are often disastrous. The blame for this state of affairs lies in large part at the door of our teachers of surgery. The hours which should be spent in teaching surgical diagnosis are given over to clinics which are more useful in demonstrating to the student the skill and boldness of their teacher as an operating surgeon than those subjects which would be really most useful to them in practice.

Hence it comes that many cases of early joint tuberculosis, osteomyelitis, flat-foot and other conditions are treated for rheumatism until the patient's chances for satisfactory recovery are greatly reduced; hence cases of chronic appendicitis, gall-stones, gastric cancer and ulcer are frequently treated for dyspepsia until the favorable time for surgery is past; hence many unnecessary deaths from intestinal obstruction, perforated gastric or intestinal ulcer; hence in many cases chronic ulcers or gall-stones give rise to cancer, or the ulcerated cervix, uterine fibroid or benign breast-tumor undergoes malignant change. The original condition is readily curable; neglected, it too often results in a hopeless situation. These facts regarding malignant degeneration of benign growths and influence of chronic irritation and ulcer in causing cancer have been often reported by reliable observers. We cannot make a skilled diagnostician of every practitioner, but more teaching of surgical diagnosis instead of operative surgery will certainly help.

LABORATORY METHODS IN TEACHING ANTISEPSIS

When, as has sometimes happened in the past, a surgeon gets into trouble with infection, he calls in the bacteriologist to locate the break in technic. We then acknowledge that the laboratory is the final test of our aseptic and antiseptic technic. Why should we not study hand disinfection, sterilization of instruments, sutures and ligatures, dressings and textile materials in the laboratory? For six years such laboratory teaching in antiseptic technic has been given the students of Ithaca division of Cornell University Medical College, and from this practical experience it has been found that such laboratory teaching can be given within a very limited laboratory period, providing the course is well organized. The students are greatly interested in the work and get great benefit from it. When such first-hand teaching of the value of antiseptic methods is common the widely advertised proprietary antiseptics which are claimed to be as powerful germicides as phenol and mercuric chlorid will not have so wide a sale.

In such laboratory teaching the students are assigned several of the more generally used methods of skin disinfection. They smear their fingers with a bouillon culture of bacteria, some using an ordinary vegetative form and some a spore-bearing form. Non-pathogenic bacteria may be used to eliminate any possible danger of infection; for example, *Bacillus subtilis* is a harmless germ to use but very difficult to kill. After rubbing the culture into the skin thoroughly the student proceeds to

scrub as he would for an operation. Two tests of the efficiency of the clean-up are made. First, a piece of sterile string is drawn through the fingers several times, giving about the amount of friction one gets from ordinary handling of instruments and materials. The string is then dropped on an agar slant, and placed in the thermostat, where developments are watched. Second, to ascertain whether the deeper layers of the skin have been disinfected, the superficial epithelium is scraped off with a sterile scalpel and some of the deeper epithelium is put on a culture medium. Before these tests of results are made the excess of antiseptic is washed off with sterile water. Results show that a fairly long and thorough scrub is necessary if complete disinfection is to be obtained, and that there is a decided difference in the value of commonly used methods. To test the thoroughness of disinfection of materials a piece of string saturated with culture is placed in the inside of various pads which are tested in the ordinary steam sterilizer without pressure, the formaldehyd sterilizer, the hot-air sterilizer and the autoclave with superheated steam under pressure. These experiments easily show the students the superiority of superheated steam under pressure and that under ordinary conditions it is about the only reliable and practical agent by which spores in textile materials may be certainly killed.

The disinfection of instruments is tested by grasping a bit of infected string firmly in the jaws of forceps which are tested by boiling, soaking in antiseptic solution and exposure to formaldehyd vapor. It is easy to demonstrate the fact that a few minutes' boiling or soaking in phenol solution will not certainly kill spores and bacteria which may be lodged in some crevice of an instrument. These practical tests of common methods will explain many cases of low-grade infection, phlebitis, embolism and disastrous cases of tetanus which are sometimes considered unexplainable accidents of surgery.

THE TEACHING OF ANESTHESIA

Almost any graduate in medicine, if confronted with the necessity of an operation for himself or one of his family, would consider the choice of an anesthetist next in importance to the choice of his surgeon. Not only the safety but the comfort of the patient is greatly concerned. Practically every graduate has sooner or later to give a general anesthetic, yet students in many schools are still graduated without any practical instruction in the administration of anesthesia.

Three kinds of instruction seem to me highly important in general anesthesia: first, class-room instruction; second, laboratory demonstration, or, better still, individual laboratory work for each student to determine definitely the effect of the more generally used anesthetics on circulation, respiration and, if possible, also on the kidneys. A student who has followed carefully the heart's action on a smoked drum with ether and with chloroform will have no question as to the relative heart depressant effect of these two most commonly used anesthetics. Regular charting of the blood-pressure curve is also valuable, although not nearly so striking as the effect on the heart itself. Such instruction has been given in the laboratory of physiology and pharmacology at the Ithaca division of Cornell University Medical College for several years, and it cannot fail to have a great influence in deciding the intelligent student as to his choice of an anesthetic.

A third and more important matter is instruction in the practical administration of anesthesia. This may be readily managed in such a way as not to prejudice the chances of the patient. Any surgeon who has enough operative experience to fit him to teach at all should be able from his own clinical material to give his students at least a limited practical experience in general anesthesia. I am accustomed to detail each student of my class in turn to go with the anesthetist during one or more general anesthetics. The student is instructed about the amount of anesthetic to use, indications for more or less anesthesia, how to hold the jaw, protect the eyes, look for false teeth and many other details which experienced anesthetists always keep in mind. After observation of the anesthetist and practical instruction in one or more cases the student is allowed to give the anesthetic himself, always under the direction of an experienced anesthetist. Some students give twelve or fifteen anesthetics and become fairly proficient. Practically all of them are impressed with the importance of the subject and become familiar with a few, at least, of the principles. All are certainly much better equipped to give a general anesthetic than they would be if the subject of anesthesia was entirely neglected in the class-room and no practical instruction given, as was the case when many of us graduated in medicine. The laboratory work, together with thorough discussion of the subject in class, adds much to the value of the practical instruction in the operating room. The student has thought about the matter before, knows what to look for, what to observe and gets much more out of a few carefully supervised anesthetics than he would from many times the number given haphazard without any previous thought on the subject.

USE OF CURRENT LITERATURE RATHER THAN EXCLUSIVE USE OF TEXT-BOOKS

The progress of medical men after graduation is influenced greatly by the journals and books which they read and the way in which this reading is done. The average text-book is fully five years behind in many important topics. Considering the great value of systematic reading of journals, it seems worth while to try to stimulate students to do independent reading, to select the valuable from the worthless and to economize time in getting over the vast literature which is appearing to-day. With this object of teaching students better to use surgical literature, during the past five years I have in certain subjects assigned articles in current journals rather than in text-books. As an example, in studying the subject of general anesthesia the students have been assigned articles dealing with the effects of general anesthetics on the heart, the kidneys, articles reporting large series of spinal anesthetics, ethyl chlorid and nitrous-oxid anesthetics, local anesthetics, etc. Each student has to make a short written abstract which can be read in five minutes. Several of these abstracts are read, criticized and commented on in class at a kind of conference. With a few suggestions on the selection of the important from the unimportant in medical reading, it is surprising how well the average student will succeed in getting the meat from a journal article. Many of the abstracts compare very favorably with the abstracts appearing in most of our medical journals. Each student gets a good deal of definite knowledge about one of the subjects, and in the class discussion he hears the latest ideas, culled by other students from other articles. In this way the entire sub-

ject can be covered by abstracts taking up various phases of the question and the students are invariably much more interested than in text-book recitation work, and they get the latest knowledge. They also become familiar with some of the best journals and know where to look for reliable information when they are thrown on their own resources. Very much of the progress of most practitioners depends on their ability to use surgical literature efficiently, and without much systematic, effective reading, very few men keep abreast of modern methods. It requires a little additional thought and good judgment on the part of the teacher to select and assign references for the subject under discussion, but it is surprising how easily possible it is to get together a student symposium on almost any surgical topic from the current literature if one has this method of teaching in mind. A difficulty is too much good material to assign rather than too little.

Thus far I have spoken chiefly of the faults of present methods of teaching and of a few methods which seem better adapted for instruction than those now in general use. Far more important than methods of teaching is the quality and previous preparation of the students who are to be taught, the qualifications and the abilities of their teacher and the facilities for work. With regard to the student himself and his preliminary preparation for medical study, I believe that few if any teachers in universities requiring a college degree as a preliminary to medical study would feel satisfied to go back to teach high-school graduates. It is true that the higher entrance requirement shuts out some worthy men, but there will always be plenty of schools that will offer these men as good facilities for work as they can profit by. If the secondary schools would rearrange their curriculum and select only those subjects necessary for college entrance it would be possible for students to take the preliminary degree at 21 without any difficulty, and this is really about as early as a man can profitably begin the study of medicine. With such an arrangement a student would take practically all of his science work in a college, where facilities for teaching are far better than in any except in a few of the best preparatory schools.

The ideal medical school should be a department of a well-established university, for the universities are in a position to uphold the higher standard of education. In too many cases the university only lends its name and has no influence in appointment of teachers, in methods or standards of work, maintenance of the indispensable laboratories and clinics or financial support for expensive teaching. The financial rewards of surgical practice are great enough so that special effort is necessary to get men who will devote sufficient time, thought and effort to teaching. Conditions in engineering and law are similar, but have universities not done much more for these than for surgery and the practical branches in medicine? Even some of our best universities at present are obliged to choose their professors because of their affiliation with some large hospital which supplies clinical material. The university clinic should be independent of outside influences and the university should be free to choose as professors any man of ability, regardless of hospital connection. A university surgical clinic used for the joint purposes of relieving the sick, teaching, and investigating important problems, is as necessary a part of the equipment of a university as the laboratory of chemistry or of anatomy. In selecting teachers of surgery, teaching ability as well as operative skill should be considered. In

some cases the professor of surgery is appointed because of hospital connection, and the hospital connection comes as a result of political, financial, social or even religious influences. Such factors should not figure to any extent in appointments. The professional and teaching ability and high character of the man should be the test. The university medical college can best maintain the necessary high standard for entrance and solid requirements for work during the course and for graduation.

While there are many teachers among us who are devoting much thought and effort to their teaching and accomplishing great results, there is probably no subject in the medical curriculum more poorly taught than surgery. This is easily understood when we remember that a majority of teachers in surgery devote nine-tenths of their thought and effort to the practice of their profession and one-tenth to teaching. Practically all teachers are inadequately paid considering the compensation which a surgeon can earn in the actual practice of his profession. Not all successful practitioners are good teachers. A certain amount of practice in teaching is important to successful teaching, and the man who is ambitious to teach might well begin in a subordinate position early. Men of scholarly tastes and good ability who are willing to make some sacrifice should be given the preference, but they should be sufficiently well paid so that they can afford to devote a reasonable amount of effort to actual teaching. Ability to present a subject clearly and systematically is to a great degree born with the man, and born teachers should be sought for and promoted in this country as they are to-day in Germany.

The general public is really most concerned of all in the efficient teaching of surgery. The field of surgical intervention is widening every year. In the future more than in the past the health, happiness, efficiency and even the lives of a large number of people in every community will depend on the judgment and skill of the surgeons of their community. When the public realizes this more fully, support of our medical colleges and research laboratories will be much more liberal than it has been in the past. All the profession are also concerned, not only for the welfare of ourselves and our families, but for the honor and prestige of our profession. The student is concerned, for on the efficiency of his instruction depends much of his success in earning a livelihood. Our universities are concerned, for the progressive work of their teachers will spread their name and fame to the community. Those at the head of educational affairs in our universities have accomplished great things in the past and much will depend on their interest and effort whether they progress as rapidly in the future. The whole medical profession must work for better methods of teaching in surgery as well as in other subjects. The Medical Council of the Association has done splendid work during the past few years, and we may look for a great deal from their effort in the years to come.

CONCLUSIONS

To recapitulate some of the methods and conditions which seem likely to promote ideal teaching: Emphasis should be laid on the principles and methods rather than on a mass of disconnected facts presented without coordination. Thorough study of a few essential subjects is much to be preferred to a superficial covering of much ground. Antisepsis and arrest of hemorrhage may well be taught by practical work in the laboratory and operating room as well as in the class room. Anesthesia

should also be taught in the laboratory and operating room as well as in the class room. Practical and laboratory tests should be given when possible, instead of written and oral examinations. Current literature can be profitably used in some cases instead of exclusive text-book instruction. University connection and standards of work are desirable. The university should control its independent hospital, where students will have an opportunity to study important surgical diseases and injuries throughout the entire course of the cases. Surgical diagnosis should be given more attention than major operative surgery. The public should be trained to appreciate the importance of sound medical and surgical teaching and urged to supply sufficient funds so that our universities and clinics can be well equipped and supported. Surgical teaching should be paid liberally enough so that a professor can afford to limit his practice and devote the necessary time to well organized, systematic teaching without too great sacrifice. Many of these ideals are practical and realized or being realized in some schools. Other conditions demand earnest and united effort of the whole profession if we are to advance in future as in the past.

ABSTRACT OF DISCUSSION

DR. J. CLARK STEWART, Minneapolis: We have certainly come to the parting of the ways in surgical teaching, and both standards and methods of teaching need revision. All physicians are familiar with the readiness of recent medical graduates to rush in and do major surgery, their first attempts at abdominal operations being saved from fatal results by the grace of God and access to a clean operating-room. These operations preserve the life of the patient, but how little benefit is often obtained in the absence of careful diagnosis and knowledge of the conditions exposed! Our older methods of clinical teaching, by which the teacher, depending for his remuneration entirely on the glory attained among his students, presented to them only the most showy and unusual operations, together with the general exaltation by the profession of technical skill over pathologic knowledge, is largely responsible for this attitude. All this must be changed. Pathology and diagnosis must be taught, and the operative clinic must be minimized. Clinical teachers must be paid for their time, and must teach students surgical diagnosis at the bedside and in the amphitheater. Each school should have its own hospital, where extern work can be done by all advanced students, and the operations before the class should be restricted, so far as possible, to the cases carefully studied by the students. Clinical examinations, where students actually diagnose surgical conditions, are most important tests of student knowledge.

The need of improvement in surgical qualifications is a crying one, and well understood by the laity, who are becoming restive under the indiscriminate operations of the profession. In Colorado recently this feeling culminated in a bill to restrict the practice of surgery to the licensees of a state board appointed by the governor. This bill, fortunately, was defeated, for although the end desired was worthy, the means assigned needed much improvement. Such legislation is likely to be advanced in other localities in the near future, and the profession must be prepared to meet the demand for better and more responsible surgeons. In Minnesota we are going to anticipate such popular demand by offering an advanced degree in surgery, master in surgery, open to graduates of reputable schools of five years' standing, including one year's satisfactory hospital service and based on the results of one year's work in surgery done in residence in the University of Minnesota. We think this degree will be popular and that enough of our younger surgeons will avail themselves of it to form a nucleus of high standard men to whom the public will look when they ask for higher surgical qualifications.

DR. L. J. HIRSCHMAN, Detroit: The trouble has been that the faculty of the average medical college has consisted largely of general surgeons, so that the students have received a lopsided education in surgery. Then they are turned out to be abdominal surgeons. How many students are taught how to treat a simple case of hemorrhoids or to enucleate a tonsil, which everybody is called upon to do? There has been too much spectacular amphitheater teaching and too little real teaching. State boards must require a more rounded-out education than they now do. The Association of American Medical Colleges mentions in its curriculum twenty-seven different subjects; diseases of the rectum and anus are not included in the list, but are supposed to be taught under general surgery, though as a rule they are not. There is no subject which is so important and which is such a fruitful source of income for the advertising quack.

COMPRESSION OF THE SPINAL CORD CAUSING PARAPLEGIA

AND ITS SURGICAL TREATMENT *

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The conditions which demand surgical interference in paraplegia due to compression of the spinal cord are by no means clearly defined. There are two chief reasons for this: first, the difficulty in diagnosing accurately the cause of the paraplegia; and second, the difficulty of distinguishing between cause and effect when we attempt to determine the results attained by our surgical interference. When a cure results after operation it is often impossible to make sure that recovery would not have ensued had Nature been left unaided to pursue her course. Nevertheless, it is obvious that certain cases are definitely improved by surgical interference, and not infrequently it holds out the only hope of relief. In attempting to define the indications for operation I have made a study of fourteen cases which have come under my care.

Hemorrhage within the neural canal may be the cause of the compression. This may be extradural from rupture of the spinal veins, or subdural; or it may be into the substance of the cord. When an interval of time elapses between the infliction of the injury and the occurrence of the paralysis the possibility of the compression being caused by extravasated blood must be borne in mind. This point is illustrated in the following cases:

CASE 1.—A man fell from a height of 16 feet to the ground, he got up, picked up his hat, which had fallen off, and used both hands to put it on his head. He said that he was not hurt and walked four or five yards to his house where he lay down on the sofa. Five or six minutes afterward he observed a numb sensation in his arms and hands and he rapidly became completely paraplegic below the sixth cervical spinal segment. Operation was refused and the man died six months after the injury without improvement.

CASE 2.—A man, aged 35, fell off the top of a lumber-pile 8 feet to the ground. He got up with the help of two men and having his arm over the shoulder of each he walked to his house 50 yards distant, being able, though weak, to move one foot in front of the other. Within an hour he became completely paralyzed below the seventh cervical spinal segment. He died a year afterward without any

* Read in the Section on Surgery of the American Medical Association, at the Sixty-first Annual Session, at St. Louis, June, 1910.

material improvement in his condition. On autopsy a transverse fracture of the sixth cervical body was found without forward dislocation, the anterior posterior diameter of the neural canal was narrowed to one half its normal width. Unfortunately no examination of the cord was made.

It may be impossible to determine whether the hemorrhage is extradural or beneath the meninges. Severe pain may indicate pressure on the nerve-roots, where considerable hemorrhage has occurred, either within the dura or outside of it. On the other hand, hemorrhage into the cord is more likely to give definite and isolated tract lesions, so that we may have such conditions as "crossed paralysis," etc. Then, again, hemorrhage may be confused with the effects of congestion at the seat of injury. The results of hemorrhage are likely to manifest themselves at an early date, often within a few minutes after the injury, while the paralysis due to congestion may be deferred for twenty-four hours or more.

Where there are symptoms pointing to hemorrhage outside the cord causing paralysis, it is, I believe, the better plan to operate at an early date and not to delay with the hope that absorption of the clot may take place. The fact is that absorption may not occur and valuable time may pass during which operation might have been of service. This was illustrated in the following case:

CASE 3.—A lad 10 years of age was accidentally shot in the neck. The bullet (22 caliber) was extracted above the right shoulder-blade. The patient was immediately paralyzed below the eighth cervical spinal segment. Four months and a half subsequently laminectomy revealed dense connective tissue surrounding the dura, due possibly to a perithecal inflammation, or, more likely, an old hemorrhage with organized blood-clot. The dura beneath appeared quite normal. No improvement followed the operation. It is now nine and a half years since the injury, and the lad is still alive in the Home for Incurables, Toronto.

It is obvious from this case that surgeons are wrong in teaching that bullet-wounds producing cord lesions should be left without operation.

Individuals who are subjected to severe injury to the spine and the cord may succumb to the initial shock, death usually taking place within a few days of the accident. This is illustrated by the two following cases:

CASE 4.—A man aged 30 was admitted to hospital. Four hours previously he had fallen 12 feet and been struck by a plank as he fell. He became immediately paralyzed below the seventh cervical segment. The patient died within a week of the injury, never having recovered from the shock.

CASE 5.—The patient was a laborer aged 30, on whose back a brick chimney fell from a height of 10 feet. Complete motor and sensory paralysis below the level of the eighth dorsal segment occurred immediately. On admission the patient was in a state of complete collapse from which he rallied somewhat but died on the third day. Autopsy revealed a fracture dislocation at the level of the sixth and seventh dorsal vertebrae.

Acute flexion of the cervical spine producing stretching of the cord with hemorrhage into its substance is noted in one of my cases.

CASE 6.—A lad, 14 years of age, was standing in a shed when the roof fell and pinned him down with his neck flexed acutely forward. He was rendered unconscious for a time, but, on being released, found that he had lost the power to move the right leg and both arms and all sensation in both arms and legs. Twenty minutes after the accident sensation began to return, but voluntary control of the muscles was only gradually restored. In the course of a few weeks, however, the patient was able to walk fairly well. Twelve weeks after the accident his medical attendant is said to have operated for the purpose of removing a piece

of bone which was pressing on the spinal cord. The immediate result of the operation was completely to abolish motion and sensation in the upper and lower extremities. Subsequently this was restored to a limited extent but the condition did not change much for twelve months; then the patient came under my observation. There was then extreme wasting of the muscles of the upper extremities, but the loss of motor power was not absolute. There was almost complete paralysis of the trunk muscles and those of the lower extremities, but there was no impairment of sensation, and the bladder and rectum were under voluntary control. There had obviously been destruction of the anterior horn of gray matter of the brachial enlargement below the sixth cervical segment with damage to the motor conducting paths. The sensory conducting paths had evidently escaped injury. The patient died unimproved of pneumonia five years after the accident.

Early operation for the relief of compression after fracture is occasionally instrumental in restoring function, notably in those cases in which the compression is caused by fragments of the neural arch which have been driven forward into the neural canal.

CASE 7.—A man, aged 37, was struck on the top of the head and knocked over on his back. Paralysis below the fourth lumbar segment immediately ensued. At operation, which I performed, fifteen days after the accident, the neural arch of the third lumbar vertebra was found to have caused a rent in the dura mater; it was depressed on the cauda equina. The lamina of the second lumbar vertebra was also fractured and depressed and there was a small quantity of blood-clot in the neural canal. Sensation was restored and motor power gradually improved. By the end of the third month the patient had complete control of the bladder and rectum. At the end of the year he could walk with very slight assistance and complete recovery seems probable.

The benefit of operation in such cases is also illustrated in the following case:

CASE 8.—A lad, aged 16, was hit on the back by a falling tree and immediately lost sensation and motor power below the first lumbar segment. Laminectomy was performed on the thirty-second day after the accident. The laminae of the twelfth dorsal and first lumbar vertebrae were fractured and the superior articular process of the first lumbar was also fractured. These fragments of bone were driven into the neural canal, and there was a rent 1 cm. long in the dura mater. Two days after the operation sensation began to improve, and one month thereafter some restoration of motor power was noticeable. Gradual improvement took place. It is now two years and eight months since the operation and the patient is able to stand with slight support but he cannot walk alone. He has, however, complete control of the organic reflexes, giving him control over the bladder and rectum, and this fact alone would be sufficient to warrant operative interference, if, indeed, in this case the restored function is to be attributed to the surgical measures employed.

It is quite impossible to determine with absolute certainty that the spinal cord is completely severed. Undoubtedly the most reliable sign of a complete transverse severance of the cord above the lumbar enlargement is the complete and permanent abolition of the knee-jerks and ankle-clonus; but valuable time is lost if we wait for this test in traumatic cases. One must urge that in the light of experience we should operate early where doubt exists. The following is an instance in which, unfortunately, the damage to the cord was irreparable:

CASE 9.—A man, aged 40, fell 8 feet and injured his spine. Doubt existed as to the amount of damage to the cord. There was complete paralysis of sensation and motion below the tenth dorsal segment. Three days subsequently laminectomy was performed. The left inferior articular process of the ninth vertebra, along with a

portion of the neural arch, had been driven in on the cord, which was completely severed and pulpified, the two ends being separated nearly 2 cm. The wound healed by a primary union, but the patient died suddenly 25 days after the operation from pulmonary embolism, which at autopsy was found to have originated in the prostatic venous plexus, the thrombosis there having possibly been induced by the frequent use of the catheter.

Passing now from traumatic lesions of the spinal cord, I shall refer briefly to compression paraplegia the result of disease. The most common condition here is that encountered during the progress of spinal caries. The cause of the compression may be thickening of the dura (pachymeningitis), a collection of caseous material in the neural canal, or the pressure of an abscess. A tuberculoma may exist in the interior of the spinal cord, as in a case reported by Kraus and McGuire.

Paraplegia in Pott's disease is frequently amenable to less severe measures than laminectomy. Many patients may be cured by rest with extension, but occasionally operative interference is necessary, and it certainly is so in cases in which abscess is the cause of the trouble.

In the two following cases, in which I operated, I found an abscess invading the neural canal from in front and pressing on the spinal cord:

CASE 10.—A man, 60 years of age, with compression paraplegia more or less complete and due to spinal caries, the symptoms having existed for two years, was subjected to laminectomy. The sixth, seventh, and eighth dorsal laminae were removed. The cord was compressed by an abscess which had invaded the neural canal in front of the dura. The man died, forty-one days after the operation of tuberculous meningitis. The autopsy showed a sterile condition of the mediastinal abscesses, which contained no longer fluid, but a mass of caseous material which had replaced the pus.

CASE 11.—The patient was a child 6 years of age with paraplegia from Pott's disease existing for eighteen months prior to operation. Pus was found in the neural canal at the level of the fifth dorsal vertebra. The wound healed completely, but the child was unimproved and died eighteen months after the operation. Unfortunately no autopsy was obtainable.

The lesson I have learned from these two cases is that operation for the relief of paraplegia in Pott's disease should not be deferred too long. I did not have an opportunity of operating at an earlier period, but I am sure that the chances of success are diminished when operation is postponed beyond a reasonable time. I should urge that if paraplegia is not relieved after treatment by extension applied for, say, three months, then laminectomy should be done unless contra-indicated by the general condition of the patient.

It is obvious that in many instances, notably in tumors, valuable time is lost while medicinal measures are persisted in. Meanwhile the cord is damaged beyond repair, and operation is undertaken too late to effect a cure or again a malignant growth may have advanced so far that radical removal is impossible.

My point is illustrated by the following case, in which a tumor pressing on the spinal cord produced paraplegia, but operation was not undertaken until it was too late to eradicate the growth:

CASE 12.—A man 52 years of age with symptoms of impaired sensation and motion below the seventh dorsal segment was treated assiduously by drugs for some two years when laminectomy was performed, and a sarcomatous growth revealed, which was pressing on the spinal cord at the level of the fifth dorsal vertebra. Subsequent to operation a certain amount of motor power returned but pressure symptoms recurred and the patient died eleven months after operation.

At autopsy extensive recurrence of the growth was demonstrated.

Similarly, in the following case, operation was undertaken too late:

CASE 13.—A girl, 19 years of age, for eight months prior to admission, had had progressive weakness of the lower extremities with a dull pain over the sacral region and extending down the thighs, and finally loss of the organic reflexes. Distribution of the areas of disturbed sensation was symmetrical on the two limbs and indicated a lesion involving the spinal cord below the third lumbar segment. Laminectomy was performed, and a soft gelatinous material was found lying on the dura. This was removed. The patient subsequently improved to a marked but limited extent with restoration of sensation and voluntary motor power, also some control over the bladder and rectum. After the lapse of two months she again began to lose ground. Five months subsequently a tumor under the left iliolumbar muscle proved to be a round-celled sarcoma. The patient is still alive, seven months after the first operation, but rapidly going down hill.

The following case illustrates the impossibility of determining the existence of a tumor pressing on the cord. Operation was clearly indicated and in such cases should always be carried out early, before the cord is damaged beyond repair.

CASE 14.—A man, 30 years of age, complained of pain and stiffness in the back of the neck, extending down the limbs, with great weakness in the legs. These symptoms have gradually developed for a period of two years. Immediately prior to operation the paralysis was almost complete below the level of the fourth cervical segment and a laminectomy was performed, removing the fifth, sixth, and seventh cervical arches, when a vascular membrane was found on the surface of the dura and was removed. Three days after the operation, sensation began to improve and there was a gradual return of motor power, so that in the course of two months the patient had made an almost complete recovery and has now for more than a year been able to work continuously as a laborer. Dr. Goldie and I have elsewhere reported the case as one of cervical hypertrophic pachymeningitis in which it was impossible to determine prior to operation whether or not a tumor was present. It is of interest to observe that the removal of a very small mass of tissue seemed to produce very definite improvement.

The question of the advisability of seeking relief by operative procedure in compression paraplegia is by no means one in which there is unanimity of opinion among the profession. One may say that in studying the series of fourteen cases presented in this paper one may come to certain conclusions which seem justifiable. We may dismiss at once the cases in which paralysis occurs as the result of compression in Pott's disease. Undoubtedly the patients should be submitted to operation when one fails to effect a cure by efficient rest and extension. The brilliant results obtained by operation in many instances is illustrated by a paper recently published by Mr. Donald Armour,² in which he records the history of a patient in whom a large abscess surrounded the cord and implicated the laminae and bodies of the third and fourth cervical vertebrae. The abscess was opened, curetted and closed without drainage and healed by first intention. After four and a half months the patient was able to walk without assistance.

Similarly it is obvious that if a new growth is the cause of the compression the tumor should be removed

1. Goldie, W., and Primrose, A.: A Case of Cervical Hypertrophic Pachymeningitis with Exploratory Laminectomy, *Canadian Pract. and Rev.*, 1909, xxxiv, 135.

2. Armour, Donald: Cervical Caries: Operation and Recovery, *Proc. Roy. Soc. Med.*, 1908, I, Neurol. Sect., p. 61.

when that is feasible. The consensus of opinion at present would suggest that even when the growth is a syphilitic gumma operation for its removal is a wiser course than an attempt to cause its disappearance by the administration of drugs.

Pearce Bailey³ quotes Stursberg to the effect that the percentage of cures in operation for tumor of the spinal cord is 32.2 per cent., but it is obvious that hitherto surgical interference has been delayed far too long in the majority of instances. The operation of laminectomy carefully carried out is not a dangerous procedure. I have not failed to get sound union in all the cases in which I have operated and there has been no operative mortality. Moreover, the stability of the spinal column is not appreciably interfered with by laminectomy.

Horsley,⁴ reporting twenty-one cases, describes the condition of chronic spinal meningitis in which the symptoms simulate tumor and which is relieved by opening the theca and washing out with strong mercurial lotion. In his cases there was excess of cerebrospinal fluid under pressure. Bliss⁵ describes a somewhat similar condition as "cysts within the spinal canal" and Spiller has recorded a case of like nature.

Paraplegia the result of traumatism presents a more difficult problem. Allen⁶ of Philadelphia published the history of nine cases with post-mortem findings. His observations lead one to conclude that regeneration of the cord after complete transverse lesion is impossible, and this view is maintained by Spiller,⁷ Murphy⁸ and others.

Murphy records the results of experiments on dogs by various investigators and shows that in complete transverse section in these animals there is no restoration of function.

In the human cord restoration of function after division has not been demonstrated. It is true that there are some cases on record which would inspire the hope that regeneration of the cord might be possible after division.

Shirres⁹ and Armstrong attempted to secure regeneration in a severed cord in man by placing a segment, 3 inches long, of the spinal cord of a large dog alongside the severed ends of the spinal human cord. The patient unfortunately died of a large abscess in the kidney three and a half months after operation. Up to that time there had been some subjective sensations in the lower extremities and in the lower abdomen, and a certain amount of tone was observed in the muscles of the right thigh and leg. At autopsy the dura and tissue at the site of the grafting experiment showed a mass of minute myeline sheaths of nerve fiber, which lay closely adherent to the dura mater, and when traced upward and downward united with the segments of the cord above and below.

A case is recorded by Harte and Stewart¹⁰ of bullet wound in the mid-dorsal region in which the severed cord was sutured with partial restoration of function; and the report of a somewhat similar case with partial success is published by G. R. Fowler.¹¹ In such instances, however, one must entertain the suggestion that the severance of all conducting paths of the cord was not complete. Moreover, in operating on the injured cord it is not always easy to determine the exact amount of damage; the careful operator is willing to leave the cord undisturbed when all pressure is relieved, knowing full well that very slight manipulation of it may do further irreparable damage. Solieri reports a case most favorable for successful results after suture if such were attainable. It is that of a clean severance of the cord at the third dorsal segment by a long knife. Suture sixteen hours after injury was performed, but with negative results as to restoration of function.

It seems an undoubted fact that regeneration of the severed cord is impossible. Repair of nerve fibers ceases where the primitive sheath ends; the latter seems necessary for regeneration, and hence the fact that we have restoration of function in severance of peripheral nerves but the absence of such restoration in severance of the cord.

Kilvington¹² of Melbourne suggests the feasibility of nerve-crossing in the neural canal in cases of severed cord, and he has had most encouraging results in experiments on dogs by suturing the central end of one of the limb nerves to the peripheral ends of the nerve supply to the bladder and rectum. If it is possible by such means to restore control over the bladder and rectum it would indeed greatly diminish the misery of many unfortunates. He finds on the human cadaver that it is possible to unite the eleventh and twelfth dorsal, and possibly the tenth dorsal, directly to the second, third and fourth sacral nerves. The operation would necessarily be severe, and of course there would always be a danger of making matters worse by such operative measures.

Spiller concludes from his experiences that in most cases operation may do harm. He is not prepared to assume, however, that operation should not be performed in any case of fracture. We have undoubtedly learned that our gross manipulation of the spinal cord in operation may do a great deal of harm, but surely there is a possibility of guarding against this, at least to a great extent, and in our technic we should be extremely careful not to do damage. It is possible, for example, to remove depressed fragments of bone without any appreciable disturbance of the cord, and to remove a blood-clot which may be causing pressure. One cannot but be convinced that many such patients are benefited by operation, and without doubt the chances of success are greatly enhanced if the operation is done early. Doubt often exists as to the cause of the compression. After studying 244 cases of fracture of the spine occurring over a considerable period of years in the Boston City Hospital, Burrell concludes that in many instances it is impossible to ascertain, except by open operation, whether the cord is crushed or pressed on by bone, blood or

10. Harte, R. H., and Stewart, F. T.: A Case of Severed Spinal Cord in Which Myelorrhaphy was Followed by Partial Return of Function, *Tr. Am. Surg. Assn.*, 1902, xx, 28.

11. Fowler, G. R.: A Case of Suture of the Spinal Cord Following Gunshot Injury Involving Complete Severance of the Structure, *Ann. Surg.*, 1905, xlii, 507.

12. Kilvington, B.: An Investigation on the Regeneration of Nerves, with Regard to Surgical Treatment of Certain Paralyses, *Brit. Med. Jour.*, April, 1907, p. 988.

3. Bailey, Pearce: The Surgical Diagnosis and Treatment of Tumors In and About the Spinal Cord, *THE JOURNAL A. M. A.*, March 12, 1910, p. 849.

4. Horsley, Sir Victor: Chronic Spinal Meningitis, *Brit. Med. Jour.*, February, 1909, p. 513.

5. Bliss, M. A.: Cysts Within the Spinal Canal, *THE JOURNAL A. M. A.*, March 13, 1909, p. 885.

6. Allen, A. R.: Injuries of the Spinal Cord with the Study of Nine Cases with Necropsy, *THE JOURNAL A. M. A.*, March 21, 1908, p. 941.

7. Spiller, W. G., Musser, J. H., and Martin, E.: A Case of Intradural Spinal Cyst, with Operation and Recovery; with Brief Report of Eleven Cases of Tumor of the Spinal Cord or Spinal Column, by W. G. Spiller, *Univ. Pennsylvania Med. Bull.*, 1903-04, xvi, 27, 56.

8. Murphy, J. B.: Neurological Surgery, *Surg. Gynec. and Obst.*, April, 1907, p. 365.

9. Shirres, D. A.: Regeneration of the Axones of Spinal Neurons in Man, *Montreal Med. Jour.*, April, 1905.

exudate; he further emphasizes the fact that if pressure on the cord is allowed to remain for many hours irreparable damage may take place. I agree with Carson¹³ that unless it is perfectly clear that the cord is immediately damaged an open operation should be done to determine the condition present and to relieve pressure where that is found possible.

It has been demonstrated by several observers, *e. g.*, Allen,¹⁴ Holmes¹⁵ and others that the spinal cord may show very little alteration even on microscopic study and yet in reality may have ceased to be a conducting mechanism. May we not assume that such conditions may result from traumatism and that if so the continuance of conditions which might be relieved by operation may permanently destroy function? On this ground early operative interference is urged in traumatic cases wherever the element of doubt as to the cause of the paraplegia exists.

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TRAUMATIC FACIAL PARALYSIS

ANASTOMOSIS OF FACIAL NERVE TO SPINAL ACCESSORY, AND THE PERIPHERAL END OF ACCESSORY TO THE DESCENDENS HYPOGLOSSI*

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In nerve anastomosis, surgeons recognize the desirability of maintaining, by substitution where possible, the functions of all important muscles.

In paralysis of the face, no matter whether the spinal accessory or the hypoglossal nerve is used, paralysis of the trapezius and sternomastoid, or of the tongue, has been a necessary result, substituting a lesser for a greater evil. If this can be avoided by a more elaborate operative anastomotic procedure, it is a consummation most earnestly to be desired. The following case gives hope of a more promising future. I believe the complete operation in the cure of facial paralysis has not heretofore been done, and, for this reason, I have embodied considerable detail in the technic and clinical history.

Patient.—W. P. B., of Evanston, Ill., aged 26, while in his room at night on Sept. 15, 1908, received a pistol wound, .32 caliber, through his right ear, resulting in considerable hemorrhage and shock, and immediate paralysis of the right side of the face, with complete loss of hearing on the same side. He was confined to bed for two or three weeks, at the end of which time the wounds were healed. There was no evidence in the clinical history that the bullet had entered the brain. Four months and one week after the injury, the patient and his mother came to Denver to consult me as to the possibility of relieving the facial paralysis.

Examination.—This showed a scar at tip of mastoid where the bullet entered. The auditory canal was completely obliterated by bone. The tuning-fork was negative as to hearing; the right face completely paralyzed from the frontalis muscle to the mouth, with the usual facial asymmetry, the right side drooping and heavy from fatty degeneration. The right eye was a source of great discomfort from inability to close it and

from profuse lacerimation. A radiograph previously taken showed the bullet lodged on the floor of the middle fossa in front of the ear. A second one (Fig. 1) taken by Dr. S. B. Childs of Denver showed the course of the bullet through the petrous portion of the temporal bone, leaving fragments of lead in its course and lodging in the middle fossa. From this, and the fact that there was no disturbance of taste, the conclusion was reached that the course of the bullet was forward and upward and cut the facial nerve in the space between the chorda tympani and the stylo-mastoid foramen. The chorda tympani leaves the facial at the lower part of the Fallopian duct where it turns downward, and quits the tympanic cavity just inside of the Glaserian fissure, finally joining the lingual nerve and ending in the anterior part of the tongue. There was no evidence of its being seriously injured. If the facial nerve was severed by the bullet after leaving the foramen, it would complicate the operation and make it difficult to find the stump.

Experiment.—I concluded to use the spinal accessory for the anastomosis; but before performing the operation, I desired to ascertain if it was practicable to make anastomosis of the peripheral end of either the spinal accessory or the hypoglossal, to a convenient motor nerve. With this purpose in view, and by the courtesy of Dr. S. B. Childs and Dr. G. A. Staunton of the Medical Department of the University of Denver, I was given the privileges of the dissecting-room, and with their assistance, dissected the necks of three cadavers, using the accessory and the hypoglossal as the base of operations. The result was the selection and use of the spinal accessory and descendens hypoglossi in the complete operation. It was first performed on the cadaver. The descendens hypoglossi, usually called a branch of the hypoglossal, arises from the first and second cervical nerves, and beneath the base of the skull joins the hypoglossal and accompanies it in the same sheath to the posterior belly of the digastric muscle where they part company. The descendens hypoglossi is distributed to the depressor muscles of the hyoid bone. Below the point of section, it forms a loop with communicating branches from the second and third cervical, which go to the above muscles. No perceptible paralysis of the muscles resulted.

Operation.—The patient was sent to St. Luke's Hospital, where, on Jan. 26, 1909, assisted by Drs. Childs and Staunton, I performed the operation now described. An incision was made through skin and fascia three inches long from just above the tip of the mastoid process down the neck in front of the sternomastoid muscle; then a crescentic incision from the upper angle of the wound beneath the lobe of the ear and terminating in front at the middle of the tragus (the Kocher incision). From this stage, the dissection was continued, chiefly, with the conical handle of a scalpel and blunt scissors. The posterior border of the parotid gland was gently elevated and pushed forward. The ear was pulled upward and working gradually downward and inward in the narrow space between the mastoid process and the ramus of the jaw, the facial nerve was exposed where it enters the gland. To identify it, it was traced to its first bifurcation, in the gland, into the temporo-facial and the cervicofacial branches. The upper or temporo-facial seemed softer and more fragile than the larger or cervicofacial branch. The nerve was now traced and isolated to the stylomastoid foramen; and for convenience in the further progress of the operation, it was not now cut but a large silk loop put around it. The spinal accessory was now found and traced to its entrance into the fascia of the sternomastoid, which is about opposite the angle of the inferior maxilla on a straight line. A silk loop was put around it. The hypoglossal was next exposed. This nerve turns forward and crosses the occipital and external carotid arteries about the central tendon of the digastric muscle. It lies on the hyoglossus muscle and at this point the digastric was cut, posterior to the tendon, and the ends turned out of the way. The descendens leaves the hypoglossal at this point and goes down the neck on the great carotid sheath. A silk loop was put around it. With long, slender, probe-pointed scissors the facial was now severed at the stylomastoid foramen and the stump pulled outward. The accessory was now pulled upward by the silk thread, in order to estimate accurately the place of division, that no tension should exist after union; and for the same reason the patient's

13. Carson, Norman B.: Surgery of the Thorax and Spinal Column, Am. Pract. Surg., 1909, vi, 446.

14. Allen, A. R.: The Symptom-Complex of Transverse Lesion of the Spinal Cord and its Relation to Structural Changes Therein, Am. Jour. Med. Sc., May, 1908.

15. Holmes, Gordon: On the Relation Between Loss of Function and Structural Change in Focal Lesions of the Central Nervous System, with Special Reference to Secondary Degeneration Brain, 1906, iv, 514.

* Read in the Section on Surgery of the American Medical Association, at the Sixty-first Annual Session, at St. Louis, June, 1910.

head was turned, at this juncture, decidedly to the left. The nerve was severed just before its entrance into the sternomastoid muscle, and with the aid of my assistant in holding the ends of the nerves squarely together, I applied the finest linen stitch with a delicate round, curved needle at each side, including probably some of the nerve fibers, and tied them only moderately tight. A third stitch was applied on the inner surface through the neurilemma only. The object of this stitch was chiefly to secure more certainly apposition of the nerve ends against tension. To prevent strangulation from excessive connective tissue proliferation, the sutured ends were enveloped in Cargile membrane. The descendens hypoglossi was severed fully three-quarters of an inch below the bifurcation of the hypoglossal, turned upward and stitched to the peripheral stump of the spinal accessory with the same technic as with the facial. The digastric muscle was reunited with chromicized gut. Not a single vessel was ligated. The original drawing (Fig. 2) made for me by Mr. Frederick Cavallo of Denver, shows correctly the complete anastomosis of the nerves and their relation to the parotid gland and the sternomastoid muscle. The wound was wiped out gently with warm salt solution; the parotid was pressed gently down; the fascia united with a running stitch of No. 1 chromicized catgut, and the skin with subcuticular silkworm-gut. At the upper angle of the wound, the skin stitch was carried once completely through the skin and then continued around the ear as a subcuticular. This

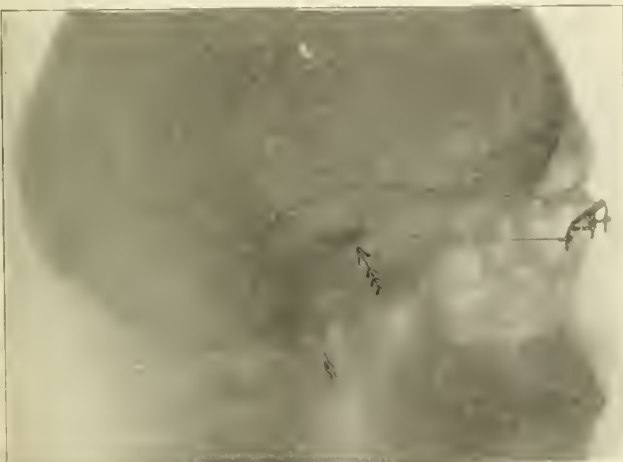


Fig. 1.—Skiagraph taken Jan. 12, 1909, showing lateral view of the head of W. B. with right side next the plate. Spectacles *in situ*. The arrow points to the shadow of a bullet lying in the middle fossa of the skull. The finger indicates the point of entrance of the bullet just in front of the tip of the mastoid process and also the shadows of numerous small pieces of lead which have been chipped off the bullet in its course through the petrous portion of the temporal bone.

technic, in an uneven or long wound, greatly facilitates the removal of the stitch by clipping the loop. The neck was dressed with sterile gauze and bandage. No fixed dressing was applied to head and neck, and the patient was instructed not to turn his head to the left, but if he should inadvertently do so, no harm would result as the nerves were given plenty of slack.

The last complete operation on the cadaver was done in half an hour. On the living subject, two and a half hours were consumed. The anesthetic (ether) was administered skilfully by Dr. Karl Roehrig, and there was neither nausea nor the slightest shock.

Postoperative History.—The patient's two weeks' stay in the hospital was uneventful. The stitch was removed on the tenth day. There was no infection and union was perfect through out. In a week more, the patient left for home in good condition and cheerful in the promise of a good result. He was carefully instructed to use the constant, or galvanic, current five to ten minutes daily, with gentle massage to face, neck and shoulder. As soon as the muscles responded to the faradic current, it was substituted for the constant. This was not manifest until the expiration of three and one-half months.

These important measures were not carried out properly and systematically the first two months, but were afterward. At the end of fifteen weeks, patient noticed feeble, associated movements of shoulder and face. At end of four months, he could voluntarily contract the muscles slightly at the corner of the mouth. I saw him at this time and observed it. A week later, I saw him again and it was distinctly noticeable, showing manifest improvement. Three months after the operation, he could depress and elevate the shoulder with ease, and at the same time could elevate the extended arm above the head, as shown in the photograph (Fig. 5), which, though taken five months after the operation, shows also a perfectly symmetrical face. There was slight atrophy of the muscle of the supraclavicular region, outer half. For two or three months after the operation, there was slight dull pain and a feeling of fatigue of the shoulder muscles after manual exercise, but no other inconvenience from section of the spinal accessory was manifest. In August, he built a sailboat, doing much of the manual labor himself, without pain or discomfort to the shoulder. On August 9, six months after the operation, he wrote me as follows: "In order to play the flute well, it is necessary to have quick and absolute control over the lips. On July the first, I could just make a note with considerable effort, but now I can play a piece through with few mistakes, though I have not absolute control over the instrument as I had before the paralysis occurred." This is conclusive testimony as to the rate and degree of improvement, and is verified by a letter from his father to the same effect. The patient also said that the coincident movement of shoulder and mouth first attracted his attention when he lifted, or pulled at an object, slowing that the facial expression was an involuntary response to a forced voluntary movement of the shoulder at that time. He was in the habit of carrying the right shoulder lower, and had been frequently admonished about it when a student at the Western Military Academy. He was instructed when the photographs displaying the shoulders were taken to assume an easy natural position. Other photographs show the patient's ability to close the eye voluntarily at four months, and the power to contract, retract and balance the muscles of the mouth at five months. When the arm and shoulder were used suddenly and strongly, associated movements were marked from the fifth to the eighth months. After this it was more in harmony with his will and effort to control it. Three months after the operation, the lines of the incision were hardly noticeable at close range. I last saw the patient at the University Club, Chicago, in October, 1909, nine months after the operation. He looked well, was cheerful and happy. The bullet had given no trouble. He talked and smiled without observable paralysis, but when he laughed the disparity was very noticeable. The latter is the last defect and manifestation of weakness to disappear. The associated movements were less marked, and the muscles of neck and shoulders symmetrical. There was no discomfort or weakness in the functions of arm and shoulder, and no atrophy of the trapezius. The entire result was most gratifying.

Ballance expresses the opinion that "perfect symmetrical movements of the facial muscles from emotional stimuli can only be obtained by devoting the whole nerve, either spinal accessory or hypoglossal, to the cure of facial palsy."

Ballance and Stewart¹ say that "degeneration, after a nerve is divided, proceeds just as rapidly though it is immediately sutured to the proximal end; that the axis cylinders are destroyed in six or seven days; and that with the absorption of fats and myelin and the conversion of connective tissue into fibrous tissue, the peripheral nerve is, in six or seven weeks, a fibrous cord."

Regeneration is a slower process. It commences in two weeks after anastomosis, and is manifested in muscular reaction in about four months in facial palsy, but is not completed until a much later date.

Fatty degeneration of the muscles is also worthy of consideration. Though it follows degeneration of the

1. Ballance and Stewart: Healing of Nerves, Macmillan.

nerve, it also disappears coincidentally with regeneration. As long as fatty degeneration exists, the muscles are not likely to respond to the faradic current.

It seems reasonable and natural to believe that, if a divided nerve is immediately reunited to a proximal nerve stem, degeneration of the peripheral end will not be so complete, and that, with regeneration beginning in two weeks, it ought to be completed earlier than is usual in the case of a nerve which has been, from injury or disease, in a state of degeneration for many months or years.

Ballance,² in reporting a case of facial palsy, expresses preference for the hypoglossal for the reason that the



Fig. 3.—Patient, four months after operation: shows facial asymmetry, but improved since operation.

cortical centers of these nerves are in closer relation than is the spinal accessory to the facial. Practically, there seems no force to this preference, as in anastomosis with the spinal accessory, success is as prompt and certain as with the hypoglossal, while associated movements are equally common to both.

He has used the lingual nerve in anastomosis with the peripheral hypoglossal, but failed, and has abandoned it. The lingual is a sensory nerve, and failure, under these conditions, is not surprising. No convenient available nerve for anastomosis with the peripheral hypoglossal has been demonstrated in operations for facial palsy. In a severed nerve, degeneration of the proximal end is exceedingly limited while, in the peripheral, it is finally complete. Both Ballance and Stewart, the leaders of the new, or peripheral, school, oppose the neuron theory held by Waldeyer, Ranvier and others that regeneration proceeds necessarily downwards from the proximal side, the axis cylinders growing into the empty spaces and finding momentary rest and renewed life and energy in the nodes of Ranvier, the conclusion being that regeneration and the restoration of function

is impossible unless direct connection is restored and maintained with the ganglion centers. J. B. Murphy,³ in the best American monograph on the subject, states that complete repair will not occur without this connection. He and others also maintain that regeneration is impossible without a neurilemma. Ballance and Stewart assert that the neurilemma cells of the peripheral segment regenerate, even the axis cylinders, independently of the proximal end, or union with it, but that regeneration is not complete in function, etc., without such connection. With this concession, it is hardly necessary to emphasize the absolute dependence on anastomosis to the proximal side, for the complete regeneration of the nerves and the restoration of the functions of the muscles.

If peripheral axis cylinder processes do fuse together to form continuous paths, independently, as maintained by the new school, though incompletely, it is a point in favor of immediate, or early, anastomosis, for such inherent power of the peripheral neurilemma cells must, it seems, retard complete degeneration, and with the stimulus of the proximal ganglion centers restored, early and more certain regeneration ought to be assured, notwithstanding the statement that "the length of time the paralysis has existed bears no relation to the rapidity of the return of function." I hope, and am inclined to be-

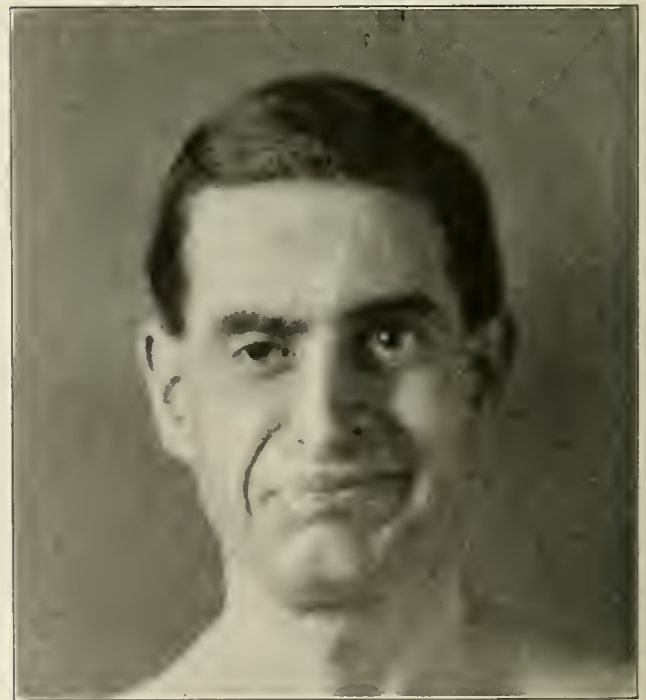


Fig. 4.—Patient, four and one-half months after operation, showing improvement and characteristic appearance of eye in facial paralysis.

lieve, that further experience will invalidate the closing statement above. This hope is further justified by the statement of Ballance and Stewart that "regeneration begins before degeneration is complete."

From the writings and experiments of Ballance and Stewart of London and Murphy of Chicago, and the references by them to continental writers, and the opinions expressed by distinguished American surgeons, I am enabled to formulate some probable conclusions of interest and value. The field is too new and the data

² Lancet, London, June 12, 1909.

³ Murphy, J. B.: Surgery of Nerves.

yet too limited and incomplete to justify a dogmatic treatment of the subject.

"Nerve fibers are capable of maintaining their normal nutrition only when they are in uninterrupted connection with their trophic center, which controls the nutritive processes."⁴ Also in reporting experiments on animals, Landois states that the degenerative process is arrested at each node of Ranvier, and that later fatty degeneration takes place simultaneously in the entire peripheral portion.

Langly and Anderson, quoted by Murphy, say that "regeneration is a downward growth." It is, too, in keeping with the Ritter-Valli law that the death of a nerve advances from center to periphery, and supports the Wallerian law that portions of fibers, separated from their trophic centers, degenerate. It is equally plausible that regeneration should proceed in the same way.

I believe the conclusion justifiable that the sooner a nerve is reunited after division or the destruction of its function by disease, the more certain, prompt and satis-

tion of both nerves and end-to-end anastomosis are to be preferred. Splitting is objectionable, because axis cylinder end-to-end apposition is necessary to regeneration, and is uncertain in splitting. "Implantation of one end through a slit in another is unscientific."⁵ Transverse division of half the diameter of a nerve and then splitting the proximal end for anastomosis with a peripheral nerve, end to end, may be justifiable in some cases as was done by Ballance in one case with the spinal and peripheral hypoglossal.

His statement that symmetrical and perfect facial expression is more certain with complete division of the nerves is worthy of the highest consideration. The best



Fig. 5.—Patient, five months after operation. Arm and shoulder elevated with equal facility three months after operation. Note improvement in face and expression.



Fig. 6.—Patient, six and one-half months after the operation, showing voluntary action of facial muscles including eyes. Note deficient action of right corrugator supercillii.

technic for exposure of the facial nerve is along the lines followed in the subject of this paper. It should not be approached through the body of the parotid gland, for that would needlessly endanger the integrity of the nerve which, soon after entering the gland on the under surface posteriorly, bifurcates and gives off other smaller but important branches. Besides, there would be the danger of annoying hemorrhage.

There are many unusually interesting physiologic and pathologic problems involved in the surgery of the nerves, none more novel than that of associated movements from the anastomosis of one motor nerve to another serving different groups of muscles.

Why should movement of the shoulder muscles, in spino-facial anastomosis, produce simultaneous movement of the facial muscles? The nerve supplying the former is cut and diverted to the latter. Hereditary habit must be a potent influence. Will the cortical and ganglion centers reeducate the nerves and muscles in the performance of new duties? With the aid of the will and voluntary habit, it is probable.

In the anastomosis of nerves, it is necessary to make some provision against the encroachment of excessive connective tissue production. Egg and Cargile membrane

factory will be the union and the restoration of function. In facial palsy, the spinal accessory is to be preferred, if for no other reason than the fact that the peripheral end can, without unusual difficulty, be stitched to the descendens hypoglossi, and with practically no additional dissection than is necessary in spino-facial anastomosis. The descendens is a little smaller than the spinal, but that is not an important objection. The spinal is a little smaller than the hypoglossal, but that is no disadvantage in facial anastomosis. Complete sec-

4. Landois: *Physiology*, Ed. 10, p. 635.

are recommended. Murphy has buried the ends in fascia or muscle. Cargile membrane is very thin and delicate, yet believed to be sufficiently resistant to meet the indications satisfactorily. "It is prepared from the peritoneal lining of the ox or other similar animal," by Johnson and Johnson. Nerve anastomosis is one of the most practical and beneficent of modern operations. No operation is more certain and successful in the absence of infection; with infection, none more certain to fail. In final results, it is one of the distinctive triumphs of recent surgery.

930 Pennsylvania Avenue.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. PRIMROSE AND GRANT

DR. JOHN T. BOTTOMLEY, Boston: The subject of surgery of compressive paraplegia is now in the developmental stage. No one man has had sufficient experience to give him a great deal of first-hand knowledge on the subject, so that any one who has had some experience in this line should contribute it for the benefit of all. It is only from a study of many cases that general laws can be made for future guidance in this particular field. We know that while certain cases, perhaps a great many, are not helped by operation, yet some few cases are helped in this way. We know, further, that previous to operation we cannot in many cases say which of them will be and which will not be helped by an operation. Here, then, is a field where exploratory laminectomy is often indicated. With careful technic the operation is not dangerous to life, and with careful handling of instruments and tissues the patient's condition will not be made any worse. Therefore, I plead for exploratory laminectomy in many of these cases.

One point Dr. Primrose did not touch on in the non-traumatic pathology of compressive paraplegia is the occasional presence beneath the dura of small collections of fluid well localized in thin-walled cysts. Some of these cases have an antecedent history of trauma, some have not. But an adult, usually of middle age, who has slowly progressing paralysis, usually of the lower limbs, with, perhaps, more or less paralysis of the upper limbs as well, and an indefinite, variable degree of sensory disturbance, will sometimes be found to have, if an exploratory laminectomy is done, such a collection of fluid beneath the dura. When this is removed, the patient in many instances recovers, but recovery, as a rule, is slow. Yet any gain in these particular cases is well worth the attempt.

DR. FRANK WARNER, Columbus, O.: Dr. Bottomley seems to think that any one who has had even a limited experience in this line of work should report his cases. I have had some experience in compression from Pott's disease, and I was very glad to hear Dr. Primrose recommend operation in such cases. We should not delay too long in trying over-suspension or any other treatment tending toward the relief of compression. It would be better to make an early laminectomy, and I have been very well satisfied with the results obtained in that class of cases.

Another class of cases, in which it seems to me well to operate, is the one Dr. Murphy mentioned—in vertebral fractures, in which the bone has penetrated the cord and in which we might think that possibly the cord has been crushed. Yet occasionally we find at the operation that it is only a splinter of bone that has entered the cord, or that a portion of the cord has been crushed, but by relieving the compression these patients recover. Anyway, these patients die without operation, and therefore it seems to me that we should give the patient the benefit of the doubt and operate.

DR. A. PRIMROSE, Toronto, Can.: The speakers have apparently agreed with me. The discussion has emphasized the point brought out, that we should employ exploratory laminectomy when we are in doubt, and that was what I was particularly anxious to insist on in my paper.

DR. W. W. GRANT, Denver: I would like to emphasize the necessity of the use of the spinal accessory nerve in preference

to the hypoglossal, for the reasons given. It has been claimed that one might use the trapezius branch of the spinal accessory only. That has been done in Europe in cases of primary facial paralysis. I do not believe, however, that it is a wise procedure, because the trapezius branch makes a wider gap between that and the facial, and it must be severed in the posterior rather than in the anterior triangle. I do not believe that the splitting operation is justifiable. The whole nerve, both proximal and peripheral, should be used in this anastomosis. I have taken pains to dissect this region before doing the operation, knowing the importance of preventing the paralysis that results from the operation as ordinarily performed. I regard paralysis of the tongue as being more serious than paralysis of the trapezius muscle. I would do this operation even if I could not use another motor nerve for the peripheral, as in this case.

INTESTINAL OBSTRUCTION, DUE TO ASCARIS LUMBRICOIDES, WITH AUTOPSY

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The case report with its post-mortem findings demonstrates the fact that the roundworm is at least worthy of consideration as an etiologic factor in the production of bowel obstruction in children. The case should further demonstrate the fact that no cautious surgeon should ever pass unnoticed the statement of an anxious mother that "the baby has worms," in casting about for an explanation of the suspected trouble in certain obscure



Section of obstructed intestine after opening into lumen, showing worms.

abdominal cases occurring during childhood. Then perhaps fewer certificates would be issued in which the cause of death was attributed to "intestinal paralysis, superinduced by toxemia."

History.—On Aug. 4, 1910, I was called in consultation with Dr. Elwyn Ballard to see E. J. W., a male child, aged 5½ years. The following history was given me by the child's mother: From the date of its birth the child had been unusually strong, never having had even the diseases common to childhood, except measles, from which it promptly recovered. About April 1, 1910, however, according to the mother, the child became peevish, restless at night, had poor appetite, sad low complexion and complained frequently of stomach-ache. She said that there was always more or less "swelling in the

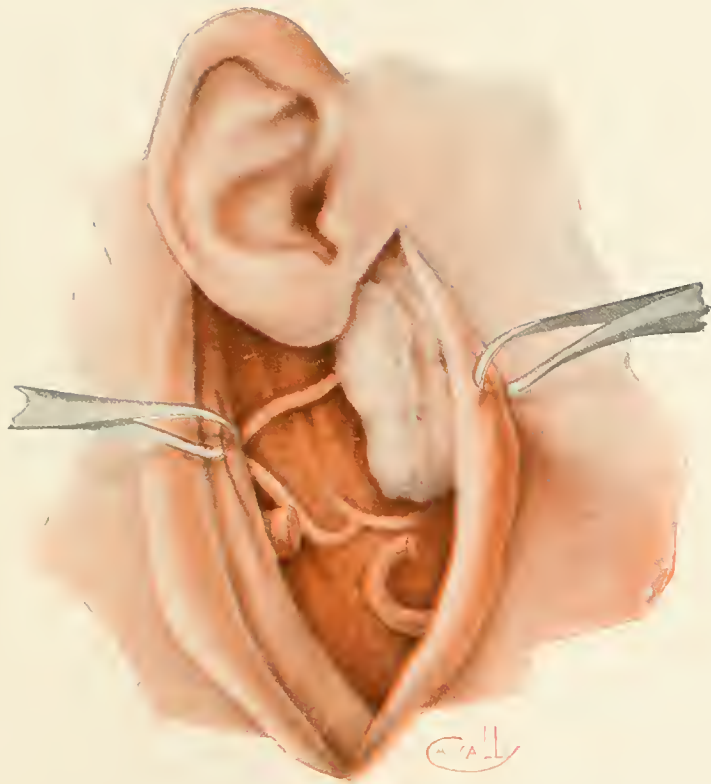


Fig. 2.—Spinofacial anastomosis, and periphospinal to descendens hypoglossi; also showing hypoglossal where it turns forward and the descendens leaves it.



stomach," and she thought that "it was worms." During all this time the baby was obstinately constipated, but in no stool was a worm ever noted. On Aug. 2, 1910, about 11 p. m., the child awoke crying with pain in its stomach, and soon afterwards began to vomit. Castor oil was at once administered by the mother. The dose was repeated at noon on August 3. The vomiting continued and there were no bowel movements. On the morning of August 4 the child's abdomen appeared greatly distended, and accordingly the mother gave another dose of oil followed by an enema, with no result. Then it was that Dr. Ballard was called in. He found the child in convulsions, which, according to the mother, began about an hour previous to his arrival. The doctor found the abdomen greatly distended, vomiting was incessant, pulse rapid and extreme shock evident. At 11 p. m. on August 4 I saw the patient with Dr. Ballard. At 11:20 p. m. the child had a convulsive seizure and died. An autopsy was asked for by me and permission was obtained to explore only the abdominal cavity.

Autopsy.—The body was that of a reasonably well nourished, white, male child, apparently 3½ feet long, apparent weight about 40 pounds. Rigor mortis beginning. The body presented no malformations, and on its surface there were no marks of discoloration. The entire abdomen was greatly distended. On entering the peritoneal cavity through the median line a small quantity of a straw-colored fluid escaped from the incision, followed by an immediate outburst of distended intestines.

Stomach: This organ was greatly distended with gases. On opening into its interior a small quantity of a dirty brown liquid of fecal odor was present. Pylorus was open.

Duodenum: This was greatly distended with gases. No fecal contents were found on opening the bowel.

Jejunum: The upper portion was greatly distended, and on opening into its interior there was found a quantity of liquid fecal material. The lower 6½ inches of this portion of the bowel appeared to be obstructed with an impacted mass of some kind. To the touch the mass was firm. Inspection of this part of the intestine revealed a more or less collapsed condition, with varying circumferences along the continuity of the bowel. For the first 2 inches the circumference was larger than in any other portion of the obstructed bowel, then there was a constriction. About an inch further down there was a distinct "kink," then from this point on for 2 inches the bowel contained a mass. On opening the bowel, a "bunch" of roundworms was found, completely filling in the lumen of the first 2 inches. Two worms were found lying side by side in the direction of the long axis of the bowel through the constricted portion. The lower 2 inches of the bowel were also occluded by a "bunch" of worms similarly arranged to those found in the first 2 inches of the jejunum. This is well shown in the accompanying illustration.

Ileum: This portion of the intestinal canal was collapsed, and on opening into its interior no gases or fecal contents were noted. About 6 inches from its beginning the bowel presented a well-marked diverticulum.

Organotherapy in Scleroderma.—The *Annales de Dermatologie*, 1910, page 3383, contains a report of extensive work in this line by E. Roques at Toulouse. He tried extracts of various organs in treatment of scleroderma and found a decidedly favorable effect from thyroid treatment in 63.73 per cent. of 67 patients with diffuse scleroderma and in 70 per cent. of 10 patients with the circumscribed lesions. Thyroid treatment is not, he says, the specific in scleroderma which it has proved in myxedema, but the large proportion of improvements and cures justifies a trial of it. The best results were obtained with small doses given regularly for months and years and commenced early, while the tissues still resemble myxedema. Extracts of other glands demonstrated comparatively slight efficacy. The scleroderma may be due to various causes but a tentative course of thyroid treatment is certainly indicated as this may happen to hit the predominant factor in the individual case in question. The work of other clinicians in this line is also reviewed.

A SIMPLE AND EFFICIENT MEANS OF APPLYING ARTIFICIAL HEAT

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Following operation when the patient is relaxed, the temperature subnormal, and the functional activity of the organs diminished, it is an essential that reaction should be brought about promptly and every means which will promote this result should be employed.

This relaxed abnormal condition of the patient is best overcome by the application of external heat, which is the



Fig. 1.—Asbestos cradle containing incandescent electric lamps for applying heat to patients in shock, post-operative depression or collapse, or for producing diaphoresis.

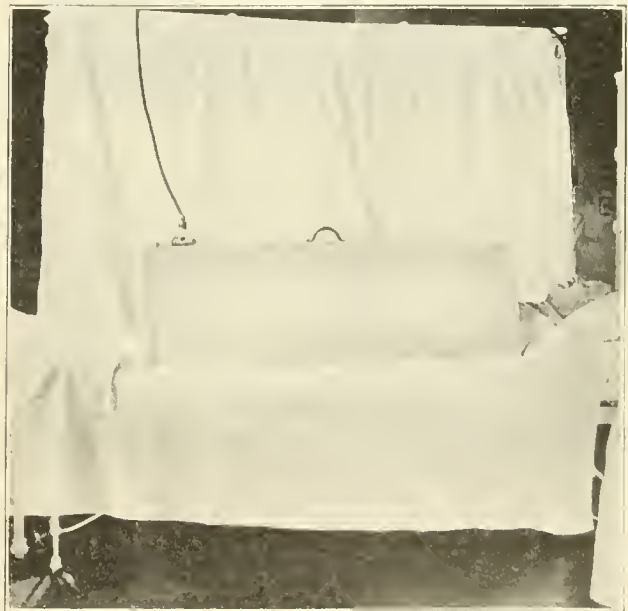


Fig. 2.—Apparatus in position over patient and connected with electric light circuit.

greatest of all stimulants at this time. Artificial heat is usually applied by placing several hot-water bags about the patient, which is quite sufficient when there is no shock and the temperature is normal. A very small portion, usually the edge of the hot-water bag, comes in contact with the patient, and as a rule the water in the bags is only warm, as the nurses will not use hot water for fear of burning the patient, which means expulsion from most training schools.

In cases in which the patient is weak, advanced in years, or in a septic condition, or in which the operation

has been prolonged, or much blood has been lost, or for other reasons there is considerable shock, we have found that the most simple and efficient means of supplying artificial heat is by electricity.

For this purpose we use a frame covered with asbestos, supplied with six or eight 16-candle-power electric lamps, which extends from the shoulders to the feet of the patient. When the patient is returned from the operating room she is wrapped in a blanket, the apparatus is placed over the body, the ends covered with blankets to retain the heat and the light turned on. In a few minutes the surface of the body is warm, reaction



Fig. 3.—Method of retaining heat by covering with blanket.

takes place promptly, and, in the large majority of cases, the necessity for hypodermic medication is eliminated.

After ten or fifteen minutes it is usually necessary to turn out one or more lamps, as the amount of heat is excessive and will cause profuse perspiration.

The apparatus is used also in cases in which it is desirable to keep the skin moist, as in renal insufficiency.

The appliance is simple, inexpensive, light and easily moved about, and can be connected to any electric lamp fixture.

1429 Spruce Street.

A CASE OF FOREIGN-BODY CALCULUS

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NEW YORK CITY

History.—F. D., girl, aged 5 years, was brought to the children's clinic of the Beth Israel Hospital with the following history: Except for an attack of measles at the age of 2, she had been in good health until seven months ago, when she seemed to have lost control of the bladder function. The incontinence was present both day and night. During the last two months the micturition has been extremely painful, the pain being more severe toward the end of the act and being referred to the vulva. There has never been any pains in the loins, nor has there been hematuria. During the past six months the child has been examined in several dispensaries and has been treated for enuresis, cystitis and vaginitis.

Examination.—General physical examination showed an apparently normal, though pale and under-sized child. Local

examination disclosed a reddened and congested vulva, but no vaginal discharge. The mouth of the urethra was edematous and pointing. Bimanual rectal examination showed a movable mass about the size of a walnut, apparently in the bladder.

Urine.—The urine was clear, of an amber color, had a faint acid reaction and a specific gravity of 1025. Albumin and casts were absent. A moderate number of red and white cells and a few crystals of calcium oxalate were present.

Bladder Examination.—A sound was inserted into the bladder and the distinct grating sensation characteristic of stone was obtained. A radiograph of the pelvis revealed a large stone within the bladder. In the center of the stone a shadow of a rod-like piece of metal was apparent.

Treatment.—The child was referred to the Beth Israel Hospital and was operated on by Dr. L. J. Ladinsky, who removed, by suprapubic cystotomy, a stone weighing 5.5 grams. The recovery was uneventful. On section a pin was found within the center of the calculus. Chemical analysis showed the stone to consist of calcium phosphate, with magnesium phosphate and calcium oxalate. The crust, which had a brownish appearance, was entirely phosphatic.

Since it would be entering into too large a domain to undertake even a brief consideration of the subject of foreign bodies in the female bladder, only a few points, such as have a direct bearing on this case, will receive consideration.

MANNER OF INTRODUCTION OF THE FOREIGN BODY

It is almost impossible to give a positive answer to the question of how in this case the pin reached the bladder. Although the vast majority of the foreign bodies found in the female bladder are introduced during masturbation, and though it is generally recognized that this vicious practice is prevalent among girls far below the age of puberty, it is nevertheless difficult to conceive that even a child would employ a sharp object like a pin for



Fig. 1.—Radiograph showing calculus in bladder. Pin discernible as dark line through shadow of stone.

the purpose. The bodies usually utilized for these practices are smooth, dull and rounded.

Foreign bodies have been accidentally introduced by attendants while dressing children. Such an occurrence may be safely ruled out in this case, because of the insistence of the mother that only safety pins were ever used in the child's clothing. Malicious introduction is to be considered as an explanation of the way in which such foreign bodies reach the bladders of young children, the malicious practice being similar to that which finds its expression in the "point-tying" practice of male children.

There is another way in which foreign bodies may reach the bladder, namely, by perforation through the intestine. Authentic cases have been recorded in which sharp objects entered the bladder in this way. Chopart, for instance, records several post-mortem examinations in which a fistulous opening was found through which a foreign body had passed from the intestine into the bladder. Van der Viel reported the case of a boy of 8 years who swallowed a pin, and after several years of suffering with difficult and painful urination, the pin, encrusted with calcareous matter, was extracted from the bladder. Austin reported the case of a boy of 14 years who suddenly developed the symptoms of cystitis which persisted for a year despite treatment. The diagnosis of a foreign body in the bladder was made and a long pin, the shaft of which was covered by a calcareous deposit, was extracted. The patient then recalled the swallowing of this pin about a year before the bladder symptoms appeared.

In these and similar cases it is impossible, without a demonstration of such a pathologic condition as would permit the entry of a foreign body from the intestine into the bladder, to state with certainty that this actually occurred. The story of the affected individual cannot be depended on, while the motive for withholding the true history is apparent. Still it is important to remember that this method of entry is a confirmed possibility.

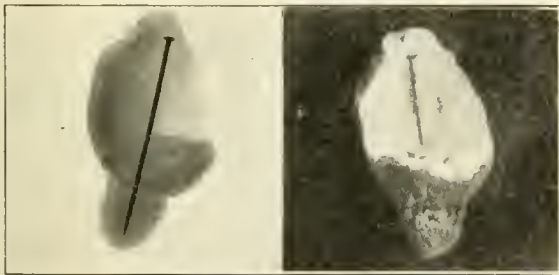


Fig. 2. Radiograph of calculus showing smaller formation over point.

Fig. 3. Photograph of calculus showing pin *in situ* and granular condition of brownish surface.

ENCrustATION

There is one pathologic process of considerable interest in the history of foreign bodies in the bladder, namely, encrustation. A variable period after the entry of the foreign body successive layers of urinary salts may be deposited on it, resulting in the formation of a calcareous structure which gives a train of symptoms identical with that given by ordinary calculi.

Ebstein divides calculi into two classes, primary and secondary, basing the classification on the conditions of the urine. If the formation and development takes place in undecomposed urine the calculus is classed as primary, while a calculus which is formed from the ammonium urate, triple and earthy phosphates precipitated by the ammonia formed during alkaline fermentation, is a secondary formation. The great majority of foreign body calculi belong to the latter class. In our case the cystitis was accompanied by a slightly acid urine, and the encrustation consisted of substances found in such urine.

Calculi do not consist merely of amorphous or crystalline deposits alone. Ebstein has shown that an organic framework is essential. Schöde has proved experimentally that crystallization takes place through the agency of the colloids of the urine which act as a matrix for the crystalline deposit.

The crystalline deposits formed through the agency of the colloids of normal urine are reversible precipitates because they may be redissolved by simple chemical means. Normal urine contains no colloid which is not thus capable of being redissolved after precipitation. Fibrinogen, however, such as is produced by inflammation, is just such an insoluble and irreversible colloid as will furnish a stroma suitable for the formation of permanent crystalline deposits or calculi. A foreign body in the bladder becomes encrusted, therefore, only as a result of the inflammatory process it initiates, and the nature of the crystalline deposit depends to a great extent on the reaction of the urine associated with the cystitis. This theory regarding the pathogenesis of urinary calculi explains the variability in the rapidity of the production of a calcareous deposit about foreign bodies. In some cases encrustation will appear in 48 hours, while in other cases it will not occur for months or years. It depends to a great degree on the extent and severity of inflammatory reaction. The inflammation in turn depends on the nature and condition of the foreign object, and the condition of the bladder prior to the entry of the substance.

Sooner or later after the entry of the foreign body a cystitis is set up, and when sufficient colloid has been produced to serve as a stroma for the urinary crystalloids, these are deposited in successive layers on the foreign object. The shape of the resulting calculus is considerably influenced by that of the foreign nucleus.

Such calculi may be spherical, ovoid, fusiform or irregular. Once begun the process proceeds very rapidly, and these concretions may grow to considerable size in a short time. Encrustation usually begins in the center of the foreign body, the ends remaining free, and if the object is long and slender, like a needle, a fusiform calculus is thus formed. Frequently the ends of the object remain entirely free. This may be due to the constant contraction of the bladder walls, for objects which are long and rigid usually lie transversely with their extremities against the walls of the organ. The resultant friction prevents the accumulation of deposits. When one end of the foreign body is pointed it may become imbedded in the bladder wall, and then the free end alone becomes encrusted. Exemption of the end from encrustation may also be due to its position, *e. g.*, in the urethral orifice. After sufficient deposition has taken place in the middle of the object so that the ends become less mobile, one or the other end may also become encrusted, forming a double calculus similar to our specimen.

DIAGNOSIS

In this case the symptoms were suggestive of enuresis, and for this condition the child was treated elsewhere. A rectal examination, which probably had not been previously made, but which is an important and essential procedure in the determination of the true significance of the urinary symptoms, disclosed a probable tangible cause for the symptoms. The distinct grating sensation elicited by the sound rendered the diagnosis of stone in the bladder most probable. The radiograph furnished conclusive evidence on this point. From the bimannual examination and the sounding alone it was evident that the calculus was of large size. This, taken in conjunction with the absence of a story of renal affection and the brevity of the period of suffering, made it probable, even before the radiograph disclosed the actual condition, that a foreign body was the nucleus for the calculus.

THE SUBMUCOUS RESECTION OF THE NASAL SEPTUM*

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The increased interest in the pathology and treatment, including operative procedures, of the nasal septum since 1902 seems to justify a review of the subject in order that erroneous conceptions then held can be righted, that the best advice for the patient's welfare can be given, and that the best operative procedures with fewest post-operative drawbacks, dangers and discomforts, can be promulgated. It is time, too, that absolutely impartial judgment be passed as to what is best and what is not best for the future of nasal surgery. Every operator, in the light of extended experience, has corrected faulty impressions and certain operative steps that have not stood the test of time.



Fig. 1.—Showing position of instruments within easy reach of the operator.

EVOLUTION OF THE RESECTION METHOD

It was formerly the custom to place a saw either above or below a sharp bend in the cartilaginous or bony septum, and cut it off, sacrificing the mucoperichondrium and leaving a bare surface. This was followed by annoying discharge, a dry condition of the nose, slow healing and a production of granulating tissue. Often the saw left a permanent perforation, and in few instances did free nasal breathing result. Only in very selected cases have any of the special methods named for the men who originated them proved of lasting benefit.

In talking to other otolaryngologists it was learned that the Asch procedure was disappointing both to the patient and operator, in that pain during convalescence was unrelieved. This has also been

my experience. Before the day of submucous resection, no doubt all of us tried the method of elevating the mucous membrane over a ridge or spur, followed by either sawing off the projection or cutting it away with a gouge. In common with the other methods, this nearly always failed to establish a patulous nostril.

These measures succeeding in few cases, and then in special and rare deformities, investigators began the search for a method that could be applied to any character of deviation or deformity. Like the locomotive, the submucous resection is not the acme of a single conception. Many have worked at it and each has added his mite.

IS THE DEVIATED OR DEFORMED SEPTUM INJURIOUS TO EYES, EARS OR THROAT?

At first thought it might seem extravagant to venture the statement that a bent septum could have any deleterious effect on the eyes, but clinical experience forces us to the conclusion that it has. Patients of my own are recalled who were able to lay aside glasses that had



Fig. 5.—View of interior nose. Dotted lines show the direction and extent of the initial incision. Acute angle of flap shows on floor of nose. The incision allows ample room to elevate around the obstruction. 1. The middle turbinate. 2. The inferior turbinate. 3. Overriding cartilage. 4. Septum.

been worn for years, after the remedying of a septal deformity, with complete relief. Asthenopia, and supra-orbital, unilateral, as well as general headaches, have been permanently relieved, apparently, by removing pressure contact of septum and turbinates or by straightening the septum. Stubborn cases of headache and eye pains that have resisted the usual ophthalmologic treatment have thus been explained, and the diagnosis later has been verified by correcting the pathologic condition in the upper anterior part of the nose.

The influence of nasal obstruction in causing deafness and inflammatory and suppurative processes in the ear is generally recognized. The narrowing of the nasal passages prevents ventilation and causes congestion and stasis of the turbinates, which reduces the hearing by interfering with the tympanic circulation. This can be

* Read in the Section on Laryngology and Otology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

demonstrated both from anatomic and clinical experience, and proper treatment of the nasal obstruction is usually followed by satisfactory hearing results.

It would seem that too little has been written on the influence of nasal insufficiency in relation to throat and larynx irritation. The origin of a large number of cases of chronic laryngitis can be traced to a nasal stenosis or disease in the nasal chambers. Following this enforced mouth breathing there is a lack of filtration, proper moisture is not maintained, and suitable temperature not established of the air supplied to the lungs. The arch enemy of free nasal ventilation—the deformed nasal septum—is thus indirectly responsible for much cough.

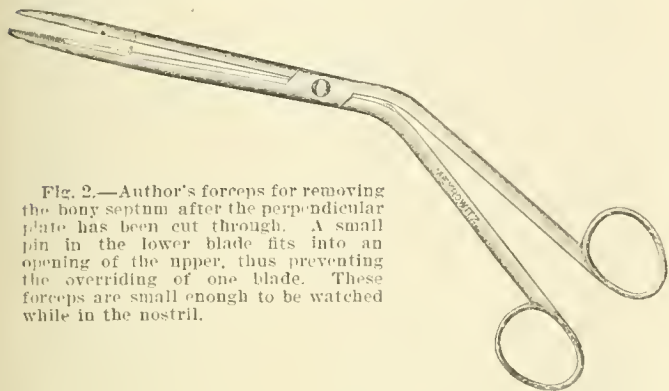


Fig. 2.—Author's forceps for removing the bony septum after the perpendicular plate has been cut through. A small pin in the lower blade fits into an opening of the upper, thus preventing the overriding of one blade. These forceps are small enough to be watched while in the nostril.

DO WE FEAR INFECTION TOO LITTLE?

Infection following surgery of the septum, turbinates or sinuses is such a rare occurrence that there is a disposition to fail to keep in mind its possibility. Infection of a mild type, no doubt, occurs in most cases. Streptococcal infection with fatal result has been reported. From the literature at hand, erysipelas infection has not been encountered. Therefore, the following case in my own practice would seem worth recording:

History.—Nov. 16, 1907, Mr. G., aged 37, farmer, complained of fulness in ears, tinnitus aurium and deafness. He had had trouble for some time but for the last few weeks had been worse with sense of fullness increasing. He was a mouth breather especially at night, and on the slightest exertion.

Examination.—Both drums were slightly atrophic and retracted. Hearing for watch was by contact; hearing for conversation was by approaching the patient, and speaking in a very loud tone. Tuning fork bone conduction was lengthened. Both inferior turbinates were enlarged and impinged on the nasal floor. An oblique bend and thickened maxillary crest extended in the direction of the sphenoid sinus pressing against the middle turbinate on the right side.

Treatment.—The lower portions of both inferior turbinates were resected. This procedure gave fair breathing capacity, and with canterization relieved the tinnitus and fullness.

Subsequent History.—The patient returned in January saying there was still some stopping up of the right nostril. It was decided to remove the crest to its posterior limits by resecting the nasal septum.

Second Operation.—The operation was done Jan. 19, 1908. A vertical incision anterior to the obstruction—flap seemed unnecessary in this case—was made and the bony obstruction was fully removed. Packing was removed in 16 hours when it was found that the wound had closed by first intention. In 30 hours after the operation the patient began to have fever, headache, nausea, pain in the nose and face, general malaise, and swelling of face and neck extending down on the body, especially the glands of the neck being involved. As there had been influenza in his family he therefore accordingly diagnosed his affliction as "grip."

Source of Infection.—Ten days previously Mrs. B. had been operated on in the office for a chronic frontal sinus suppuration by the intranasal route. Erysipelas developed, Jan. 22. The before-mentioned septum, no doubt, was infected from this case, though all instruments and hands were, as we thought, thoroughly disinfected. It is interesting to note that the new wound developed erysipelas 2 days before a diagnosis in the sinus case was made. The true nature of this septal infection remained obscure until the frontal sinus wound showed erysipelas.

The infection of the septum ran its course leaving a perforation the size of a pea two-thirds of the way back on the bony septum near the floor. This has caused no trouble whatsoever and the patient is utterly ignorant of its presence.

Too much stress cannot be laid on asepsis in all particulars on part of operator and assistants, though it is not wise to attempt to disinfect the nasal chambers of the patient where all scrubbing and douching are worse than useless. The fact that the septum can be resected without infection in the presence of a suppurating sinus disease shows this structure to be practically immune to pyogenic organisms.

DOES RESECTION AS NOW PRACTICED LEAVE ANYTHING TO BE DESIRED?

It would seem from the favorable reports of the investigators and workers in the field of septal surgery and from the enthusiasm aroused and maintained since the appearance of Freer's first article that in the majority of cases the method is almost ideal. Yet there remain several questions to be settled by the court of last resort—further experience and verification.

To operate on a patient in whom there is a suspicion of a constitutional taint is to invite danger and defeat. To operate on children yet in the formative period of life is a question not fully settled. Operators of wide experience argue for and against. I would not hesitate to operate on a child of 7 or over in whom there was an extreme deviation with nasal insufficiency, believing it safer to do so than to permit the little patient to suffer the inconvenience of mouth breathing and dangers of lack of facial development. To operate on patients of



Fig. 3.—Author's cartilage knife and hoe elevator. With this knife the primary incision through the mucous membrane—both vertical and horizontal—and cartilage may be made. It is also useful to begin the elevation on the opposite side through the cartilage cut. The whole cartilage may be removed under direct guidance of the eye with it. It aids greatly in the elevation of the flap.



Fig. 4.—Author's double chiselled elevator for elevating the flap. It is useful for working down in the acute angle on the floor of the nose, and around acute bends especially of the crista.

advanced age or those without the capacity to overcome the inconvenience of a somewhat long and tedious procedure is also questionable.

There is little liability of a permanent perforation of the septum if the submucous resection is carefully carried out by an experienced, painstaking operator. It is an operation applicable to any kind of deformity.

From my experience it would seem that the initial incision is the key to the successful termination. The crust formation following all the incisions, so far proposed in many cases, is objectionable. This is a point

which all the workers, it is hoped, will endeavor to improve and perfect.

THE DECISION TO OPERATE

It is a well-known and recognized fact that not all deformed septa need surgical intervention; insufficient breathing capacity is the indication. This is determined by stopping up one naris without interfering with the normal relation of the alae.

If sufficient air to supply the lungs for five minutes with lips closed without inconvenience to the patient is obtained the other naris is tested in the same way. This is the ideal nose, and one that will scarcely need be seen by a rhinologist. Of course, there are noses with difference in breathing capacity of the two chambers that do not require surgical treatment.

Before the day of our present method of operating much criticism was heard of nasal surgery and we had to admit its inefficiency. We have gone the gamut of crushing, cauterizing and sawing. But this is a period of evolution, and lucky is the man who can so plan and execute the condition of his environment as to escape criticism. Before accepting the responsibility of deciding that an operation should be done, let us take an inventory of present and past methods and their possibilities and see if we merit some of the criticism. Can we always say it is a trivial affair, free from danger and complications? Is it best and wise to inform the patient of a possible perforation even in the most experienced and skilled hands? Suppose a perforation occurs, with or without this advice, what of the legal aspect? Would the doctor be liable or has our experience been extensive enough to establish the impossibility of avoiding perforations?

COMPARATIVE STUDY OF NEGRO SEPTA

In a personal examination of 563 negroes in Paducah, of all ages, I have found the extreme deflected septum in not a single case. The work of the adult negroes was that of barbers, porters, roustabouts and the great army of loafers that frequent the dives. True, I did not find in every case a perfect plane, or absolutely vertical septum. The maxillary crest was prominent in 15 cases, but in only one case was it sufficient to cause nasal stenosis, which was not constant. This was associated with a vertical bend of the cartilage well up in the vestibule, and was found in a half-blood who had many American facial characteristics. Heredity, no doubt, is the most logical explanation of this case. One child, an octoroon, was found with adenoids, 18 had atrophic rhinitis, but altogether it was a fine lot of septa and nares free from disease.

One negro came to me in the early part of 1909 saying he could not get air through one nostril and giving a history of a blow on the nose several years before. Examination showed a bend in the perpendicular plate and quadrangular cartilage.

A SUMMARY OF ONE HUNDRED AND TWENTY-SIX CASES: ALL PRIVATE, ONE PERFORATION ONLY

In not a single case was it found that there was only a cartilaginous bend¹. Bony deformity was associated in all cases and therefore required rather extensive work. One patient was operated on twice as the removal of the cartilage did not result in full nasal patency. This was one of my very early cases. In no instance was there a

change in the nasal profile. This seems to be entirely preventable and its occurrence is inexcusable. There was one case, previously referred to, of infection from erysipelas which resulted in a permanent perforation the size of a pea—the only instance. In one case there was a circular absence of cartilage the size of a dime. This was attributed to ulceration from picking which the patient admitted doing. At time of operation there was no evidence of ulceration and no perforation was made, though for a few moments the condition was puzzling. Cocain and adrenalin had no effect on the bleeding in one case.

A large percentage—forty-seven patients, had previously had some other procedure—saw, turbinectomy, cautery, and Asch operation to give nasal respiration. One of these had a transcontinental experience of 12 attacks of these measures, including the Asch operation, with only temporary improvement. The submucous resection gave ample breathing room with no perforation. Seventeen operations were done to relieve hay fever when there was pressure contact of septum and turbinates, and so far relief has been complete, with the exception of one patient who was much improved.

THE INCISION THROUGH THE MUCOUS MEMBRANE

Whatever may be said or written of this operation, it would seem that the fulcrum of ultimate success is the primary incision. Objections to the Hajek incision are that it does not give access to the deeper parts and the elevation is difficult on the anterior free border; to the Killian operation the objections are the danger of a permanent perforation when the cartilage is cut through, limited room for instrumentation, and a tendency to scab formation. Of the incisions thus far described that of Freer is best planned. While ordinarily this gives ample operative interference, yet, in my experience, it is followed by rather extensive and prolonged scab formation. To overcome the inclination to scab formation and the tendency to retraction on healing of the flap, and in order to expose the crest more completely, I have used for the last year the following incision with ideal results (Fig. 5): Beginning well up on the septum with the ala nasi lifted, a vertical incision is carried down to and about half across the nasal floor. This incision has to be made, or at least finished, with an angular knife. From the lower end of this, a slightly curved incision in a horizontal direction is brought forward more in the cutaneous than in the muco-cutaneous structure (Fig. 5). This acute angle flap when elevated gives easy access to the crista. Two sutures are inserted in the vertical cut and if need be one in the horizontal. The two sutures prevent retraction of the flap in healing. Should the apex retract, the squamous epithelium is on the floor of the nose and therefore no scabs will form. The horizontal incision will not form crusts or scabs because it is in the skin. The incision is preceded by a few drops of cocain and adrenalin hypodermically.

In order to insure light for the operation, an extra rheostat and headlight should be in position; a storage battery is also in readiness. A fire in the neighborhood of the building or one destroying the current cannot then delay the operation, as happened to me before these precautions were taken.

THE PACKING

A piece of surgeon's gauze cut the proper size for the case in hand and coated on one side with suitable ointment, is then placed with this side next to the septum

1. Since reading this paper, I have had one case in which removal of the cartilage was sufficient for perfect breathing.

and smoothed out. "Strips of absorbent lint are then placed in, beginning on the floor" (Freer).

As soon as one strip is in and while patient is in the recumbent position liquid petrolatum is dropped in and continued after each piece, more petrolatum being used as the packing is built up.

It is the rule not to have a drop of bleeding following the removal of the packing in 20 hours. The piece of gauze may remain 2 or 3 days and does not interfere with breathing. This ointment does not melt at the temperature of the body and there is no displacement of flaps on removal of packing.

DEDUCTIONS FROM PERSONAL EXPERIENCE AND FROM THAT OF OTHERS

If it were possible for one to be liberal, and yet maintain that there is but one way to remedy septal deformities, radically through some form of mucous membrane incision, I should like to take this position. It is recognized, too, that to do good work one must have well-directed enthusiasm. It would seem from my experience—none of my 126 being clinic cases—that the operation is peculiarly fitted for private patients, all of whom are very grateful for the relief it brings.

Free access to the nose is essential. Therefore, the character of the incision is highly important, for here is the focus of success. At least two sutures are necessary (Fig. 5). No fear need be entertained of the sinking in of the bridge of the nose if the operation is well planned and executed. Perforation, with the flap method followed by suturing, need not occur, for it is hardly possible that two perforations opposite each other will happen. Should it happen, suture.

Spare the turbinates, cauterize little, and meddle seldom with the nose after the operation. A nose with stenosis, like a plugged-up pipe, has to be opened from end to end, therefore, to secure full breathing capacity sometimes requires extensive resection which uses up all one's attention, energy and judgment.

Fraternity Building.

THE RESULTS OF THE OPERATION OF SUBMUCOUS RESECTION OF THE SEPTUM IN PRIVATE PRACTICE*

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In order that we may reach definite conclusions in regard to the value of the submucous resection of the septum, it is necessary that we should know what indications, in the operator's opinion, justify its performance. These can be classified under two heads: first, the mechanical indications that lead to the selection of a particular operation in order that we may remove undue redundancy, correct displacement and overcome the resiliency of the septum; this division will not be discussed, as it is understood that all cases in this series were corrected by means of the window resection method; and second, the clinical indications.

It is obvious that not every deflected septum is necessarily pathologic, for we must bear in mind that the patient does not consult us for the deflection itself, but for conditions that have resulted from the unequal in-

gress of air, which has produced hypertrophies, contact, insufficient drainage or active infection of the functional tissues of the nasopharynx or the accessory sinuses. If this position is accepted, resection alone is seldom indicated, and, on the other hand, no operation which does not remedy the associated complications will relieve the patient. Statistics in regard to the success of the operation, gathered two, three or four years afterward and based on the judgment of the patient, presupposes that during this time there has been a normal function of the nasopharynx, for any deviation therefrom will, in his mind, be an incomplete result. When we consider the physiologic activity of the nasopharynx, its innumerable reflexes, its secretory activity, and its intimate relation with so many other highly specialized organs of the body, this is a severe test. For this reason, any results claimed for or against the operation must be based on the individual equation; that is, must depend on whether or not the particular operator not only has appreciated fully the mechanical details of the procedure, but also recognized and remedied the associated lesions which have resulted.

The genius of Killian, Jansen, Freer, Ballinger, Hajek and numerous other writers, who perfected the technic, and furnished explicit directions for each step, leaves no excuse for failure in our mechanical work on the septum, but the functional restoration of resulting abnormal conditions must be based on a study of each individual case. With a perfectly straight septum, the patient may be no better off than he was at first, while the partial or complete removal of a cystic second turbinate, whose function has been destroyed, may preclude the necessity of correcting its original cause. Again, many compensatory hypertrophies, particularly of the posterior ends of the turbinates, will disappear after being relieved of their over-activity by correcting the septum and equalizing the air current. Any indication for operation, therefore, must take into consideration the present functional activity of the mucous membrane, the glandular elements and the questions whether there is obstruction to the drainage of the accessory sinuses, or whether there are points of contact that interfere with breathing, over-stimulate by irritation the active tissues of the nose, or cause compensatory hypertrophies.

The fact that the center of development of the septum is situated so far forward in an area usually included in the operative field, has prevented me from advising any extensive resection in children under the age of twelve.

In the following series of cases the Killian incision was employed, and in no case was it sufficiently anterior to run the risk of a dropped nose. In my experience, more depends on ample space between the middle turbinal and the cushion of the septum for freedom in breathing than on a perfectly equal intake of air anteriorly. If, therefore, the deflected portion of the septum is straightened, so that there is not a recurrence of the compensatory hypertrophy of the anterior end of the middle turbinate after being once corrected, the functional results will be just as good as though we were able to make the anterior nares of equal diameter.

I did not believe in sacrificing the entire middle turbinal, but drained one or more cells or removed the anterior third as indicated. The inferior turbinate, also, was trimmed on its lower border, but not removed. The openings of the various sinuses were carefully explored, particularly that of the nasofrontal duct, to see that drainage was ample. Any pronounced difficulty in respiration was generally found to have some abnormal

* Read in the Section on Laryngology and Otology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

conditions within the "vicious circle of Ballenger." In any case with a history of attacks of vasomotor rhinitis, particular attention was paid to freeing the tissue under the cushion of the septum, together with a careful search for points of contact or pus irritation from a diseased sinus. Following the observations of Schadle, an overflow from the antrum was looked for particularly, but was not found as an exciting cause more often than a discharge of pus from the frontal sinns or ethmoid cells.

In this series of cases any deflection involving the lower half of the septum which needed surgical interference always included not only the triangular cartilage, but the maxillary ridge. Whatever freedom of breathing is obtained by resection can always be measured by the approximation to a central perpendicular line of the point of suspension and the base line of the new partition. It never bears any relation to the amount of tissue removed, for the intervening space is later filled with a fibrous exudate that will reproduce the old conditions, unless the two plane surfaces are approximated by throwing in of the base and suspension lines. In no case observed has there been a reproduction of cartilage or bone in the new septum.

Although a large percentage of the operations were performed under local anesthesia, that method, except in selected cases, is not recommended. The element of shock is of considerable importance and can be eliminated by general anesthesia and the operative time thereby materially shortened. Although physical pain can be eliminated by the use of local anesthesia, I believe that so-called cases of cocain intoxication are largely due to fright and should be considered in our selection of operative methods. One patient, a man of middle life, lay down five times, bathed in a clammy perspiration, with a slow and feeble pulse, simply from seeing the various instruments before any cocain had been used.

None of the patients developed sepsis or any alarming symptoms. The greatest discomfort was from pressure where the retention splints were too tight. In most of the early cases packing was done on one side; in the late ones, on both. Gauze splints covered with Cargile membrane were left in place forty-eight hours. In the early cases sutures were employed and then discarded, although more cases of primary union seem to follow their use. If the anterior end of the middle turbinate was removed, only the lower half of the vestibule was packed on that side.

In the series of sixty-two cases, from which the following data are drawn, thirty-six patients were males and twenty-six were females. Nineteen patients were operated on the right and twenty-five on the left side. The records in the other cases do not state which side was involved, or were sigmoid. Eight operations were performed under general and the remainder under local anesthesia. Letters were sent to the sixty-two patients and the deductions are based on the opinion of the patients as to their present condition and not on a reexamination. The replies also include the early operations, before experience had taught valuable lessons. On the other hand, more recent cases, in which the time limit has been too short for definite conclusions to be reached, have been omitted. Of these sixty-two letters, six were returned, the addresses not having been found, and eleven patients failed to reply, leaving forty-five answers for analysis. The circular questions and the answers were as follows:

1. Is the nasal breathing free? All but two of the forty-five had free nasal breathing.

2. What trouble have you had since the operation? Thirty-nine out of forty-five had none since the operation; two had nosebleed twice, and four still have some catarrh.

3. How much have you been relieved? Forty-three stated that they were greatly or completely relieved, one only partially relieved and the other not at all.

4. What ill effects, if any, have followed the operation? Forty-three had no ill effects; one reported a great deal of nervous reaction, and one had some scabbing from an anterior perforation.

5. What effect has it had on your general health? In one case the effect was unfavorable; in five there was no effect, and thirty-nine patients were improved.

6. What effect has it had on your hearing? The hearing of one patient had entirely returned; fifteen had improved, and the rest of the patients either had no impairment of hearing or the hearing was unchanged.

It is noteworthy that, in so extensive a surgical procedure in a region functionally active, no patient complained of any undesirable sequelæ, except in the one case of perforation. Only one stated that his condition had not been improved markedly. In three cases of perforation, two patients are not aware of the condition and, therefore, did not mention it in their replies, and in the third case due to an extreme anterior deflection, the patient is free from symptoms by the use of an ointment at night. (Other perforations were made, but healed by preserving the tissue opposite.)

In the correction of the abnormal septal and associated conditions there were marked cases of asthma, headaches, aprosexia, disturbance of vision, progressive otitis media, erysipelas (from infection of erosions), chronic eczema of the lip, recurrent bronchitis, chronic nasopharyngitis, redness of the external nose, aphonia, perversion of the sense of smell and taste, and dyspepsia, as well as the mechanical obstructions and chronic catarrhs.

Though I believe that, with proper modifications, the submucous resection of the septum is adaptable to all forms of deformity and that, according to the law of physics, a hollow cylinder is just as strong as a solid one containing the same amount of material, yet there is a possibility that, in an extensive resection in a debilitated subject, from injury of the perichondrium, there might result a sloughing of the cartilage wall, with resulting deformity. For this reason and because older methods have been the result of a careful evolution and adaptation to special deformities, we should become familiar with all and individualize our cases.

The window resection, when indicated, has stood the test of time and if the principle of the hollow cylinder be carefully preserved by leaving sufficient margin superiorly and anteriorly, there is no other procedure by which the rhinologist can obtain such satisfactory results in the whole field of nasal surgery.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. EMERSON AND PURCELL

Dr. JOHN O. ROE, Rochester, N. Y.: In the correction of deviations of the septum it must be recognized that no one operation is adapted to or suitable for the correction of all the various forms of deviation which may be found, nor even for the different conditions that may, in many cases, be found in the same septum. Every case, therefore, must be studied independently, and the operative procedure selected which is best suited to that particular patient, regardless of any predilection that the operator may have for any special or favorite method.

Before attempting a submucous resection on the septum, its feasibility must be determined by the condition of the septum itself regarding its thickness as well as the location and degree of the deviation. Then too, we must take into consideration the etiology of the deviation, whether it be idiopathic or traumatic. Of course we recognize the fact that in nearly all cases there has been a traumatic cause, either of a recent or of a remote origin occurring perhaps in childhood; but the recent cases have to be dealt with differently from those that are due to a very remote cause, in which latter cases the submucous resection is best suited. In traumatic cases of recent origin, however, in which there has been more or less crushing of the nose, submucous resection must be undertaken very cautiously on account of the lack of support of the dorsum of the nose, and the liability of the sinking in of the bridge, thereby leaving a marked depression and a marked increase in whatever external deformity there may have been. I have seen a number of cases in which a marked deformity of the nose had resulted from the injudicious employment of the submucous method.

In those cases in which the thickening is confined to a limited area or to one side of the septum, associated with a spur, a limited resection of the thickened portion only should be performed. It is as unwarrantable in these cases to take out the whole framework of the septum as it would be to reset the whole femur to correct a limited deformity that had resulted from a fracture.

In the correction of other portions of the septum not requiring resection, the operation should be supplemented by other operations not requiring the removal of the bony or cartilaginous framework, such as may be accomplished by the use of my fenestrated fracturing forceps or other well-known methods sometimes employed for the correction of deviations of the septum. In all these cases it is important so to maintain the septum in its proper position that the passages are of equal size, and especially that no contact is left at any point, for no matter how free the passage may be, contact at any point will give the patient the sensation of an obstructed nostril.

If enlarged turbinates are in the way these should be dealt with before the operation on the septum is undertaken. I do not find it necessary in these cases to employ general anesthesia as the operation can be made completely painless by the local use of cocaine and adrenalin. In case of an idiosyncrasy against cocaine some of the substitutes may be employed. The disturbance from the cocaine, however, can usually be prevented by the previous use of digitalis and strychnin. In the case of nervous and apprehensive persons a hypodermic of morphin or other suitable hypnotic will remove the fears and render them most helpful and tractable patients.

DR. O. T. FREER, Chicago: The L flap, or open method of resecting deflections of the nasal septum, which I have gradually perfected since 1901, has nothing in common with the methods based on different principles brought out later. It was obvious to me that the promise which these other methods gave of an easy and speedy performance, with a simpler instrumentarium than mine would secure their immediate popularity and for this reason the procedures of Killian and of Hajek, advocated by Ballenger, soon became the most followed. But it was also obvious, from the insight into the complex structure of deviations of the septum given me by resections, that these methods, in which the submucous resection was described as a quick manipulation, easily accomplished through a slit at the front of the septum and with blunt or chisel-edged instrument for the elevation of the coverings, were based on superficial preconceptions of the task to be performed, rather than on a thorough understanding of its difficult nature.

An essential feature of my method is the preliminary incision creating the reversed L flap. It is this flap which uncovers to sight the entire deflection, thus leaving so small an amount of the mucous coverings on the convexity of the deviation to interfere with vision and instruments, that no obstructing long intranasal speculum is needed, a necessary instrument where the buttonhole cut is used; for this form

of incision leaves all of the mucous membrane on the side of the convexity in the way, in danger of being torn by forceps and other instruments.

In spite of the great advantages offered by the L flap, they seem to be but little understood except by those who have seen my operation, most surgeons having difficulty in making this flap and hence adopting the simple incision at the front of the septum. Certain improvements in the creation of the flap make a description of the later method of its production desirable here. The flap is begun by a horizontal incision, which follows the base of the septum from behind the deflection forward into the nasal vestibule along the junction of the septum and nasal floor, that is, along the very bottom of the septum. In almost all cases this extends forward into the cutaneous covering of the anterior part of the septum. I was glad to find that Dr. Purcell had independently arrived at the same conclusion in regard to the placing of the horizontal portion of the L. This part of the incision is made with the round-edge knife D of my septum set of instruments, and should, if possible, penetrate at once the perichondrium and periosteum to the cartilage and bone. The elevation of the flap is begun from this cut as shown in a accompanying illustration in the left naris with the round-bladed knife I. So soon as a little of the flap is loosened it is held up with a blunt elevator and the wound is wiped, that it may be seen whether the perichondrium be really divided or not. Usually it will be found that the mucosa alone has been severed and that a second cut is needed to reach the cartilage and bone. Then the perichondrium and periosteum are dissected up to where they may be readily lifted with a dull-edged instrument. The latter elevates the coverings backward on the septum so far as it can reach, regardless of an existing vertical angle of deflection, provided it can pass beyond it, as is usually the case. Then the keen elevator is introduced under the upflitted covering through the horizontal incision of the L as far as it can be made to go posteriorly and then made to cut through the coverings in a line at right angles to the base of the septum and from underneath, not from without, as the vertical cut of the L flap was formerly made. This method permits the elevation of so large an L flap that it includes two-thirds of the mucous coverings of the usual deviation and thus leaves the convex side of the deflection skeletonized and perfectly exposed to view without the use of a speculum. The flap is held forward by the assistant with one of the retractors which hold the nostril open in place of a speculum. An advantage of the L flap is a perfect exposure to view of the cartilage before making the first incision through it, which may thus be accurately placed at a sufficient distance behind the nasal bridge to insure its support. Hematoma cannot occur where the flap is used. I have found the submucous resection on children as satisfactory as for adults. Nine years, during which I have never refrained from operating on even very young children, have shown me that the objections to resecting deflections in childhood are purely theoretical.

DR. R. P. SCHOLZ, St. Louis: I agree that the submucous resection is applicable to all cases of septal deviation needing correction. If there be an exception, I take it to be in the correction of the septal deviation of very young children in whom the removal of cartilage might give rise to the fear of disturbing further development of the nose. I was surprised to hear Dr. Emerson say that he uses general anesthesia for this operation, for I have found the local anesthesia satisfactory. I make a simple incision along the anterior edge of the cartilage, beginning high up and extending down on to the floor of the nose. Gauze saturated with petrolatum makes a very desirable dressing, but paraffin gauze, as used by Williminski, makes the ideal tampon.

DR. BRYAN D. SHEEDY, New York: In the graduate institution with which I am connected, we average from fifteen to twenty submucous resections a week. A great many of the men present learn their submucous resection work at that institution. The operation performed is the regular one devised by Killian, the flap method as suggested by Freer occasionally being used. So far as infection is concerned,

I have seen in the last five years but two infections and practically no perforations. Our patients are operated on just as they come to the clinic without preliminary preparation. Children are operated on when they have a deflection of the cartilaginous septum sufficient to interfere with normal respiration and I have yet to see any bad results come through the submucous resection operation performed on children. Some one referred to deviation of the septum in colored people. The African skulls in the London Museum show very few deviations of the septum and I explain this condition through the fact that the colored and lower races seldom suffer from adenoids, the mouth-breathing in young children caused by adenoids being, to my mind, the principal cause for the many deviations we see.

As to deformity following the operation, many are familiar with the article I wrote four years ago, in which I gave photographs of six or seven patients, one in my own practice, who had appeared at the hospital with depression of the bridge of the nose following the resection operation. As we seldom see this deformity now, I have concluded that the sinking of the bridge was due to the removal of too much of the cartilage, the small amount of cartilage left under the bridge being weakened by inflammatory changes and therefore not sufficient to support the structures.

I usually depend on the Bernay sponge for after-packing, removing it the day following the operation, and my results have been most satisfactory. I have never used strips of gauze nor have I ever stitched the mucous membrane. I believe the stitches are an unnecessary hardship for the patients and I also believe that this operation should be done as quickly as possible, thus saving the patients unnecessary shock.

DR. W. L. BALLENGER, Chicago: We are not all expert operators, skilled as is Dr. Freer, and some of us get perforations and we are not going to quit operating because of that, but it is interesting to know how to remedy this condition if it occurs. I learned a very simple way recently from Dr. Goldsmith of Toronto. He places the cartilage removed into normal salt solution and if he happens to get opposite perforations he straightens the cartilage and reinserts it after finishing his resection between the mucous membranes and then by granulation the mucous membrane grows down over it, the cartilage becomes absorbed, being a foreign body, and a perforation is prevented. I think this is a very interesting thing to know.

In children whose septums are not yet wholly developed and who need the centers of development left undisturbed I follow the Sluder method. It is adapted to young children in whom there is extreme deviation from trauma. Sluder makes an incision above the deviation, one below, and one at the crest. Then he springs these two ribbons of cartilage together and they are held about 4 days until union takes place and the result is very good.

DR. O. TYDINGS, Chicago: I would protest against one class of operations. We all do the submucous operation and the sinking can be due only to encroaching too high up on the septal cartilage or to subsequent infection. In traumatic deformities in children, if a Gleason operation be done, and at the same time a proper splint put in, there is no reason for doing a submucous resection. It gives very beautiful and perfect results.

In packing the nose after a submucous resection I never leave the packing in more than ten or twelve hours. If I do the operation in the evening I remove the packing next morning. My packing consists of rubber tissue in which I have loosely placed cotton and I just use packing enough to keep the perichondria in contact. I have never found it necessary to use it very firmly.

DR. G. SLUDER, St. Louis: Since Dr. Ballenger has been good enough to mention the operation which I described in 1906, I should like to add a word in this connection. His description is accurate and comprehensive. There is nothing for me to add to that. I agree with his feelings concerning the development of the nose. My belief is that a rigid septum is necessary to prop the nose up during the developing years of life. I believe this because in cases in which a perforation of the septum has occurred in childhood—the

simple or traumatic perforation which occurs at the lower anterior portion of the cartilage—there is uniformly a greater or less depression in the profile of the nose opposite to it. At least this is true according to my observation extending over 12 years. I believe this disturbance in the nutrition of the septum to be responsible for the depression in the profile. If this be true then all the more would be necessary the septum itself. In one patient in whom the septum was straightened by this operation, and whom I was able to follow for 10 years, the double layer of cartilage shrunk until it had the thickness of only a single layer. It then appeared as a normal septum.

DR. FRANCIS P. EMERSON, Boston: We all admired the work of Dr. Roe and Dr. Freer in plastic nasal surgery and in perfecting the operation of the window resection of the septum. I am therefore particularly fortunate in having them discuss my paper. I do not want to be misunderstood about the reproduction of cartilage. In those cases examined it had not been reproduced. In children I have been conservative, preferring other methods. In developmental cases with moderate deflection, our dental friends are helping us materially. Some of the cases reported last year by Dr. Foster of New Bedford showed remarkable results. In regard to anesthesia, you will notice in my paper that a large percentage of operations were done under cocaine. I do not question but that all can be done that way. I have simply found that there are in Boston a large number of nervous women in whom the element of shock is of considerable importance and, for the comfort of the patient and my own convenience, I like general anesthesia.

DR. CLYDE E. PURCELL, Paducah, Ky.: I thank Dr. Freer for his endorsement of my incision and wish to bear him out in his statement that there are valid objections to the incisions so far offered. I am glad he stated before this body of laryngologists that we had practically reached the same conclusion working independently and I am also glad I read my paper here before he had a chance to describe this new incision or I might have been accused of stealing his thunder. I want to emphasize his position that perforations are preventable and should not occur. My experience in the cases herein reported bears him out. If the incision is placed well back in the nose and brought down on and partly across the nasal floor ample operative room is insured. It is easier in my experience to begin the elevation at the highest point of the incision on the septum, working down and not from the anterior free border. Getting down into the bottom of the acute angle seems essential, especially in the cases in which the crista is much involved. Unless there is a great deal of misplacement of the cartilage anteriorly, it is not necessary to bring the horizontally curved incision as far forward as I have represented in the drawing. I have had no personal experience with Dr. Sluder's method but it would seem that it has a very limited field of usefulness. When I get a suitable case I am going to try it. I want to commend the speaker who made a plea for more complete and thorough work in nasal surgery. It is a very easy matter to remove some cartilage but it is very difficult to remove the obstruction fully without injury to the integrity of the nose.

Now, in regard to sutures, it may be a little fad of mine, but I have had such fine results, with no retraction, that I shall continue to use them. I have also devised a little angular knife suitable for making incisions through the mucous membrane and also valuable for elevating the mucous membrane, cutting through and removing the cartilage. By using this I lessen the number of instruments employed. I think that we should not hesitate to give children the advantage of free nasal respiration. I understand that Dr. Killian operates on children and I certainly see no reason why we should not.

Diagnosis of Whooping-Cough.—During an epidemic, or with a history of exposure, whooping-cough should be diagnosed without special difficulty, but sporadic cases may hold many symptoms common to other diseases, e. g., acute bronchitis, influenza, tuberculosis, tonsillitis and adenoids.—C. Thorington, in *Gulf States Jour. of Med. and Surg.*

SURGERY OF CYSTIC DEGENERATION OF
THE KIDNEY *T. C. WITHERSPOON, M.D.
BUTTE, MONT.

The purpose of this paper is to direct attention to the practicability of giving surgical relief from certain symptoms or ill effects of cystic kidneys. The number of patients with cystic kidney for whom any given operator may render service is necessarily small; the majority are not aware of its existence until late in the course of the degeneration, and then it is impossible to stay the process or to relieve the symptoms.

The lack of individual experience necessarily leads to an uncertain surgical attitude toward the lesion, and when, during an operation, such a condition is discovered, the operator is unprepared to do the most appropriate thing to bring about a surcease of symptoms or to check the progress of the cystic degeneration.

For the purpose of getting directly to the subject, and before discussing the nature of the lesions and its relation to surgical treatment, I will relate briefly the case of a man who came to me just one year ago for treatment:

History.—June 5, 1909, the patient, S. S., a man aged 49, of rather thick build, of a muddy complexion but otherwise in seemingly good strength, came to the hospital to obtain relief from a bloody urine which began about June 1. There was nothing in his past history which shed light on the condition. He had not suffered from gonorrhoea or local injury to the genito-urinary tract, nor did he give a history of any general infection or body injury. At the time of his visit, the blood alone indicated to him that something was wrong, for otherwise he had not suffered, not even from frequency in urinating. His urine was examined and found to contain a large quantity of blood. On settling for several hours, fully one-half of its bulk was composed of a dark muddy deposit.

Physical Examination.—This revealed an enlarged left kidney which was slightly tender. On reflection the patient remembered that he had been conscious of the left side for months. This consciousness, however, was never of real pain nor even of discomfort sufficient to cause apprehension of disease. The patient was given internal medication, returning every day or two for observation. By June 10 he began to grow weaker and shorter of breath, and as the blood continued, the necessity arose for direct surgical intervention, if possible. On June 11, a cystoscopy revealed blood coming from the left kidney. On June 13, the patient came into the hospital for closer observation. He was restricted to a low diet and complete rest. During the first twenty-four hours in the hospital, he passed 42 ounces of very bloody urine; the next twenty-four hours, 34 ounces, the next only 30, but the next, 45 ounces. He was then prepared for operation, though a positive diagnosis had not been made, knowing only that the loss of blood continued and was from the left kidney.

Operation.—On June 18 a lumbar incision exposed a well-developed polycystic left kidney. The appearance was typical and needs no description. I opened the various cysts with scissors and forceps and removed their thin covering and partitions; only the bulkier, solid tissue was left. I spent about twenty minutes ridding the kidney of its cysts. I was greatly tempted to open the peritoneum and palpate the right kidney, but as the skiagram and external palpation indicated no increase in its size, I thought best not to do so. A large boiled gauze sponge was then packed snugly about the kidney and the wound closed at the upper end, leaving the lower open enough to freely drain the field of operation.

Subsequent Course.—The patient made an uneventful recovery. The urine cleared of blood entirely by June 21. The amount passed following the operation was slightly greater

than that passed while in the hospital prior to the operation. July 24 the wound was practically healed and the patient was discharged in apparently good condition. In March, 1910, I made an examination of him and found his condition very satisfactory. He says that he feels perfectly well. No recognizable blood has shown in the urine since the operation. The amount passed daily is normal. A sample sent to the laboratory gave the following: Color, light straw, clear, reaction, acid; sp. gr., 1018; no albumin, bile nor sugar. Microscopic findings, a few leukocytes, an occasional hyaline cast and a few large epithelial cells. To palpation of the side on which we operated there was no evidence of enlargement. There was also, we may note, no increase in size of the opposite kidney. He suffers no discomfort in the wound or along the genito-urinary tract. To all clinical means of ascertaining his condition, he is well.

This case fortunately presented a symptom which brought him to us early—the blood in the urine—and our effort to stop it has resulted in decided relief.

The questions naturally arise: What was actually accomplished? Will the relief be temporary or has the operation had a tendency to check the further progress of the trouble in the kidney operated on?

NATURE, ETIOLOGY AND COURSE

This brings us to a consideration of the nature of kidney cysts, their etiology and course.

R. L. Thompson in a recent review of the subject says:

The newer literature concerning kidney cyst-formation, especially the work of Ruckert, Busse, Dunger, Herxheimer and Braunwarth have shown that all cysts of the kidney are closely related—with the exception of a small group, they are due to a congenital malformation which seems to lead to this new growth.

He records a post-mortem finding, in an infant which died of an acute infection, of a faulty union of a lobule of cortex with its corresponding pyramid. In this portion of the kidney there was evidence of commencing cyst development.

The cysts which I wish to discuss in this paper are those which are included under the congenital type, whether they are found in the infant or developed later in life; whether single or multiple, in one kidney or both. A small class, which will not be considered, consists of those found in chronic indurative nephritis, the parasitic cysts, the dermoid cysts and those due to cystic degeneration in lymph-nodes and blood-clots.

Rayer, it will be remembered, was the first to separate the polycystically degenerated kidney clinically from those just mentioned. He presented no microscopic differentiation nor did he entertain an idea of the present-day conception of the development of the kidney, but based his opinion purely on the macroscopic appearance of the cystic organ.

Koster first accentuated the necessity for a recognition of two anlagen for kidney development and of a mal-union of the two for cyst formation. He, however, considered the anlagen as, on the one hand, the Wolffian duct, forming the ureter and pelvis, and on the other, a mesenchymatous cell-mass giving origin to the rest of the organ.

Hildebrand more clearly developed the theory of congenital cyst-formation, declaring, as Kupffer had demonstrated, that the pyramids and pelvis united with the cortex, and when a congenital failure of the union occurred, there was a disturbance at the location of the convoluted tubules next the pyramid with marked proliferative activity of certain cellular elements. This produced a draining back of the secretions and cyst formation.

* Read in the Section on Surgery of the American Medical Association, at the Sixty-first Annual Session, at St. Louis, June, 1910.

Ribbert later demonstrated that the obstruction played only a part, and that the cyst formation was to be accepted as a new growth.

Nauwerck, Hufschmid, Singer and others, look on the whole process as one of cystadenomatous formation—a new growth.

Wigand on the other hand, considered the cysts due to an abnormal spouting from the kidney anlage of canals which later become cystic.

The complete picture of a polycystic kidney must of necessity suggest a new growth, whether the basis of such a change lies in a congenital malunion of the cortex and pyramid, a congenital misplacement of certain cell elements, a congenital spouting of abnormal urinary tubes, an acquired epithelial proliferative process or an active connective tissue proliferation with obstruction of the urinary tubes.

Such a process may consist in the formation of one or several large cysts or may be characterized by a complete honeycombing of the kidney with a great number of cysts of all sizes, from those of microscopic dimensions to those as large as a walnut or even a hen's egg. When such a formation does occur in an individual, both kidneys are, as a rule, involved and not uncommonly the liver as well.

DIAGNOSIS

In making a diagnosis of cystic kidney, four symptoms may be considered: pain, hematuria, a recognizable growth in the side of the abdomen, and uremia. Pain, or perhaps discomfort, is not constantly present; in fact, all of the symptoms may fail until the end, when the greatly compromised kidney activity leads to the final uremia.

The presence of blood is much more common than either pain or discomfort or the discovery of a growth. In fact, it is the one symptom which most often calls for relief before the final uremic stage.

TREATMENT

The treatment of the condition is essentially surgical, for otherwise no treatment can be of any avail whatever. The first three symptoms are all amenable to surgery, at least, by this means alone can relief be offered, but for the last symptom, uremia, nothing can be done. It is true that in the uremic stage by cutting down the necessary kidney activity to the lowest possible degree through diet restriction, rest and by helping vicarious elimination, some short prolongation of life may be given, yet this is but temporary.

What surgical treatment should be resorted to in these cases? The majority of recorded operations were nephrectomies. I should like to offer this criticism of such a procedure. The removal of a kidney, especially as both are in the vast majority of instances involved in a like process, is a sacrifice too great to be permitted. The aim of any surgical procedure should be to save every grain of kidney tissue possible, while at the same time offering relief from the symptom complained of. In an organ of such vital necessity to the body as the kidney, but two conditions justify nephrectomy: first, the presence of an infectious process producing a serious general intoxication or the possibility of spreading a life-destroying infection; second, the presence of a malignant growth.

In cystic kidney neither of these conditions exist, for the final uremic state results purely from the loss of kidney tissue, rendering the condition analogous to that of

the contracted kidney. Some have recommended puncture of the cysts, others injections of cyst-destroying chemicals into the various sacs.

In the case reported I believe I have accomplished a satisfactory result by excising the non-functioning cyst coverings and septa and causing a healing of the wound through granulation, with union to the surrounding tissues.

This patient was bleeding freely and losing strength rapidly, yet within three days following the operation, all trace of blood ceased and has continued checked until the present time. The urine is apparently normal and his general health most excellent. What ultimate good has been done must be determined through time. Whether such a procedure will check further cyst-formation by diverting the blood in the engorged vessels through other vascular channels and thereby relieving congestion, cannot be determined short of a very considerable experience, but at least the patient still possesses his kidney and is able to care for the greatest possible amount of kidney work under the circumstance.

Dr. Ludwig Pick of Berlin, answering an inquiry as to the possible good of the operation, replies as follows:

I hasten to answer your question concerning the case of cystic kidney. According to my opinion, there is no differentiation possible between congenital cystic kidney of the newborn and of adults. I believe that all these cystic kidneys result from a congenital cause and that they do not have their beginning in middle life, and if they become manifest in middle life, they had their existence before. Why a stronger growth should develop at this time, there can be no theory offered and only a problematic answer may be given.

I personally believe that the kidney originates from two separateanlagen: first, the ureter pelvis and collecting tubes proximally out from the ureter anlage; secondly, the cortical portion of the kidney from a special blastema. When the twoanlagen do not meet exactly or normally and unite, then we have a formation for cystic kidney through an earlier or later development of an embryonic epithelium. Why in one case earlier and in another case later, is, as already said, not entirely clear. As you see, my opinion is that the kidney is developed from the twoanlagen and this explains the origin of the cystic kidney through mis-building.

Now, indeed, I believe that in your most interesting case, a final good result will not be obtained. But as the largest cysts were opened, it will last a certain time until the little ones, not yet opened by you, and not yet large enough, will make their appearance.

I have seen a case here in which a cystic kidney was removed entirely, and the other was, at the time, not apparently cystic. The patient lasted ten years until the other kidney became cystic and then the woman died.

ABSTRACT OF DISCUSSION

DR. DANIEL N. EISENDRATH, Chicago: I regret to dispel the rosy illusion under which Dr. Witherspoon is laboring with reference to the prognosis in his case, as he seems to think that his patient will recover. The consensus of opinion among pathologists and surgeons who have had occasion to see many of these cases of polycystic disease of the kidney is that in about 99.9 per cent. of the cases the condition is bilateral, and that it is only a question of time until both kidneys are so atrophied that no secreting tissue is left. Those cases present themselves practically in one of three ways. I have seen them in two of the three. In the first, the patient is brought into the hospital in uremic coma, with no previous history obtainable. At the autopsy we find that both kidneys are converted into a mass of cysts. Each kidney is three or four times as large as normal, and is a mass of cysts, with practically no kidney tissue left. So long as there is enough kidney tissue left between the cysts the patient will not have

a uremia, but as soon as there is less kidney tissue present than can take care of metabolism, uremia is inevitable.

In the second clinical picture the patient presents himself with severe, constant, almost uncontrollable hematuria. These are the patients for whom I believe that something can be done, and Dr. Witherspoon's case shows the benefit of surgical intervention. We might open a few of these cysts in the hope of establishing some collateral circulation, so as to diminish the vascularity, and I believe that it is in this way that the benefit seen in his case can be explained. But, so far as prognosis is concerned, the average experience is that within a definite period of years, owing to the progressive bilateral character of the disease, both kidneys will be involved to such an extent that a fatal termination is inevitable.

DR. C. M. NICHOLSON, St. Louis: I have had to deal with three cases of cystic kidney and all were unilateral. In each case the probable diagnosis was based on the presence of a tumor in the lumbar region, easily palpable and blood in the urine. In one of these cases there was marked pain. In the first case, the kidney being only about twice its proper size, nothing was done; in the second an incision was made, the diagnosis verified, eight or nine cysts punctured and the wound packed with gauze. The patient left the hospital apparently well four weeks later, but after nine months returned with a large lumbar abscess which was connected with the kidney. He has occasionally had abscesses form, though he declined to have an operation, further than drainage. The third case was the largest cystic kidney, with one exception, thus far reported (*Ann. Surg.*, xxxvii). It extended about twenty-two inches, occupying all the right side of the abdomen. There was not only a tumor and hematuria, but marked pain at times. A median incision was made, the diagnosis verified, the opposite kidney examined and found to be the proper size, thirty or forty cysts punctured through the loin and the entire mass removed. Dr. Ralph Thompson made an extensive study of this case and demonstrated that the mass was a cystic kidney, not of new formation, but due to dilatation of the uriniferous tubules. The patient made a perfect recovery and for the last few years has been entirely well, attending to all her duties. The treatment of these cases depends on the pathologic condition present. If all or most of the kidney substance has been destroyed, then the best interests of the patient are conserved by removing the mass.

DR. JAMES E. MOORE, Minneapolis: Inasmuch as this is a congenital condition which eventually ends with death, it seems to me that it is very rarely indeed that a nephrectomy is justifiable, because one is liable to have some kidney tissue left which is functioning. These are not surgical cases until such time as they begin to have complications that may be relieved by surgery. My experience is limited to two cases, in which I could not accomplish anything. In the first case I operated under a mistaken diagnosis, on a woman 50 years old, who was supposed to have an ovarian cyst. She was suffering from pressure symptoms and when I opened her up I was surprised to find that it was retroperitoneal, extending behind the kidney. I removed the cyst.

The second case was that of a man, between 40 and 50 years of age, who came with an obscure abdominal tumor, and was easy to diagnose congenital cyst. Both kidneys were large enough to map out the lobules. He came to me with fever and with a diagnosis of his own. He had lived in the south and said that he had had repeated abscesses of the liver. I did not question his diagnosis until I found the kidneys. His cysts were infected and he was becoming septic. He gave a history that Nature had opened some of his abscesses, and it seemed to me that I might help Nature this time, so I opened and drained three or four septic cysts. He was restored to health sufficiently so that he could attend to his business for about a year, when he developed uremia and died.

DR. T. C. WITHERSPOON, Butte, Mont.: The points I wish to bring out are these: First, we have fallen into the habit of accepting a statement as being authoritative and allowing it to become accepted generally without giving it careful scrutiny. That these cases are congenital we can, of course,

agree, if by that we mean that point at which the trouble occurs is the point of union between the two anlagen where we find active cell proliferation. But that this should be looked on as a congenital condition purely because it occurs at this anatomic point I cannot agree. It usually does not occur until the fifth decade of life, scarcely under the third, except in the type of cysts found in the infant, and it evidently comes from this proliferative cell activity. I do not know what induces the overgrowth of cells. I am not willing to look on this lesion as some Presbyterians do their future state, that is, as a matter unalterably fixed by predestination. I do not believe that it is. These patients may have a chance to recover. I am going to watch my cases and see what will happen and report later.

THE NUTRITION OF THE FEEBLE INFANT

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The proper nourishment of feeble infants is a problem that taxes the resources of the most skillful pediatrician. Digestion and assimilation may be poor either by inheritance or from faulty feeding, and when, from any cause, the general vitality of the infant is lowered, the digestive tract is usually the first to suffer and the last to recover tone. Whether the infant becomes feeble from errors in diet and hygiene, from illness or from poor inheritance, improved diet and hygiene form the only successful treatment. Drugs are of little or no avail. If these patients are not relieved, sooner or later some form of atrophy or marasmus will result—a condition in which a chronic digestive weakness is the principal evidence of the depressing symptom-complex. The large general death-rate of early infancy can be checked only by the most careful attention to the diet and care of this class of feeble infants. It must be confessed that thus far our results have not been very brilliant. The object of this paper is to discuss some of the factors that enter into this problem, with the idea of suggesting the lines along which improvement may take place.

The structure and function of the digestive tract, the form and quantity of the food elements that are given, especially in relation to the assimilative power of the individual, and the most improved hygiene must all enter into such a discussion. With reference to the ingestion of food, the stomach will naturally call for the first consideration.

I. THE MOTILITY OF THE STOMACH

Our knowledge of the general capacity and function of the stomach in early life has been fairly well worked out. In normal infants, during health, no great difficulty is encountered by competent feeders in reference to the kind and quantity of the food and the intervals of its administration. In feeble and badly nourished infants, however, the weak action of the stomach, especially in its muscular power, is the source of much trouble. The weakness and atrophy of the general musculature is exemplified in a marked degree in the motility of the stomach. At best, the musculature of the stomach and intestines is not highly developed during the first months of life, and in feeble infants, in whom the general muscular tone is below par, the digestive tract suffers very markedly from this cause. This will doubtless throw some light on those cases in which during life serious digestive symptoms have been noted but after death little pathologic change has been observed as far as the mucous membranes are concerned.

With this condition in mind, a series of twenty-one cases was carefully studied with regard to gastric motility, as in the case of the feeble infant it is important to make certain that the intervals of feeding are not too frequent. The ages of the patients were as follows: Two weeks, 1; three weeks, 1; six weeks, 1; two months, 1; three months, 6; four months, 4; five months, 3; six months, 1; seven months, 1; twelve months, 2. These infants were taken from the wards of the hospital and represent all grades of malnutrition from beginning cases to those in the last stages of atrophy. We may generally classify the cases as thirteen of marked feebleness, three cases of malnutrition in a milder form and five cases just at the beginning of faulty nutrition. It was, however, impossible to form any definite conclusions as to gastric motility based on the age of the child from these cases. The older children were brought to the hospital either suffering from some grave general disease, or because they had failed to gain weight and were becoming atrophic. They thus formed poor material from which to determine normal gastric motility.

Of nineteen patients that were examined at the end of three hours, only six could be shown to have approximately empty stomachs, and these six, with one exception, were holding their own and in no case could free hydrochloric acid be determined. In thirteen out of the nineteen cases, it was absolutely demonstrated that there was a considerable residual amount of food still remaining in the stomach. In all these cases there was a positive Fehling test, and curds and whey, either singly or together, were present. It is interesting to note that butyric acid fermentation was marked in six of the cases, and in two of the cases in which the stomach was apparently empty there was a faint trace of butyric acid. In five of the seven patients examined at the end of three and one-half or four hours, the stomachs were surely empty. Of the remaining two cases, one showed many curds at the end of four and one-half hours, while the other showed only a few small curds. These last two patients were losing weight rapidly and the butyric acid fermentation was marked.

In only two of the seventeen patients examined at the end of two or two and one-half hours, were the stomachs empty. In the other fifteen cases, a positive Fehling test was obtained with one exception, and in four there was a positive Gram test. In thirteen of these cases butyric acid fermentation could easily be demonstrated. Large tough curds, or many small curds with whey were present in all of these cases. In considering the above figures, it should be remembered that few, if any, of the children examined were entirely normal, and that deductions from these results have a value only as a study in the nourishment of the feeble child.

There can be little doubt that, in a large majority of cases, the feeble infant with digestive disturbances has been fed at too frequent intervals. Too often a second feeding is given before the previous meal has passed through the pylorus, with the result that each successive feeding has been contaminated. The process of butyric acid fermentation has thereby been set up and kept in operation until, at last, a condition analogous to that of myasthenia gastrica is present. In none of these cases could any great disturbance in acid secretions be made out. The condition of the enzymes was not carefully investigated, but, as it is a well-known fact that the enzymes are not affected until long after the acid secretions have become greatly diminished or disappeared, it may be taken for granted that the enzymes were present in a normal state. While free hydrochloric

acid could be demonstrated in only six cases, combined hydrochloric acid was invariably present in fairly large quantities. The average amount was about 30, the lowest being 12, and the highest 48. In nearly every case in which the stomach was not empty, fluid was present, and in a few cases the dilatation was marked. This state of affairs serves to emphasize the fact that in feeble infants gastric motility is greatly decreased, and that whatever may be the case in the normal healthy child, in these atrophic infants it is often necessary to increase the interval between the feedings.

According to Tobler and Bogen and Heubner, milk passes through the pylorus in the case of breast-fed infants in about two hours, and in those taking cow's milk in about three hours. Tobler has further shown as a result of experiments carried on in animals with variously colored milks that each subsequent feeding forms a sort of layer about the earlier one, and thus the food first ingested may be kept in the stomach indefinitely if the feedings are given at too frequent intervals. Granting the truth of these observations, it can be seen at once that it is of the utmost importance to have the meals properly spaced, as otherwise there remains a residuum of food in the stomach which contaminates each successive addition of food. This constantly recurring contamination and overburdening of the stomach results in fermentation, and in time gastric dilatation with a loss in tone of the muscular coats of the stomach may ensue. This explains how a chronic digestive disturbance may lead to the condition known as atrophy.

It is interesting to trace the analogy between this state in the infant and the condition known as myasthenia gastrica in the adult. Myasthenia gastrica is characterized by a loss of tone in the muscular coats of the stomach as a result of which there is a moderate dilatation. Its diagnosis depends on the finding of fluid in the stomach at the end of two hours or more, with a normal gastric secretion. Among the causes bringing about this condition may be mentioned the general debility following any disease and the habitual ingestion of excessive amounts of food. An important element in its treatment is to make certain that the stomach is never overloaded. In atrophic infants these conditions are reproduced and while it cannot be claimed that they are exactly parallel there is a good deal of similarity. Thus in atrophic infants a practically normal gastric secretion may be found with a marked loss of motility if our previous schedule of three-hour feedings be accepted as approximately correct. With few exceptions food and fluid remain in the stomach of these infants well over two hours—in most cases three hours or more—and as a consequence of this stagnation butyric acid fermentation begins and is passed along from one feeding to the next. Hence it should be expected, as in the myasthenia gastrica of the adult, that there should be a marked improvement in many of the symptoms if care is taken to make certain that the stomach is entirely empty for a short period before a future feeding. It is not only desirable that any fermenting material lying in the stomach be passed forward into the intestines to avoid contamination of an incoming meal, but there should also be an interval during which the stomach contents shall be strongly acid so that the growth of harmful bacteria may be inhibited.

14. THE FORM AND QUANTITY OF THE FOOD ELEMENTS

When percentage feeding was first developed, it was assumed that protein, fat, carbohydrates and mineral matter were well-defined entities, and the basis of teach-

ing was that scientific feeding consisted in merely changing the quantities of these ingredients in the food mixtures. Within the past few years an entirely different viewpoint has been taken, principally as the result of an increase in general knowledge of the subject of nutrition. "Protein," "fat," "carbohydrates" and "mineral matter" are now recognized as being generic terms and just about as definite as the terms "wood" or "stone." There may be few who realize that at least twelve different forms of protein, five different forms of carbohydrates and two different forms of fats are used successfully in infant-feeding and the digestive properties of these food elements are modified by the combinations in which they are offered.

To be most successful as a feeder one must be familiar with the uses and fields of these different forms of the food elements and must also realize that there is no fixed and absolute rule to follow in combining them. There are many feeble infants who seem to thrive when the food contains a high percentage of carbohydrates, while others do better if the carbohydrates are kept low and the quantity of protein is raised. Occasionally raising the fats will improve nutrition and this may appear to be what the infant needs and can digest; but most feeble infants seem to have difficulty when the fats are too high. Milk mixtures containing much cream pass more slowly through the pylorus than those low in their percentage of fat and higher in protein and carbohydrates, according to Tobler and Bogen. Many will remember that only a few years ago high fat in the food was looked on by many as the thing to be especially desired, but now low fats seem to have the field. There can be no universal rule with reference to the fats, however, any more than to any other of the food elements.

From the standpoint of nutrition infants need liberal quantities of protein for tissue formation, and enough fats and carbohydrates to supply heat and energy value or calories. But in the management of feeble infants the question of what is theoretically correct must be subordinated to what will practically work, or, in other words, what the infant will take and assimilate.

In some instances a very small quantity of protein, perhaps 0.5 per cent., is all that the young infant can take when the protein is in the form of the natural casein of milk. If the form of the casein is changed by the action of an acid, as in buttermilk feeding, in which the casein is precipitated in a finely divided state, as much as 1 or 2 per cent. of the casein may be digested easily. Lime-water, sodium bicarbonate, sodium citrate and other chemical additions for modifying the casein have been used with milk and all produce good results in some cases. No one method has succeeded in all instances, and it is not likely that any will ever be discovered that will be universally applicable, for the reason that infants are not all alike and conditions are not always the same. If oat gruel, or soy-bean gruel, with its very high protein content, is employed, several times as much protein may often be utilized as if the unmodified protein of cow's milk is used. These facts point out plainly that changing the form of the protein has frequently a very important place in the management of infants.

The changing of the form of the carbohydrates also frequently shows a marked effect in the progress of the infant. The carbohydrates used in infant-feeding are starch, dextrin, maltose, cane-sugar and milk-sugar, and it is often surprising what marked improvement will follow a change in the carbohydrates employed.

It has generally been thought that infants cannot take more than 7 per cent. of carbohydrates, but in Keller's malt soup, which has been advocated for atrophic infants, the carbohydrates, composed of starch, dextrin, maltose and milk-sugar amount to about 13 per cent., or almost double the accepted maximum quantity. The percentage of fat in the malt soup is about 1 per cent. and that of protein about 1.7 per cent. and each ounce yields about 22 calories or almost exactly the same as one ounce of good breast-milk. In many instances Keller's malt soup has given good results while in many others it has signally failed, like every other mixture. Its use proves only one thing; there are some patients who seem to thrive especially well when the fats are low and the carbohydrates high and consisting of a mixture of several forms.

I have long advocated the use of dextrinized gruels for this reason and for the practical results in many cases of difficult digestion. As usually employed, the carbohydrates exist in these gruels in the forms of soluble starch, dextrin and maltose in varying proportions, according to the degree to which the digestive change has been carried. Some atrophic patients, however, do better when the product is largely maltose. This can be attained by allowing an active diastase to remain in the gruel for a longer time at a comparatively low temperature.

The general method to be employed in feeding in difficult cases will have to be determined, to a certain extent, by experiment with the individual infant. If this fact is once firmly fixed in mind, much progress will have been made, as time spent in looking for a universally applicable food will then be used in learning how to make up mixtures of equal nutritive value in which the various food elements may be high or low in quantity and in a great variety of forms. Where the physician now has one or two formulas to draw on he may thus have many, and as he learns to use them he will find that the difference between success and failure often lies more in changing the form and even the flavor of the food than in a profound knowledge of calculating theoretically indicated mixtures. This is particularly the case in dealing with the difficult digestive problem of feeble infants.

III. FINKELSTEIN'S METHOD OF FEEDING

An interesting and somewhat unique contribution as to the cause and relief of nutritive disturbances in infancy has recently been made by Finkelstein, of the Berlin Kinderasyl. Instead of the fat or protein being the usual cause of trouble, most digestive disturbance is referred by him to the sugar of milk. He confirms¹ an earlier report of clinical observations at the Berlin Kinderasyl in reference to the pathogenesis of severe nutritional disturbances in the nursing. He there found that the ingredient in the food especially harmful to the sick infant was the sugar, and that in certain cases even the natural milk-sugar of cow's milk might cause the severest symptoms. He was thus led to hope that a method of nourishment based on a decrease in the milk-sugar would lead to cures that would be impossible with the ordinary methods. The report of improvement following this kind of diet has proved the correctness of the hypothesis and Finkelstein is convinced that a step in advance in the treatment of the nutritional disturbances of poorly nourished infants has been made. Not only may the lighter forms of nutri-

1. Finkelstein: Monatschr. f. Kinderh., April, 1909.

tional disorders be quickly and certainly improved, but patients can be cured that our previous experience has shown could be saved only by breast-milk. The earlier view of the harmfulness of casein is not confirmed and the opinion is advanced that casein in the intestinal canal is directly beneficial, as the intensity of the pathological sugar fermentation, with the ensuing dyspeptic symptoms, is lessened by increasing the amount of casein. A lowering of the sugar increases the tolerance of the intestines for fats and hence will allow an increase in the amount of fats which in the former mixtures, rich in milk sugar, only work harm. The principles of the new method of nourishment are summarized as follows: (1) the cutting down of the amount of milk-sugar and of the salts; (2) in place of this, casein is added and a not inconsiderable amount of fat; (3) a further bettering of the condition is sought by substituting other forms of carbohydrates for the milk sugar, which tends to an increased tolerance.

The food is prepared by separating the casein and fat from one liter of milk. The curds are pushed through a sieve to break them up and then added to half a liter of water. Half a liter of buttermilk without sugar is then added to the mixture. One liter of this food contains the whey and sugar from half a liter of milk, the

fied as follows: in good condition, 6; in fair condition, but a little below normal, 3; beginning atrophy, 4; with atrophy, 3; with marked atrophy, 4. Twelve patients died; eight of these began as atrophic infants and four started in good condition when the diet was instituted. Three patients, which began as atrophic infants, increased in weight, and five increased somewhat in weight who began in good condition. Altogether, eight patients gained slightly in weight and twelve lost in weight on the Finkelstein feeding.

It seems to me that when benefits follow this method of feeding, the results are due more to the form in which the protein is given, the casein being in a very finely divided state, than to the lessened amount of sugar in the mixture. The food appears in some cases to check the rapidity of atrophy temporarily and hence may have a restricted usefulness. Judging from the character of the stools it may also act well in certain forms of diarrhea.

IV. HYGIENIC MANAGEMENT

The hygienic surroundings have a most important effect on the nutrition of the feeble infant. If the environment is faulty the best care and feeding will usually prove ineffectual. These patients require an altered environment that will furnish plenty of fresh air, good

TABULATION OF RESULTS FROM FINKELSTEIN'S FEEDINGS

Case.	Age, Weeks.	—Ordinary Feedings—		—Finkelstein's Feedings—		Condition at the Start of Finkelstein's Feeding.	—Final Condition—		
		Days.	Gain, Oz.	Loss, Oz.	Days.		Gain, Oz.	Loss, Oz.	Gain, Oz.	Loss, Oz.
1	3	..	Stationary	17	8	Good.	Improved.	8	..
2	3	..	..	21	5	Good.	Improved.	5	..
3	4	8	..	29	..	Fair.	Death.	..	9
4	6	30	..	6	..	Marked atrophy.	Death.	..	17
5	6	10	..	6	1	Beginning atrophy.	Death.	..	6
6	8	9	..	32	15	Beginning atrophy.	Improved.	5	..
7	8	32	..	10	5	Fair.	Death.	..	5
8	8	15	..	10	36	Good.	Death.	..	28
9	13	6	..	4	14	Fair.	Improved.	7	..
10	13	..	..	22	1	Good.	Stationary.	..	1
11	13	37	..	25	19	Atrophic.	Improved.	7	..
12	13	..	..	22	..	Beginning atrophy.	Death.	..	30
13	13	23	..	17	3	Atrophic.	Death.	..	20
14	13	13	..	19½	2	Marked atrophy.	Death.	..	24
15	13	16	..	16½	6	Moderate atrophy.	Death.	..	22½
16	13	6	..	10	7	Atrophic.	Death.	..	20
17	13	15	..	3	11	Good.	Death.	..	20
18	17	27	..	19	8	Atrophic.	Death.	..	27
19	21	3	..	4	31	Good.	Improved.	5	..
20	26	13	..	7½	6	Marked atrophy.	Death.	..	11½

casein from one and a half liters and the fat from one liter. A small amount of fat and casein are lost in its preparation, but the following are estimated as the percentage ingredients: protein, 4.5 per cent.; fats, 2 to 3.5 per cent.; sugars, 1.5 per cent.; salts, 0.3 per cent.

This method of feeding was tried at the Babies' Wards of the New York Post-Graduate Hospital in a series of twenty cases. The infants, with a few exceptions, were not doing well on the ordinary food when they were changed to the new method. They were all hospital patients and presented the usual difficulties of infants previously badly fed and cared for, and finally sent to an institution for treatment. When the change was made the infants were fed every four hours, day and night, and the food was usually given in lesser bulk than in the previous feedings. Water was given freely between the feedings. The stools generally became gray and homogeneous with a putty-like consistency and dry appearance. There was usually then a tendency to constipation. The results are given in the tabulation above.

A study of this table will show that the results in this series of cases were not very promising. Before starting the new feeding the ordinary percentage method, with and without gruel diluents, had been employed with poor results. At the beginning of the new feeding the infants, as to their nutritional condition, may be classi-

general hygiene and individual care. For this reason they never do well in institutions, no matter how carefully and scientifically they are there fed. They cannot assimilate the best of food without plenty of good air to assist in its oxidation; oxygen is as necessary a food for them as protein or fat. It is only individual housing and care with constant oversight that can accomplish good results. Even an ignorant but kindly woman in a home can often get better results than a trained nurse in a hospital with a series of cases to look after and a stated routine to enforce. This is especially true in charitable work, where relief of feeble infants can be much better accomplished along the lines of family life with individual supervision instead of the collective life with institutional methods.

Acting on this idea, the Speedwell Society was started at Morristown, N. J., in 1902, and I have ever since boarded out my atrophic infants there under the supervision of a doctor and trained nurse, who watch and treat the cases under the care of the various foster-mothers. The results have been better than with any other method of treating this class of cases. Thus, among 121 infants under 3 months, 45 died; 95, from 3 to 6 months, had 29 deaths; 83, from 6 to 12 months, had 21 deaths, and 85 infants, from 1 to 2 years, had only 8 deaths. These infants were all poorly nourished

at the start, from bad hygienic surroundings, with various degrees of digestive disturbance from faulty feeding on the bottle, and stationary or losing weight. Although all had to be kept on bottle-feeding, a good proportion were not only saved but were restored to fair and even vigorous vitality. Under the old institutional methods nearly all would have died.

I would express my thanks to Dr. Pease and Dr. Leopold of my staff, to the former for undertaking the work on the motility of the stomach, and the latter for applying the technic in the Finkelstein trials.

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THE PROGNOSIS IN CONGENITAL DISLOCATIONS OF THE HIP *

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The subject of congenital dislocations of the hip has in recent years been so thoroughly covered in orthopedic text-books and monographs that most of its phases can be looked on as definitely settled. There are, however, a few problems that still remain open and require further observation and discussion. There is still considerable difference of opinion as to the ultimate prognosis in congenital dislocations of the hip, and, as is usual in such cases, only carefully compiled statistics can definitely settle the question. It is with the hope of aiding a little in the solution of this phase of the problem that I have decided to consider it and to add a report of the cases which I have myself treated, and to discuss briefly some of the factors which seem to me to have been most potent in producing the large percentage of complete or partial failures reported in the literature.

For the sake of clearness I wish to classify these cases under three headings: first, those cases in which no serious effort has been made to reduce the dislocation; second, those cases which have come to the surgeon too late for a successful bloodless reduction (while there is no hard and fast age limit, I think it is safe to say that after the sixth year in double and after the eighth year in single dislocations an attempt at bloodless reduction becomes more and more difficult and dangerous with less and less likelihood of successful accomplishment); third, cases of patients who come in time for the bloodless operation, in general before the age of 6 in double and 8 in single dislocations.

If untreated, or ineffectually treated by braces, Buck's extension, etc., the prognosis is always quite bad. At the very best there exists an unsightly deformity which persists through life and often becomes more pronounced as the patient grows older. Added to this we have a displeasing gait, which is either a limp or a waddling duck-like movement. These two factors alone are serious enough afflictions, especially for girls, who are the most frequent sufferers, but this is by no means all. The power of endurance is nearly always somewhat, often greatly reduced. Usually the older the patient grows the more the endurance suffers. Besides, there is no way of telling at the age of 3, for instance, which child will get along fairly well and which one will be a great suf-

ferer in later years. Some children manage to get along comfortably until the age of puberty or until they have some severe infectious disease or other great physical or mental strain, after which they seem never again to regain sufficient endurance to be able to carry this extra handicap.

Lorenz quotes Halsted as stating that 31 per cent. of all adult patients suffer pain, especially when fatigued. It may vary from slight discomfort to such a degree of severity as to incapacitate the patient from all work that requires walking or standing, and in extreme cases walking may become impossible.

Bradford reports five cases in women in his own practice who suffered severe pain when they exerted themselves to the equivalent of walking a mile at a stretch.

One of my own patients, a girl of 17, suffered great discomfort, even though her work was no more strenuous than is required of a general practitioner's office attendant. One patient, an unmarried woman, aged 35, whose pain simulated coxitis and who had been treated for coxitis for a considerable length of time, was found on careful examination to suffer from congenital dislocation of the left hip. Finally, one of the most serious consequences of untreated congenital dislocation of the hip is the resultant pelvic deformity, which in women may be the cause of dystocia.

By some the belief is still held that in a certain percentage of cases a spontaneous cure may take place, and that a new joint may be formed. This opinion is based on the fact that in traumatic dislocations this sometimes takes place. Those who take this position seem to forget, however, that a traumatic dislocation and a congenital dislocation are very different. In the former the head slips out of the capsule and can occasionally actually make for itself a pocket simulating a joint, while in the latter case the head remains within the capsule and cannot do this.

The old methods, such as supports to the dislocated hip by means of pelvic bands, corsets and braces of almost every conceivable description, are of course only palliative and have so far as known never secured a permanent reduction. That Paci secured some cures by his method is definitely proved, but nowhere, not even in his last article, have I been able to find any statement as to what percentage of cures he can effect by his method.

I believe we all agree that the operation of choice is the functional weight-bearing method, or so-called bloodless method of Lorenz. As stated above, after the age of 6 in double and 8 in single dislocations, successful reduction by this method becomes possible in a smaller and smaller percentage of cases the older the patient grows.

Thus, for instance, in my own cases, in three single and four double hip dislocations, or seven hip cases in all, I failed to secure satisfactory reduction every time. I secured anterior transposition with fair functional result once. When we add to this number a considerable number of cases of older patients, whom I have examined at various times at my office and elsewhere, but of whom I have kept no record, in whom the displacement was so marked and the muscles so shortened that an attempt at bloodless reduction was clearly out of the question, it becomes evident that the percentage of successful reductions in patients past the age limit is very small.

Unfortunately I am unable to find authentic figures in the literature which convey a clear idea as to the results obtained by other surgeons in cases of patients who have

* Read in the Section on Surgery of the American Medical Association, at the Sixty-first Annual Session, at St. Louis, June, 1910.

passed this arbitrarily established age limit, first, because most men do not recognize this limit in their statistics, or record only those cases in which a reduction has been attempted; and again, because others report only those cases in which they believe they have accomplished either a reduction or a transposition.

The bloodless operation is clearly not very promising where patients have passed this age limit, and, while reduction can be accomplished by the Hoffa-Lorenz open operation in practically every case, it has very serious objections, among which may be mentioned a considerable mortality, prolonged illness, a necessity for still longer after-treatment and a functional result which usually is very unsatisfactory.

Thus Hoffa in the fourth edition of his "Orthopedic Surgery" reports 250 cases treated by the open method. He secured reduction in every case, but had a mortality of six. Anatomically the results were good in all of his cases, no relaxation having taken place, but none of his cases were functionally perfect and a large percentage of them resulted in complete ankylosis. At the present time I believe that we are safe in saying that an attempt at reduction by open operation is never justifiable in double dislocation of the hip.

The late Prof. Julius Wolf of Berlin once expressed himself very tersely in regard to the Hoffa-Lorenz open operation in double dislocation of the hip. "Before the operation," he said, "the children walk like ducks and after the operation they walk like lame ducks."

In single dislocations the condition is somewhat different, however. If a patient has great trouble with a single dislocated hip and reduction cannot be secured by the bloodless method one is often justified in resorting to the open operation, because in this condition, even if ankylosis of one hip in good position results, the patient's endurance becomes greatly improved. Thus, for instance, I had two patients, each with double dislocations; in each I was able to reduce one hip by the bloodless method, but, failing to reduce the second hip by this method, I subsequently accomplished reduction by the open method. In one of these hips I secured an excellent anatomic result with very good motion and in the other a fair anatomic result with a fair degree of motion.

As stated above, statistics on this subject vary greatly, because different standards are adopted. Hoffa told me personally, shortly before his death, that he had treated over 600 patients by the functional weight-bearing method of Lorenz; that in single dislocations in patients between the ages of 2 and 8 he had satisfactory anatomic and functional results in 70 per cent. of his cases; that in double dislocations in patients between the ages of 2 and 6 he had, however, only 20 per cent. of permanent functional and anatomic results; that among those patients who came under treatment later in life the percentage of successful cases became rapidly less as the patients became older. It will be observed that this latter statement corresponds fully with my own experience.

Lorenz,¹ in the last report which I was able to obtain, gives the following statistics: In 364 cases of unilateral dislocation, 248 gave anatomically good results, 127 subspinal position, 19 showed lateral apposition. Of 158 bilateral dislocations, 70 showed good anatomic results, 19 showed subspinal position on both sides, 7 lateral apposition on both sides, 49 good results on one side, the other side subspinal, 4 cases one side anatomic replacement, the other side lateral apposition. Taking all hips

together, gives 680, with 358, or 53 per cent. of good results. Or in single dislocations, out of 364, 218, or 60 per cent. anatomically and functionally good results, and in the bilateral form of 158 cases, 70, or 44 per cent. gave anatomically and functionally good results. Of course, to these should be added the cases in which he accomplished lateral apposition or subspinal position. Unless the case is definitely reported, however, there is no way of telling whether such transpositions have actually benefited the patients.

Hoffa states definitely that some of his cases were worse after the transposition than before. This low percentage of satisfactory results may be accounted for in a measure by the fact that Lorenz gives his age limit as 9 to 10 years in unilateral and 7 to 8 years in bilateral dislocations. He gives it as his opinion that the third year is the most favorable.

TABLE SHOWING RESULTS OF TREATMENT OF HIP-JOINT DISLOCATIONS

Total Patients:		
Examined	.....	37
Rejected	.....	3
Declined treatment	.....	3
Treated	.....	31
Above Age Limit:		
Treated	.....	5
With single dislocation, treated	.....	3
With single dislocation, secured anterior transposition	.....	1
With single dislocation, secured functional improvement	.....	1
With single dislocation, failed in securing reduction	.....	2
Condition unchanged	.....	4
Double dislocation, treated	.....	4
Double dislocation failed in securing reduction. Condition unchanged	.....	1
Total Patients Below Age Limit:		
Treated	.....	26
With single dislocation, treated	.....	17
With single dislocation, secured reduction	.....	17
With single dislocation, secured good anatomic result	.....	16
With single dislocation secured good functional result	.....	16
With single dislocation, secured good anatomic and functional result	.....	16
Still in cast. Hip in position when last examined	.....	1
With double dislocation. Total number of hips treated	.....	18
With double dislocation, secured reduction by bloodless method in	.....	14
With double dislocation, secured good anatomic result after bloodless reduction	.....	9
With double dislocation, secured good functional result after bloodless reduction	.....	9
With double dislocation, still in cast. Hips in position when last examined	.....	4
With double dislocation, failed in securing reduction. Condition unchanged	.....	2
Secured reduction by open operation	.....	2
Secured good anatomic result with fair degree of motion. Following open operation	.....	1
Secured fair anatomic result with fair degree of motion. Following open operation	.....	1
Secured reduction position perfect when cast was removed 18 months after reduction. On examining 6 months later, relaxed. Reduced again. Has relaxed again	.....	1

In this country Lorenz was evidently less successful. Thus Ridlon,² in 29 hips subsequently examined by him, gave it as his opinion that he found the following results: 2 perfect replacements, 1 apparent replacement, 6 supracondyloid displacements, 13 anterior transpositions and 7 complete failures, or perfect results in only one-tenth of the cases.

Blencke³ gives in 60 per cent. of all cases good functional results.

My own statistics are the following: I have treated 26 patients below the age limit. Of this number 17 had single dislocations. Reduction was secured in all of these. Sixteen have been out of their casts for a year or more and all of these have good, permanent anatomic and functional results, making 100 per cent. of permanent cures in cases with single dislocations of the hip below the age of 8 years. Nine cases, or 18 hips, with

2. Ridlon, J.: The Ultimate Results of the Bloodless Replacements of Congenitally Dislocated Hips. THE JOURNAL A. M. A., April 16 and 23, 1904, pp. 1011, 1063.

3. Blencke: Ztschr. Orthop., Chir., xv, Nos. 2-4.

1. Lorenz: Am. Jour. Orthop. Surg., 1904-5.

double dislocations in patients below the age of 6 were treated. Reduction was secured in 14 hips by the bloodless method. Ten of these hips have been out of the cast a year or more. Nine of the 10 have good functional, anatomic results. One relaxed after the cast was removed. I failed to secure reduction by the bloodless method four times: one patient both hips, two patients one hip each. The latter two were reduced by the open operation and good anatomic and functional results in one case and fair results in the other were secured. In other words, in 14 double hip dislocations below the age of 6, who have been discharged from treatment, good anatomic and functional results were secured in 10, or 71 per cent. The four still in casts were in good position when last examined. They have not, however, been counted in the percentage. The complete table will appear in the published paper.

While the number treated is relatively small, I believe I have had a sufficient number of them, and the time that has elapsed since their treatment was completed is long enough to justify some conclusions. The two assertions that can be made without fear of contradiction are fortunately the two that are of the greatest importance to the patient as well as to the general practitioner. They are, first, that no case should go undiagnosed beyond the age of 3; second, that if properly treated at this age the great majority of dislocations can be successfully reduced and can be given good anatomic and functional results. By a good anatomic and functional result I mean that the head should be permanently opposite the Y cartilage, that the patient should have normal endurance and that his gait should be so nearly perfect that the ordinary observer cannot even detect a peculiarity in the patient's walk.

I wish now briefly to call attention to a few errors that are commonly made in this work. They are extremely costly errors, as they are, I believe, the cause for the great number of serious traumatism, relaxations and anterior transpositions. It will be observed that in my statistics I have only one anterior transposition, and that in a girl 11 years of age. These errors can be avoided by observing the following directions:

1. Too great force should never be applied, especially not suddenly. In children below the age limit it is rarely necessary, and in children above the age limit there is very considerable danger of doing more harm than good. It is, however, possible that my failures in securing successful reductions in children above the age limit may be attributed to my unwillingness to use excessive force.

2. The reduction should be accomplished by bringing the head over the posterior rim of the acetabulum rather than bringing it around the lower border. This latter method is apt to be adopted if bringing it over the posterior rim proves to be difficult. I am sure it is one of the principal causes for the great number of anterior transpositions and also for the considerable number of failures in the hands of some operators. I believe that many of these hips have been considered reduced, when, as a matter of fact, the capsule has just been pushed in front of the head, resulting in a transposition without a reduction. If this takes place it is quite impossible for a new joint to be formed, because a portion of the capsule intervenes between the head and the acetabulum, preventing the development of the cotyloid ligament. These pseudoreductions are very deceiving, because the operator experiences the peculiar shock of the head slipping anteriorly, and because a fullness appears in the groin and the thigh becomes lengthened, as shown by the tenseness of the hamstring muscles.

3. When reduction is once accomplished, the hip should never be intentionally relaxed. This is an error that is very commonly made by even the most experienced operators. I

believe that it increases the difficulty of retaining the head very greatly, because it gives the hip relaxation habit. Any farmer would know better than to drive a cow over a fence twelve times, in order to teach her to stay in the pasture.

4. The hamstring tendons should not be stretched at the time of reduction. Their action is fully as important in holding the head opposite the Y cartilage as is the subsequent weight bearing. Besides, the tenseness of the hamstring muscles is a very valuable sign for the first couple of weeks, as it is almost positive proof that the hip has not relaxed. Besides this overstretching of the hamstring muscles is entirely unnecessary, and being an additional trauma, is dangerous and harmful. If these little patients are encouraged to use their limbs as soon as possible, they will always get their legs straight long before the casts are removed and there will be much less likelihood of injuring the vessels and nerves.

5. The cast should be applied over stockinette instead of glazed cotton. If the bony prominences are protected by a little felt or quilted gauze this will be much more comfortable than cotton padding. If stockinette is used the head can be held so firmly that it will not move even a quarter of an inch. It can thus be kept opposite the Y cartilage until the capsule has had time to shrink and until the cotyloid ligament has had time to develop. In my last twenty-five cases I have used this material and in not a single case did relaxation take place while the hip was thus encased.

6. The cast should be applied with the thighs abducted to a right angle and flexed to a right angle, and it should be left in place for a year from the time of reduction with only one change of cast. In recent years some of the best operators have been in the habit of removing the cast in a relatively short time. Thus Hoffa has advised immobilizing the joint from fourteen to sixteen weeks. I believe this accounts in a large measure for his small percentage of permanent cures in double dislocations of the hip. In a large percentage of cases this period is not sufficiently long to permit proper shrinkage of the capsule and proper development of the cotyloid cartilage. I believe that the development of the cotyloid cartilage is the most important factor in the permanency of the reduction.

I am confident that if these directions are followed the percentage of cures will be much greater in the future than it has been in the past.

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ABSTRACT OF DISCUSSION

DR. A. J. GILLETTE, St. Paul, Minn.: I think that the term functional result does not convey to one who has not treated these patients and followed them up the real benefit which is obtained. A functional result is one in which the patient is pretty well satisfied, but the doctor is not. In other words, the limbs are very useful, but anatomically they are not perfect. So that when you take into consideration the perfect results Dr. Ochsner has and then the functional result, he has done exceedingly well.

With regard to the amount of force to be used, I notice that he did not believe that we should resort to very severe manipulation. I am getting bolder and I am getting a little more enthusiastic each time, and I am sure I have put into place some hips lately which I would not have operated on a few years ago. Of course, it is possible to produce a fracture. It has occurred in the hands of very good men, and there may occur paralysis. Even if paralysis occurs after manipulation it is only traumatic and will soon clear up. At least, it has done so in my cases. I think that we should attempt to reduce these hips, and, if necessary, use a great deal of force.

I think we should perform the bloody operation on more patients than we do. There are so many reasons why we do not get the hip into position that I will not enumerate them now. If you can get the head of the bone into position, and there is a twist in the neck of the femur, reduce the dislocation and perform a subtrochanteric osteotomy to bring the thigh in a good position later. Supposing it is necessary to do a bloody operation, do so. If the result should happen to be an ankylosed hip, that is not so bad, if you have

the head in position. It is wonderful how much better these cases are than those which are not reduced. The patients can walk and get about better, look better and feel better. They are free from pain or discomfort of any kind, simply because there develops a tremendous amount of compensatory motion in the sacro-iliac joint.

Dr. Ochsner says that he does not believe in stretching the hamstring muscles, and he gets good anatomic results, yet practical experience tells me something else. Frequently when I get the head of the bone in the socket and then attempt to stretch the hamstring muscles, the head slips out. Therefore I do not see any reason why we should not stretch these muscles. I know I have made the mistake of using too much padding. Another thing about which I am pretty positive is that we are leaving these casts on too long. We all know that we immobilize a joint which is not diseased for a long time, say six or eight months, the muscles and ligaments about the joint become lax and loose and one can sometimes partially dislocate a knee without the use of an anesthetic after too long use of plaster of Paris. Nearly all the heads of the bones slip out after casts have been removed, and that reminds me that many times we see these cases complicated by rickets. I had one patient come to me, and I know that there was not a dislocation present. But as the patient had rickets, I treated that condition and after six months the people came to me with the child limping, and the limp was due to a dislocation which was not present at the first visits. I wondered whether in all these cases the dislocation might be due to an intrauterine rickets. Of course, rickets is due to malnutrition, intrauterine as well as extra-uterine, and therefore the after-treatment should include proper feeding. In several instances I had to treat the rickets before attempting reduction. Most of these cases of congenital dislocation of the hip present some evidences of rickets.

DR. J. P. LORD, Omaha: My experience in the treatment of congenital misplacements includes about thirty cases, and the time is commensurate with that of the history of this treatment, that is, since 1890. The treatment I employed has been all of the varieties that have been recommended. In several of my earlier cases, I think about six, I used the open treatment. My experience was that of others, and in the ten years following earlier experience, that method was abandoned. Then my methods were practically those used by Lorenz, with about the results that others reported who have used that method. For the last two years I have been using the method as recommended by Bradford, of Boston. He uses a mechanical device for applying direct force in effecting a reduction of the head of the bone, forcing it down into the acetabulum. I think this method preferable, because it does not produce the amount of traumatism that these more or less blind manipulative methods that are used for stretching the parts in every direction are liable to cause. Having reduced the head of the bone by this method, Dr. Bradford makes a strong point of applying the dressing with the limb not only in abduction, but also in inward rotation, so that the head rests more securely in the acetabulum. Bradford's results have been very much better than hitherto, often as high as 91 per cent. of good functional results. My results also have been confirmatory of Dr. Bradford's experience. This method in addition limits the time of the period of confinement: three months seem ample. I am so thoroughly convinced of the value of this particular procedure of Bradford's that little else seems to be desirable, except in those unusual cases in which there is little to be accomplished by a bloodless procedure and an operation must be performed.

DR. EDWARD H. OCHSNER, Chicago: We must always diagnose congenital dislocation of the hip by the *x*-ray. There is no reason why a diagnosis should not be made in all of these cases, and no patient should be allowed to go beyond the age of three or four without an effort having been made to effect reduction. If a proper effort is made at the proper time, we may be confident of getting much better results than the statistics of the past have led us to believe can be obtained. I believe that we can expect and have a right to expect 90 per cent. of cures in the single dislocations, and 70 per cent. of cures in the double dislocations.

RADIO-ACTIVITY INDUCED BY THE X-RAY

A PRELIMINARY REPORT *

HELIODOR SCHILLER, M.D.

AND

PATRICK S. O'DONNELL, M.D.

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Physicists know that certain metals used in experimental work become radio-active while under the direct influence of the *x*-rays. It has been asserted, however, that such activity ceases with the removal of such influence or shortly thereafter. The fact that emanations proceed from radium or radium-salts, by which substances exposed to them become radio-active, is well known.

The physical similarity between the rays emitted by the *x*-ray tube and the Becquerel rays, at least the similarity between the *x*-rays and the beta rays emitted from radium, their penetrating power, their phosphorescent action, their action on photographic plates in black paper and plate-holders, their action in causing air to become conductive for electricity—all these phenomena made the existence also of a similarity between the nature of these rays seem plausible to us, and therefore we began experiments by which we found that radio-activity could not only be induced in metals or other substances while under the influence of the *x*-rays, but could, like that from radium, be retained by these substances for a certain length of time, the induced activity gradually disappearing just as the induced radio-activity by radium and actinium disappears. We think we are able to demonstrate that we can store up *x*-rays or a part of them and make use of them after they have been long removed from the tube from which they were derived.

PHOTOGRAPHIC EXPERIMENTS

For our experiments we used uniformly 14½ amperes and 110 volts in the primary, 25 milliamperes in the secondary coil, a distance of 30 cm. from the substance to the tube and fifteen minutes' exposure. The tubes used were hard tubes and kept as nearly as possible of the same vacuum.

EXPERIMENT 1.—The following liquids were used: Liquid A, glycerin dilutions. Liquid B, quinin solutions. Liquid C, quinin and glycerin solutions. Liquid D, a suspension of platinum cyanid of barium in Liquid C.

These four substances were exposed in open Petri dishes to the direct influence of the rays and then put in a non-conductive material. After this they were exposed to highly sensitive trichromatic photographic plates in black paper, and as an object for the purpose we used safety razor blades. After three hours' exposure to the plate and one minute development in a normal developer, we found A negative; plate not affected; B gave clear definition of the razor blades; C and D gave very clear definition.

EXPERIMENT 2.—The same substances were again immediately exposed for twelve hours to photographic plates, which were developed for one minute, resulting in very good definition in all cases.

EXPERIMENT 3.—A portion of C and D were diluted in the proportion of 15 to 85, then exposed for fifteen minutes to the rays and for twelve hours to the plates. C gave very good definition; D had no effect on the plate.

* These experiments have been conducted in the *x*-ray laboratory of the Michael Reese Hospital and materials for the physiologic tests and experiments have been furnished by the kindness of the institution.

EXPERIMENT 4.—C and D were exposed to the x -rays and after exposure diluted, 15 to 85, then for twelve hours exposed to the plates. Both plates were unaffected.

EXPERIMENT 5.—A, B, C and D were, forty-eight hours after exposure to the x -rays, again exposed to the photographic plate and found negative.

EXPERIMENT 6.—Eight other substances were exposed to the x -rays under similar conditions, but all were found negative in respect to their photographic action.

EXPERIMENT 7.—B and C were exposed for thirty minutes to the x -rays, and twenty-four hours after removal from the influence of the x -rays were still found to possess positive action on the photographic plates; that is to say, the razor plates still had good visible definition.

A, B, C and D were examined concerning their action on the platinum cyanid of barium screen, and at least C and D had, after long observation, a phosphorescent action.

EXPERIMENT 8.—After exposure to x -rays, 20 minims of C were injected into a guinea-pig. The pig was then exposed for twelve hours to a photographic plate; the trunk and skeleton parts of the feet were to be seen in a good outline on the plate and the plate as a whole was affected. The pig was found dead and already rigid. This experiment proves the penetrating power of the induced rays.

CONCLUSIONS

1. By exposing certain substances to the direct rays we are able to induce in these substances:

A. Rays which have a decided action on the photographic plate held in black paper and plate-holder.

B. Rays which have a penetrating power.

C. Rays which have a fluorescent action on the barium-platino cyanid screen.

2. These properties remain in these substances at least twenty-four to thirty hours and gradually disappear.

3. These properties have greater strength in B, C and D than in A.

4. These properties are present in a degree when these substances undergo dilution before their exposure to the x -rays.

5. These properties disappear at once if the substance is diluted after exposure to the rays.

ANIMAL EXPERIMENTS

Of equally great interest, revealing still other unknown peculiarities of x -rays, were our animal experiments made with the substances after they were exposed to the x -rays, or, as we prefer to say, after we made them active. It has been long known to one of us that x -rays are able to increase the toxicity of certain drugs and alter their physiologic action. A report of this phenomenon will appear in a later contribution; this knowledge helped us to understand the results of our experiments.

The injections were made in the mid-region of the back subcutaneously.

We injected 20 minims of substance A into a guinea-pig prior to its exposure to the x -rays; 20 minims into a second pig immediately after direct exposure of the substance to the x -rays; 20 minims into a third animal forty-eight hours after exposure of the substance to the x -rays or after the substance had lost its activity. This was controlled by the photographic plate. We found that the control Pig 1 remained healthy and began to feed five hours after injection.

Guinea-pig 2 was found to be hypersensitive to touch immediately after injection. A few hours afterward it acted as if sick and refused food and dragged the rear legs; the dragging finally approached a degree of paralysis. After four days the condition gradually improved, the paralysis disappeared and the animal got well.

Guinea-pig 3 died the fourth day. We experienced similar results after injecting other guinea-pigs with 10 minims of B and C before exposure to the x -rays, 10 drops after exposure and again 10 drops of the substance which had lost its activity. The control animals remained well whereas the animals injected with the active substances became temporarily sick and paralyzed in the legs, while the animals injected with

the substances which had lost their activity died between the third and fourth day.

Pathologic or histologic examination of the place of injection has not yet been made. We have left a great many examinations for the future, but we felt justified in reporting our findings even in this premature stage.

In estimating the value of our findings, importance must be attached to the fact that those rays induced by us may prove of value in combating disease in conditions in which radium or radium emanations have hitherto been of service.

The comparative ease with which we are able to activate great quantities of substances which are at once easy to obtain and cheap, whose activity we shall be able to regulate and graduate in accordance with the length of exposure to x -rays and by their known susceptibility, and which we shall be able to use internally by mouth, in baths, in the form of compresses, or possibly hypodermically—all these possibilities give rise to the hope that we may enlarge our armamentarium against sickness, not overlooking the value of the discovery in the chemical field.

We have found that many other chemical substances have a tendency to become radio-active for a few minutes, others hold the radio-activity for considerable time, although this activity is scarcely perceptible with the most sensitive plates.

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BITES FROM COPPERHEAD SNAKES

GILMAN R. DAVIS, M.D., PRICE HILL, W. VA.

In response to the suggestion of Dr. Prentiss Willson,¹ that physicians should report cases of poisoning by copperhead snakes, I will report three cases. The mountains of West Virginia are full of copperhead snakes, and bites by them are frequent, many of which are treated by domestic remedies without calling a physician. The fact that patients generally recover indicates that the wounds are not serious.

To be efficacious, the prophylactic treatment of a snake bite must be immediate. The first thing to do is to grasp the limb on the proximal side, close to the wound and substitute constriction by a handkerchief or cord for the pressure of the fingers as soon as possible. Rapid and shallow stabs with a sharp-pointed penknife should then be made in and about the wound and strong suction applied by the mouth. This method involves the risk of sepsis, not only from the knife, but also from the mouth, which is never aseptic. But it is well to follow the maxim "in a choice between two evils take the less." Free bleeding may be expected to wash the poison from the wound. Snake poison taken into the stomach, even in considerable quantity, is destroyed by the gastric juice, and the amount injected into the tissue by the snake bite is about what would adhere to the point of a needle.

If I can reach the patient very soon after the infliction of the injury, I inject a solution of permanganate of potassium hypodermically in and about the wound. This quickly destroys the virus by its rapid oxidizing action. I avoid the use of whisky, but give full doses of strychnin and aromatic spirits of ammonia.

During the last two summers, I have personally treated three cases of copperhead snake bites. Two were in boys of 3 and 12 years respectively, and one in a girl of 10 years. The boys were bitten on the instep and the girl on the side of the bare ankle by snakes which proved to be of the copperhead species. In the older boy, there was swelling of the foot and leg extending to the knee. In the younger boy and in the girl, the entire leg was swollen to the body. In no case was there any constitutional disturbance. The pulse and temperature were approximately normal. Recovery was rapid, the boys being able to run about as usual in from 3 to 5 days. The girl was in bed for 4 days and on crutches for 10 days.

1. THE JOURNAL A. M. A., Aug. 27, 1910, p. 770.

Special Articles

SYMPOSIUM ON THE TREATMENT OF ACUTE ANTERIOR POLIOMYELITIS

1. TREATMENT OF THE ACUTE STAGE

H. M. McCLANAHAN, A.M., M.D.
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The recent literature of this disease has shed much valuable light on its nature, pathology, and clinical manifestations. The treatment of the acute stage has received scant consideration. If we can do nothing to modify the disease, certainly we can do something for the patient, and until specific treatment is discovered it is the duty of the physician to institute proper treatment to meet the indications in the average case. It is now recognized that this disease is caused by some living poison developed without the body. Evidence is rapidly accumulating that it is not only infectious, but to some degree contagious. Like other infectious diseases—for example, scarlet fever—it varies widely in its clinical manifestations. Some cases are so light during the acute stage that the parents give it no serious thought until paralysis develops. Others are so severe as to simulate cerebrospinal meningitis, or terminate in early fatality by involvement of centers in the medulla. In sporadic cases the nature of the malady is frequently not recognized until the manifestation of paralysis. During an epidemic the nature of the disease may at least be suspected. I firmly believe that if its nature is recognized with the beginning of symptoms, treatment is of value, and I base this statement on the evidence of physicians in this state who have had large experience.

I shall first discuss the subject of treatment in general and then the treatment of certain varieties.

TREATMENT IN GENERAL

Isolation of the patient can do no harm to the individual and may protect others in the family. To my mind it is more important than rigid quarantine. The advice of the family physician is usually accepted, hence if he advises the mother to at once isolate the patient he has adopted the best measure to prevent the extension of the disease to others. If a mistake in diagnosis is made no harm can possibly result. If during local epidemics of this disease, such as prevailed in 1909 in Nebraska and during 1910 in Iowa, physicians everywhere would adopt this course many cases might be saved from exposure.

The physician should realize that he is dealing with a general infection involving all organs, as well as the nervous system, and apply the same general principle of treatment as in other infectious diseases; hence the important principle of treatment is elimination. This includes thorough depurative action on the bowels, the ingestion of a liberal amount of fluid to promote excretion from the kidneys, the use of remedies to stimulate diaphoresis, a liquid nourishing diet and proper temperature and ventilation of the room.

How are we to meet these indications? In the Nebraska epidemic constipation was the rule, diarrhea the rare exception. Strictly speaking this was obstipation, and undoubtedly due to the disturbance of the motor function of the bowels. Men of large experience, as Anderson of Stromsburg, Shidler of York, Shaw of Osceola, and many others with whom I have had correspondence, found this a very difficult symptom to overcome, especially in those cases where vomiting was a

symptom. The best remedy is calomel in broken doses, given at frequent intervals, combined with soda. This should be followed by castor oil. It is a clinical fact worth remembering that when a child is vomiting, frequently it will retain castor oil. Even should it vomit, it will not expel all of the remedy. I clearly recall a case in which the child vomited the first two doses of castor oil and retained two subsequent doses.

Enemas are useful and often necessary, but the success of an enema depends in a large measure on the cooperation of the patient. First, an enema of 4 ounces of warm olive oil should be given, and the child encouraged to retain this for an hour or more, then an enema of one quart of soapy water should be given. This is best made by putting one-quarter of a cake of good soap in a pitcher, pouring over it a quart of boiling water and stirring until the water is cooled to body temperature. If this fails it may be followed by an enema of epsom salts, 2 ounces; glycerin, 2 ounces, and warm water sufficient to make 1 pint. After the bowels have been freely moved, they should be kept moving at least twice a day during the acute stage. If the child refuses to drink enough liquid to keep up free elimination from the kidneys, then warm salines by the bowels should be given. To stimulate the skin nothing equals a hot pack. This is also of benefit in the polynenritic type. Dr. LeGrand Kerr of Brooklyn recommends this as a routine treatment. If properly applied this is agreeable to the child, and it is always important to have the child's voluntary cooperation. A soft, white blanket, lightly wrung out of hot water (if there is evidence of stupor, it should be wrung out of mustard water), is wrapped snugly about the child. A dry blanket should be wrapped over this—not a muslin sheet which absorbs water. The child should be encouraged to drink while in the pack. I have found that some children will drink freely of grape-juice when they will not take water. When removed from the pack they should be gently rubbed dry and placed between blankets until perspiration has ceased.

The diet during the acute stage includes milk, plain, diluted or modified; buttermilk, broths, and, if there is much gas, some of the modified cereals, sometimes a poached egg, toast when properly made and fruit juices. Toast to be easily digested should be made from bread well dried, slices cut thin and heated through.

The fever seldom requires special attention, and when it does, sponging or a cool enema most safely meets the indication. Coal-tar derivatives should be avoided entirely.

As a routine treatment, I wish to recommend the use of hexamethylenamin (urotropin). This was suggested by Dr. Dana in an article appearing in *THE JOURNAL* about two years ago, based on the fact that Cushing of Baltimore had determined that this remedy when administered could be detected in the cerebrospinal fluid. I know of no objection to its use. It is generally well tolerated by the stomach. I have used it in a few cases and recommended it in a number. Dr. Adams of Florence, Nebraska, has employed this in twelve consecutive cases without mortality. I personally saw some of these patients. The rule was to give two grains every two hours during the acute stage, or, more definitely, during the first two or three days.

TREATMENT OF CERTAIN TYPES

Certain types of the disease require special consideration; first, the cerebral type. By this I mean cases beginning in a stormy way with fever, delirium or stupor,

muscular rigidity, etc. It usually happens that these symptoms subside in two or three days, and if the physician has called it cerebrospinal meningitis he begins to doubt his diagnosis. Lumbar puncture is now recognized as the only positive method of early diagnosis, but I wish to speak of it here as a therapeutic measure. Dr. Adams has had four of these cases and in every one there was relief of symptoms following the puncture. I saw two of them and can verify his statement. In these cases, also, the ice-cap is undoubtedly of benefit.

The polyneuritic type certainly requires special attention. Therapeutic nihilism will not do; the patient must be relieved. I have known of instances in which the screams of the child could be heard across the street. The pain is usually most intense in the back and legs. There is usually cutaneous hyperesthesia, so that even the weight of the bed-clothes gives pain and the walking of the attendant in the room hurts the child. A limited number will require the hypodermic use of morphin, but this is recommended only in the severe cases. Relief can often be attained by the use of a suppository. The one that has served my purpose best is as follows: Powdered opium gr. 1/2, extract of belladonna gr. 1/8, sodium salicylate gr. 5, oil of theobroma enough for one suppository. One suppository is to be inserted every three hours until relief is attained. Here again the hot pack, as above described, will sometimes give relief. When the stomach will retain it, sodium salicylate is of benefit. In some cases the pain continues beyond the acute stage. In one little girl the severe pain in the back persisted for about three weeks. Dr. Shidler of York has reported two cases in which lumbar puncture gave notable relief.

MANAGEMENT OF COMPLICATIONS

The mortality in this disease is chiefly from the involvement on the medulla, leading to respiratory failure. I think it is well to remember that this complication will occur in any type of the disease; hence such symptoms as shortness of breath, pallor of the skin with slight cyanosis of the lips, unwillingness to talk and an anxious countenance, should warn the attendant of approaching danger. In the presence of these symptoms what can be done? I have personally seen two cases that terminated fatally in spite of every effort. In all these cases the physician should be on the alert. It has occurred to me that oxygen might be of benefit, although I have no personal experience in its use in these cases. If I should again see a case of this type, however, I would do a lumbar puncture, on the theory that the bulbar paralysis might be due to pressure and that the withdrawal of fluid would tend to relieve this pressure. One case was reported to me, in which the child was taken out of doors on a cot with benefit. There is no evidence that strychnin, nitroglycerin or digitalis are of benefit.

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2. TREATMENT FROM THE NEUROLOGIST'S VIEWPOINT

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The study of recent epidemics of infantile spinal paralysis, particularly of the New York epidemic of 1907, has led to a modification of the prevailing conception of the disease. Its infectious origin has been known for the past fifteen years or more¹ but not until recently have we realized that the infectious process may involve (in

some instances) the greater part of the central nervous system from the cortex of the brain to the lumbar ganglia. In the majority of cases we may still consider it an anterior poliomyelitis; in other instances it will be more correct to speak of it as an infectious meningo-encephalomyelitis.²

Our views as to the treatment of the disease have also undergone a radical change. It will not do for the physician to sit by idly and state that there is "little to be done"—as was the fashion not so many years ago. The disease calls for patient and intelligent treatment with a certain prospect of reward. After the subsidence of the acute stage³ the practitioner is face to face with the problem of what to do for the paralyzed limbs or muscles. Although this paralysis is due to an affection of the spinal cord, it is well not to attempt treatment of this organ. So far as we are at all able to influence the spinal lesion itself, the enforced rest in bed, and, in the earlier stages, the application of an ice-bag, will help as much or as little as any other measure. It is at least certain that these simple measures will do no harm. Counter-irritation is both painful and unnecessary, and the avoidance of pain in the case of a disease that is of itself painful and distressing is a point that we ought not to overlook. Counter-irritation over the spine is contraindicated because it will interfere with the quiet rest of the patient on the back; because of the danger of the formation of bedsores; and, lastly, because it is more than doubtful whether it can do any good. Galvanization of the spine in the hands of a careful practitioner may do no harm. It is more than doubtful whether it can do any good, and no one as yet has shown that if a current be applied to the skin over the spine any of it actually reaches the spinal cord substance itself. All therapeutic efforts should be concentrated on the treatment of the paralyzed groups of muscles, and in order to treat these with some show of intelligence it is above all necessary to determine which muscles or groups of muscles are especially involved. The entire aim of treatment is mildly to stimulate the nerves and to exercise in one way or another muscles which cannot be exercised by the will. This can be done by electricity, by massage, and by active and passive exercises.

ELECTRIC TREATMENT

First, as to the proper form of electric treatment: It is the rule in paralysis due to poliomyelitis that the nerves and muscles exhibit some form of the reaction of degeneration. This implies that in all but the mildest cases the nerves and muscles will not respond to the faradic current but will contract on galvanic stimulation. Muscular exercise is the chief aim in treatment, and for that reason one must follow the simple rule that in treating the paralyzed muscles that form of current is to be used which gives the best contraction with currents of moderate strength. Thus, if it is found that the contraction with the negative pole (KCC) is obtained with weaker currents than is the contraction with the positive pole (ACC), then the attempt should be made to exercise the muscles by the use of the negative pole, the other pole being placed at some distance from the paralyzed group of muscles. Currents of moderate strength should be employed, and the making

2. The Report of the Collective Investigation Committee on the New York Epidemic of 1907, Jour. Nerv. and Ment. Dis., Monograph Series VI. I recommend a careful study of the entire report to all physicians interested in the subject. The final section on treatment is full of helpful suggestions. The German translation of the report has just been published.

3. Let me hope that my colleague in this symposium has recommended that during this stage the treatment be similar to that employed at the onset of other acute infectious diseases.

1. Sachs: Nervous Diseases of Children, ed. 1, 1895.

and breaking of the current should be done slowly, so as to give the muscle time for deliberate contraction. Moreover, it is well in the majority of instances to apply the stimulating pole over the belly of the muscle unless it has been previously determined that the muscles can be excited from a motor nerve point. Do not merely pass the pole up and down the limb, but determine exactly how the muscles can be properly moved and apply the pole to those points. It is needless to say that this cannot be properly done unless the person doing it has had some satisfactory training in the use of electric instruments. If at all possible, the physician or his assistant should give this treatment, particularly in the earlier stages of poliomyelitis, and it should not be left in the hands of a trained nurse unless that person is specially qualified to give that treatment. In almost every case of poliomyelitis some groups of muscles are more completely paralyzed than others; some of them can be excited from the motor nerve point, others cannot. Whenever an entire group of muscles can be moved by applying the current over a motor-nerve point—the peroneal, for instance—advantage should be taken of this for the simple reason that a number of muscles can be exercised at one and the same time. Whether the paralysis has involved the muscles of the upper or the lower extremities, or of the abdomen or of the back, the same rules as to electric treatment obtain in all cases. The faradic current, except as a mild nerve stimulant, is of little benefit, particularly in the graver cases in which both nerves and muscles give no faradic response. It may be suggested, however, that an examination for diagnostic purposes with the faradic current be made from time to time, and as soon as the muscles and nerves in the process of recovery begin to respond to the faradic current, this current may be used conjointly with the galvanic.

In those rarer instances in which the lesion is so slight that the faradic response of nerves and muscles has never been entirely lost, the faradic and galvanic currents may be employed at alternate sittings. The matter of electric treatment can hardly be overdone. It should be begun about one week after the subsidence of the febrile period and should be continued daily until full recovery has set in or a chronic stage has been reached, during which exercising of the muscles no longer results in further improvement.

MASSAGE

The paralyzed limbs of a poliomyelitic patient exhibit a distinct tendency to wasting and to an impairment of the peripheral circulation. These conditions can be improved, if not overcome, by proper massage. A thorough kneading of the muscles will help to improve the circulation in the peripheral parts and at the same time will serve to counteract the tendency to contracture which is developed at an early period of the disease in many instances. A deep massage of the parts is in order, but the person giving the treatment should be cautioned not to add insult to injury by bearing down too heavily on the nerves in exposed areas. Thus the ulnar and musculospiral nerves, the sciatic, the peroneal and the posterior tibial, should not be manipulated with too much force. In the earlier stages of poliomyelitis these nerves are apt to be sensitive and I have known much harm to be done by violent massage. I would urge that every practitioner arrange to witness the massage as given by the person intrusted with it, and to caution against any excessive measures. Many a case of sciatic and peroneal neuritis might have been avoided if this precaution had been taken.

PASSIVE AND ACTIVE EXERCISE

I wish to lay especial stress on the importance of passive and active exercises. In the earlier paralytic stage passive exercises are of the greatest importance because in this way, and perhaps in this way only, can a tolerable nutrition of the paralyzed muscles be maintained. Moreover, early contractures can be partially counteracted. This tendency to contractures is in many instances the most serious feature of the disease and is responsible for subsequent deformities. In the investigation committee's report¹ Dr. Jelliffe has specially urged the value of hot baths (100 F.), and of giving the first passive exercises when the patient is lying in the tub. I fully subscribe to this suggestion and would insist that the nurse or attendant in charge of the patient be asked to carry the child carefully into the bath, and to have the passive exercises given in the tub.

Directly the paralysis has begun to recede, the time has come for active exercises. While the paralysis comes on with great suddenness, the improvement in the use of the muscles as a rule sets in very slowly and deliberately. There is no task more important for the physician in charge of poliomyelitis cases than to recognize the return of power to one or the other muscles or groups of muscles at the earliest possible moment, to fasten on this return, and to encourage from small beginnings the further development of muscular power. In the case of paralysis of the upper extremities, finger exercises, the grasping movements of the hands, raising of the shoulders, raising of the arms, etc., should be encouraged, and definite periods of the day should be set aside for such movements.² If the deep spinal and abdominal muscles are involved the patient should be encouraged to rise from the recumbent posture. At first only one or two attempts of this sort should be made; as the child grows stronger the same movements may be repeated four, five and six times up to the point of fatigue. In the case of the lower extremities, the movement of the toes, the bending of the knee, the raising of the entire leg, may be practiced while the child is still confined to its bed or couch, and as the improvement continues it should be encouraged, first with assistance, and held firmly under the arms, to stand on its feet, to make a few careful steps, and as power returns to the limbs to walk from its bed to a couch, to a chair, finally across the room; but it should not be allowed to walk unsupported until the physician has satisfied himself that the legs will actually carry the body.³ The tact and good judgment of a physician will be displayed in determining when it is safe to allow such a patient to use its limb or limbs unsupported. Children beyond the age of five, and older persons, may be encouraged to use crutches in getting about. Smaller children may be placed in go-carts, and other devices may be resorted to, in order that weakened muscles may be exerted without detriment to the patient; but unless the muscles are wholly inadequate to the performance of their duties they should not be entirely replaced by mechanical devices.⁴ It goes without saying that active exercises can be employed only in those cases in which some groups of muscles have retained considerable power, and I feel satisfied that we shall see a much smaller number of deformed and helplessly paralyzed limbs if these active exercises are properly prescribed in the earlier periods of the disease.

1. No physician would be in danger of following the example of an Eddyite practitioner who insisted that a child with a poliomyelitic leg be put in the middle of the room and be made to stand, with the result of its falling in a heap and fracturing its thigh.

5. It is most important to guard against the development of pes equinus and of genu recurvatum.

ORTHOPEDIC MEASURES

If permanently paralyzed or deformed limbs are the result of an attack of poliomyelitis, orthopedic measures should be freely resorted to. Simple contractures may, no doubt, be overcome by tenotomies, possibly by suitable apparatus, but I would particularly urge that the transplantation of tendons and the shortening of tendons be practiced in those cases in which an improved position of one or both legs could be brought about by such procedures. To a neurologist, the problem of transplantation of tendons is a very simple one. It merely amounts to implanting the tendon of an under-acting muscle into the tendon of an over-acting opponent. Much time is wasted, as a rule, in hoping for a return of tolerably normal conditions. If six months or a year after the onset of poliomyelitis a group of muscles shows considerable wasting, an absolute reaction of degeneration and no return of muscular power, it is useless to hope for spontaneous improvement. The orthopedist should then step in and attempt to correct the mischief done by the disease.

MEDICINAL TREATMENT

No reference has been made to medicinal treatment, for the simple reason that I know of no drug which has the slightest effect on the spinal lesion or on the paralyzed muscles after the acute stage has been passed. While salicylates and mild narcotics will have to be employed in the earlier period of the disease, and even iodids and ergot may be administered in the earlier stages, there is no sufficient reason to administer these drugs in the paralytic and post-paralytic periods. For the relief of neuritic and muscular pains, give a combination of pyramidon, citrate of caffeine and aspirin, or aspirin alone, varying the quantities according to the age of the patient. If necessary, codein may be added. I am very certain that injections of strychnin or of arsenic are absolutely useless, though there can be no objection to the use of the ordinary blood and nerve tonics, provided the practitioner keep in mind that he is attempting to improve the general condition of the patient and is not endeavoring directly to effect a change either in the spinal cord lesion or in the paralyzed nerves and muscles.

CONCLUSION

In conclusion, let me insist that intelligent gymnastic exercise of the paralyzed or weakened limbs is the method to which one should pin one's faith, and from personal experience I can state that the physician who directs these exercises intelligently, and who will direct them patiently, will have no reason to regret the time devoted to this good cause. In recent epidemics the disease has been of such varying intensity that we have no right to claim that any case is a hopeless one, and much can be done by properly directed therapeutic efforts.

135 Central Park West.

3. THE ORTHOPEDIC TREATMENT

JOHN RIDLON, M.D.
CHICAGO

The treatment of anterior poliomyelitis consists of massage, movements, braces and surgery. Massage is used to maintain and restore, at least to some extent, the nutrition of the paralyzed muscles. Electricity is employed for the same purpose, but is in my opinion of very doubtful value.

MOVEMENTS

Passive movements of the joints of the paralyzed part are made by the operator to maintain the normal range of motion and thereby prevent contraction of the unopposed or weakly opposed muscles, and to stretch already contracted muscles and correct recent and mild deformities. Assisted movements are made use of where some strength remains in the paralyzed muscles, but too little for the patient unassisted to put the joint through its full range of motion. Active movements performed by the patient himself have positive curative value, probably greater than any other remedy. Resisted movements are normal active movements of the patient resisted by the operator just sufficiently to bring out the full strength of the patient as he performs each movement.

BRACES AND SPLINTS

Such mechanical appliances as splints and braces are used to prevent the development of contraction deformities, and to enable the patient to use the paralyzed limb more and more normally than in many cases it is possible for him to do without this aid.

SURGERY AND MASSAGE

Surgery is used to correct deformities, to maintain that correction and to assist in the restoration of function and in some cases to eliminate the necessity of braces.

Gentle massage and gentle passive movements may be employed from the time that the diagnosis is made. More vigorous massage and movements should be employed as soon as the sensitiveness of the limbs has passed off, and should be continued daily for years. When it is possible to have a skilled masseur, one should be employed. When it is not possible to have the service of a skilled masseur for a long time, some member of the family should receive from some competent operator at least a few lessons.

Osteopathic treatment, as such, is useless; for osteopathic treatment is to massage what homeopathy once was to regular medicine, a pretense to a reality. Real massage is a real aid. Osteopathy in the treatment of infantile paralysis is a pretense; it is useless, and the employment of the osteopath means the loss of much valuable time.

CONTRACTION DEFORMITIES

In nearly all cases of anterior poliomyelitis contraction deformities develop sooner or later. In most cases, fortunately, it is later, some months after the acute attack with its usual accompaniment of sensitiveness and soreness of the limbs has passed, and when it is comparatively easy with splints or braces to prevent it. But in a few cases contraction deformities, even of severe degree, develop during the first eight or ten days, while the sensitiveness is still so great that it seems a positive cruelty to move the child at all. But if the attending physician allows contraction deformities to develop, whether it be early or late, he should realize fully the responsibility he is taking, and should stand ready to admit that to his neglect of a simple precaution the child must have all the rest of his life more useless limbs than he needed to have. For no orthopedic or surgical treatment can ever make these contracted muscles as good as they might have been had he prevented the development of deformity.

Obviously, then, the first thing to do in the orthopedic treatment of a case of anterior poliomyelitis is to prevent contraction deformity by daily passive movements, if they are sufficient; if they are not sufficient, to put the limb in a plaster cast, or some equally efficient splint,

with all joints in the normal position for standing erect; and to maintain them so until all tendency to contraction deformity has passed, or an efficient brace can be applied.

DETAILS OF BRACES

No practitioner should prescribe a brace unless he can make it himself and modify it from time to time as may be necessary. To require an instrument-maker to measure for, make, fit and apply a brace is equivalent to asking a druggist to put up a bottle of medicine for the treatment of a patient suffering from the diagnosis of pneumonia. If the physician in charge of the case can not measure and make the drawings for the brace he wants, so that any competent mechanic can construct the brace, and then fit and modify the brace without the assistance of the mechanic, he is not competent to carry on the brace treatment and should not attempt to do it.

Here and there an orthopedist can be found sufficiently competent to correct some slight contraction deformities by braces constructed to stretch the shortened muscles, but of these there are few, for in these days most young orthopedists seem to have a greater ambition to perfect themselves in surgery than in mechanics.

As a rule braces should be used only to prevent the development of deformities at joints where the tendency is not great, in joints where the deformity has been fully corrected, and to enable the patient to use the limb more and better than he can use it without the brace.

CONTRAINDICATIONS TO BRACES

If there is no deformity and no tendency to deformity and the patient can use the limb without a brace, then a brace should never be used. A brace should be a help, not a burden. It is greatly to be regretted that the cupidity of some physicians leads them to order braces from surgical instrument makers who give a commission of 25 per cent. on the cost of the brace, for this usually means a costly brace that the physician can neither measure for, fit to the patient nor use intelligently.

INDICATIONS FOR SURGERY

Surgery in the treatment of anterior poliomyelitis may be either "bloodless surgery," that is, the correction of the deformities by great force, stretching and tearing all shortened soft parts that produce joint deformity, the patient of course being fully anesthetized, or operative (bloody) surgery. There is a certain risk, not often appreciated, in the use of great force in the correction of paralytic deformities. For both from non-use and from deficient nutrition arising from the paralysis, the bones grow thin and friable and may be broken before the deformity can be overcome.

These bones when broken sometimes are the source of fat emboli, not infrequently the cause of death. But when a deformity can be safely corrected without a cutting operation it should be so corrected. Then it should be put up in a well-padded and heavy plaster splint and kept in the splint and used for from four to eight months. After that an efficient brace should be worn for years.

When a paralytic deformity cannot be corrected by force alone, it can generally be fully corrected by simple tenotomies and force. When this is done the after treatment should be as before indicated, namely, a well-padded and heavy plaster splint, worn for months

while the limb is being used, followed by a brace, for years in most cases, massage and movements. I have seen no better results than this uniformly gives.

TENDON SURGERY

During the past fifteen or twenty years a great many patients with infantile paralysis have been operated on by various and changing methods of tendon-splicing, tendon transplantation, and tendon lengthening. The present view of this work is that the tendon-splicing of fifteen years ago is useless; that the tendon-transplantation of ten years ago is useful in a small and carefully selected lot of cases; that the tendon-lengthening and joint-fixation with permanently buried silk ligatures as practiced during the past five years holds out as yet a promise of better results when well done in carefully selected cases. Yet hardly a week passes that we do not see utter failures as results of operations done by others. As yet it is too soon to say what the ultimate results will be after ten or fifteen years have passed in the cases that now seem to be entirely satisfactory.

Treatment of these patients by nerve grafting is useless.

The resection of flail joints in complete paralysis in order to obtain ankylosis and escape the burden and cost of braces for life is sometimes a success, and sometimes a failure through failure of bone union, probably owing to the impaired nutrition.

PROGNOSIS

Finally, let me say that occasionally a patient with anterior poliomyelitis recovers without paralysis; occasionally a patient but slightly paralyzed recovers from the paralysis; most patients gain from six to eighteen months after the acute attack has passed, and never gain after that in real strength, but may gain in ability to use the limb through orthopedic treatment. In at least a third of the cases there is arrest of the growth of the length of the limb during the whole of the growing period of the child. It has been asserted by Heather Bigg of London that in some cases which have shown a progressive difference in growth of the limbs for several years the paralyzed and shorter limb in a measure overtakes the well limb by a more rapid growth, but this I have not seen, nor has it been mentioned by other writers.

72 Madison Street.



Fig. 1. This picture shows the property first purchased at the corner of Dearborn Avenue and Indiana Street, containing five houses. The two on the north, or left, of the picture, occupied the site of the present old building.

THE HOME OF THE ASSOCIATION
A BRIEF HISTORY OF ITS MATERIAL PROGRESS AND OF
THE GROWTH OF THE ASSOCIATION BUILDING

CHAPTER I. THE FIRST BUILDING
INTRODUCTION

This story, which will be a continued one, relates to the establishment and equipment of a permanent home for the American Medical Association and its JOURNAL. It is a good

Transactions practically exhausted the revenues of the organization, and often more than exhausted them, the Association had no headquarters, except under the Permanent Secretary's hat. Except during the four days of the annual session the Association was practically non-existent. References were made occasionally in presidential addresses to the desirability of a permanent home and headquarters, but for a long time it ended in a desire and a hope.

THE START OF THE JOURNAL

When in 1883 the Association decided to publish a journal, some kind of editorial offices became a necessity, and the establishment and development of a home dates from that period. Dr. N. S. Davis, who was the leader in the establishment of THE JOURNAL, became its first editor, and editorial quarters were opened in his office. And here they remained from the first issue of THE JOURNAL, July 4, 1883, until November 24, 1888, when they were removed to 68 Wabash Avenue. September 1, 1894, in that early wandering period, THE JOURNAL moved to 86 Fifth Avenue, and May 1, 1896, to 61 Market Street. Each of these removes was made necessary by the growth of THE JOURNAL, which necessitated increased space and facilities. The circulation at the latter date had reached nearly 8,000 copies weekly. In 1902 the circulation had leaped to over 25,000 copies weekly.

At the session of that year the trustees reported that the lease on the Market Street property would soon expire, and that sufficient room could not be secured in the building to accommodate the rapidly growing needs of THE JOURNAL. The increasing prosperity of the Association and the enlarged earning capacity of THE JOURNAL justified the trustees in considering the purchase of real estate for a permanent home for the Association, and they were authorized to do so.

THE FIRST BUILDING ERECTED

Accordingly in March, 1902, property was purchased on the northeast corner of Dearborn Avenue and Indiana Street, a few blocks north of the Chicago river and close to the "loop" district, the business center of Chicago. This property, 100 feet on Dearborn Avenue by 80 feet on Indiana street, contained at that time five two-story and basement houses, and



Fig. 2.—The three-story and basement building originally erected, and occupied in December, 1903.

story and we feel that every reader of THE JOURNAL will be interested in it.

A short time ago we printed a series of editorial articles detailing certain facts in the history of the Association, its aims and purposes, its progress in organization, and what it has done and is doing for the benefit of the medical profession and for the people. The present series of articles constitutes a brief record of the triumphs of the Association on the material side, and particularly of its efforts to found a permanent home for its material activities.

THE DAYS OF THE TRANSACTIONS

Without a home, an organization, like a man, is not only a wanderer, but is also greatly hampered in usefulness. During the early years of the American Medical Association, when the membership was small and the cost of publishing the



Fig. 3.—The old home of the Association as it is at present, with the added fourth story erected in 1905, together with the remaining houses of the original purchase and the two three-story houses on the east (right side of picture) later purchased to secure additional ground space.

cost \$42,000. The property as originally purchased is shown in Figure 1. Two of these houses—those on the north—were torn down and the erection begun of a three-story building, 40 by 80 feet, with high basement, of brick with stone trimmings. This building was completed, equipped and occupied December 1, 1902, and is shown in Figure 2. The cost was about \$35,000. In the first four months of 1903 the circulation had reached over 27,000 and before the year was out, on account of the phenomenal growth of THE JOURNAL and its business, it was again crowded for room, and it was necessary to extend the building. An opportunity was given about this time to purchase at an extremely low price—approximately \$15,000—the adjoining property on the east, consisting of a lot 40 by 100 feet, containing two three-story and basement houses. The purchase was made in June, 1903. This made the entire ground space owned by the Association 100 by 120 feet. In 1905 the old building was enlarged by the addition of another story and by extending it back 40 feet, completing the building as at present occupied. Thus it had become a four-story building, with a high basement 40 by 120 feet in dimension. It is shown in Figure 3 with the houses on the south and the two last purchased on the east.

THE FIRST BUILDING OUTGROWN

But the circulation of THE JOURNAL did not remain at 27,000. Far from it. In 1909 the number printed had mounted to 55,000 weekly, and the collateral printing and publishing business and the work of the Directory Department, and of the Councils on Medical Education and on Pharmacy and Chemistry, with its chemical laboratory, which had been established meanwhile, had grown in a corresponding manner, and again there was not room enough. And so, bursting through its walls, the business oozed out into one of the adjoining houses. The tenants moved out, additional presses were placed in the basement and the other floors of the house were occupied as offices and by the mailing department. But this was only a temporary makeshift. The cry was still, MORE ROOM!

How that cry was answered will be told in succeeding issues.

THE VALUE OF EHRlich'S NEW DISCOVERY "606" (DIOXYDIAMIDO-ARSENOBENZOL)

A PRELIMINARY REPORT FROM PERSONAL OBSERVATIONS

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Originally the expression, "specific therapy" was understood in a purely chemical sense, which is evident from the fact that from olden times the administration of mercury, iodine, etc., was designated as specific therapy. More recently immunotherapy has laid claim to the same designation and has pushed the chemical into the background.

The two forms of treatment may come together in important points, since chemotherapy may also lead to the formation of antibodies, but there are very great differences. In immunotherapy the various antibodies are formed as products of complicated reactions on the part of the animal organism. These antibodies are strictly specific in nature and act exclusively on the respective bacteria or their toxic products. They do not of themselves exert any injurious action on the organism. For this reason the serum therapy represents the ideal of all forms of treatment, in that the protective substances kill the parasites without injur-

ing the body, and therefore every thinking person will give preference to immunotherapy (whether active or passive) whenever it is applicable.

Unfortunately, in contrast to diseases due to bacterial action, in a whole series of infectious diseases the successful formation of antibodies in the required manner is impossible. This is particularly true for diseases produced by protozoa, malarial plasmodia, trypanosomes, piroplasmas and the pathogenic spirochetes. In these diseases the clinical course indicates that the healing reaction of the organism is seriously hindered by peculiarities characteristic of the parasites. In such cases we must attempt to kill the parasites chemically; the possibility of doing this is known. I need only refer to the use of quinine in malaria, mercury and iodine in syphilis and atoxyl in trypanosomiasis.

The substances employed, however, are poisons, and do not, like the antibodies, leave the body unharmed. Hence the importance of the careful, detailed study to which Ehrlich¹ has devoted himself for a number of years. Ehrlich has found that certain chemical substances are particularly attracted to certain parasites; they are parasitotropic. Being poisons and capable of injuring the cells of organs, these substances are also organotropic, and their curative value in parasitic diseases depends on the existence of a proper relation between the parasitotropic and organotropic properties.

After many experiments in various directions, Ehrlich has finally succeeded in preparing a substance for the cure of syphilis in which, if it is used in proper dosage, the parasitotropic power sufficiently overshadows the organotropic to make the latter a negligible quantity. He has come to the conclusion, after years of animal experimentation that the most effective treatment consists in administering a single dose of such strength that it sterilizes the animal completely by destroying all the parasites in the organs, and thus produces a complete healing or cure. This act of sterilization with one dose Ehrlich designates as "therapia sterilisans magna."

The chemical "606" was first tried in Professor Doctor Konrad Alt's² clinic in Uchtspringe (Altmark) in September, 1909, by Dr. Hoppe. Twenty-three patients were treated, mostly syphilitic paralytics. The dose employed was 0.3 gm. The arsenic was eliminated slowly and found in the urine as late as the tenth day. Professor Alt asked Schrieber of the Altstädtische Krankenhaus in Magdeburg to try the remedy in recent syphilitics; twenty-seven patients so treated improved with astounding rapidity; the dose used, however, was still only 0.3 gm., half the quantity now given. Wechselmann³ was the next to report, June 22, 1910. He gave 0.15 gm. to women and 0.6 gm. to men. At present Wechselmann has a record of the largest number of patients treated, something over 900.

The Virchow Krankenhaus in Berlin offers the largest field for experimentation. I can testify to the authenticity of the statement of Dr. Siesskind,⁴ Wechselmann's first assistant, that spirochetes begin to disappear in from eighteen to twenty-four hours after injection. Here I saw at least seven babies that had been treated; the average age was ten days; the patients had macular eruptions, fissures and mucous patches. All showed a wonderful improvement in four or five

1. *Ztschr. f. heil. Fortbildung*, January, 1909, No. 23, p. 1.

2. *München. med. Wochenschr.*, March 15, 1910, p. 561.

3. *Berl. Klin. Wochenschr.*, July 1, 1910, p. 1261.

4. Personal observation.

days. Taegé⁵ has treated a syphilitic infant by injecting the mother; both improved. In 100 gm. of the mother's milk no trace of organic arsenic and only a trace of inorganic arsenic could be found. He concludes that the infant was influenced, not by arsenobenzol, but by endotoxins. The substance has been given to mothers while the fetus was yet in utero without either producing death or causing abortion.

The results in secondary and tertiary lesions were equally brilliant. Wechselmann asserts that there is an increase in body weight. This is certainly true of the old cases in which there were tertiary manifestations; however, it was necessary in some refractory cases to give a second injection, which may have been due in part to the method of administration. He offers the explanation that the spirochetes may be stored up in the cutaneous, glandular, muscular or osseous tissues, and later find their way into the blood-stream. He showed several patients with syphilitic periostitis in whom the pain disappeared over night by crisis, as it were.

Lesser⁴ in the Charité, while not having such an abundance of material, has handled his cases excellently. Up to the present time, he has treated 160 cases. I saw one baby three weeks old in which the cutaneous lesions disappeared in five days. Here also a large gumma of the tongue had completely healed in a remarkably short time. One patient with malignant syphilis with cerebral symptoms, in whom no cure was possible, nevertheless improved visibly. In each of his cases, Lesser has resorted to only one injection. This, I think, is due in a large measure to the technic that is used. It is a modification of Alt's, and was judged to be the best by the numerous physicians who were in daily attendance. It is the technic that I am employing, not only on my patients, but also on the patients who were referred to me by Dr. Ehrlich for treatment. A detailed description of the technic will be found below.

A. Neisser⁶ has treated 126 patients. He asserts that in the total of 2,500 patients treated with "606," at the time of his writing, not a single serious organic disturbance occurred which could be definitely attributed to the remedy. Its effect surpasses anything that has been used, even mercury and iodine. Like Lesser, he uses a solution that is as nearly neutral as possible; hence he never saw instances of severe pain. He says that the action of a neutral solution seems to be slower and more prolonged. H. Isaac⁷ from the old Lassar clinic says that there is an incomparable, often rapid, and thorough action of the remedy on spirochetes observable and a prompt absorption of pathologic-anatomic changes produced by them; he finds that lesions on the mucous membrane are most rapidly benefited. From all the prominent clinics in Europe, most astonishing reports are published.

The specific has been tried only in a few cases of parasyphilis. In a limited number of tabetic cases with girdle pains, etc., the relief has been prompt, but this, in the absence of a positive Wassermann, may have been due more or less to suggestion.

TECHNIC

The surprisingly large number of different technics is indeed confusing, as each clinician seems to be endeavoring to attach his own special method to Ehrlich's dis-

covery. The following are references to a few methods, all of which I have seen used: those of Alt and Hoppe,² Wechselmann and Lange,³ Michaelis,⁵ Kromayer,⁹ and the intravenous method of E. Schreiber and J. Hoppe,¹⁰ I shall describe, however, only the technic of Lesser for the following reasons: 1. The substance is the most easily kept sterile. 2. The method is the simplest to carry out. 3. It is the most lasting in its effects and most efficient in its results.

LESSER'S METHOD

Take a graduated cylinder with ground glass stopper, in which there are about one dozen glass pearls to assist in mixing. Add "606" salt; immediately add 15 c.c. hot water, shake vigorously until every particle of the salt is dissolved; then add 2 c.c. normal sodium hydrate (NaOH) solution; a precipitate occurs. Then continue to add sodium hydrate solution in very small quantity, shaking vigorously after each addition, until the solution begins to clear; then drop by drop, until we have a clear solution. This should be neutral; if the cylinder does not contain 20 c.c. of solution, sterile water is added up to that amount. Then 10 c.c. of this solution is injected deep into the buttocks on either side, always taking care to cleanse the parts with soap, water and iodine.

In every instance patients should be sent to the hospital for treatment, and care should be taken that they rest for one-half hour after the injection.

Ehrlich lays great stress on the fact that no patient who has ocular disease involving the fundus, cardiac or kidney disease, should receive any of the specific.

Neisser⁶ reports that the injection did not produce fever in non-syphilitics; the temperature rise in syphilitics (general reaction) is attributed to endotoxins liberated from the killed spirochetes. Vomiting occurred during fever occasionally. The vomitus was examined in four cases and never contained arsenic.

In three cases Neisser⁶ saw erythematous eruptions, which disappeared rapidly.

All investigators report an increase of leukocytes immediately following the injection.

Neisser⁶ advises local treatment of syphilitic lesions, either excision or local treatment with calomel in addition to "606."

THE CURATIVE EFFECTS OF "606"

The idea that Ehrlich's new substance will prove a panacea for every case of syphilis is a mistake, notwithstanding the fact that after a single injection the spirochetes disappear from primary lesions, in from twenty-four to forty-eight hours, and that old indolent lesions heal with remarkable rapidity.

The results are best divided into two classes: (1) immediate; (2) remote.

1. *Immediate Effects.*—In all primary lesions in which the sore is of the erosive type, if taken before a positive Wassermann is present, one dose containing 0.6 gm. seems to destroy all the spirochetes. This is confirmed by Neisser.

Excision of the primary lesion, while fraught with some danger to the surgeon, accomplishes a great deal, as a large number of spirochetes are thus removed. This permits the specific to act in excess on any that may still be in the system.

In the cases in which the initial lesion is marked by extensive sclerosis a second dose has been necessary.

5. München, med. Wehnschr., Aug. 16, 1910, p. 1725.

6. Berl. klin. Wehnschr., Aug. 8, 1910, p. 1485.

7. Personal communication.

8. Berl. klin. Wehnschr., July 31, 1910, p. 1491.

9. Berl. klin. Wehnschr., Sept. 12, 1910, p. 1908.

10. Berl. klin. Wehnschr., Aug. 1, 1910, p. 1448.

because the substance in the circulation was not able to permeate the chancre on account of the extensive endarteritis present; so in this class of cases, whenever it is possible without undue loss of tissue, excision is demanded if we expect one injection to have its maximum effect.

The immediate results in secondary lues, if occurring early in the infection, are good so far as external manifestations are concerned, but in late secondaries it has been necessary to repeat the injection in some instances.

It may be possible in the future to give a preliminary treatment of potassium iodid in this class of cases, and clean house, as it were, thus bringing the spirochetes into the blood-stream. Previous treatment with mercury and potassium iodid does not, however, seem to have any effect on the efficiency of the treatment.

Tertiary lesions show the most marked improvement. This is due, as suggested by Ehrlich, to the fact that there are a large number of antibodies in the circulation and one injection stimulates the organism in a wonderful manner. It may also be explained on the hypothesis that the strain of spirochetes is well-nigh exhausted in virulence and that a little of the specific acts in a far-reaching manner.

I have intentionally omitted mentioning any of the other forms of syphilis, as the experiments were carried out in a large measure only in cases in which there were active, visible lesions.

Dr. Ehrlich¹¹ does not wish the specific tried at first on any except the most suitable cases, knowing full well the danger of complications in patients who are already debilitated by disease.

2. *Remote Effects.*—We have now been treating syphilis many hundreds of years with mercury, and our knowledge in regard to its efficiency or inefficiency is well established. All reports that are published on the new discovery must be regarded as preliminary, because in syphilis, more than in any other disease, freedom from relapses for years is necessary before a cure can be established.

At present our success in healing syphilis with mercury has been obtained by an extremely energetic treatment, begun early, our aim being to get a negative Wassermann and to keep it negative throughout the whole time.

If we have in "606" a specific that in one or two doses will kill all the spirochetes in the system, then we have indeed a wonderful remedy.

But how can we tell?

THE WASSERMANN REACTION

In the light of our present knowledge, our only hope lies in the Wassermann reaction. With the Wassermann reaction, under mercury treatment, it was possible with a fair degree of certainty to tell when we had the disease under control, but unfortunately after the administration of "606" we have a different picture. Here we have a large number of dead spirochetes in the system and a hyperleukocytosis, and we may have a persistent positive reaction; on the other hand, a few spirochetes may be living and later be so insignificant as to permit a negative reaction, and still later a positive one.

If we are to make use of the Wassermann test—and this seems to be the only method now at hand—we shall

have to wait until numerous statistics are available before we can draw definite conclusions.

On the continent every well-regulated clinic has at least one or two Wassermann laboratories, and reports are beginning to appear. Professors Alt and Hoppe² were the first to report Wassermann findings. Of the original twenty-three patients, mostly paralytics, out of eighteen cases with a positive Wassermann, two became negative after one injection of 0.3 gm. "606." There was strong diminution in two others, and noticeable diminution in three.

Neisser⁶ reports on primary lesions treated soon after infection that only 10 per cent. of patients with positive Wassermann became negative, but the dose was only 0.4 gm.

Schreiber⁹ and Hoppe report that of fifty-two patients treated and observed for fifty days or longer, 84.6 per cent. lost a positive Wassermann. Four other patients lost the reaction later, making 92.3 per cent. The earliest change from positive to negative occurred in four days, the longest after seventy days. In one patient treated intravenously the Wassermann became negative in forty hours.

M. Meyer¹² reports sixteen cases, of which twelve were cases of paralysis. In four of the twelve the Wassermann was not affected (dose too small); in four it became less decided for a while; in four treated intravenously it became at once negative. There was no marked improvement of the paralysis.

Karl Lange¹³ reports 268 patients treated.

In 153 cases in which the Wassermann was first positive, it became negative four or five weeks after treatment; nine negative cases treated with mercury before "606" was injected, remained negative; two cases of primary syphilis previously negative, treated with the substance remained negative; five cases of tertiary syphilis became positive after injection; two changed to negative, and one died with positive, two were still positive; two cases in which Wassermann had appeared negative became positive; one later became negative, the other one partially positive; ninety-seven cases remained positive.

We can see from the foregoing that the results of the Wassermann test up to the present time are very variable.

For a Wassermann test to be of value in a given patient it must become negative and remain so for at least one and one-half years; without this we are justified in not accepting any case as an absolute cure without the lapse of a long period of freedom from the disease.

CONCLUSIONS

Looking into the future, it seems hard to prophecy what we are to expect from a single injection. In order that our results may fulfil the theory of Ehrlich's "therapia sterilisans magna," the following conditions are necessary: first, one must not administer "606" in any condition that is not of spirochetal origin. Second, there must be absolute certainty of diagnosis by means of the Wassermann reaction or by examination for spirochetes. Third, the most careful and painstaking technique in preparing the substance for injection and in the injection itself must be observed.

100 State Street.

12. München. med. Wehnschr., Aug. 16, 1910, p. 1765.
13. Berl. klin. Wehnschr., Sept. 3, 1910, p. 1656.

11. Personal communication.

Therapeutics

PREVENTION OF ACCIDENTAL VENEREAL INFECTION IN SCHOOLS

In comparatively recent years the medical profession has succeeded in securing tangible results in promoting public health by means of medical inspection of the children in the public schools. The most striking of these results have been obtained chiefly in diseases which are readily recognized by moderately trained observers such as imperfections of the eyes, ears, nose, throat, skin, bones and joints. The frequency of the occurrence of venereal diseases among school children has in but few instances been noted, and the prevention of these diseases has but rarely been attempted.

The necessity for studying this subject more carefully and for the inauguration of more effort to prevent these diseases among school children is evidenced by the paper which Dr. Ira S. Wile, of New York, has recently presented (*New York Medical Journal*, Sept. 10, 1910). To show the necessity for this study he gives us the statistical facts that 20 per cent. of all venereal diseases is acquired before the twenty-first birthday; that the annual average of deaths from syphilis has increased from 4.1 per cent. in 1901 to 5.4 per cent. in 1908 in every 100,000. The recorded number of deaths ascribed to gonorrhoea has remained unchanged during these years, but this does not take into consideration deaths due indirectly to the gonococcus. He quotes Dr. Morrow that it is a "conservative estimate that in this country the morbidity from gonorrhoea would represent 60 per cent. of the adult male population, and that of syphilis from 10 to 15 per cent." while it has been stated that in France 20,000 children die yearly from syphilis. It is probable that many deaths of children not ascribed to these diseases are really caused by secondary consequences of them. The primary cause of death may be concealed, if known; or may not have been diagnosed, so that deaths from various inflammations, peritonitis, and brain tumors may rightly be due to these diseases.

Probably there is no practicing physician who could not relate one instance, and perhaps a large number of instances, where he knew of some individual who came in more or less close relationship to one or more children while he was suffering from syphilis or gonorrhoea. We therefore should not be surprised that many school attendants, such as janitors, scrub-women, or other adjuncts to the school, are infected with one or other of these diseases, instances of which are mentioned by Wile.

A study of school children has shown that the occurrence of syphilis and gonorrhoea, generally accidentally acquired, between the ages of 4 and 16 is not infrequent. Though some schools and at least one city compel examination of the sexual organs of children before their admittance, this examination cannot be urged. Such examination is of little value unless careful microscopic examinations of secretions are made. It is, however, perfectly possible that the teacher of each room should note if a child requires too frequently to leave the room for urination, and should have the school inspector or the family physician decide the cause of such irritation or disturbance. The teacher should be urged especially to note evidences of sore mouth, sore eyes, enlarged glands, and eruptions ever so simple, and should call the school inspector's attention to such instances. The laboratory departments of the various boards of health

should be as ready to examine, without charge, slides and secretions for gonococci and for the *Spirochæta pallida* as they are to make typhoid, malaria, diphtheria, and tuberculosis examinations. In other words, there can be no excuse for not having every suspected child thoroughly and properly examined, and if the findings are positive such a child should be as surely removed from school as though he had a distinctly recognized contagious disease.

The various methods of acquiring these diseases accidentally and innocently are summed up by Wile as: "by fondling, kissing, using infected glasses and infected eating utensils, from the use of common towels, pencils, sponges, and polluted toilet seats." Occasionally there was more direct contact, as "by exchanging chewing gum, interchange of mouth toys, and sexual contact."

The obvious conclusions to draw from these facts and investigations are that the toilet seats should be daily cleansed with strong antiseptic solutions. Small, individual towels should always be ready for use at the school basins. Drinking fountains must be substituted for the common drinking cup. There must be personal desk articles for each child. Short, hygienic talks should be given the children as to the danger from exchanging and putting into the mouth articles that belong to other children. They should also be taught cleanliness of their own mouths, hands, and persons. Such talks should not be given once or twice, but repeatedly, at least once every term in every room.

EXTRA-UTERINE PREGNANCY

A correct and prompt diagnosis and an immediate operation in this condition are necessities for the preservation of the life of the mother. It is not intended in this note to discuss the data obtained by physical examination, but the symptoms of suspicion of such pregnancy are so well brought out in a carefully prepared table of ten cases of this condition by Dr. H. M. Lee, of New London, Conn. (*International Journal of Surgery*, March, 1910) that it is worth while to present them again here.

These ten patients, varying in age from 26 to 43, all missed the proper date for the menstrual period from a week to more than a month. All, however, had a menstrual flow from a week late to a month late. The character of the flow in all of these patients was scanty and dark. There was sharp abdominal pain in every instance, even in the one of the nine that did not rupture. The duration of the pregnancy before the pain and rupture averaged 8 weeks. The hemorrhage was into the broad ligament twice and into the peritoneal cavity 7 times. After rupture the pulse varied from 100 to 140, while the temperature in every instance after rupture was above 99 F., but in only one instance as much as 100 F. The time of operation after rupture varied from 3 hours to 48 hours. In each of the 10 instances the patient recovered, and 6 of these women have since again been pregnant.

Uses of Glycerin.—No substance is equal in power to glycerin in disguising nauseous medicines. Castor oil, turpentine, solutions of iron and various other medicines can be diluted and at the same time almost completely disguised by glycerin. As Wood says: "It seems to envelop the medicinal substance and prevent its action on the palate."—G. D. Lind, in *West Virginia Medical Journal*.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 DEARBORN AVENUE . . . CHICAGO, ILL.

Cable Address "Medic, Chicago"

Subscription price Five dollars per annum in advance

[For other information see second page following reading matter]

SATURDAY, OCTOBER 22, 1910

A SANER VIEW OF CHOLERA

The constant reader of the daily newspaper, if he reflects on the difference between our national attitude respecting the cholera menace in 1892 and that almost universally exhibited at the present day in regard to a similar situation, will be tempted to conclude that the American nation has progressed toward a greater self-control. The attempted "quarantine" at Fire Island eighteen years ago cannot have been forgotten by many of our readers. Recollections of the barbarities there practiced in the name of sanitary protection may even yet cause a feeling of shame in the citizen jealous of his country's reputation for sanity and soberness of judgment. To be sure, the panic of 1892 was quickly over, so that the New York papers could soon speak reprovingly of "the savagery that has lately disgraced our shores," but while it lasted it was acute and to all appearances amazingly general. As a matter of fact, cholera did get into New York in spite of the brutal quarantine measures that were employed. Perhaps more would have got in with a less barbaric quarantine, but it could probably have been suppressed quite as readily as the smaller quantity.

How different it all is at present! Cholera is now being brought to our shores, but there is little or no newspaper hysteria, little or no general alarm. National and local authorities are active in the employment of proper measures of diagnosis and exclusion, but no tendency has been displayed to revert to barbarism. The cholera danger, such as it is, is viewed soberly and calmly without hysterics and without belittlement of the real peril.

The actual situation has been fully set forth in our news-columns of the last few weeks. Cholera has been more prevalent in parts of Europe the past season than for many years. The disease, furthermore, is widely distributed and many ports having important commercial relations with this country have been infected. It does not seem improbable that in 1911 a still further extension of the disease will occur. More cases may reach our Atlantic ports and it is by no means unlikely that some healthy "carriers" may escape detection and introduce the disease into the United States. But even

so, does anyone believe that a "pandemic" of cholera is probable in this country under present conditions? If we consider simply the matter of public water-supply, the situation throughout the nation is highly reassuring. The majority of our large cities now have supplies into which little or no sewage enters or which are effectively purified by sand-filtration. In the absence or relative scarcity of sewage-polluted water-supplies, there is no likelihood of any general spread of cholera. Even in Russia at the present time the city of Moscow, which is the fortunate possessor of a good water-supply, is practically exempt from cholera, while St. Petersburg, with its badly contaminated river-water, has suffered severely. As an illustration of the changed conditions in this country compared with eighteen years ago we may cite the following sentence from a paper written by an eminent sanitarian in 1892, who calls attention to the fact that cities with a good drinking-water have nothing to fear from cholera, and continues: "The citizens of Philadelphia, Chicago, Lowell, Lawrence and Albany, on the other hand, may reasonably feel much concern about cholera." To-day the five cities which were then thus singled out for sanitary opprobrium—and justly so—all have good supplies of drinking-water obtained either by sand filtration, by substitution of ground-water for contaminated river-water, or by exclusion of sewage from the source of supply. The improvement brought about in these instances is, we believe, fairly typical of the improvement that has occurred in the country at large.

It is not possible nor is it especially important to determine to what degree the relatively slight alarm over cholera shown at the present time is due to just confidence in the increased wholesomeness of our public water-supplies. Other factors, such as the increased efficiency of the national and local public health service and our more complete knowledge of the ways and means by which cholera is spread, certainly are taken into consideration or at all events should be. The fact remains that we can now soberly face the possibility that a person harboring cholera vibrios may land in a seaboard city. We have no reason to show either unconcern or hysterical fear at the event.

THE OXYDONOR AND SIMILAR FAKES

It is sometimes hard to decide which is the greater—the impudence of the quack or the credulity of his victims. The comparative ease with which the medical faker is able, by the most preposterous of claims, to separate the fool from his money indicates the enormous potentialities in advertising. It might be supposed that an individual who set out to sell, as a panacea for most fleshly ills, a piece of brass pipe with one or two wires attached to it, would have a hard and rocky road before him. But such a supposition would be incorrect. Not only would the enterprising faker find customers for his

gas-pipe, but there would be such a demand for this most inane of "therapeutic" devices, that two or three imitators would immediately enter the market.

The original exploiter of what may be called "gas-pipe therapy" was one Hercules Sanche, who modestly described himself as the "Discoverer of the Laws of Spontaneous Cure of Disease." Of course, Sanche did not "discover" this long-known truth at all, but he did appreciate its commercial value. Starting with the premise that a certain proportion of sick people—and of those who think they are sick—will get well without treatment, or in spite of it, he cast about to devise a means of reaping a pecuniary reward from the operation of this natural law. Sanche might, of course, have used some harmless or unmediated tablets and after describing at great length the marvelous properties inherent in them, have sold them with substantial profit to himself. This method of fleecing the public, however, besides being old and threadbare, was not altogether free from the probability of legal complications. He might have offered to sell "absent treatment" and have discoursed learnedly on the benefits and virtues of this wonderful therapeutic force. But "absent treatment" does not appeal to the average man who wants a tangible something in exchange for his dollars. Sanche finally hit on a device that was perfectly harmless—and worthless—and yet theatrical enough to make the purchaser feel that he was getting something for his money. He called it the "Electropoise," and it consisted, as described elsewhere¹ in this issue, of a piece of metal pipe closed at each end and with a flexible wire attached. That was all. It sold for ten dollars.

So popular did this humbug become that Mr. Sanche extended his operations by putting on the market a modification of the "Electropoise"—the "Oxydonor." This differed from the "Electropoise": It was shorter; it contained a stick of carbon instead of being empty; and it sold for thirty-five dollars instead of ten dollars. Coincident with his invention of the "Oxydonor," Sanche also invented a "force" or "power" which he christened "Diaduction." The "Oxydonor" was the instrument by which this "force" was supposed to be created. To operate the "Oxydonor," the distal end of the wire attached to it was applied to the wrist or ankle of the fool—we may be excused for using this term—who used it; the "Oxydonor" itself was placed in cold water and the "diaductive force" was expected to be thus generated.

The commercial success attending the exploitation of this fake was such that an imitation appeared under the name "Oxygenor" or the "Oxygenor King." This fraud also, is described in detail elsewhere¹ in this issue. It differs but little from the "Oxydonor"—so little, in fact, that Sanche brought suit against the "Oxygenor" concern for infringement of patent. The court held, however, that such a palpable humbug as the "Oxydonor" was not entitled to legal protection.

More recently still, another fake of the same nature has been foisted on the public. It is called the "Oxygenator" and selling depots have been established in many cities. An elaborate booklet describes the virtues of this latest exponent of "gas-pipe therapy" and another new "force" has been invented to aid in selling it, *viz.*, "Oxyopathy." In many ways the latest type of this form of charlatanry is the worst, inasmuch as claims are made for it that are not only absurd but dangerous. For instance, the following statements occur:

DIPHTHERIA: This overwhelming child's disease finds its supreme master in the *Oxygenator*. No earthly power except the *Oxygenator* can take the slowly choking child, and with speed, simplicity and safety, bring it back to health.

Don't jeopardize the health and life of your children by allowing to be injected into their veins and blood the often fearfully contaminated and death-dealing serum of an animal, otherwise known as antitoxin.

It is difficult to restrain one's indignation at the thought that such viciously cruel lies as these are permitted to be scattered broadcast. Let the neurotic and neurasthenic adult, if he can convince himself that a nickel-plated piece of gas-pipe possesses curative properties, experiment with it on his own person if he wishes. But that a helpless child in the throes of a fearfully dangerous—and yet, rightly treated, curable—disease, should be allowed to suffer and die because ignorant parents have been persuaded to rely on these mechanical frauds, is no less than criminal. As for the miserable harpies who for a few filthy dollars will write such cold-blooded untruths as those quoted above, the safety of society demands that they be put with thieves and murderers, where they can do no further harm.

To sum up: The "Electropoise," the "Oxydonor," the "Oxygenor" and the "Oxygenator" are utterly worthless except as a means of enriching their exploiters. Their therapeutic value, aside from the element of suggestion that may be induced in those simpletons who are willing to pay from ten to thirty dollars for a piece of nickel-plated tubing, is absolutely *nil*. As already said, if adults wish to squander their money on such foolishness and are content to confine the "treatment" to their own persons, well and good. If they have nothing much the matter with them they may believe they have received benefit; if they are dangerously ill, Nature will probably exterminate them as unfit. But let no person try to "cure" the helpless child with such frauds; as soon as that is attempted, such an individual ceases to be a harmless idiot and becomes a dangerous one.

POLIOMYELITIS

The disease long known as infantile spinal paralysis, or acute anterior poliomyelitis, has acquired of late a new and vital interest for many physicians. This interest has been aroused by the numerous and wide-spread epidemics, especially in this country, and by the gratifying contributions to our knowledge of the disease, nota-

1. Pharmacology department, page 1486.

bly those of Flexner and Lewis from the Rockefeller Institute. Within three or four years, upward of five thousand cases have been reported in the United States, and it is quite certain that many more have escaped detection and record. Extensive epidemics have occurred in Massachusetts, New York, Vermont, Pennsylvania, Virginia, Michigan, Wisconsin, Minnesota, Iowa, Nebraska and Kansas. No community or family, at least in the northern states, is exempt from the possibility of its invasion, and, while the approach of cold weather will diminish its incidence this year, the advent of next summer may bring this dread invader to the door of any physician.

It is of the utmost importance, therefore, that every practitioner should acquaint himself with the recent advances in our knowledge of this disease, should be alert to detect its first appearance in his practice, and should prepare himself to cope with it effectively.

The causative agent has been shown by Flexner and Lewis to be an ultramicroscopic organism of great potency, resistant to freezing, drying and glycerinization, infectious and quite certainly contagious. It is resident in the body of the afflicted person—in the cerebrospinal axis, the cerebrospinal fluid (at least in certain stages), the mesenteric and other lymph-glands, the nasal mucous membrane, the saliva and possibly elsewhere. It is discharged from the body chiefly by way of the nasal mucous membrane and probably finds its principal avenue of entrance by the same route, though it has been successfully inoculated in several other ways. Whether or not the virus is ever conveyed by insects is undetermined, but the possibility of such conveyance warrants the most thorough precautions to prevent it.

The numerous opportunities afforded of late for autopsies on patients dying in the early stages have made it possible to study much more exhaustively than heretofore the pathogenesis of the disease, and to set at rest former controversies in reference thereto. There is a striking unanimity in the reports of these recent pathologic observations and deductions from all quarters. The alterations found are those of a specific general infection, expending its destructive energy chiefly on the gray matter of the cord and brain. The vascular changes are primary, but changes are found also in the posterior root-ganglia, the nerve fibers, heart, liver, kidney, lymph-glands and elsewhere. The pathology of the disease has been concisely summarized by Robertson and Chesley.¹

The disease is characterized by a sudden onset, marked prostration, headache, pain and rigidity in the back of the neck and along the spine, tenderness and pain on motion of the extremities, giving rise to a modified Kernig sign, fever—usually moderate in degree—rapid pulse, sometimes vomiting, and usually obstinate constipation,

rarely diarrhea. Involvement of the encephalon is characterized by delirium, convulsions and stupor. The characteristic paralyses, in both the spinal and encephalic types, constitute the most convincing diagnostic sign, but these are sometimes delayed for several days, and are often absent in the abortive cases, which are as capable of transmitting the infection as are those of severer type.

The diagnosis should not be difficult, even in the early stages. On the prompt recognition of the disease at this period depends the physician's ability to check the advance of the epidemic and to safeguard his community. The diseases with which poliomyelitis is most likely to be confounded are influenza, typhoid and paratyphoid, rheumatism, auto-intoxication with meningism, possibly some one of the exanthemata (a rash is not an infrequent accompaniment of poliomyelitis) and finally epidemic meningitis. None of these should present serious difficulty to the careful observer, except meningitis; and here the lumbar puncture of Quincke affords a reasonably certain means of differentiation. Flexner has described the characteristic appearance of the cerebrospinal fluid in poliomyelitis at various intervals after its inception, and the persistent absence of the *Diplococcus intracellularis* in three or four specimens almost negatives the possibility of epidemic meningitis. The meningitides due to other organisms are usually secondary to their invasion of other organs. Every practitioner should have always at hand the appliances requisite for this simple procedure, which involves little more difficulty, pain or danger than a hypodermatic injection.

The first duty of the physician, after a diagnosis of possible poliomyelitis has been made, is to endeavor to protect the family and the community by the prompt isolation of the patient and the scrupulous disinfection of all articles which may have become contaminated with the discharges, especially those from the nose and mouth. If such complete isolation cannot be secured in a suitable room in the house, or by the removal of the patient to an isolation hospital, the erection of a tent with a board floor, to accommodate the patient with nurse or mother, offers an admirable solution of the difficulty. In the city a suitable site can be found in a vacant lot or on the porch or roof of house or apartment. The experience of many physicians in the treatment of tuberculous patients, and of Northrup and others with the open-air treatment of infants and children, has demonstrated that such an environment is not only safe but advantageous even in severely cold weather. Fortunately the season of prevalence of poliomyelitis is the summer when the prejudice of the laity is not likely to obtain against the consignment of a child to a properly constructed tent. If every case of suspected poliomyelitis or of any other infectious disease, were to be promptly isolated by some such arrangement many virulent epidemics might be nipped in the bud, drastic

1. Robertson, B. E., and Chesley, A. J.: Pathology and Bacteriology of Acute Anterior Poliomyelitis, THE JOURNAL A. M. A., Sept. 17, 1910, p. 1013

quarantine measures avoided, and an enormous saving of illness, death and wretchedness effected. Early diagnosis, prompt isolation and thorough disinfection afford at present the only effective measures for the suppression of infectious poliomyelitis, as of most other infectious diseases.

The curative treatment of the individual patient is fully discussed in the articles by McClanahan, Sachs and Ridlon, prepared at the request of THE JOURNAL, which appear elsewhere in this issue.

Current Comment

TEACH THE TEACHERS

The September number of the *Bulletin of the North Carolina Board of Health* is a teachers' edition, specially prepared for the instruction of the public school teachers of the state. It contains articles on the importance of the recognition of physically defective children, the movement for oral hygiene in the public schools and its importance, the medical inspection of public school children, the value of science teaching in the grades and high schools, and the relation of childhood and youth to public health. Illustrations show the dangers of the common drinking-cup. Such bulletins issued under the authority of the state board of health and distributed to school teachers, parents, and pupils of the high schools are a most valuable means of public instruction on sanitary and hygienic questions.

CONTAMINATED WATER-SUPPLIES AND SENSITIVE OFFICIALS

In one of the most important reports of recent years on typhoid fever in a large city, Dr. C. Hampson Jones, assistant commissioner of health of Baltimore, comments very justly on a common official, not to say commercial, attitude toward any criticism of a public water-supply. "Last of all, we will consider as a possible source of some of the typhoid fever infection our drinking-water. Of all the ten alleged possible sources of typhoid fever in our city, this one must be mentioned with caution. The other nine possible sources may be heralded throughout the land, and no dissenting voice will be heard; no one will feel himself personally aggrieved. But it is not so when the tenth source, water, is even hinted at as a possible source of some of the cases of the fever." It is possible to say hard words about lack of sewer connection, abundance of opportunity for fly-breeding and uncleanness in general, but the water-supply must be approached with reverent touch and not lightly condemned or even suspected. The reason for this feeling is plain. A water-supply exposed to contamination is now generally recognized as a commercial disadvantage, as an item against the interests of the city. "Conventions" are apt to give a wide berth to a city with bad drinking-water and in some cases are transferred to a rival community, as has recently happened at Rutland, Vt. The mildest censure or most friendly warning may be made to seem bitterly offensive. At the recent meeting of the Central States

Water Works Association at Indianapolis, Mr. Paul Hansen made a strong plea for a change in this particular. The attitude of some officials is stated very frankly: "We find otherwise competent and reliable water-works superintendents zealously defending water-supplies known to be polluted or subjected to the possibility of pollution. The argument used in nine cases out of ten is that the water cannot be harmful since no cases of typhoid fever or other diseases have been definitely traced to its use. This argument is sometimes used in the face of the presence of an abnormally high death-rate from typhoid fever." It is, however, an encouraging sign to find sensitiveness displayed at all. It is well to have a pure water-supply considered as a municipal asset.

ILLEGIBLE PRESCRIPTIONS

Many of us indulge in hasty penmanship, especially in such important matters as the writing of prescriptions, thereby giving the profession a reputation for carelessness in this respect which, on the whole, is undeserved. The excuse frequently given is that the physician is too busy to spend time over such a trivial matter as chirography. It is just possible that when one considers one's time too valuable to permit the doing of good work, the valuation placed on that time is too high. The writing of a prescription or a certificate is as essential a part of a physician's work as the making of a diagnosis or an examination; and neglect to write a prescription legibly may entail as serious consequences as neglect of other branches of professional duty. If there is any vocation in which there are no trifles—in which there is no excuse for negligence at any point—it is the practice of medicine.

MEDICAL RESEARCH AND CANCER

Through medical research many problems relating to the etiology, diagnosis and treatment of disease have already been solved, and so much has been added to the positively known facts of medicine as to place that branch of learning among the sciences. Each discovery usually leads directly to the solution of numerous other related problems. For example, the discovery of bacteria not only revealed the specific causes of several diseases but led to positive methods of identifying different forms of bacteria and to effective methods of treatment by antitoxins, serums and otherwise. Each discovery has given added impetus to research along other lines, and has encouraged the belief that many other diseases, such as cancer and tuberculosis, will sooner or later be shorn of some of their terrors. Most of all, however, these successes have attracted the attention of men of wealth to the value of medical investigation, so they are now giving liberally toward the furtherance of this research. Not only do we hear frequently of gifts for our research medical schools, but funds especially for research are also being provided. In Great Britain the Imperial Research Fund has recently held its annual meeting, at which Mr. Arthur J. Balfour was a speaker. In this address, as reported by the *London Times*, Mr. Balfour shows how all great therapeutic problems must

be dealt with as a part of the great biologic whole. He shows also that most if not all of the discoveries have resulted from a broad scientific outlook which has produced unexpected conclusions and results in very different fields apart even from human pathology. For example, he shows how the investigation of microbic organisms led to finding in bacteria a common cause in the production of such utterly different things as alcohol, pearls and whooping-cough. At any rate, modern medical research requires not only the use of every variety of specialized apparatus, such as the microscope and the spectroscope, but also of the known facts and precise methods of physics, chemistry, physiology and biology, as well as of the more recent sciences of bacteriology, pathology and pharmacology. It will be interesting to know, if that time ever comes, through which of these sciences or what combination of these sciences the secret of the cause or treatment of cancer shall have been discovered.

Medical News

COLORADO

Sanatorium for Hollanders.—The Christian Benevolent Society for Consumptives has been incorporated to establish a sanatorium for the care of those suffering from tuberculosis. The institution will be located in South Denver and will receive Hollanders from all parts of the United States. The secretary of the institution is Rev. I. Van Dollen, Denver.

Women Elect Officers.—The Women's Colorado State Medical Society, at its third annual meeting held in Colorado City, October 11, elected the following officers: president Dr. Mary Hawes, Denver; vice-presidents, Drs. N. Eugenia Barney, Sterling, and Emogene P. Sherman, Idaho Springs; secretary-treasurer, Dr. Kate E. Geiger Yont, Denver, and auditor, Dr. Alice B. Guthrie, Denver.

Personal.—Dr. Horace G. Wetherill, Denver, was elected honorary president of the fifth International Congress on Gynecology at St. Petersburg. —Dr. Luke MacLean, Pueblo, has been appointed a member of the State Board of Medical Examiners, vice Dr. Carey K. Fleming, Denver, deceased. —Dr. Frank N. Carrier, Canon City, has been appointed surgeon in chief of the Chino Copper Company, Santa Rita, N. M. —Dr. Francis A. Sutorius, Florence, fell, October 3, and dislocated his right shoulder.

ILLINOIS

Personal.—Dr. Harry C. Bill, Streator, has returned from abroad. —Dr. William Lorenz, formerly a member of the staff of the Kankakee State Hospital, has been made assistant medical superintendent of the Wisconsin State Hospital, Mendota. —Dr. Walter G. Bain has been elected director of the pathologic laboratory of St. John's Hospital, Springfield. —Dr. Sidney G. Pratt, Buda, has returned after a year's absence greatly improved in health. —Dr. Joseph De Silva, Rock Island, has been elected secretary of the National Association of Penal and Reformatory Institutions. —The damage suit instituted by Dr. Jessie Bulkeley Ogden, Wankegan, against the *Waukegan Gazette* for damages arising from a criminal action inaugurated by the state against Dr. Ogden, following the death of a patient, is said to have been taken from the docket by her attorney, October 5.

Chicago

Personal.—Dr. Robert Dodds was thrown from his automobile in a collision with a trolley car October 10, and sustained painful injuries. — Dr. and Mrs. Joseph Zeiber and daughter, Dr. and Mrs. Cassius C. Rogers, and Dr. Norval H. Pierce have returned from Europe. — Prof. Carl S. N. H. H. Berg, for several years secretary of the Section on Pharmacology and Therapeutics of the American Medical Association, and a member of the Council on Pharmacy and Chemistry, is critically ill at his home in Chicago.

Cornerstone Laid.—The cornerstone of the Iroquois Memorial Emergency Hospital at 87 Market Street was laid October 15, in the presence of more than one hundred relatives of the victims of the Iroquois Theater calamity. Dr. William A. Evans, health commissioner, received the hospital on behalf of the city.

Scandinavian Physicians Meet.—The annual dinner and election of officers of the Scandinavian Medical Society of Chicago was held October 13. Dr. Alfred C. Cotton, president of the Illinois State Medical Society, was guest of honor. Dr. Andreas Klövstad was elected president, and Dr. William J. Anderson, secretary-treasurer.

Health League Formed.—The Chicago Health League was organized October 12, at the rooms of the Visiting Nurses' Association, with Dr. Sydney Kuh, president, and Miss Harriet Fulmer, secretary. The organization is composed of representatives from eighty different clubs, civic associations, and labor unions, and its object is the promotion of the general health of the city. Legislation for better sanitation and health regulation of factories and all places of employment will be demanded by the league.

INDIANA

New Medical Chapter.—A chapter of the Phi Chi Medical Fraternity has been established at the University of Indiana, Bloomington, under the name Alpha Mu.

Personal.—Dr. Chauncey W. Dowden, medical director of the West Baden Hotel, has returned from Europe. —Dr. Samuel M. Ried, Muncie, is recovering after being seriously ill at his home for several months.

Antituberculosis Camp Open During Winter.—The directors of the Antituberculosis Colony, Pottowatomie Park, South Bend, have decided to make the cottages habitable for cold weather, and to keep the camp open during the winter months.

Medicine Vendor Fined.—William Hoop, Indianapolis, a vendor of nostrums and mineral water, has been fined for selling medicines without a license. The sentence was suspended on the promise of the defendant to leave the city at once.

Verdict for Physician.—A jury in the circuit court at Bluffton, on September 21, is said to have returned a verdict in favor of the defendant in the suit of Mrs. Cora Vore against Dr. James W. McKinney, in which damages of \$5,000 were sought for alleged malpractice.

IDAHO

Home from Europe.—Dr. James L. Stewart, Boise, has returned after a three-months' trip abroad.

State Association Session.—The eighteenth annual meeting of the Idaho State Medical Association was held in Boise, October 6 and 7, under the presidency of Dr. John M. Taylor, Boise. The following officers were elected: president, Dr. John W. Givens, Orofino; vice-president, Dr. George O. A. Kellogg, Nampa; delegate to the American Medical Association, Dr. Ayer A. Higgs, Soldiers; alternate, Dr. C. L. Dutton, Meridian; Dr. George H. Coulthard, Idaho Falls, chief of the committee on public health, and Dr. William T. Drysdale, New Plymouth, Idaho member of the board of trustees of *Northwest Medicine*.

IOWA

Tuberculosis Census.—The State Board of Control on October 11, began taking a census of tuberculosis sufferers of the state. More than 3,500 letters were sent out to physicians of the state asking each to make a report to the board of cases in his community, the age of patients, stage of the disease, and whether or not health rules were being observed.

Personal.—Dr. Benjamin R. McAllister, assistant physician at the Cherokee State Hospital, has been appointed superintendent of the State Insane Hospital, Jamestown, N. D. —Dr. George Donahue, the new superintendent of the State Inebriate Hospital, Knoxville, assumed charge of the institution October 7. —Dr. Max E. Witte, superintendent of the Clarinda Insane Hospital, has been reappointed for a fourth term of four years by the board of control. —Dr. Willis E. Keith, Lost Nation, sailed for Europe October 1. —Dr. Thomas C. Gorman, Anamosa, began work as medical superintendent of the state reformatory October 2. —Dr. Harry E. Kirschner, superintendent of the Tuberculosis Sanatorium, Iowa City, has returned after three months abroad.

KENTUCKY

Personal.—The degree of master of arts has been conferred on Dr. Archibald H. Barkley, Lexington, by Transylvania University.—Dr. Bernard Asman, Louisville, has removed to Hot Springs, Ark.

Sanatorium Opened.—Waverly Hill Sanatorium for Persons Suffering from Tuberculosis was formally opened to the public October 6. The institution has been established at a cost of about \$150,000 and is maintained jointly by the city of Louisville and county of Jefferson.

License to Practice Refused.—The governor, on September 30, refused to take action on the appeal of James S. Calvert of Caldwell county, who was refused a license by the State Board of Health, and who appealed from its decision. The governor, after reviewing the record, stated that he was not convinced that he should disapprove of the action of the board, as the record did not show that the appellant had been properly educated.

Poison Law Upheld.—The court of appeal has rendered a decision upholding the law regulating the sale of poisons. A druggist was indicted on information from the State Board of Pharmacy for selling morphin without a prescription from a physician, and without satisfying himself that the poison was to be used for legitimate purposes. The defendant's attorney contended that the words "retail" and "legitimate purposes" as used in section 2630 of the Kentucky Statutes were too indefinite and uncertain and that therefore the statute is invalid. The court holds that the statute is sufficiently specific and confirms the imposition of the fine.

LOUISIANA

New Maternity.—The New Orleans Lying-in-Clinic has been founded by Drs. Jacob W. Newman and Edith Loeber-Ballard. A building at Howard Avenue and Lee Circle has been leased for headquarters, and the clinic is open for consultation and general advice every day between ten and eleven, and at all hours for emergency calls.

The Cocain Evil.—The Orleans Parish grand jury has taken a strong stand regarding the cocain traffic in New Orleans. Fortified with facts from retail and wholesale druggists and physicians, the grand jury not only has recommended the continued rigid enforcement of the provisions against the illegal sale of cocain, but that the judges of inferior criminal courts sentence such law violators, when convicted, to a jail term instead of imposing a fine, and that a drastic state law be drafted increasing the penalties and limiting the quantities of cocain sold by wholesale dealers, and prohibiting and penalizing the importation by retailers and wholesalers of cocain into the state in larger quantities than are required for legitimate medicinal purposes. Fifteen cocain vendors have been arrested, and several have already been fined the maximum penalty allowed under the present law.

Personal.—Dr. George Doek has removed from New Orleans to 1906 Locust Street, St. Louis.—Dr. John B. Elliott, Jr., has been made chief of the department of medicine of Tulane University, vice Dr. George Doek, resigned, and Dr. J. Birney Guthrie has been made professor of clinical medicine.—Dr. Joseph A. Dama, New Orleans, has returned from Europe.—Dr. George S. Kreeger has been elected president of the Lake Charles Board of Health, vice Dr. Temple B. Smith, deceased.—Dr. Louis A. Murdock, St. Joseph, has been elected president of the Tensas Parish Board of Health.—Dr. R. Clyde Lynch, New Orleans, has been elected acting surgeon in charge of the ear, nose and throat department of the Eye, Ear, Nose and Throat Hospital. He has also been made professor of oto-rhino-laryngology in the postgraduate department of Tulane University, vice Dr. Gordon King, deceased.—Dr. James A. Anderson has been elected a member of the board of health of New Orleans, vice Dr. William H. Robin, resigned.

MARYLAND

Fixes Minimum Fee.—Anne Arundel County Medical Society, at its meeting October 11, adopted resolutions fixing the minimum fee for examination of insane persons at \$10. The county has persistently refused to pay more than \$5 for this class of examination.

Baltimore

Department Asks Increased Appropriation.—The health department has asked for an increased appropriation of \$45,555 for the coming year.

Cottage at Sanatorium Dedicated.—The Mayer Cottage, a three-story building with accommodation for 20 patients, was

dedicated at the Jewish Home for Consumptives in the suburbs of the city, October 16.

Grawitz in Baltimore.—Dr. Ernst Grawitz of the University of Berlin lectured at Johns Hopkins Hospital October 11 on "Diseases of the Blood." During his stay in Baltimore, Dr. Grawitz was the guest of Dr. Lewellys F. Barker.

Asks Appropriation for Hospital.—Dr. Warren P. Morrill, resident physician, Dr. Joseph W. Schereschewsky, U. S. P. H. and M.-H. Service, and others appeared before the Board of Estimates October 11 and urged an appropriation for an additional building and also for an administration building for Sydenham Hospital for Infectious Diseases, to cost \$55,000.

Personal.—Dr. John W. Chambers, who has been suffering from septicemia due to an infected wound of the hand, is reported much improved.—Dr. Barrett C. Catlin, who was operated on in September, is reported to be convalescent.—Dr. Martin F. Sloan, resident physician at Endowment Hospital for Tuberculosis, has gone to Johns Hopkins Hospital with suspected typhoid fever.

Lectures to Medical Students.—Prof. Alexander C. Abbott, of the University of Pennsylvania, will deliver two lectures at the University of Maryland, November 9 and 10, on "The Functions of the Municipality in Public Preventive Medicine" and "The Interdependence between the Laboratory and the Clinical Investigator."—Dr. Charles Wardell Stiles, U. S. P. H. and M.-H. Service, began a course of lectures at Johns Hopkins University October 12 on "Medical Zoology and Animal Parasites."

MICHIGAN

Sanitary Work of Railroad Company.—Dr. Arthur M. Hume, Owosso, chief surgeon of the Ann Arbor Railroad, announces that all passenger cars are fumigated each month; that individual drinking cups have been installed; that water tanks are being reconstructed so that ice does not come in contact with the water; that anti-spitting cards are being placed in coaches and stations, and that all smoking cars are being provided with cuspidors which are cleaned with an anti-septic solution at the end of each trip.

Accused Go Free.—In the case of A. W. Stewart, Mount Clemens, charged with illegal practice of medicine, which came up in circuit court, September 19, proceedings were dropped and an order secured for discontinuance of the suit on the declaration of the defendant that he had ceased practice and would qualify under the state law before resuming.—In the case of Mrs. Annie Daniels, living near Twining, charged with criminal abortion, causing death, on Miss Mary Lyle, the jury, on September 14, brought in a verdict of not guilty.

Hospital Staff Organized.—The House of Providence Hospital, Detroit, organized the following physicians into its staff October 10: radiographer, Dr. George C. Chene; obstetrics, Drs. Nathan Jenks, Charles H. Judd, Walter E. Welz, F. J. A. McDonnell, William H. Morley and W. E. Tyson; diseases of children, Drs. Guy L. Kiefer, Francis Duffield and Thomas B. Cooley; medicine, Drs. Edwin G. Knill, Hugo A. Freund, George A. Trizisky and Victor C. Vaughan, Jr.; eye and ear, Drs. Eugene Smith and Robert W. Gillman; nose and throat, Drs. Burt R. Shurly and Richard E. Mercer; skin, Drs. Henry R. Varney and R. A. C. Wollenberg; nervous diseases, Drs. Augustus W. Ives, Raymond L. Clark and David R. Clark; pathologist, Dr. George C. Chene; visiting staff, Drs. David H. O'Donnell, John V. White, Frank T. F. Stephenson, Eugene Robb, Isaac L. Polozker, Christopher Campbell and Edwin B. Forbes; consulting physicians, Drs. Edmund A. Chapoton, J. Henry Carstens, Theodore A. McGraw, Max Ballin, Charles Douglas and David Inglis; general surgery, Drs. Frank B. Walker and William A. Spitzley; associates, Drs. Allen W. McDonald, Robert T. Tapert, William J. Seymour, Claude M. Stafford and William E. Keane; gynecology, Drs. Howard W. Longyear and H. Wellington Yates; associates, Drs. Theodore A. McGraw, Jr., and Benjamin R. Schenek; proctology, Drs. James A. McVeigh and D. T. Kirschner; orthopedies, Drs. Daniel LaFerte and William E. Blodgett, and gastroenterology, Drs. James E. Davis and William M. Harvey.

MINNESOTA

Academy Election.—The Minnesota Academy of Medicine, at its annual meeting in Minneapolis, October 5, elected Dr. S. Marx White, Minneapolis, president; Dr. John L. Rothrock, St. Paul, vice-president, and Dr. Arthur W. Dunning, St. Paul, secretary-treasurer.

Sanitariums in Conference.—At the meeting of the Minnesota State Sanitary Conference in Minneapolis, October 6 and

7. Dr. Harry A. Tomlinson, superintendent of the State Hospital for the Insane, St. Peter, was elected president and J. T. Gerould, of the University of Minnesota, vice-president.

Auxiliary Organized.—A permanent organization of the Woman's Auxiliary of the Hennepin County Medical Society was effected at Minneapolis, October 10. Mrs. W. J. Burns was elected president; Mrs. J. W. Little, vice-president; Mrs. Frank J. Corbett, secretary, and Mrs. C. Nootnagle, treasurer.

Personal.—Dr. Thomas C. Clark, Stillwater, has gone to the district recently devastated by forest fires and is in charge of the hospital arrangements, and of the details for the care and relief of the sufferers.—Dr. George F. Beachler, Minneapolis, is reported to have been missing from his office and home since September 5.—Dr. Gustavus A. Newman, New London, has been appointed physician at the State Penitentiary. Stillwater, vice Dr. Burton J. Merrill, resigned.

New Dispensary Staff.—Dr. Henry C. Knight, Minneapolis, has been elected chief of the staff of the Wells Memorial Dispensary, and Dr. James S. Reynolds, secretary. The following department heads have been appointed: diseases of the stomach and intestines, Dr. Henry L. Knight; eye, ear, nose and throat, Drs. Howard McMorton and James S. Reynolds; surgery, Drs. William M. Chowning and James E. O'Donnell; internal medicine, Dr. Henry W. Cook and Kemlin J. Lee, and obstetrics and diseases of children, Dr. Charles B. Wright.

Combating Tuberculosis.—At the annual meeting of the Goodhue County Medical Society, held in Red Wing, October 4, the establishment of a county sanatorium for consumptives was earnestly favored. The building fund at present is only \$2,000 but the society decided to raise \$2,500 by subscription for the establishment of a suitable hospital.—The new plans for the new St. Louis County Tuberculosis Sanatorium are being prepared by architects of Saranac Lake, N. Y. The sanatorium will be located on an eighty-acre site at Midway and will include an administration building and several cottages.

State Society Meeting.—At the forty-second annual meeting of the Minnesota State Medical Association, held in Minneapolis, Oct. 6 and 7, the following officers were elected: president, Dr. James W. Robertson, Litchfield; vice-presidents, Drs. Frank W. Dimmitt, Red Wing, and Charles L. Schofield, Benson; secretary, Dr. Thomas McDavitt, St. Paul (reelected); treasurer, Dr. Richard J. Hill, Minneapolis; councilors, Dr. Charles E. Dampier, Crookston, First District; Dr. Joseph G. Millsbaugh, Little Falls, Second District, and Dr. John L. Rothrock, St. Paul, Fifth District; delegate to the American Medical Association, Dr. George Douglas Head, Minneapolis, and alternate, Dr. Max P. Vander Horck, Minneapolis. The next meeting will be held in St. Paul on the first Thursday and Friday of October, 1911. The association adopted resolutions endorsing the Owen Bill for a national department of health, commending the work of Dr. Harvey W. Wiley, and condemning the use of benzoate of soda and like substances as food preservatives. The association decided to continue the *Journal of the Minnesota State Medical Association* as its official organ, with the understanding that the subtitle *Northwestern Lancet* should be removed from the cover.

MISSOURI

Silver Day for Hospital.—On Silver Day at Kansas City, more than \$6,300 was collected for Mercy Hospital.

Colored Physicians Organize.—The negro practitioners of Missouri met in Sedalia October 8, and organized the Pan-Medical Association of Missouri, and elected the following officers: president, Dr. J. Mayo Harris, Sedalia; secretary, Dr. James F. Shannon, Kansas City, and treasurer, Dr. John R. A. Crossland, St. Joseph.

Personal. Dr. D. B. McHenry, Princeton, has recently returned from Europe and has located in Oklahoma City.—Dr. D. Everett Standard, Springfield, fractured his arm in attempting to crank an automobile September 25.—Dr. T. J. McAllister has been elected treasurer of the St. Joseph Colored Antituberculosis Society.

St. Louis

Old Buildings Used for Consumptives.—The city quarantine hospital has been converted into a sanatorium for the treatment of tuberculosis and 74 patients are at present under treatment.

Violators of Milk Law Fined.—Fifty milkmen, charged with selling milk under the standard required by the city, or containing formaldehyd as a preservative, were arraigned in police court October 5, and 49 were either fined or ordered to pay costs.

NEW YORK

Clinical Lectures.—Dr. L. Duncan Bulkley will give the twelfth series of clinical lectures on diseases of the skin at the out-patient hall of the New York Skin and Cancer Hospital, Wednesday afternoons at 4:15, from November 2 to December 21. The medical profession is invited.

Typhoid Fever.—The epidemic of typhoid fever in Westchester County has not assumed the proportions recently reported, there being at present only about 25 cases under treatment. The epidemic has been traced to a small brook running through White Plains, and is not due to the public water supply. In view of the prevalence of typhoid throughout the state, Governor White has asked Dr. Eugene H. Porter, State Commissioner of Health, to investigate and report on the actual facts. It is intended to follow up this investigation with steps to prevent the further spread of the disease at threatened points.

PENNSYLVANIA

Personal.—Drs. Henry W. Sweigart, Lewistown, and William A. Tower, Millintown, were seriously injured, October 9, in an automobile wreck.—Drs. Lawrence Litchfield, Irwin J. Moyer, John W. Boyce, Thomas D. Davis, Percival J. Eaton, James H. McClelland and Walter F. Edmundson have been appointed by the Pittsburg Civil Service Commission examining board for medical examiners of the public schools.—Dr. Daniel D. Heilman, Northumberland, is reported to be critically ill with tetanus in a Philadelphia hospital.

The Status of Poliomyelitis.—Owing to the large number of cases of poliomyelitis in this state, a special meeting was held at the College of Physicians on October 14 to discuss the situation. Dr. George L. de Schweinitz presided and papers by the following were read: Dr. Paul A. Lewis, of the Rockefeller Institute; Dr. Allen J. Smith, professor of pathology in the University of Pennsylvania; Dr. Charles K. Mills, professor of nervous diseases in the University of Pennsylvania; Dr. Joseph S. Neff, director of the Department of Health, and State Health Commissioner Dixon. That anterior poliomyelitis flourishes in those parts of Pennsylvania which are liberally watered but have poor drainage, even in high altitude and that there have been very few cases over gravel formations where perfect drainage of the subsoil obtained, was the interesting point brought out in the paper by Dr. Dixon. Some of the most important charts were shown that have ever been tabulated by his department. These charts were made out in columns showing the geologic formations, water distribution and elevations. The number of cases of poliomyelitis that have appeared were put down on the charts in the districts in which they occurred. Elevation apparently has no influence on the disease. To these charts will be added the distribution of vegetable and insect life in order that it may be observed whether any peculiar insect or vegetable is found in places where the disease has been most prevalent. A total of 920 cases of poliomyelitis have been reported from 50 different counties in the state during the present epidemic. Of this number there were only two cases among the colored race. Males showed a greater tendency to contract the disease than females. The outbreak began about the end of May almost simultaneously in the Lehigh Valley, in Lancaster county, in Potter county and in Philadelphia. The epidemic reached its height the latter part of August. A total of 332 cases was reported during that month. It has tended to subside in October. Out of 920 cases, 600 occurred before the fifth year of age, 163 contracting the disease before the end of the eighteenth month of life. That the studies made by the department show that the disease is not badly contagious is indicated from the following statistics: In the rural districts out of 66 households having 2 school children but one contracted the disease. In 41 households with 3 children but one contracted the disease. In 37 with 4 children only one sickened. In 33 with 5 children one sickened. In 20, with 6 children, and in 8 households with more than 6 school children, only one contracted the disease. It will thus be seen what exhaustive study the State Health Commissioner and his assistants are making to find the cause of this disease. The work will be continued vigorously both in the field and in the laboratories.

Philadelphia

Society Elects.—The Philadelphia Pathological Society at its annual meeting, October 13, reelected Dr. David Riesman, president, and elected the following officers: vice-presidents, Drs. Aloysius O. J. Kelly, Allen J. Smith, Joseph Sailer and Hobart A. Hare; secretary, Dr. Edward H. Goodman; treas-

urer, Dr. Courtland Y. White; recorder, Dr. Frederick H. Klaer, and curator, Dr. Howard T. Karsner.

Personal.—Drs. Edward P. Davis and W. Reynolds Wilson have returned from Europe.—Dr. John A. McKenna, Lansdowne, sailed for Europe October 8.—Dr. Thomas C. Stellwagon has been appointed chief of the surgical clinic of Jefferson Medical College Hospital.—Drs. George J. Schwartz and Thomas J. Buchanan have resigned from the visiting surgical staff of the Jefferson Medical College Hospital.—Dr. James B. Walker is dangerously ill at his home.

WEST VIRGINIA

Petition for State Sanatorium.—The West Virginia Fraternal Association, in session at Weston, October 6, adopted resolutions asking the state legislature to establish a state tuberculosis sanatorium, and appointed a committee to circulate petitions and to bring the matter before the legislature at its coming session.

County Medical Society Election.—The first meeting for the season of the Ohio County Medical Society was held in Wheeling, September 12, and the following officers were elected: president, Dr. William S. Fulton; vice-president, Dr. D. Bigger Best; secretary, Dr. Randolph J. Hersey; treasurer, Dr. Reed McC. Baird; censors, Drs. James G. Walden, Albertus Nichols, and Samuel L. S. Sprague; delegates to the state association, Drs. Charles A. Wingerter, Edward L. Armbricht, and David H. Taylor, and alternates, Drs. Andrew J. P. Wilson, James G. Walden, and John J. Osborn, all of Wheeling.

State Society Meeting.—The forty-third annual meeting of the West Virginia State Medical Association was held in Parkersburg, October 5-7, under the presidency of Dr. Thomas W. Moore, Huntington. The following officers were elected: president, Dr. Charles A. Wingerter, Wheeling; vice-presidents, Drs. John E. Camaday, Charleston, Glenn Moorman, Parkersburg, and George D. Jeffers, Parkersburg; secretary, Dr. Arthur P. Butt, Davis; treasurer, Dr. Hugh G. Nicholson, Charleston, and councilors, First District, Dr. Henry B. Linsz, Wheeling; Second District, Dr. W. Holmes Yeakley, Keyser; Third District, Dr. Peter A. Haley, Charleston; Fourth District, Dr. Walter S. Link, Parkersburg, and Fifth District, Dr. Samuel R. Holroyd, Athens. White Sulphur Springs was selected as the meeting place for 1911.

GENERAL NEWS

Personal.—Dr. William Colby Rucker, U. S. P. H. and M.-H. Service, formerly health commissioner of Milwaukee, has been detailed for duty in connection with the cholera situation.—Dr. Charles E. Ruth and family, Ponce, Porto Rico, who have been spending the summer in northern Michigan, have returned home.

Railway Surgeons in Session.—The annual meeting of the Society of Surgeons of the St. Joseph and Grand Island Railway was held in St. Joseph, Mo., October 6. A clinic was held in St. Joseph Hospital in the morning, under the direction of the chief surgeon, Dr. Charles W. Wallace, St. Joseph. The following officers were elected: president, Dr. Barton Pitts, St. Joseph; vice-president, Dr. William M. Boone, Highland, Kan., and secretary, Dr. Charles H. Wallace, St. Joseph.

National Precautions Against Cholera.—At the request of Surgeon General Walter Wyman, every American village, town and city that recently has received, or until further notice receives, any Russian or Italian immigrant will be directed to isolate him if he develops any symptoms whatever of cholera. Of 15,000 steerage passengers who have landed in the last seven days, more than half have been from Italian ports or are Russians. The two cholera patients at Swinburne Island are improving.

Health of Canal Zone.—The report of the sanitary department of the Isthmian Canal Commission for August shows 55 deaths, 31 from disease and 24 from external causes, equivalent to an annual mortality per 1,000 of 13.04, an increase as compared with 1908 when the mortality was 11.39, and 1909 when the mortality was 10.28 per 1,000. No reason for this increase is assigned. No cases of yellow fever, small-pox or plague were brought to the isthmus or originated on it during the month.

Higher Preliminary Requirements in Colorado.—Dr. S. D. VanMeter, secretary, states that the Colorado State Board of Medical Examiners, at its October meeting, adopted a resolution providing that applicants for license to practice in Colorado, graduating after January 1, 1914, will be required to furnish satisfactory evidence that, before matriculation, they

had completed two years' study without conditions in an accredited college of liberal arts. The requirement of one year of collegiate work, as previously announced, becomes effective January 1, 1912.

Infant Mortality.—The American Association for the Study and Prevention of Infant Mortality will hold its first annual meeting in Baltimore November 9-11. At the opening session, addresses will be made by Hon. Jules Jusserand, the French ambassador, and by Dr. William H. Welch. The second session will be devoted to philanthropic prevention of infant mortality; the third to municipal, state and federal prevention; the fourth to medical prevention, and the fifth to educational prevention. An exhibition will be held devoted to the milk work of departments of health, medical milk commissions, the influence of feeding on infant mortality, contagious diseases conveyed by milk, and specific causes of infant mortality.

Fraternity Meeting.—The Phi Beta Pi Medical Fraternity held its twelfth annual meeting in Philadelphia October 4-7, and elected the following officers: supreme archon, Dr. Albert H. Parks, Minneapolis; supreme vice-archon, Dr. Ned O. Lewis, Kansas City, Mo.; supreme secretary, Dr. George M. Kline, Ann Arbor, Mich.; supreme treasurer, Dr. Marcel J. de Mahy, New Orleans; supreme editor, Dr. George G. Zochrlaut, Chicago; supreme eastern pretor, Dr. John W. Holmes, Philadelphia; supreme western pretor, Dr. David S. Long, Kansas City, Mo.; supreme southern pretor, Dr. Covert B. Cooper, New Orleans, and supreme northern pretor, Dr. David D. Todd, Ida Grove, Iowa. The fraternity will convene in Detroit next year.

Meetings to Come.—The twenty-sixth annual session of the New York and New England Association of Railway Surgeons will be held at Hotel Astor, Broadway and Forty-fourth street, New York City, November 3 and 4, under the presidency of Dr. Leroy M. Bingham, Burlington, Vt. Dr. John B. Deaver, Philadelphia, will deliver the address on surgery.—The twelfth annual meeting of the Ohio Valley Medical Association will be held in Evansville, November 9 and 10, under the presidency of Dr. Albert E. Sterne, Indianapolis. The subject of his address will be "The Question of Exercise."—The International Medical Society, consisting of representatives from Mexico, United States and foreign countries will meet in El Paso, Texas, October 27-29. Drs. von Ehrlich, Berlin, and Charles Wardell Stiles and Claude H. Lavinder of the U. S. P. H. and M.-H. Service, will deliver addresses.

Meeting of Southwestern Physicians.—The fifth annual meeting of the Medical Association of the Southwest was held in Wichita, Kan., October 11 and 12, under the presidency of Dr. George H. Moody, San Antonio, Texas. The following officers were elected: president, Dr. Middleton L. Perry, Parsons, Kan.; vice-presidents, Drs. John M. Griffin, Sulphur Springs, Ark.; William H. Stauffer, St. Louis; Everett S. Lain, Oklahoma City, Okla., and Wilmer L. Allison, Fort Worth, Texas, and secretary-treasurer, Dr. Fred H. Clark, El Reno, Okla. (reelected), and executive committee, Drs. William A. Wood, Hubbard, Texas; Samuel S. Glasscock, Kansas City, Kan.; St. Cloud Cooper, Fort Smith, Ark., and Jefferson D. Griffith, Kansas City, Mo. Oklahoma City was selected as next meeting place. A state department of health, as suggested by the Owen bill, was endorsed by the association.

Millions for Medical Research.—At the meeting of the board of trustees of the Rockefeller Institute for Medical Research, in New York City, October 17, the occasion of the celebration of the opening of the new hospital described below, it was announced that Mr. Rockefeller had given \$3,820,000 additional to the institute, thereby making his total gifts to this institution \$8,240,000. The institute property has been placed absolutely in the hands of the board of trustees, consisting of John D. Rockefeller, Jr., Frederick T. Gates, William E. Welch, Starr J. Murphy and Dr. Simon Flexner. The function of the trustees is to hold and care for the property of the institute, including investment of endowment funds, and to hold the entire income under the control of the board of scientific directors, composed as follows: Dr. William H. Welch, Baltimore, president; Dr. L. Emmett Holt, New York City, secretary-treasurer; Dr. Simon Flexner, New York City, director of laboratories, and Drs. T. Mitchell Prudden, Christian A. Herter and Hermann M. Biggs, New York City, and Theobald Smith, Boston.

New Methods of Instruction at Syracuse.—A number of important changes made in the arrangement of courses at the College of Medicine of Syracuse University will be interesting to those who are trying to solve the problems of medical

education. These changes provide for the completion of the course in anatomy during the first year. This work will hereafter be in charge of Professor Henry W. Stiles, who comes to Syracuse University from Tulane University. He will be assisted by Dr. Robert H. Haskell, formerly of the University of Michigan. Physiologic chemistry is planned for the second semester of the first year and the first semester of the second year. As a prerequisite, a review course in general chemistry will be given during the first semester of the first year. Although the course in physiology is not to be changed during the present session, it is intended in the near future to provide for the completion of all work in this subject during the second year. The course in obstetrics has been arranged so that all the work in that subject may be completed during the third year. The rearrangement in surgery provides that all clinical work for the third and fourth year students will be taken in the forenoons. Provision has been made so that hereafter students in medicine will be assigned to cases in hospitals thereby having the opportunity for clinical investigation under the supervision of the attending staff. The students will also be given clinical laboratory work in a hospital, will act as clinical clerks and attend numerous section clinics. It is planned to correlate clinical work with that of the department of pathology and bacteriology. With this object in view an additional course has been provided in the bacteriologic examination of patients in hospitals and a second course in post-mortem examinations. Furthermore, a clinical and pathologic conference including one hour per week for the third and fourth year classes has been scheduled. At this conference it is intended that medical and surgical cases on which autopsies have been held during the preceding week are to be discussed. Clinical histories and records as well as the laboratory findings will be shown, the object being to present in a clear and concise manner all data having a bearing on a clinical diagnosis.

The New Hospital of the Rockefeller Institute.—The opening of the new hospital of the Rockefeller Institute for Medical Research in New York marks an advance in the organization and scope of this institution of noteworthy significance to practice as well as to research in medicine. The hospital is located on the grounds of the institute near the laboratory buildings but separate from them and is open on all sides to light and air. There is a separate building for the isolation and care of cases of communicable diseases. This building with its eight stories and an isolation pavilion, and with so complete an equipment, provides accommodations for only seventy. The reason for this is that the hospital was built not to add seventy beds to the facilities in New York for caring for the sick or injured, but to undertake a work which is not largely carried on in existing institutions. Their purpose is essentially philanthropic and educational, and only secondarily scientific. The primary purpose of the institution, however, is to advance the knowledge of clinical medicine, especially in the nature, diagnosis and treatment of disease. This can best be accomplished by the closest possible study of a very few patients, and the object sought can best be reached by attacking different medical problems singly and concentrating the entire energies of the institution on one or two or three of them. The problems to be taken up are not likely to be those of a rare or unusual nature, however interesting, but some of the most pressing problems of the day. Thus it is proposed to take up at first acute pneumonia and certain forms of heart disease, and of affections of disturbed metabolism, and infantile paralysis; the purpose being to determine by the most minute observations in the care and treatment of these few the best means of caring for the great majority of those who are suffering from these diseases. It has a medical and nursing staff which is relatively large in comparison with those of most other hospitals. One entire floor of the building is devoted to clinical laboratories, chemical, biologic, physiologic and photographic, for more accurate diagnosis and observation and the development of exact methods of treatment. The endeavor has been made to secure the best environment for persons under treatment—space and air and agreeable surroundings. The most ample provision has been made for the open-air treatment for patients suffering from both acute and chronic disease. There is a special diet kitchen in which all food can be prepared with scientific precision when this is required. There is a department of hydrotherapy and electricity. Another unique feature in the organization of the hospital is that the members of the medical staff will devote their entire time to the work of the hospital. They will receive salaries and will not be allowed to practice outside of the hospital or to receive any fees from patients. They will, therefore, have no other interest than

the welfare of the patients under their care and the securing of such new knowledge of disease and its treatment as the exact observation and methods now made practicable promise to afford. The hospital contains few large wards, the largest holding but eight beds, but there are numerous single rooms for special cases where the best environment can be secured. Many of these single rooms have private baths connected with them. No fees are to be charged to any patients. The isolation pavilion provided for infectious diseases is entirely separate from the main hospital and has been planned in such a way that it will be possible to treat any form of infection with entire safety to the other occupants of the hospital. This makes it possible at any time for the institute to study any new phase of infectious disease which may appear in the city or in the community and greatly adds to the possibility of the usefulness of the institute.

Memorial to Finsen.—A monument to Finsen, the pioneer in scientific phototherapy, was recently unveiled at Copenhagen, erected by subscriptions from members of the profession, former patients and others at home and abroad. It stands on a prominent open corner with the large new public hospital in the background. The base of the monument is a huge, rough boulder, bearing the simple inscription, "To the Memory of N. R. Finsen, 1860-1904." It is surmounted by a group of three colossal figures representing Finsen standing, apparently invoking the light, and two female figures at his feet. Finsen's career reads like a romance; from the Faroe Islands, near Iceland, where he was born, to a Nobel prize and funeral with international honors, all in 43 years, most of them handicapped with severe heart disease!

CANADA

Seeks Reciprocity.—New Brunswick is making an effort to secure reciprocity with Great Britain, and has made application to the General Medical Council for this purpose. Nova Scotia and Prince Edward Island have already reciprocal arrangements with Great Britain.

Personal.—Drs. George A. Armstrong, and Frederick G. Finley, Montreal, and John A. McCollum and Samuel Cummings, Toronto, have gone abroad.—Dr. Charles Sheard, medical health officer of Toronto, has resigned.—The class of 1892, Toronto University, has elected Dr. Henry J. Way, Chicago, president.

McGill College Opens.—The opening lecture of the session of the McGill Medical Faculty was delivered October 3, by Dr. William Hunter, London, who spoke on "Antisepsis in Medicine." The new Medical building is in use for the first time. It contains the departments of anatomy, pathology, and bacteriology, a medical museum, and medical library.

Hospital Notes.—A new hospital is to be erected at New Westminster, B. C., at a cost of \$200,000. The present hospital accommodates only forty-five patients, but as many as eighty-five have been in residence at one time.—The tuberculosis Dispensary at St. John, N. B., is to be opened Thursday afternoons for children, and parents are advised to take to the dispensary for examination all children who have been exposed to the disease.

Association Meetings.—The following officers were elected at the meeting of the Alberta Medical Association: president, Dr. L. S. Mackid, Calgary; vice-presidents, Drs. John Park, Edmonton, Walter S. Galbraith, Lethbridge, and Andrew W. Park, Cochrane, and secretary-treasurer, Dr. Thomas H. Whitelaw, Edmonton.—The College of Physicians and Surgeons of Quebec has elected the following officers: president, Dr. Louis P. Normand, Trois Rivières; vice-presidents, Drs. Art A. Simard, Quebec, Henry A. LaFleur, Montreal, and L. Arthur Lessard, Granby, and registrar, A. P. Gauvreau, Montreal.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, OCT. 8, 1910.

Coroner's Jury Comments on an Unsuccessful Operation

The verdict of the coroner's jury, usually composed of persons uninitiated on medical questions, is sometimes far from enlightened and may be harmful, as the following case shows. A man died three hours after an operation for intestinal obstruction at the Preston Infirmary. For some reason, the coroner thought that it was his duty to hold an inquest, although that is not necessary in cases of the kind. The medical evidence was to the effect that the man could not have lived more than a few hours if the operation had not

been performed, and that it gave him his only chance of life. The house surgeon stated that during the three years he had been at the infirmary there had been a dozen such cases which he had not reported to the coroner. If inquests were held in all such cases the result would be that physicians would not undertake the responsibility of performing operations and the odium attached to them. They had to consider their own reputation. However, the coroner rejoined that he failed to see why the operation should not be done "because there was a certain amount of publicity attached to it." Another surgeon gave evidence to the effect that he had operated in nine similar desperate cases in three years and that 5 of the patients were living today. "Whatever was said outside doctors must do their best." The verdict was that the man "died about three hours after an operation for obstruction of the bowels, and that his death was accelerated by the operation." One jurymen had the sense to protest against the latter portion of the verdict, because it might frighten the public into not allowing their relatives to undergo operations. There does not seem to have been any evidence that life was shortened in this case by the operation and therefore the latter part of the verdict was speculative and unjustified.

Medical Literature for China

Professor Osler's "Principles and Practice of Medicine" has been translated into Chinese by Dr. P. B. Cousland, president of the China Medical Missionary Association, Shanghai. This undertaking has engaged Dr. Cousland for several years. The book is the only first-class work on medicine that has so far been translated into Chinese. Other translations are in progress. Dr. Cochrane, of Peking, is translating Heath's "Anatomy;" Dr. McAll, of Han-kau, Stengel's "Pathology;" Dr. Cormack, of Peking, Hutchinson and Rainey's "Clinical Methods;" and Dr. Neal, of Tsi-nan, Fuch's "Ophthalmology." A new and compact "Systematic Anatomy" is also passing through the press. An atlas of beautiful anatomic plates has just been printed for the China Medical Missionary Association by the Oxford Press at a cost apart from the letter-press of \$2,500, a part of which has been contributed by the China Emergency Appeal Committee. As dissection of the human body is not yet allowed in China such plates are of great importance.

Yellow Fever in West Africa

Sir Robert Boyce, of the Liverpool School of Tropical Medicine, who has just returned from an expedition to West Africa, at the Liverpool Chamber of Commerce made an important report on yellow fever in that country. He states that in a short time we shall be in possession of facts which will throw great light on the diseases of the West African coast. He has come to the conclusion, as a result of his own observations, reading and inquiries, that yellow fever is endemic to the west coast of Africa and that for years it has been mistaken for malaria. In Sierra Leone, yellow fever has never been absent since 1806, and it always attacks those who have most recently arrived. It is even described by the natives as "the disease of the newcomers." But the mortality of Sierra Leone has greatly improved. One cause is the use of mosquito nets and greater care in living generally. It is the *Stegomyia calopus* which is the cause of the trouble. It has been said that this mosquito is difficult to tackle, but it is the easiest to get rid of. If the attacks on this mosquito were kept up, soon nothing more would be heard of yellow fever and the death-rate on the coast would go down with a run and many other diseases would disappear.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Oct. 7, 1910.

Twenty-Third Meeting of the French Surgical Association

The Association française de chirurgie held the opening session of its twenty-third meeting on October 3, under the presidency of Dr. H. Delagenière, surgeon of the hospitals of Le Mans and corresponding member of the Académie de médecine. None of our medical meetings is more interesting than this one. The proof is not only in the number of the members of the association, which increases each year, but in the number and high standing of the foreign surgeons who attend it. This year they were particularly numerous. Among them were Sir Victor Horsley of London, Professors Czerny of Heidelberg, Kocher of Geneva, von Eiselsberg of Vienna, Tavel of Berne, Girard of Geneva, Ceci of Pisa, Jonnesco of Bucarest and Phoocas of Athens.

Dr. Delagenière opened the meeting with an interesting paper on a very practical subject, "The Surgical Hour in Visceral Pathology or the Surgical Period in Certain Internal Diseases." For a long time, he said, surgeons have been accusing physicians of sending patients to them too late, to the loss of the patient and of surgery. Is not excessive specialization one of the causes of this condition? Specialization ought to exist only in practice, for the medical sciences form a whole whose complete knowledge is indispensable to every practitioner. The resources of surgery are incompletely and imperfectly known to most physicians. And yet, almost all visceral diseases present a period in their evolution during which surgical intervention may be tried with success, either for re-establishing the physical function of the organ or arresting the morbid process. This period passed, either the organ is destroyed from the physiologic point of view or the disease can no longer be arrested and the operation cannot cure the patient radically. Each visceral disease has its surgical hour, so to speak, and it is when this hour has struck that operation presents both the greatest simplicity and the greatest security.

Hostility to Ehrlich's "606"

Some French professors have been very skeptical in regard to the new remedy for syphilis and have gone so far as to carry the discussion, which ought to have remained on a purely scientific ground, into the lay papers. An interview which Professor Bouchard gave on the subject to a morning paper appeared under headings derisive of the remedy. It is extremely probable that Professor Bouchard did not say all that is attributed to him in the paper, and this seems to be well understood even in Germany, where the *Medizinische Klinik* of September 25 published a note blaming the Paris correspondent of a German lay paper for speaking unpleasantly of Bouchard. These squabbles are altogether out of place and it is to be regretted that Dr. Ehrlich himself did not hesitate to write to one of our lay journals, which naturally hastened to publish his letter.

Among us "606" has found a particularly bitter and violent opponent in Dr. Hallopeau, former physician of the Saint-Louis Hospital, who, after having published a criticism of "606" in a number of political journals, attacked it at the Académie de médecine October 4. According to him "606" does not fulfil the conditions of harmlessness and of constancy of effect which alone would justify the interest taken in it. There have been, he says, fourteen deaths from its use, two in Paris, besides cases of blindness.

These criticisms, circulated by the lay press, aroused active objections in the academy. Dr. Netter, *agrégé* professor at the Paris medical college, expressed surprise at hearing Hallopeau denounce systematically a drug which Ehrlich studied with so much care before putting it in general use. The deaths mentioned by Hallopeau could not be considered as due to the drug; as for the cases of blindness, Netter had heard of none. He believed that one should give credit to a man of such high standing and great scientific probity as Professor Ehrlich.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Sept. 29, 1910.

Personal

Professor Payr of Greifswald has been called to Königsberg as director of the surgical clinic to succeed Professor Lexer, who goes to Jena. Payr's successor is Prof. Fritz König of Altona, a son of the noted Berlin surgeon.

Ehrlich on His "606"

At the eighty-second session of German scientists and physicians, the Naturforscher Congress, just held at Königsberg, one meeting was devoted to the discussion of Ehrlich's new remedy and he made the following interesting statements with reference to "606."

The specific action of the remedy was recognized in animal experiments and is shown especially by the fact that on the application of a sufficient dose the spirochetes disappear in from 24 to 48 hours. If the time required is longer, either the dose was too small or the spirochetes in question are immune to arsenic. The second fact which has developed is that specific antibodies are produced. It appears that treatment with "606" furnishes an unusually favorable opportunity for the demonstration of these antibodies. The first important observation was that the milk of a mother who was nursing a syphilitic child and was herself treated and cured with "606," had a remarkably favorable action on the child. A similar result has been noticed in a large number of nursing women.

The arsenic content of the milk is extraordinarily small, so that it is evident that the milk must contain antibodies which are received into the stomach of the child and absorbed. From other sources it is known that if the serum of such patients is injected into syphilitic children the symptoms of the disease disappear. While it is evident that specific antibodies are formed, Ehrlich is of the opinion that the serum treatment alone is not sufficient for a positive cure. For if of a thousand spirochetes only a few survive, they are sufficient to prevent a complete cure. If children are injected with serum an extraordinarily prompt curative action is observed at first; the exanthemata very promptly disappear. But after 6 or 7 days other disturbances develop testifying that the antibodies were insufficient to destroy all the spirilla. It is therefore best to give such a child, soon after, a sufficient injection of "606" to kill the rest of the spirochetes.

The second specific action is on the Wassermann reaction which is certainly connected with the presence and growth of the spirilla. The very interesting observation has been made, that in certain affections a negative Wassermann reaction becomes at first positive under the influence of the injections. For instance, in chancres at an early period, the number of spirochetes is so small that they are not capable of producing a positive reaction. If now the previously negative reaction is at once converted into a positive one, evidence is furnished for the actual syphilitic nature of the disease. The importance of this reaction in the treatment with "606" cannot be sufficiently emphasized, he declared. If by the therapeutic action, only 100 out of 1,000,000 spirochetes survive, no reaction will occur, but every positive reaction is to be regarded as analogous to a relapse and is therefore an indication for the repetition of the treatment with "606." Such cases should be examined at sufficient intervals and kept under observation. It would be very desirable if a modification of the Wassermann reaction could be made so that the practitioner could apply this important test to his patients.

A third action which is very hard to explain consists in the fact that the remedy often works with wonderful rapidity. The statement has been made from many sources that patients, for instance, who had not been able for months to swallow any solid food on account of disease of the fauces or tonsils could do so immediately after an injection. This remarkable rapidity of action is not to be explained by anatomic changes but depends on the removal of the pain, which was due to the action of the products of the secretion of the spirochetes; "606" acts in this case as an antineuralgic. On the other hand, it has been occasionally observed that increased sensitiveness occurs in some patients similar to what has been observed after mercurial injections. The first observations in this line come from Italy where extraordinary caution was at first used and doses of from 0.025 to 0.05 gm. ($\frac{1}{2}$ to 1 grain) were employed. The spirochetes recovered themselves after a short time; they were not destroyed by the weak remedy but stimulated so that the result was a greater secretion of toxin. Ehrlich has always regarded the remedy as an arsenical and a dangerous remedy and has therefore insisted on the necessity of a thorough preliminary testing of it. No one can expect complete harmlessness in a remedy which is to kill parasites. The mortality as a result of the remedy depends exclusively on the constitution of the patient, a law which holds for all dangerous remedies, even for chloroform. Ehrlich has now reports of the use of "606" in 10,000 cases. The results have shown that "606" is not especially dangerous. In this large number of cases there is only one in which death immediately followed the administration of the remedy, and this was the case of a female patient whose disease, tertiary syphilis, must have eventually resulted fatally. In this case the injection was made with the acid solution and there was a certain shock which would be avoided with the newer preparation. All other fatalities, of which the number might reach a dozen, occurred in cases of severe nervous disease, tabes and the like, in which the prognosis at least was very doubtful. If in such desperate cases unfavorable results ensue, it must not be said that the remedy is dangerous. Such extremely dangerous experiments must be undertaken if one has the conviction that he can save the patients in that way. Ehrlich does not consider the remedy indicated in cases of severe paralysis, for even if a cure resulted the patients could not be expected to become useful members of human society. A second contraindication is furnished by diseases of the heart and blood vessels in which one must be very cautious. As to the technic, the alkaline solution which was first introduced by Alt and Iversen has the slight disadvantage of being somewhat painful while the neutral injection has the advantage of lessened painfulness. For that reason

the neutral emulsion should be preferred in neurasthenic and alcoholic persons and in patients sensitive to pain. Probably in future a combination of both methods with the use of both intravenous and subcutaneous injections may be adopted. The dose depends on the nature of the disease. A general dosage cannot be given. In nervous affections 0.4 gm. (6 grains) should not be exceeded for these oversensitive individuals react very unpleasantly on the part of the heart and central nervous system. Moreover in these central nervous affections the number of spirochetes is very small and a smaller amount of the remedy is probably sufficient for their destruction. It has been established that from 16 to 20 per cent. of the paralytics have lost their Wassermann reaction. These patients have not regained the reaction in a period of two years and this fact gives a most hopeful outlook for the future. In general Ehrlich agrees with Neisser that one should try to give doses large enough to secure a cure by the first injection. In a relatively healthy person a dose as high as 0.8 to 1.0 gm. (12 to 15 grains) or even higher can be given without danger. Finally Ehrlich notes that the remedy is also active in other diseases. Among these the most prominent is frambesia which is very nearly related to syphilis, next chicken cholera and certain forms of malaria. The fact has been independently established from various sources that a single subcutaneous dose was sufficient for the removal of fever in malaria. Also in two small-pox cases the remedy had an apparently favorable effect.

Marriages

- G. M. WYATT, M.D., to Miss Elam, both of Dewey, Okla., September 28.
- HENRY B. KOLB, M.D., to Miss Mary Cookran, both of Baltimore, October 5.
- ELVA C. MACER, M.D., to Miss Rena Rust, both of Evansville, Ind., October 5.
- LEWIS E. MISSIMORE, M.D., to Mrs. Lucille Alexander, both of St. Louis, October 5.
- HERBERT W. HEWITT, M.D., to Miss Sila M. Hovey, both of Detroit, October 1.
- HARRY ISAAC WIEL, M.D., to Miss Sarah Lilienthal, both of San Francisco, October 2.
- CARL TILLMANN, M.D., to Miss Lucy Bakehouse, both of Gourney, Iowa, July 13.
- CHARLES W. RILEY, M. D., Baltimore, to Miss Helen Cruikshank, at Baltimore, October 4.
- JOHN CROCKETT EASTON, M.D., to Miss Mabel Prince, both of Springfield, Ohio, October 11.
- SILAS MERCER MOORMAN, M.D., to Miss Frances Ditweiler, both of New York City, recently.
- ROZELL MCGLATHERY, M.D., Oil City, La., to Miss Margery Frances Lloyd of Chicago, October 12.
- CLARENCE LE R. COLE, M.D., U. S. Army, to Miss Hoff, at Whipple Barracks, Ariz., September 21.
- PHILIP HENRY WEBER, M.D., Elmhurst, Cal., to Miss Ruby Hughes of San Francisco, recently.
- JAMES A. BOND, M.D., Parkersburg, W. Va., to Miss Bertha George, at Glen Marcy, Md., October 1.
- LEMUEL BYRD SHORT, M.D., East St. Louis, Ill., to Miss Josephine Hill of Fillmore, Ill., recently.
- JAMES H. BOUTLER, M.D., Detroit, to Miss Evaline Crawford of Denver, at Hamilton, Ont., October 12.
- JOHN A. DUNCAN, M.D., Upham, N. D., to Miss Grace Margaret Kinghorn of Toronto, Ont., September 21.
- HOLLAND TODD GROUND, M.D., Aberdeen, S. D., to Miss Martha Grace McDonnell of Chicago, October 15.
- BERNARD HAMLIN GLENN, M.D., Fowlerville, Mich., to Miss Nellie Deborah Lansing of Howell, Mich., September 7.
- FRED WARREN McCAW, M.D., Mount Union, Iowa, to Miss Myra Russell Patterson of Winfield, Iowa, September 29.
- WILLIAM HENRY CASTLE, M.D., Manaroneck, N. Y., to Miss Mary Elizabeth Cullen of Middletown, Conn., September 30.
- THOMAS P. GUILFOYLE, M.D., Cherry, Ill., to Miss Kathleen Helen Dwyer of Arlington, Ill., at Peoria, Ill., September 29.
- JOSEPH HOWARD HODGES, M.D., Harpers Ferry, W. Va., to Miss Edna Bell Hendricks, at Shenandoah Junction, W. Va., October 12.

Deaths

DeForest Willard, M.D. University of Pennsylvania, Philadelphia, 1867; died at his home in Lansdowne, Philadelphia, October 14, from double pneumonia complicating acute multiple neuritis, aged 64. He was a member, and in 1902 chairman, of the Section on Surgery of the American Medical Association; president of the American Orthopedic Association in 1890; of the Philadelphia County Medical Society in 1892, and of the American Surgical Association, and the Philadelphia Academy of Surgery in 1902, and a fellow of the Philadelphia College of Physicians; professor of orthopedic surgery in the University of Pennsylvania since 1889; surgeon to the Presbyterian and University hospitals; consulting surgeon to the Germantown, Jewish, Atlantic City and Phe-nixville hospitals, and surgeon in chief of the Widener Training School for Crippled Children.

Dr. Willard was author of a text-book on "Artificial Anesthesia," published in 1891; and of a work on "Surgery of Childhood, Including Orthopedic Surgery," published in 1909; and numerous monographs on surgical and orthopedic subjects; acting assistant surgeon under the auspices of the United States Sanitary Commission at the Second Corps Base Hospital, City Point, and at the Fair-grounds Hospital, Petersburg, Va., and attending medical officer of the Centennial Exposition in 1876.

Dr. Willard was progressive. He was not only one of the leading orthopedists of the country but also a most notable surgeon. He was a man with hosts of friends and without an enemy.

John Veitch Shoemaker, M.D. Jefferson Medical College, 1874; died at his home in Philadelphia, October 11, from acute nephritis, aged 52. He was a member of the American Medical Association and trustee from 1890 to 1893; American Academy of Medicine; Association of Military Surgeons of the United States; British Medical Association and London Medical Society; formerly secretary, vice-president and president of the American Medical Editors' Association and president of the American Therapeutic Association; demonstrator and lecturer on anatomy and lecturer on cutaneous affections in Jefferson Medical College from 1874 to 1886; professor of cutaneous diseases and materia medica and therapeutics since 1886 in the Medico-Chirurgical College, and president of the institution since 1890; senior physician to the Medico-Chirurgical Hospital; founder of the *Medical Bulletin* in 1879, and *Medical Register* in 1887; and editor of the *Medical Times and Register*.

He was surgeon-general of the State of Pennsylvania from 1898 to 1902; and during the Spanish-American War raised the necessary funds and presented to the State of Pennsylvania a fully-equipped hospital train for the transportation of its sick soldiers from Camp Alger, Va. He was commissioned first lieutenant, Medical Reserve Corps, U. S. Army, in 1908.

Dr. Shoemaker was a prolific contributor to the literature of dermatology, materia medica and therapeutics and served as president of the Board of Charities and Corrections of the City and County of Philadelphia since 1901.

Benjamin Franklin Dixon, M.D. Medical College of the State of South Carolina, Charleston, 1874; of Raleigh, N. C.; a veteran of the Civil War and major of the Second North Carolina Infantry, U. S. V., during the Spanish-American War; formerly superintendent of the Masonic Orphan Asylum, Oxford; later president of the Greensboro Female College, and since 1900, state auditor; died at Rex Hospital, Raleigh, North Carolina, September 26, from angina pectoris, aged 65.

T. Floyd Woodworth, M.D. Ohio Wesleyan University, Cleveland, 1869; formerly a member of the American Medical Association; a member of the Medical Society of the State of New York and president and secretary and treasurer of the Columbia County Medical Society; for several terms coroner of Columbia county; health officer of Kinderhook, and local United States pension examiner; local surgeon of the New York and New England and Albany and Hudson Railways; died recently at the Ann May Hospital, Spring Lake, N. J., from heart disease, aged 78.

Gustavus Lincoln Simmons, M.D. Harvard Medical School, Boston, 1856; a member of the American Medical Association; formerly physician of Sacramento county; president of the Medical Society of the State of California in 1893; secretary and president of the Sacramento Board of Education; a member of the local board of pension examiners; surgeon of the Fourth Infantry, N. G. Cal.; for more than twenty years a commissioner in lunacy and a member of the local board of health; died at his home, October 4, aged 78.

Samuel Dutton Gilbert, M.D. Yale University, New Haven, Conn., 1871; of

New Haven, Conn.; a member of the American Medical Association; president of the Connecticut State Medical Society; attending physician to New Haven Hospital; died between Dover, England, and New York on board steamer *Lapland*, September 27, from pneumonia, aged 62. The New Haven Medical Association, at its meeting October 3, adopted suitable resolutions regarding the death of Dr. Gilbert and appointed honorary pallbearers.

Patrick Henry Jameson, M.D. Jefferson Medical College, 1849; a charter member of the Indiana State Medical Association; founder of the Indianapolis City Hospital; during the Civil War in charge of the Military Hospital, Indianapolis; a member of the city council from 1863 to 1869; a member of the board of trustees of the Indiana Hospital for the Insane from 1861 to 1868; physician to the Indiana Institute for Deaf and Dumb from 1861 to 1869; from 1869 to 1879 president of the boards in charge of the benevolent institutions of the state; for thirty years a trustee of Butler College; died at his home in Indianapolis, October 7, from senile debility, aged 86.



DeForest Willard, 1846-1910



J. V. Shoemaker, 1858-1910

TWO PROMINENT PHILADELPHIANS

Temple B. Smith, M.D. Marion Sims College of Medicine, St. Louis, 1892; a member of the Louisiana State Medical Society; president of the Lake Charles Board of Health; local surgeon for the Southern Pacific and Kansas City Southern railways; died in St. Patrick's Sanitarium, Lake Charles, October 3, from the effects of a gunshot wound of the abdomen inflicted by his wife during a quarrel a week before, aged 46.

Charles Edwin Miles, M.D. Worcester (Mass.) Medical College, 1859; vice-president of the National Eclectic Medical Association; for several years chairman of the Massachusetts Board of Registration in Medicine; and assistant editor of the *Massachusetts Medical Journal*; a member of the Boston School Committee; died at his home in Roxbury, October 1, from pneumonia, aged 79.

George U. Runcie, M.D. Northwestern University Medical School, 1880; University of Louisville, 1890; a member of the Indiana State Medical Association; from 1880 to 1893 physician to the Indiana State Prison South, Jeffersonville; local surgeon to the Evansville and Terre Haute Railroad; died at his home in Poseyville, October 2, from cerebral hemorrhage, aged 52.

William W. Hamilton, M.D. Hospital College of Medicine, Louisville, 1879; of Meridian, Miss.; a member of the American Medical Association; one of the founders, and secretary, and professor of obstetrics in the Mississippi Medical College, Meridian; health officer of Lauderdale county; local surgeon of the Southern Railway; died on a Southern Pacific train in Lafayette, La., October 8, from cerebral hemorrhage, aged 52.

Jacob Miller Hinson, M.D. Hahnemann Medical College, Philadelphia, 1886; of Brookline, Mass.; for many years ophthalmic surgeon to the Massachusetts Homeopathic Dispensary and Burrage Hospital; assistant in the Massachusetts Homeopathic Hospital; died suddenly in Saratoga, N. Y., October 4, from heart disease, aged 45.

Cornelius Gilman Trow, M.D. College of Physicians and Surgeons, New York City, 1872; of Sunderland and South Deerfield, Mass.; a member of the Massachusetts Medical Society; chairman of the school committee of Sunderland and trustee of the public library; died at his home in Sunderland, October 7, from laryngitis, aged 63.

George F. Cook, M.D. Medical College of Ohio, Cincinnati, 1872; a member of the Ohio State Medical Association and American Medico-Psychological Association; founder and physician-in-charge of the Oxford Retreat; president of the Oxford National Bank; died at his home, September 21, from chronic bronchitis, aged 64.

William Watson Gailey, M.D. Philadelphia College of Medicine and Surgery, 1863; of Ashland, Ill.; for many years a member of the Illinois State Medical Society; a medical cadet during the Civil War; died in Maplewood Sanitarium, Jacksonville, Ill., September 27, from uremia, following chronic nephritis, aged 68.

Frank Blair Olhausen, M.D. University College of Medicine, Richmond, 1898; a member of the Medical Society of Virginia; for several years local surgeon for the Baltimore and Ohio and Southern railways at Harrisonburg, Va.; died at his home in that city, October 8, from cirrhosis of the liver, aged 34.

Milo Wakely Scott, M.D. Rush Medical College, Chicago, 1877; for several years a practitioner of Grand Forks, N. D., and county physician and coroner; a member and treasurer of the first capitol commission which located the state capital at Bismarck; died at his home in Los Angeles, September 4.

Joseph Janney Hull, M.D. New York University, New York City, 1858; a member of the New York Pathologic Society; and for many years consulting surgeon to the Nursery and Children's Hospital; died at his home in New York City, August 26, from arterio-sclerosis and myocarditis, aged 76.

Henry Jayne, M.D. University of Michigan, Ann Arbor, 1865; a veteran of the Civil War; mayor of Taylorville, Ill., from 1891 to 1893, and for four years postmaster of that city; died at his home, September 10, from nephritis, aged 73.

George A. E. Carey, M.D. Cincinnati College of Medicine and Surgery, 1864; assistant surgeon of the First Ohio Volunteer Heavy Artillery during the Civil War; died at his home in Indianapolis, October 11, from arterio-sclerosis, aged 77.

Frank Horace Lower, M.D. Cleveland Medical College, 1894; of Cleveland; a member of the staff of the Huron Road Hospital; died at Lakeside Hospital, Cleveland, September 28, from general paresis, aged 42.

Pharmacology

[CONTRIBUTION FROM THE CHEMICAL LABORATORY OF THE AMERICAN MEDICAL ASSOCIATION]

PERFECTED OXYGENOR KING*

W. A. Puckner and L. E. Warren

A decade ago Dr. N. C. Morse of Eldora, Iowa, called attention¹ to three mechanical frauds which he had investigated and which were being exploited for the cure of disease. These instruments were known, respectively, as the "Electropoise," the "Oxydonor Victory" (Fig. 1), and the "Oxygenor King" (Fig. 2).

The "Electropoise" consisted of a metallic cylinder, called "Polizer," 3½ inches in length and weighing about 5 ounces, to which an un-insulated cord was attached. To the distal end of the cord a small disc was attached and by means of an elastic band and buckle the disc could be fastened to the wrist or ankle of the patient. On sawing into the "Polizer" it was found to be hollow and empty. The price of this instrument was \$10.00.

The "Oxydonor Victory" resembled the "Electropoise" very closely. Its cylinder, called the "Vocor" was composed of brass, was 2½ inches in length and its weight was about 5 ounces. Inside the cylinder a stick of carbon, such as is used by electricians, was found sealed at either end by sealing wax. The price of this appliance was originally \$35.00, but at the time of Dr. Morse's investigation it could be purchased for \$10.00.

The "Oxygenor King," while similar in a general way to the other instruments, was somewhat more complex. It consisted of a brass cylinder 5½ inches in length and weighed 24 ounces from each end of which an insulated cord extended, one terminating in a copper disc and the other in a disc of zinc, the discs being intended to be fastened to the limbs of the patient. On cutting into the cylinder of the "Oxygenor King," it was found to be filled with a mixture of powdered charcoal and sulphur. The price of "Oxygenor King" was \$25.00 net cash.

WHAT THE COURTS SAID

Nothing in the composition of any of these instruments could possibly generate the smallest quantity of oxygen, ozone or electricity. Other than their influence as "faith healers" Dr. Morse concluded that none of them could have any "more medical virtue than a copper wire attached to a stove lid or a tin can filled with brimstone and charcoal." Dr. Morse also called attention to the fact that Dr. Hercules Sanche, the promoter of "Oxydonor Victory," had attempted to invoke the power of the courts to prevent the sale of the "Oxygenor King" but that the United States courts had decided that his instrument was not of sufficient value to entitle it to the protection of a court of equity. The matter was in the courts for sometime and when the case was finally disposed of, THE JOURNAL commented on the matter editorially in part as follows:²

"The court stated that these and similar fakes can not have the indorsement of the courts when the pretended inventor can not make or refuses to make an explanation. The court admitted that reputable witnesses testified that when sick they used some of these devices, and that they were restored to health; but the court goes on to say that there is nothing to prove that this sequence of events is in the nature of cause and effect. He remarks: 'It would be just as reasonable for an Iowa farmer to say his barn was not destroyed by the last thunderstorm because there was a lightning rod on Mount Pisgah, as for a man to say that his restoration to health was brought about by the use of an Oxydonor or an Oxygenor.'"

THE OXYGENOR KING

The "Oxygenor" is now called the "Perfected Oxygenor King." One of these instruments was recently examined in

* This and similar fakes are commented on editorially in this issue.

1. THE JOURNAL A. M. A., Dec. 1, 1900, p. 1464.
2. THE JOURNAL A. M. A., Jan. 11, 1902, p. 333.

the Association Laboratory. In an advertising circular this apparatus is thus described:

The Perfected Oxygenor King is a scientifically constructed instrument capable of curing all curable diseases without drugs, employing only the oxygen of the air.

It consists of a metal cylinder, especially charged with a delicately adjusted but permanent combination of rare and costly metals, chemical agents and conductive elements, and called a generator.

From the description given in the circular it appears that the "generator" is a small nickel-plated cylinder, closed at each end by means of a screw cap. To each of the two caps an insulated wire several feet in length is fastened, terminating in a metallic plate—one a zinc plate to be fastened to the ankle of the patient, the other a copper plate for the wrist. A third wire called a "force-controlling cord" joins the two others at a short distance from the cylinder and may be attached to the cylinder at one of the several points by means of a screw connection.

HOW IT IS SUPPOSED TO WORK

The method of applying this instrument is simplicity itself. There is but one requirement, namely, that the generator be placed in a temperature thirty to sixty degrees below that of the body. This is done by placing it on a window-sill, on the floor, or in a basin of cool water.

The patient then attaches the green cord to his ankle, the red cord to his wrist, and sits down, reclines on a couch or retires to bed.

The instrument produces its curative effects without further notice or effort on the part of the patient, and usually without any

In contrast to the above the following statements are also found in the circular:

One of the most noteworthy features of the Oxygenor treatment is that the patient cannot possibly be injured or acquire a "habit" by its use. It is not only simple, durable . . . and manageable even by a child, but innocent . . . It cannot injure or distress even the most delicate infant.

While the circular advertising the "Perfected Oxygenor King" is on the whole, a jumble of distorted facts, meaningless phrases and baseless assertions it still seemed worth while in view of the absurd claims made to examine the contents of one of the instruments.

WHAT IT CONTAINS

The material examined (taken from the "generator") was a dull, bluish-green, odorless powder. It was made up of irregular sized particles, ranging from coarse to fine. Qualitative tests demonstrated the presence of sulphur in the free state and of sand, both in considerable quantities. Small quantities of lead carbonate (white lead), free carbon (charcoal), a few particles of brass, and traces of iron were also present.

Quantitative examination indicated³ that the composition of the material is essentially as follows:

	Per cent.		Per cent.
Sulphur	66.85	Moisture	0.12
Sand	29.82	Brass	0.19
Lead carbonate	1.64	Iron	trace
Charcoal	0.50		
Total	99.52		

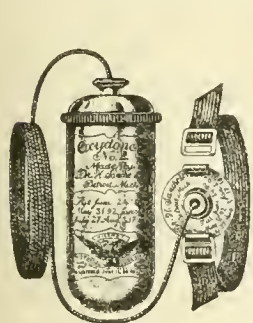


Figure 1

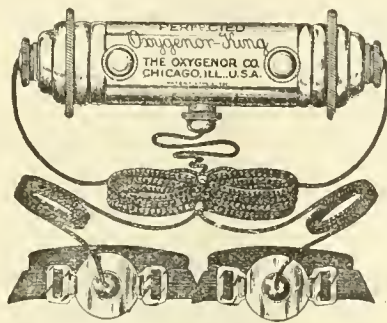


Figure 2

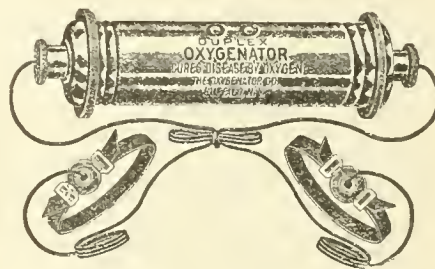


Figure 3

Fig. 1.—This depicts the piece of metal tubing "invented" by Hercules Sanche and named the "Oxydonor." The claim was made that "it causes the human organism to thirst for and absorb the oxygen of the air." It was advertised to "quickly and infallibly cure" a list of diseases ranging from "headache" to "hydrophobia" and from "twitchings" to "tetanus." This fake sold for from \$10 to \$35.

Fig. 2.—The "Oxygenor" is an elaboration of the "Oxydonor" fake. It, also, is supposed to "oxygenate" the simpletons who use it. Twenty-five dollars (\$25.00) is asked for this piece of metal pipe filled with sand and sulphur.

Fig. 3.—The "Oxygenator" is the latest imitation of Sanche's original fake. It is just as worthless as the others and the claims made for it are even more viciously false. Twenty-five dollars (\$25.00) and thirty-five dollars (\$35.00) are asked for it.

sensation of any kind whatever except the diffused, pleasurable feeling that comes with an increase in bodily vitality.

Under certain circumstances, however, the patient will break out into a gentle perspiration, and for this reason he should be careful to avoid a draught.

It is possible, also, that with the force-controlling cord at "strong" he may experience some inconvenience. This can be remedied by attaching it to the weak connection, or "G" post.

According to one portion of the circular the "instrument has been designed "to control and adapt. . . . the force governing change," whatever that may be, and its curative properties are claimed to reside in this power. In another part of the circular the reader is led to believe that disease is caused by imperfect power to absorb ozone through the skin (!) and that the use of the "Perfected Oxygenor King" restores this deficiency, thereby enabling the organism to regain its normality. A list comprising the names of 121 diseases which the "Perfected Oxygenor King" is claimed to cure is given in the circular. Among these are epilepsy, heart disease, locomotor ataxia, scarlet fever, yellow fever, and pneumonia.

TESTIMONIALS—AS USUAL

We can furnish proof that its range of cures is from Headache to Paralysis, from Blood Poison to Change of Life, from Chick-pox to Varicose Veins, from Colic to Bright's Disease, from Malaria to Dyspepsia. In fact, practically the entire list of prevalent ailments is embraced in the record of cures.

The examination shows that the "rare and costly metals" consist of none more expensive than copper, lead or zinc, and that the other "chemical agents" (which comprise 97 per cent. of the whole) consist of sulphur and sand in the proportion of 2 to 1.

An examination of the cylinder from which the sulphur-sand mixture was taken reveals a curious situation. While all of the wires connected with the instrument are carefully insulated these wires and the screw posts are all attached to the surface of the brass cylinder without insulation from each other. The cylinder then, with its complex of three screw posts and "force-controlling cord," amounts to nothing more than an enlargement in a conductor. In effect it is as though insulated wires were soldered on opposite sides of a tin pail or, to use Dr. Morse's illustration, on opposite sides of a stove lid.

The examination of the "Perfected Oxygenor King" shows that it could not possibly generate the smallest quantity of oxygen or ozone and that it could not produce or induce any electric or magnetic phenomena whatever. Despite the emphatic statements of the exploiters (in the advertising circular) to the contrary the only possible therapeutic effects are those easily referable to the element of suggestion.

3. The details of the analysis will be published in the annual report of the Chemical Laboratory.

Correspondence

Typhoid Fever in Detroit

To the Editor:—The article in THE JOURNAL, October 8, on our water-supply, coming from the chief organ of the physicians of the United States, demands attention. From such an authority one would expect the most careful consideration and conclusions drawn, not from analogy or hypothesis but from scientific examinations of the water, its source and surroundings and the vital statistics affected by its supply. In other words, it is essential to make a careful and thorough "sanitary survey."

May I be permitted to doubt the thoroughness with which this has been accomplished by the commissioner of THE JOURNAL? The general tenor of his article is a condemnation of Detroit's water-supply and an intimation that we are in immediate danger of a typhoid epidemic. The belief in this menace to our health is not based on the health of the city, the results of a chemical and bacteriologic examination of the water, or positive evidence that there is danger of pollution.

The United States census bureau of statistics has just reported thirty-four large cities with a general death-rate of 15 per thousand, and well near the top comes Detroit with but 14. It is an accepted fact that an impure water-supply is one of the chief factors in determining mortality. Though it may not contain a specific disease germ, an impure water lowers vitality and renders consumers more liable to disease.

In the article referred to, the commissioner fails to mention any chemical examination made by him of the water, but states that the results of the local examinations "in general appear to be satisfactory." In other words, he indorses local analyses, which have invariably demonstrated the purity of our supply. It is fair to presume that his chemical examinations served to confirm our reports, or the contrary would assuredly have been proclaimed. Bacterial examinations he says "do not afford any marked evidence of contamination at the time the samples were collected. On the other hand, their generally negative character does not necessarily imply that the water is at all times and all conditions safe."

Here again he indorses the numerous examinations made by the local board of health and implies that it may be possible that at times when the examinations are not being made the supply may be contaminated. The bare possibility may be granted, but if a present contamination is not detected in a long series of examinations extending over a number of years, does it not seem worse than sensational to startle and alarm a large city with a hypothetical possibility?

As to danger of pollution in future: it is admitted that Conner's Creek furnishes nearly the only menace to the water-supply, and that the exit of this creek is opposite although removed nearly three-quarters of a mile (3,700 feet) from the intake pipe; a deep and moving stream (three miles an hour) separates the two points. It is clearly impossible for a sluggish creek to project its contents through a huge volume of quickly moving water to our source of supply. The extension of the city takes in Conner's Creek, and the projected sewerage will soon remove even this assumed danger.

To confirm his opinion of the danger of an epidemic somewhere in the future, the commissioner gives several tables of vital statistics among which is that of the average death-rates per thousand population by five-year periods since 1886 as follows:

1886-9.....	4.52	1900-4.....	1.74
1890-4.....	4.35	1905-9.....	2.05
1895-9.....	1.91		

Twenty-five years ago (five-year period) we had more than double the deaths we have at present. The same is true of the next five year period twenty years ago. This tremendous decrease in mortality assuredly points to anything rather than a gradual increase of contamination of our water-supply, the result of "Detroit's increased population." Nor does it seem to confirm the commissioner's statement that "if present conditions are allowed to govern Detroit's water-supply a much more serious outbreak of typhoid is but a question of time."

Assuming that the deaths from typhoid in Detroit are due to water contamination, the decidedly lessened mortality would seem to indicate an improvement in watershed sanitation.

I agree with the commissioner that a thorough, intensive and exhaustive examination of the whole situation, similar to that carried out in Washington and Pittsburg, should be undertaken to settle once and for all this vital question and to allay public apprehension created by these frequent attacks on the purity of our water-supply.

JOHN E. CLARK, M.D., Detroit.

[COMMENT: Dr. Clark says he has offered the above reply to the Detroit newspapers. One of these, the *Free Press*, states that Dr. Clark "has written a letter to the editors of the magazine which will make interesting reading for them and for the medical fraternity of the country."

It ought not to be necessary to state that in publishing this study of the water-supply of Detroit and the typhoid situation THE JOURNAL did not intend "to startle and alarm a large city with a hypothetical possibility" in a way "worse than sensational;" but the investigation, as in the case of Milwaukee, was an incident in the thorough study which THE JOURNAL is making of typhoid conditions in the cities of the United States. Municipal water-supplies and sewage disposal present serious problems for the immediate future; and the prevalence of typhoid fever is a pretty good indication that conditions in any city are not what they should be.

With reference to the particular situation in the city of Detroit, Dr. Clark ignores the chief facts and misinterprets the tenor of the article in question. The facts are briefly these: One extensive epidemic of typhoid fever in Detroit has been definitely traced to the public water-supply; the source of supply is at present as much if not more exposed to contamination than it was when this epidemic occurred; for fifteen years the typhoid fever rate in Detroit has shown no diminution. These facts have not been and cannot be questioned. There is nothing novel or sensational about them. It is generally recognized among sanitarians that Detroit's water-supply is not what it should be. Hazen, for example ("Clean Water and How to Get It," p. 29), says: "Detroit is sixty miles below the outlet of Lake Huron, and in that distance there is opportunity for much pollution. This pollution comes both from the drainage of the considerable area reaching the river in this distance and from the discharge of sewage from the cities directly upon its banks. And this pollution by sewage is an important matter even with a dilution as great as that in the Detroit River." The statement that in some years Detroit has had a lower death-rate than some other cities is beside the point. If other American cities have a higher typhoid rate than they should, that is no reason why Detroit citizens should clamor for the same privilege. The *tu quoque* argument is nowhere more out of place than in sanitary matters. Would Dr. Clark maintain (1) that no sewage ever finds its way into the Detroit water-intake; (2) that there is at no time more typhoid in Detroit than would be expected in a city with a pure water-supply?

We would suggest to the Detroit newspapers, and to those officials who are supposed to represent the people as regards health matters, that it is better to know the facts and act on them, than ostrich-like, to refuse to see danger and to say there is none. See editorial comment, page 1477.—Ed.]

A Restricted Materia Medica List

To the Editor:—The action of the National Confederation of State Medical Examining and Licensing Boards in advising the restriction of materia medica examinations to a comparatively small number of drugs is to be highly commended. It is certainly better to know one hundred drugs well than to know one thousand badly. You are of course right in your assumption that the list will hardly please everybody. I cannot truthfully say that it pleases me absolutely; for in my opinion it contains some drugs which in a restricted

list might as well be omitted, and it does not contain some drugs which are of sufficient importance to be contained even in a select list. But this is not the point of this letter. The point is a mild criticism of the classification of the drugs. Emanating from such a high body greater care should have been taken in classifying the drugs properly. Or perhaps it would have been better to give them simply in alphabetic order. For instance, I cannot see why aqua hydrogenii dioxidii, oleum santali, aloe and aloinum should be classed among local irritants (THE JOURNAL, Oct. 8, 1910, p. 1302). One is an antiseptic, another is a diuretic and antibleorrhagic (demulcent in character) and the last two are cathartics; to bunch them all together as local irritants is in my opinion rather unscientific. Nor is it right to class oleum morrhuae and pepsinum among the protectives and emollients. I am not aware that carbon monoxid is a drug, official in any pharmacopeia, but still it is classified twice, as a hydrocarbon narcotic (hydrocarbon without any hydrogen!) and among "sundry." To classify potassium permanganate as a saline is not quite right, but to do so with saccharum lactis is rather ludicrous.

WILLIAM J. ROBINSON, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ARSENO-BENZOL—"606"—ARSEN-PHENOL-AMIN

To the Editor:—Where can I learn more about the Ehrlich-Hata remedy for syphilis? A. D. G.

ANSWER.—The above is a sample of the frequent inquiries that are received in this office. THE JOURNAL has endeavored to keep its readers informed on every phase of this subject, as soon as arsenophenol-amin seemed to be a practical addition to our therapy of syphilis, but, naturally these abstracts and editorials made no particular impression on many of our readers; now that the importance of the remedy is more apparent to them, however, they seek for additional information and write to us without looking back over the previous issues of THE JOURNAL. For their benefit, we give below the issues of THE JOURNAL in which the principal references have appeared. August 13, September 10 and October 8 and 22 are the most important issues.

THE JOURNAL has published the following original articles and editorials on this subject:

- Nichols, H. J.: Preliminary Note on Action of Ehrlich's Substance "606" on *Spirinchata pertenuis* in Animals, THE JOURNAL, July 16, p. 216.
 Murphy, J. B.: Arsenical Treatment of Syphilis, THE JOURNAL, September 24, p. 1113.
 Nichols, H. J., and Fordyce, J. A.: Treatment of Syphilis with Ehrlich's "606," THE JOURNAL, October 1, p. 1171.
 Corbus, B. C.: The Value of Ehrlich's New Discovery; A Preliminary Report from Personal Observation, THE JOURNAL, October 22, p. 1470.
 Ehrlich's New Remedy for Syphilis, editorial, THE JOURNAL, August 13, p. 601.
 Organic Arsenic Preparations—Ehrlich's "606," Editorial, THE JOURNAL, September 10, p. 949.
 Ehrlich's Syphilis Remedy Not Yet on the Market, editorial, THE JOURNAL, September 10, p. 951.
 "606"—Arseno-Phenol-Amin, editorial, THE JOURNAL, October 1, p. 1204.

The following articles have been abstracted in THE JOURNAL:

- Wechselmann, W.: *Berl. klin. Wehnschr.*, July 4; abstracted in THE JOURNAL, August 13, p. 617. *New York Med. Jour.*, September 3; abstracted in THE JOURNAL, September 17, p. 1051.
 Neisser, A.: *Deutsch. med. Wehnschr.*, June 30; abstracted in Berlin Letter in THE JOURNAL, July 23, p. 326.
 Schreiber, E., and Hoppe, J.: *Munch. med. Wehnschr.*, July 5; abstracted in THE JOURNAL, August 13, p. 617.
 Loch, H.: *Munch. med. Wehnschr.*, July 26; abstracted in THE JOURNAL, August 13, p. 617.
 Trempel, G.: *Deutsch. med. Wehnschr.*, July 28; abstracted in THE JOURNAL, August 13, p. 617.
 Fischer, P., and Hoppe, J.: *Munch. med. Wehnschr.*, July 19; abstracted in THE JOURNAL, August 13, p. 617.
 Ehrlich, P.: *Wien. klin. Wehnschr.*, August 4; abstracted in THE JOURNAL, September 10, p. 976. *Munch. med. Wehnschr.*, August 30; abstracted in THE JOURNAL, October 8, p. 1331.

- Bobac, K., and Sobotka, P.: *Wien. klin. Wehnschr.*, July 28; abstracted in THE JOURNAL, September 3, p. 898. *Wien. klin. Wehnschr.*, August 4; abstracted in THE JOURNAL, September 10, p. 976. *Wien. klin. Wehnschr.*, August 25; abstracted in THE JOURNAL, October 1, p. 1239.
 Herxheimer, K., and Schonefeld, B.: *Medizinische Klinik*, September 4; abstracted in THE JOURNAL, October 8, p. 1331.
 Spiethoff, B.: *Munch. med. Wehnschr.*, August 30; abstracted in THE JOURNAL, October 8, p. 1331.
 Dubot, R.: *Ibid.*
 Martin, A. P.: *Siglo med.*, September 10; abstracted in THE JOURNAL, October 1, p. 1209.
 Braendle and Clingstein: *Med. Klin.*, August 21; abstracted in THE JOURNAL, September 24, p. 1155.
 Iversen, J.: *Munch. med. Wehnschr.*, August 16; abstracted in THE JOURNAL, September 24, p. 1154.
 Taeg, K.: *Ibid.*
 McDonagh, J. E. R.: *Lancet*, September 3; abstracted in THE JOURNAL, October 1, p. 1234.
 Hoffmann, E.: *Med. Klin.*, August 14; abstracted in THE JOURNAL, September 17, p. 1062.
 Ptek, W.: *Wien. klin. Wehnschr.*, August 18; abstracted in THE JOURNAL, September 24, p. 1153.
 Heubner, W.: *Therap. Monats.*, August; abstracted in THE JOURNAL, September 24, p. 1155.
 Isaac, H.: *Berl. klin. Wehnschr.*, August 15; abstracted in THE JOURNAL, October 1, p. 1236.
 Michaelis, L.: *Ibid.*
 Junkermann, K.: *Med. Klin.*, August 28; abstracted in THE JOURNAL, October 1, p. 1237.
 Fraenkel, C., and Gronven, C.: *Munch. med. Wehnschr.*, August 23; abstracted in THE JOURNAL, October 1, p. 1238.
 Kromayer, E.: *Berl. klin. Wehnschr.*, August 22; abstracted in THE JOURNAL, October 8, p. 1329.

In addition THE JOURNAL'S foreign correspondents have reported from Paris, Berlin, Budapest and Vienna the results obtained with this remedy (THE JOURNAL, August 13, pp. 609 and 610; August 27, p. 791; October 22, p. 1483, etc.).

A letter from Dr. B. C. Corbus in THE JOURNAL, October 8, describes a visit to Ehrlich and his method of administering this remedy, and his article in this issue (October 22) gives a careful description of the Lesser technic, which Corbus thinks is the best.

The Public Service

Medical Department, U. S. Army

Changes for the week ended Oct. 15, 1910.

- Bowman, M. H., M.R.C., granted leave of absence for 2 months and 24 days, to take effect about October 15.
 Slater, Ernest F., M.R.C., par. 27, special orders No. 224, Sept. 24, 1910, W. D., announcing his honorable discharge from the service of the United States on Oct. 13, 1910, is suspended for the present.
 Voorhies, Hugh G., dental surgeon, granted leave of absence for 1 month, to take effect about October 24.
 Hefebower, Roy C., lt., will proceed to Fort Totten, N. Y., about October 19, for temporary duty, during the absence of Major Charles Wilcox.
 Strong, Francis X.; Carter, Henry P., and Gantt, Robert H., M.R.C., ordered to active duty in the service of the United States, and to the Army Medical School for a course of instruction.
 Ragan, Charles A., captain, ordered to the Walter Reed General Hospital, District of Columbia, for observation and treatment.
 Williamson, L. P., lt., ordered to Fort D. A. Russell, Wyo., for duty.
 Roberts, William M., major, leave of absence granted in S. O. 140, June 16, 1910, extended one month.
 Straub, Paul F., major, granted leave of absence for 1 month and 15 days, about November 1.
 Eastman, William R., captain, granted leave of absence to include Nov. 5, 1910, on account of sickness.
 Wiggin, D. C., M.R.C., resignation accepted, to take effect Nov. 1, 1910.
 Moncrief, William H., captain, granted leave of absence for 1 month, with permission to visit China and Japan.

Medical Corps, U. S. Navy

Changes for the week ended Oct. 15, 1910.

- Wise, J. C., medical director, transferred to the retired list from Oct. 7, 1910.
 May, H. A., passed asst.-surgeon, detached from the naval hospital, Mare Island, Cal., and ordered to the bureau of medicine and surgery, Navy Department, temporarily.
 Morris, L., surgeon, detached from the *Georgia* and directed to await orders.
 Howard, J. V.; Omelvena, J. G.; Halsey, W. H.; Eaton, W. E.; Jacoby, A. L.; Pratt, L. L., and Halton, E. P., asst.-surgeons, commissioned asst.-surgeons from Oct. 1, 1910.
 Stuart, D. D. V., Jr., asst.-surgeon, commissioned asst.-surgeon from Oct. 5, 1910.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

UNQUALIFIED DOCTORS VS. UNQUALIFIED LAWYERS

The newspapers are showing a marked tendency toward a broader view of the relations of the medical profession to the public. This tendency is increasing and has been frequently commented on. In a recent number of the *Denver Times*, the editorial writer gives a sudden and somewhat unexpected turn to the efforts which are evidently being made in Denver to enlist support for the National League of Medical Freedom. No better method could be devised for exposing the specious nature of the claims made by this organization.

Why, as the *Times* pertinently inquires, do we not have a National League for Legal Freedom? One might also ask why do we not have a national league to free us from the persecutions of licensed engineers and pilots, or from any of the other safeguards and protections which civilization has thrown around the life and health of the individual? If the citizen is to be allowed to spread typhoid fever, diphtheria or tuberculosis among his acquaintances and associates, if any man who claims to be a prophet of a new sect or cult is to be allowed to treat the sick, why should not any man who feels called on to do so, be allowed to practice law before the courts, to run an engine, or to steer a steamboat? If we are to have "medical freedom," why should we not have freedom of every other kind such as is enjoyed by the savage who recognizes no restraints either for his own good or that of others? With these considerations in mind, the extracts from the *Times* editorial are especially interesting:

"Why should not the Hon. Charles Spalding Thomas and his friends of the 'Medical Freedom League' expand their efforts in behalf of professional incompetency by including in their latest movement the emancipation of the people from the impositions of qualified, legal practitioners. Is not this city, is not every city crowded already with confident citizens who, though they know not Coke, nor Blackstone, nor Chitty, are yet ready to 'give an opinion' on the abstrusest of legal problems, and who will give you that opinion free and without the asking? Why should it not be the inalienable right of every citizen to 'practice law' without the tedious botheration of first studying its principles? . . . Why shouldn't there be osteopathic lawyers; and absent-treatment lawyers; and eclectic lawyers; and fasting-cure lawyers; and lawyers who are not lawyers? This lawyers' trust opens a new and enticing field for the energies of patriotism, the enthusiasm of folly and the sweets of advertisement; and we confess astonishment that Mr. Thomas—who surely knows more of law than he knows of medicine—has not seized the occasion sooner. To be an honorary vice-president of a 'League of Medical Freedom' is an empty honor because there are so many of them already; to be president of the 'League of Legal Liberty' would be a distinction that a man could hold alone and uncoveted."

After paying a truly beautiful tribute to the old-fashioned family doctor, the editorial continues:

"We are discussing this question of physician and patient at some length to-day because it is essentially a 'domestic' theme. It concerns in an intimate way our common lives and well-being. If the law permits a man to call himself a doctor of medicine who is not a doctor of medicine—learned in medicine the law is permitting a fraud, and a hazardous fraud, on the public. If the law permits a man to practice surgery who has no sound knowledge of that science, the law is abusing itself before a counterfeit. We confess to a secret admiration for certain kinds of 'patent medicines.' We know of no reading that equals in its imaginative sweep the 'literature' which accompanies those artistically wrapped bottles of 'reliable, household remedies.' But the harmless 'patent medicine' is a soothing, if useless, thing that works no harm if it produces no benefits; while the living man who professes a skill that he has not is responsible for innumerable maimed bodies and poisoned lives. We feel that we are conservative in estimating that 80 per cent. of the people are attended by physicians of the 'regular' allopathic and homeopathic

schools; and yet many newspapers are careful to keep silence on the subject because of a fear of offending the adherents of some cult or other who are supposed to regard even honest criticism as an offense. And we believe that fear to be ill-founded. . . .

"The men who make 'proprietary' medicines and sell them, not as 'patent' but authentic; and the unqualified 'quacks' who seek to practice under a title to which they have no just and qualified claim, are humbugs of an inimical kind with whom we can negotiate no truce. And we may as well make our attitude on that matter quite plain at this inception of the Medical Freedom 'League.' Because that 'league' is a contradiction in terms and it ought to have something very heavy and very hard hurled at it with great frequency."

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Third Month—Second Weekly Meeting

SURGERY OF THE KIDNEY

INJURIES OF THE KIDNEY

PATHOLOGY: 1. Penetrating, gunshot and stab wounds. Injury to kidney, ureter, blood-vessels, peritoneum. 2. Sub-parietal injury, rupture of kidney. Extent, structures injured, hemorrhage, extravasation of urine.

SYMPTOMS: Local injury. Hematuria. Prostration or shock, sweating, vomiting, pain.

TREATMENT: 1. Gunshot wounds. 2. Incised wounds. 3. Sub-parietal injury.

MOVABLE KIDNEY

ETIOLOGY: Pregnancy, lacing, loss of flesh, traumatism, association with enteroptosis, configuration of renal fossa.

SYMPTOMS: Digestive and abdominal symptoms, neurasthenia, Diet's crisis. Physical examination.

TREATMENT: Palliative. Operative, indications, technic of nephrorrhaphy.

HYDRONEPHROSIS

VARIETIES: 1. Congenital. 2. Acquired, from traumatism, ureteritis, stricture, calculus, pyelitis, floating kidney, malignancy, prostatic enlargement.

PATHOLOGY.

DIAGNOSIS: Differentiate from cystic kidney, enlarged gall-bladder, tumor of liver or ovary.

TREATMENT: 1. Removal of obstruction. 2. Treatment of kidney.

Society Proceedings

COMING MEETINGS

Am. Assn. for Study and Prev. Infant Mort., Baltimore, Nov. 9-11.
Hawaiian Territorial Med. Assn., Honolulu, November 26-28.
Ohio Valley Med. Assn., Evansville, Ind., Nov. 9-10.
Southern Medical Assn., Nashville, November 8-10.
Virginia, Medical Society of, Norfolk, October 25-28.

AMERICAN ROENTGEN-RAY SOCIETY

Eleventh Annual Meeting, held at Detroit, Sept. 29-Oct. 1, 1910

The President, Dr. GEORGE E. PFAHLER, Philadelphia, in the Chair

The officers elected were given in THE JOURNAL, Oct. 15, 1910, p. 1390. Richmond, Va., was selected as the place for holding the next annual meeting, the time to be decided later.

Tuberculosis of the Lungs as Seen and Heard

DR. HENRY HULST, Grand Rapids, Mich.: The work I wish to report on was done in the Grand Rapids Tuberculosis Sanitarium for the purpose of determining the value of roentgenographic diagnosis in tuberculosis of the lung. The results were secured by physical examination, skiagrams and

autopsy, each observer working independently of the other, making an individual diagnosis, and then comparing his findings with the other two. Cavities, especially deep ones, are generally missed by physical diagnosis, but they are always shown on the plates, some of them even showing structural lung detail. Their depth is best determined stereographically. They always appear as dark spots, and in most cases are corroborated at necropsy. The skiagram never fails to show the disease in the presence of clinical evidence or physical signs; in fact, it shows better the extent of the disease than do the other methods. A diagnosis should not be made on the strength of physical diagnosis alone, nor on the tuberculin test, nor on the skiagram, although the latter is the best single method of diagnosis. In some plates, the healing process is graphically shown. The great advantage of the roentgenographic method is that it furnishes a correct, though incomplete, graphic reproduction of the microscopic anatomic-pathologic changes in the lung. These pictures must be read, however, in the terms of post-mortem findings, and not of auscultation and percussion.

DISCUSSION

DR. K. DUNHAM, Cincinnati: I wish to emphasize the value of stereoscopic plates in making a diagnosis of tuberculosis of the lung. They are an absolute necessity. This work is showing us that we must look, not to the apices of the lungs, but to the hilus for the first evidence of tuberculosis. The difference in density from the normal is very apparent and is easily recognized by the expert.

DR. L. G. COLE, New York: In New York, I asked the board to have three independent physical examinations made of these patients before I made a skiagram. When those three men agreed on the physical signs, the process in the lungs was so extensive that it could not be considered incipient. The most interesting part of that was that it occurred in about 75 per cent. of the early cases, whereas in the other 25 per cent. these 3 men located the disease in different parts of the lung, but the skiagrams would definitely locate the disease—and it was not always the same man whose physical findings were corroborated by the skiagram.

Primary Lymphangiosarcoma of the Lungs

DR. ALFRED L. GRAY, Richmond, Va.: The appearance of the skiagram in this case was typical of an extensive miliary tuberculosis of both lungs. The patient had been bothered every summer and winter for the past six years with what he considered to be a severe cold, which would finally settle on his chest. His last attack was of three months' duration. There was loss of appetite, lassitude, loss in weight, and a very annoying and hacking cough, occurring in paroxysms and accompanied by intense pain in the chest. Expectoration was scanty and frothy. The heart was normal. There was slight impairment of resonance in the left supraclavicular region, with numerous dry râles in the left interseapular and subseapular regions. Temperature and pulse were normal. There were one or two enlarged glands in the right supraclavicular region. Histologic examination of one of these gave a picture of a typical lymphangiosarcoma. The patient died, but a necropsy was not permitted.

DISCUSSION

DR. H. K. PANCOAST, Philadelphia: I had a similar case last winter. The first radiograph I made showed the same picture as Dr. Gray saw in his plate, and had I not known something of the clinical history of the patient and the suspected diagnosis, I would not have known that it was not a case of pulmonary tuberculosis. A week or two later, I made a second plate, and found an effusion into the pleural cavity on the side most affected. It caused considerable confusion in the mind of the clinician, who could not understand the reason for these shadows when the case was undoubtedly one of growth in the lung. It is difficult to make a diagnosis between a growth of this kind and pulmonary tuberculosis, and it emphasizes the fact that an effusion in the pleural cavity may occur in these cases.

DR. K. DUNHAM, Cincinnati: In a case of carcinoma of the lung, the stereoscope saved us from making a diagnosis of tuberculosis. The question arises in Dr. Gray's case, whether it is not really a case of tuberculosis in the lung and lymphosarcoma in the gland removed from the neck. Unfortunately, a necropsy was not permitted; it might have cleared up the diagnosis.

DR. F. H. BAETJER, Baltimore: About six months ago, I saw a patient who apparently had an esophageal stricture. Bismuth was given and the skiagram showed that the esophagus was drawn over to the right side, and that both lungs were studded with tuberculous nodules, some being of good size. I made a diagnosis of tuberculosis, and gave it as my opinion that the stricture was caused by it. An operation was done and a carcinoma of the esophagus was found. The patient died, and at the necropsy we found the carcinoma, and on the edge of it a lot of tuberculous tissue. The lungs were studded with tuberculosis and carcinoma. The skiagram did not show the difference between the two.

DR. HENRY HULST, Grand Rapids, Mich.: I think that it is a mistake to base an absolute diagnosis of miliary tuberculosis or lymphosarcoma on plates alone, even when viewed stereoscopically. We must not base a diagnosis on insufficient data, because that will discredit our work.

DR. FEDOR HAENTISCH, Hamburg, Germany: If no necropsy was made in this case, we should not be so very sure that the plate shows a lymphosarcoma of the lung. I think it is a case of miliary tuberculosis with a thickened pleura.

DR. L. G. COLE, New York: One point against the tuberculous nature of this case is the even distribution of the spots. It is rare to see tuberculosis affecting the entire chest in that way. There are always areas in which the disease is more extensive than elsewhere. The picture might correspond with a diffuse acute miliary tuberculosis. Of course, the clinical symptoms did not correspond with this.

DR. G. C. JOHNSTON, Pittsburg, Pa.: I have skiagraphed about 40 cases of carcinoma of the lung, and 12 or 13 of these were referred to me merely because of some slight affection, a little paralysis, of the vocal cord. The majority of these patients gave a history of previous operation for carcinoma, one patient had a breast amputated 20 years previously. There was no recurrence in the scar, but examination showed carcinoma or tuberculosis involving both lungs. I could not differentiate which was present from an examination of the plate alone. I inclined to a diagnosis of carcinoma, and in every case, time proved the correctness of that diagnosis.

DR. W. F. MANGES, Philadelphia: A more or less distinct outline of the growth is characteristic of sarcoma. I saw that shown distinctly in a case I had last winter. I think Dr. Gray's case was one of tuberculosis.

(To be continued)

MICHIGAN STATE MEDICAL SOCIETY

Forty-Fifth Annual Meeting, held at Bay City, Sept. 28-29, 1910

The President, Dr. J. H. CARSTENS, Detroit, in the Chair

The officers elected were noted in THE JOURNAL, October 15, page 1388.

President's Address: Medical Organization, Education, and Legislation

DR. J. H. CARSTENS, Detroit: Medical societies enable practitioners to keep up to date. Physicians should study the great question of eugenics, which is especially a medical question, and also place themselves in the front ranks for social purity. Medical laws are made for the benefit of the public, and the State of Michigan should appropriate money for the medical examining board, and not let the latter depend on the fees for medical certificates.

Expert medical testimony has been a blot on the medical profession. Laws should be enacted which would require every county medical society to select from its own ranks, say three men of every branch of medicine, who would be

considered experts in those branches. Large medical societies could select ten or twenty in each branch. If a case occurs in the courts for expert medical testimony, the judge should select the three men so designated, who are to examine the patients at their leisure, discuss the case among themselves, arrive at some conclusion, and bring in their report and testify to the findings. Even as the law now stands this would not prevent the other side from having other expert testimony, but few of the latter experts would be found who would testify contrary to the experts designated. By having such experts we would get more justice and shorter law suits, with less expense to the county. In other professions like pharmacy, dentistry, architecture and engineering the same method might be carried out, and so greater justice would be done in all law suits, and the work of the professional expert would be at an end.

Interpretation of Gross Findings in the Urine

DR. WILLIAM E. KEANE, Detroit: The gross observation of the urine will prove of most value in the management of gonorrhoeal patients. Vigilance here will sometimes anticipate a beginning epididymitis by noting the peculiar cloud of exudate that appears in the second tube, before any other objective or subjective symptom appears. The purulent urine of acute gonorrhoeal inflammation is, as a rule, free from shreds, but as the inflammation subsides and becomes localized, little scabs are formed that wash down with the streams of urine. As the pus decreases and the shreds appear, improvement will be daily more marked. Each and every shred has its story to tell. The thick pieces of irregular size are generally indicative of stricture or chronic inflammation. The thread-like strings that quickly settle, weighed down with pus, are from the anterior urethra. The so-called tadpole shred has a globular head, with a long cotton-like tail, and arises from a follicle of the deep urethra. The fleecy film which suspends near the top originates in the prostatic sinus and may contain prostatic cells, bacteria, spermatozoa and mucus. The heavier mucus is seen only in the first tube with an absolutely clear second tube, indicating trouble in the anterior urethral glands. Epithelium appears floating in the urine as a dark or light-colored dust, depending on the amount present. Besides the recognition of the individual shreds, one soon learns to note other changes in its character. Whether the urine is sparkling or flat, whether it is of high or low specific gravity will be determined at a glance. Bacteria, when present, will be found in both tubes. The gonococcus produces a dirty color, with an odor that offers confirmatory evidence. A patient suffering from chyluria will pass a urine that is distinctively indicative of his trouble. The milky-looking mixture is seldom, if ever, seen in any other urinary condition.

Pellagra

DR. E. L. EGGLESTON, Battle Creek, read a paper in which he presented a report of two cases of this disease with the diagnosis and treatment. He also reported the necropsy findings in one case, together with the etiology and pathology of the disease.

DISCUSSION

DR. JOHANN FLINTERMAN, Detroit: Did pain running along the course of the nerve trunks appear, and was it manifested by skin and internal symptoms? Were there other symptoms? Cases have been described in which there was a manifestation of some skin affection, combined with severe diarrhea and perspiration.

DR. CHURCH, Adrian: Did any of the patients recover?

DR. FRANK SMITHIES, Ann Arbor: Was the Wassermann reaction used in any of these cases, or was a blood examination made?

DR. E. L. EGGLESTON, Battle Creek: In one case which ran a very short course and terminated fatally, the patient complained of no pain whatever, and there was no rise of temperature any time; but there was a subnormal temperature during the course of the disease. The clinical manifestations are different in different cases. Frequently, when the nervous

system seems to be particularly affected, there may be a great deal of pain. In the case reported as originating in Michigan, the patient had a great deal of pain in the back and head and neck, and complained considerably of headaches. Two of the patients died. Of the other three patients, one seems to be in very good condition, although there have been two recurrences of the disease. The other two are certainly getting worse and will not live very long. The mortality at present is considered to be about 35 per cent. The Wassermann reaction was not tried in any of these cases. The blood was examined frequently, a blood count made, and there was a moderate degree of anemia in each of the cases. I want to emphasize the point that if a patient, from the south or not, complains each spring of a feeling of great debility, loss of appetite, stomach disturbance and diarrhea, he should be watched very carefully. Many such cases appear in the north, many of them in Illinois; they are not limited to the south, and by keeping these points in mind one will not miss the diagnosis very often.

(To be continued)

KENTUCKY STATE MEDICAL ASSOCIATION

Fifty-fifth Annual Meeting, held at Lexington, Sept. 27-29, 1910

(Concluded from page 1492)

Diagnosis and Medical Treatment of Cirrhosis of the Liver

DR. G. W. PAYNE, Bardwell: Atrophic cirrhosis of the liver is incurable. So far as we know, there is no drug that can remove the cicatricial connective tissue; on the other hand, we know that these conditions can exist for years when compensatory circulation exists. The patient should abstain entirely from alcohol and live on a milk diet as nearly as possible. The diet should be nutritious, but not too rich. The gastric intestinal catarrh should be reduced, if possible, and the patient should lead a quiet outdoor life. Skin must be kept active and bowels open, and the patient should pass plenty of urine. For the ascites at its onset, or to prevent reaccumulation after tapping, such cathartics as magnesium sulphate, compound jalap powder or minute doses of calomel may be used. As a diuretic, I give bitartrate of potassium, combination of calomel, digitalis and squills, or infusion of digitalis. Lavage is useful in most cases, bitter tonics and acids may increase the appetite. If hemorrhage takes place from stomach or intestine, ice to the abdomen, morphin hypodermically and rest are indicated. If profuse diarrhea is present bismuth subnitrate, tincture of krameria or tincture of catechu may be used. In the syphilitic cases, or when syphilis is suspected, potassium iodid and mercury should be given in large doses.

Diagnosis and Treatment of Cholecystitis

DR. IRVIN ABELL, Louisville: Acute suppurative and gangrenous involvements of the gall-bladder are, as a rule, easily recognized; the local pain, tenderness and swelling, due either to distention of the gall-bladder or to surrounding adhesions, point unmistakably to the cause of fever and gastric distress. In such instances, an attempt at medical treatment is but to invite further disaster. Resort should be had to immediate drainage. In cases of the fulminating type, the diagnosis is not always easy; the sharp onset, violent pain, which is not always localized, vomiting, distention of the abdomen, rapid pulse, are seen with other lesions— notably of the appendix, or a beginning of peritonitis, from rupture of some of the hollow viscera. In such cases, the history is of value in making a diagnosis, particularly pain or discomfort in the gall-bladder area, immediately preceding the onset of symptoms. Such cases usually pursue a rapid course, leading to abscess formation, gangrene or rupture, and only prompt recognition and early operation give promise of saving life and restoring the diseased viscus to such a condition as to permit it to carry out its physiologic function. The indications for surgical treatment embody two principles: (1) removal of obstruction;

(2) institution of drainage. In some cases no abdominal operation is easier; in advanced and complicated cases, no abdominal operation is more difficult. The removal of obstruction may mean the removal of stones from the gall-bladder, cystic, hepatic, or common duct. It may mean that the operator must remove, or mechanically overcome, the effects of stricture of either of the ducts; in the case of the cystic duct, this may necessitate the removal of the gall-bladder; in the case of stricture of the common duct, it may mean a plastic operation on the duct or its junction with the intestine. Obstruction is frequently caused by adhesion and inflammatory deposit; thorough separation may be easy or may present difficulties which tax the most skillful. Drainage may be required in the gall-bladder, or in the common or hepatic ducts, and has to be made by means of rubber tubing, which is stitched into the ducts or bladder. The drainage should be continued long enough to overcome the infection. No operative procedure is complete unless a thorough examination of all the bile passages, demonstrating their potency, is made. With the elimination of obstruction and the institution of free drainage, we may safely promise a patient not only relief but permanent cure with a minimum exposure to danger.

State Care of the Insane

DR. CURRAN POPE, Louisville: Real investigation into the condition of those who enter state hospitals for the insane is either never made, or is at best superficial and never scientific. The time has come when the importance of treating the insane should receive the same intelligent consideration and care as is now given to the treatment of tuberculosis. The wave of public sentiment that has lifted tuberculosis to its present position should be duplicated with the mentally afflicted, and we should no longer hear of an unfortunate being classed as the "accused," needing prosecution on the one hand and defense on the other, both of which, in truth, are purely nominal and largely automatic. Our legislatures must awaken to the dangers of such a system and be prepared to accept all that modern psychologic work has done in its practical application to the mentally sick.

We should have no "asylums" for the insane; we need modern hospitals. The aim should be not to herd mentally unsound people in corridors flanked by rooms, to give them three meals a day, a few medicines, and control by attendants, but to use every manner of means known to medical science to cure them. There is a prevalent and wide-spread belief that, in the vast majority of instances, insanity is incurable; this is not true. The majority of insane patients do not recover because they do not receive proper diagnosis, and practically have no treatment. As a result, insane hospitals are truly and properly named "asylums," in which are kept hundreds of chronic insane, who live and die an "asylum life," simply because they have been subjected to custodial care alone. With a modern psychopathic state hospital, the patient could be quietly and without publicity sent for treatment on the recommendation of a commission of psychiatrists, whose report should be subject to supervision in chambers by the county judge. For the future care of Kentucky's mentally unsound, I would suggest a central hospital, modern in its equipment, located near a large city, with every facility for diagnosis, investigation and treatment. Through this hospital, every patient would first have to pass, and when it was found that the unfortunate sufferer was condemned to permanent loss of mind, he could be removed to one of the present hospitals for custodial care. Such a hospital would be incomplete without a psychologic laboratory, equipped with modern instruments of precision, in the hands of a trained expert, with a corps of assistants, who could test and study and relieve many cases by well directed psychologic work alone. Modern psychiatry has advanced with rapid strides toward the more thorough and complete understanding of the intellectual mechanism of the insane, and any modern, up-to-date hospital that does not possess a full equipment of psychologic apparatus, with experts in charge, who devote their time and attention solely to the investigation and study of the ailments and afflictions of its patients, falls far short of the modern conception of hospital work.

Chronic Nephritis

DR. S. L. BEARD, Shelbyville: There are many causes for chronic nephritis—alcoholism, long exposure to cold and dampness. The gonococcus plays an important part in the cause of the disease, the germ may have been lurking in the joints or the prostate, and after all other symptoms of gonorrhoea have disappeared, even years after the disease has been apparently cured, may give rise to acute or chronic inflammation of the kidneys. Other causes are acute infectious diseases, such as scarlet fever, which often produces the acute form, and maybe the chronic form of the disease. The disease is very slow to develop. Possibly the first symptoms to be noticed will be a slight edema of the eyelid or of the legs, then a listless feeling, the patient being restless at night and unable to sleep, with loss of appetite. Edema is always a prominent symptom, and will eventually give the patient a great deal of discomfort. As the disease develops, the legs may swell to an enormous size, with rupture of the skin and oozing of serum. The amount of urine in a case of chronic nephritis is very much diminished. Frequently the quantity will be diminished 40 per cent., some days a larger quantity may be voided. In the later stages of the disease, the volume of urine increases to some extent; the specific gravity is often below normal, it may possibly be normal or above. Little can be done in treating these patients, for we rarely see the case until it is well developed. We may advise the chronic alcoholic to stop drinking. The treatment of the chronic form of the disease is about the same as that of the acute. The first essential is to insist on absolute rest in bed for a period of time at least; of course, the patient should not be kept in bed indefinitely; a little sunshine and very moderate exercise will be beneficial, but for a time at least we should insist on rest and quiet.

Intracranial Complications of Otitis Media

DR. G. C. HALL, Louisville: The study of the intracranial complications of otitis media has been extensive enough, and over a sufficient period of time, to permit us to draw certain conclusions regarding the cause and effects of suppuration within the temporal bone, and for the most part the method to be applied to stop it and guard against its extension. As in other regions of the body, prophylaxis is of chief importance. It is much easier to prevent these conditions than to cure them when once developed. "Cure every case of otitis media," should be the watchword of the profession. In this way alone we would eliminate at least 90 per cent. of the complications of temporal bone suppuration, for, as a general proposition, it may be stated that primary acute otitis media with mastoiditis offers but few instances of intracranial involvement, and in them the infection is overwhelming. In dealing with this subject we practically presuppose the existence of mastoiditis, and in whatever light we view it the mastoid portion of the temporal bone becomes the object of our first concern. From a pathologic standpoint, the route of infection is nearly always through the mastoid cells, whether it be sinus thrombosis, brain abscess or meningitis. The symptoms are those primarily of mastoiditis with the symptoms of the complication added, and the treatment in all cases is directed to the thorough eradication of all diseased bone in the mastoid, as a preliminary to attacking the lesions of the deeper structures. In cases of suspected intracranial involvement, the organisms present in the discharge have an important bearing on the gravity of the lesion. It has been shown that the streptococcus is responsible in over 50 per cent. of these severe infections. In cases of sinus thrombosis, it can often be obtained from the general circulation. Prophylaxis is most important in dealing with these conditions. It is worth all the remedial measures we possess, and the truest and surest prophylaxis is obtained by putting every running ear under careful and intelligent treatment, and the correction of those diseases of the nose and throat that render the ear so liable to infection.

Acute Nephritis

DR. W. R. THOMPSON, Mount Sterling: All three forms of the disease are included under this heading, as it is impossible to differentiate the anatomic varieties from a clinical standpoint. Nearly every known disease has at some time been

shown to be accompanied or followed by acute nephritis. Acute infectious diseases are the most prolific causes, and scarlet fever heads the list; the specific organism of the disease, or its toxin, is responsible for the lesion of the kidney. The severity of the scarlatina or other infection bears no relation whatever to the occurrence of nephritis. Those suffering from the most malignant forms of the disease may entirely escape, while a patient with the mildest attack, and one which has perhaps been entirely overlooked, may have a most severe lesion of the kidney. It is important to bear in mind that a comparatively insignificant angina, mild rheumatism, or a slight attack of influenza, may be the forerunner of acute nephritis. The causative influence of cold in acute nephritis has been largely overestimated. In a majority of the cases, if the history is carefully and thoroughly investigated, the underlying cause will be discovered, and the exposure to cold will be found to be merely incidental.

Fracture of the Base of the Skull

DR. D. C. DONAN, JR., Horse Cave: Surgery of the skull is undergoing an evolution similar to stomach surgery in recent years. A source of error formerly was mistaken diagnosis. Fracture by *contre-coup* is a rare thing, according to Treves. The theory of Arran, as Archibald observes, merely states the fact. Rawlings' idea of a splitting force will explain some cases. Most cases can be explained by the law of von Wahl, namely, a fracture by bursting is due to bilateral compression, and the fissure runs parallel with the violence. The factors are velocity and momentum of the wounding object, as well as the shape or area of contact. The principal lesion is nearly always situated in the sella turcica, the petrous portion of the temporal bone, the greater wing of the sphenoid and the orbital plates. In nearly all cases, we are dealing with a compound fracture, and the high mortality is partly due to infection. Most cases with non-reacting pupils are fatal. Unconsciousness is not a reliable index of the severity. Under expectant treatment may be mentioned rest, restricted diet, purgation and the application of the ice coil. Hexamethylcyanin has been recommended as a preventive of infection. Lumbar puncture has its advocates in selected cases. Decompression is a new addition to the list of operations for the relief of compression. Severe injuries, such as bursting fractures, with extensive laceration of the brain, are nearly always fatal, and these should be left to the inclination of the surgeon. Patients with immediate symptoms of compression and no laceration should be operated on. Cases in which there are late symptoms of compression and beginning optic neuritis, nearly always demand operation. In simple cases, in which there is no laceration and no compression, expectant treatment may be resorted to. In punctured fractures, we should explore all doubtful cases, and then follow the indications.

The Diagnosis and Treatment of Cancer of the Gastro-Intestinal Tract

DR. J. H. BLACKBURN, Bowling Green: The cure of cancer in the gastro-intestinal tract depends entirely on surgical treatment, hence it became necessary and imperative that the diagnosis should be made early, if we are to give more than temporary relief. The difficulty of the early clinical recognition of cancer in any portion of the gastro-intestinal tract is generally conceded, since a relatively large number of the patients do not present symptoms until late in the disease, often only after the involvement of adjacent structures. With the marked advances in the surgical treatment of the disorders of digestion during the last decade the history of cancer of the stomach has been entirely re-written. The classical symptoms of this condition, as found in all text-books on practice of medicine are anorexia, pain, vomiting, hemorrhage, humor and cachexia, the subjective symptoms varying somewhat with the location of the growth in the stomach. From the standpoint of the surgeon, these are late symptoms, for, if we wait for their development, the percentage of cures from operation will be very small. The surgical treatment may be divided into palliative and radical. The experience of both surgeons and physicians in the early diagnosis of gastric cancer is that the only way in which a positive diagnosis may be made is in

the inspection of the parts when the abdomen is opened; therefore, exploratory laparotomy may be classed as one of the surgical procedures in the treatment of this condition. After passing the ileocecal junction cancer becomes a rather frequent lesion, increasing in frequency from the cecum through the colon and sigmoid to the rectum. In a large percentage of the cases of cancer of the large intestine the lesion is primary. It may be completely eradicated, and there are several factors which make the surgical treatment when instituted early a curative one, the most important of these being the slow rate of growth, the limited lymphatic drainage, the tendency to local extension rather than by metastasis. However, if we wait for the development of an acute or chronic obstruction, or for the presence of a distinctly palpable tumor, both of which may be called ancient symptoms, the time for complete removal of all the tumor and involved tissues may have passed.

Neurasthenia

DR. W. F. BOGESS, Louisville: In every case of neurasthenia, ocular reflexes should be looked into and relieved by practical fitting glasses. For various mental conditions, fear, etc., exercise is the best remedy that can be used, and when the patient is able to do so he should do the things he fears most.

To sum up the treatment of neurasthenia:

1. Obtain control of your patient in every way possible, remembering that the attitude of the physician has much to do with the cure.
2. Find the cause, whatever it is, in the patient's habits, method and mode of living, past and present life; ascertain what physical defect may be present and remove it.
3. Determine whether the patient does or does not need the rest treatment, or intelligent supervision of exercise, work, rest and sleep.
4. Employ electricity, hydrotherapy, massage, psychotherapy, etc.
5. Include under general medicinal treatment the use of nuxvomica, arsenic and the glycerophosphates, intelligently and physiologically administered.
6. Treat the various symptoms as they arise intelligently, always remembering that by paying too much attention to any one symptom you accentuate the trouble and thereby do your patient injury.

Cancer of the Uterus

DR. W. H. WATHEN, Louisville: Cancer arising in the cylindrical epithelium of the cervical canal is of the adenocarcinoma variety, and rapidly extends to adjacent structures, especially the parametrium and the bladder wall, quickly involving the lymph glands, and is often followed by metastasis in other organs. Hence, it is less amenable to treatment than cancer of the infravaginal cervix. Cancer arising from the endometrium, while it is from cylindrical epithelium and usually of the adenocarcinoma type, does not invade adjacent structures rapidly and seldom in the operable stage involves the parametrium, or by metastasis extends to other organs of the body. This variety, if seen in time, is more amenable to radical treatment than cancer of the cervical canal. All varieties of cancer of the uterus extend more rapidly to local structures, and is followed more quickly by metastasis in young, vigorous people than in old people. While many millions of dollars have been expended in research work to discover the cause of cancer, there is no positive evidence that the real cause is known. Special study has been along the lines of the parasitic theory, the cell autonomy and the biologic and biochemical nature of tumors. While no parasite has been discovered by any experimentation, this does not negative the fact that a specific germ is the cause, for the germ may be in the protoplasm of the cell and too small to be discovered by any power of the microscope yet devised. While cancer of the uterus does not usually appear until after the age of 30, and is more frequent between the ages of 35 and 55, it may develop in a girl of 15 or in a woman of 75. Cancer of the cervix is nearly always seen in women who have borne children, but I have often seen it in women who have had no children, and who probably never had sexual connection. If diagnosed and operated on in the early stages, the end results of cancer of the infravaginal cervix or the endometrium are far more encouraging than in cancer arising in the cervical canal, and the operation need not be so extensive, and may be performed in nearly every instance *per vaginam*. This is not true, however, in most cases of the

adenocarcinoma arising in the cervical canal, which so quickly invades the adjacent structures and must be widely removed in order to give the woman the best chances for recovery. Uterine myomata, with cancer of the uterus or cancerous involvement of the myomata, should be operated on by the suprapubic method. This association or involvement is rare. Cancerous involvement may result from continuity of cancer in the cervical canal or endometrium by metastasis from cancer in other parts of the body, or by the development of cancer in the epithelium of the glands of an adenomyoma. I recently removed a uterus with malignant involvement of myomatous tumors, caused by the extension of an adenocarcinoma in the cervical canal.

My experience in curettage, followed by the application of phenol and alcohol, encourages me in the belief that such treatment may often relieve pain and other symptoms, prolong life, and sometimes so change local conditions as to make operable a case that before such time was inoperable, in the sense that all involved structures could not be removed. In conclusion, let me repeat that until we know more about the cause and history of cancer, our success must depend on early diagnosis and prompt and thorough surgical treatment, being governed in the choice of operation by local conditions.

Expert Testimony

MR. EDWARD J. McDERMOTT, Louisville: What are our remedies? First, each profession—especially the medical profession, which is called on most for expert testimony—must try to create a strong opinion, in its ranks and in its public associations, in favor of higher ethical standards, and must frown down its weak or corrupt members who allow themselves to be misused or besmirched as false or foolish witnesses. Second, the courts must be induced to inquire more fully into the qualifications of experts, and to handle, with more care and strictness, this clause of evidence which is often useful, and which can sometimes be corruptly used with success and impunity. This part of the reform must be accomplished by the lawyers and the courts. Third, legislation must be devised to strengthen the court's control of opinion-witnesses, and to prevent selfish and unscrupulous litigants from getting much benefit by hiring charlatans or cranks or dishonest, but shrewd and plausible men, of sufficient learning and experience, to enable them all the better to deceive a jury. It seems clear to me that the legislature has the power (1) to regulate the selection or calling of experts or opinion-witnesses, and (2) to regulate their compensation. It also seems clear to me that the legislature, in the interest of truth and for the protection of both the medical and the legal professions, should regulate both the selection and the compensation of such witnesses. The disreputable physician and the disreputable lawyer and their client now have such an unfair advantage of their reputable adversaries, that truth and justice are too often trampled down. As litigants with most money at their command may get the greatest number of experts, and the most expensive experts, the court should have the right (1) to prescribe a list of eligible men, (2) to limit the number to be called, and (3) to fix the compensation. No witness in any case should have a contingent fee. He should not have his compensation depend on the success of his testimony or his side. This is too great a temptation to partisanship. It may be wise (in the interest of the poor) to allow a lawyer to be employed on a contingent fee, for he is not a witness—he is not swearing to the right of his side—but there is no excuse for allowing a witness to be so tempted by self-interest to deviate from the truth where a deviation is so easy, and is never punishable, in an expression of a mere theory or opinion. Even contingent fees of lawyers, in damage suits and perhaps in other cases, should be subject to the scrutiny and control of the courts to prevent hardship and injustice to the poor in whose interest such fees are supposed to be allowed.

Inguinal Hernia

DR. B. F. VAN METER, Lexington: The simplest operation that focuses all effort on the complete removal and high ligation of the sac is the successful operation. The sac is not

always recognized and identified by the occasional operator; sometimes it is never ligated at all, and then nothing but failure can result. Every hernia patient has the right to have laid before him, on the one hand, the comparative risk, the percentage of recurrences, the time of disability; on the other, the everlasting semidisability, and the danger of strangulation, with its enormous increased risk to life. There is small, but very definite danger from the anesthetic, when general anesthesia is used; when local anesthesia is used this danger is eliminated—a zero mortality in a hundred consecutive cases, two weeks' complete disability, two weeks of partial disability, with 95 per cent. of permanent cures.

Indications and Technic of Cerebral Decompression

DR. E. S. ALLEN, Louisville: The dominating factor in cerebral surgery is the effect of compression on brain tissue. While any other tissue may be compressed with comparative impunity, nerve tissue is compressed only at the cost of immediate loss of function, with slow restoration if pressure be relieved, and atrophy without regeneration if pressure be not relieved. Its high degree of differentiation makes it an easy prey to insignificant trauma, and its injury is frequently attended by early and easily recognizable symptoms. Local pressure and death of other tissue may pass unnoticed, but nerve fiber gives unmistakable sign and gives it regularly. The compression of nerve tissue, except in silent areas of the brain, will produce definite symptoms. Many of the lesions which affect the brain, and especially those which have a surgical bearing, do so by reducing the available space inside the skull. The symptoms of hemorrhage, tumor, etc., depend in the main on the compression which these various lesions exert directly on the brain. Realizing that cerebral compression results, ultimately, in medullary anemia, and medullary anemia in vasomotor paralysis, and vasomotor paralysis in bulbar starvation, with cardiac and respiratory paralysis, and that our principal guide in this intracranial pathology is arterial tension as recorded by the manometer, then I believe the chief indication for decompression must be when the tension reading reveals the fact that the struggle between the intracranial compressing force and the vasomotor center is becoming a life and death effort, and that it is best to interfere when the vasomotor strength is high and not wait until the compressing force is victorious and the arterial tension is dropping or undulating.

Acute Gastro-Intestinal Infection in Infants

DR. J. M. REES, Cynthiana: Since less than 10 per cent. of deaths due to intestinal disease occur in breast-fed infants, we should urge and encourage maternal nursing. While this is necessary in all classes, it should be especially insisted on among the ignorant and negligent. It requires but little experience, and may be done by those of very little intelligence and among the very poor, while artificial feeding is not successful unless carried on intelligently, and, at the same time, a certain amount of money is available to obtain reliable nourishment, especially pure milk. Too frequently, babies are taken from the breast when, with a little care and patience, lactation could be continued. We should point out the great danger a mother assumes when she undertakes artificial feeding without the necessary means or preparation. Mothers too often, in order to escape the hardships of breast feeding, remove the child from the breast, not seeming to understand that the puny, fretful, bottle-fed infant is infinitely more troublesome than the well-nourished, breast-fed baby that spends most of its time in sleep. The first feeding is always an experiment, and we should endeavor to begin with a mixture slightly weaker in fats and proteins than mother's milk, and increase in a gradual manner, until at the end of the first year the child is receiving plain cow's milk. Carefully fed infants, whose digestion is normal and whose feeding mixtures are prepared from fresh and clean milk, acquire an almost clock-like regularity in their habits, vomiting never occurs, and the bowel movements are yellow and come at regular intervals. Any change from this regularity is a signal of disturbance, which should be promptly investigated.

Colonic irrigation is, in many cases, as important as the initial purgation. By it any residue of feces or irritating secretions in the colon or rectum is removed, and, as it stimulates peristalsis, it assists in evacuating the small intestine. It also adds to the body an amount of fluid to compensate for the waste cause by the diarrhea. For the best results, the physician must personally attend to the irrigation, unless he has a competent nurse. This should be done two or three times during the first twenty-four or forty-eight hours; later, once daily is sufficient. Saline solution, at a temperature of 100 F., may be used, with a long rectal tube or catheter of sufficient caliber and stiffness to prevent it from kinking. The other local methods are the application of heat and counter irritation to the abdomen for their soothing effect; the use of cold for its antipyretic effect, and the application of heat when there is depression of the vital forces.

Other Papers Read

The following papers were also read: "The Present Status of Serum and Vaccine Therapy," by Dr. F. H. Montgomery, Danville; "Cancer of the Breast: Diagnosis and Treatment," by Dr. J. T. Reddick, Paducah; "Prophylaxis and Treatment of Scarlet Fever," by Dr. J. S. Lock, Barbourville; "Measles," by Dr. F. A. Frazer, Marion; "Prophylaxis and Treatment of Pneumonia," by Dr. J. C. S. Brice, Flemingsburg; "Abdominal Crises Caused by Pathologic Changes in Meckel's Diverticulum Other Than the Strangulation by Band," by Dr. George A. Headon, Louisville; "Abscess of the Liver: Diagnosis and Treatment," by Dr. J. J. Rathbun, Russell; "Electricity in Diagnosis and Treatment of Disease," by Dr. J. J. Rodman, Owensboro; "Something Old and Something New in Medicine," by Dr. D. O. Hancock, Henderson; "Popliteal Aneurism. With Report of Matas Operation," by Dr. J. R. Nurnan, Covington; "Diagnosis and Treatment of Enterocolitis in the Adult," by Dr. E. A. Stevens, Mayfield.

State Boards of Registration

COMING EXAMINATIONS

- ARKANSAS: Regular, Little Rock, November 8-9. Sec., Dr. F. T. Murphy, Brinkley; Homeopathic, Little Rock, November 11. Sec., Dr. P. C. Williams, Texarkana; Eclectic, Little Rock, November 8-9. Sec., Dr. G. A. Hinton, Hot Springs.
- CONNECTICUT: Regular, City Hall, New Haven, November 8-9. Sec., Dr. Charles A. Tuttle; Homeopathic, Grace Hospital, New Haven, November 8. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave.; Eclectic, Hotel Garde, New Haven, November 8. Sec., Dr. Thomas S. Hodge, 19 Main St., Torrington.
- FLORIDA: Palatka, November 9-10. Sec., Dr. J. D. Fernandez, Jacksonville.
- LOUISIANA: Homeopathic, New Orleans, November 7. Sec., Dr. John T. Crebbin, 1207 Maison Blanche Building.
- MAINE: City Council Rooms, Portland, November 8-9. Sec., Dr. Frank W. Searle, 806 Congress Street.
- MASSACHUSETTS: State House, Boston, November 8-9. Sec., Dr. Edwin B. Harvey.
- NEBRASKA: State Capitol, Lincoln, November 9-10. Sec., Dr. E. Arthur Carr, 141 S. Twelfth Street.
- NEVADA: Carson City, November 7-9. Sec., Dr. S. L. Lee.
- TEXAS: Palestine, November 22-24. Sec., Dr. R. H. McLeod.
- WEST VIRGINIA: Morgantown, November 14-16. Sec., Dr. H. A. Barbee, Point Pleasant.

Wyoming June Report

Dr. S. B. Miller, secretary of the Wyoming State Board of Medical Examiners, reports the written examination held at Laramie, June 22-24, 1910. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 10, all of whom passed, including one osteopath. Sixteen candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College	(1910)	88.4
Atlanta School of Medicine	(1908)	76.4
State University of Iowa, College of Medicine	(1910)	88.7
University Medical College, Kansas City	(1904)	83
Creighton Medical College	(1909)	86.4, 87.3
Lincoln Medical College	(1910)	79.3, 90.5
Columbus Medical College	(1886)	75.9

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
George Washington University	(1897)	Dist. Colum.
Northwestern University Medical School	(1909)	Illinois
College of Phys. and Surgeons, Chicago	(1904) (1907)	Illinois
Rush Medical College	(1902)	Iowa
Drake University	(1907)	Iowa
Sioux City College of Medicine	(1903)	Iowa
Louisville Medical College	(1902)	Indiana
Baltimore Medical College	(1907)	Vermont
Maryland Medical College	(1904)	W. Virginia
University of Michigan, Homeopathic College	(1903)	Minnesota
Barnes Medical College	(1902) (1909)	Missouri
Eclectic Medical Institute, Cincinnati	(1908)	Iowa
Staring Medical College, Columbus	(1904)	Ohio
Medical College of the State of South Carolina	(1898)	S. Carolina

New Mexico July Report

Dr. J. A. Massie, secretary of the New Mexico Board of Health and Medical Examiners, reports the written examination held at Sante Fé, July 11-12, 1910. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 3, all of whom passed. Twenty-one candidates were licensed to practice on presentation of satisfactory credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
North Carolina Medical College	(1906)	77
Epworth College of Medicine	(1910)	87.2
Memphis Hospital Medical College	(1894)	75.1

LICENSED ON CREDENTIALS

College	Year Grad.
Gross Medical College	(1893)
Hahneman Med. Coll. and Hospital, Chicago	(1880)
College of Physicians and Surgeons, Chicago	(1906)
Keokuk Med. Coll., Coll. of Phys. and Surg.	(1906)
College of Physicians and Surgeons, Keokuk	(1890)
University of Louisville	(1901) (1909) (1910)
Louisville Medical College	(1903)
Hospital College of Medicine, Louisville	(1898)
College of Physicians and Surgeons, Baltimore	(1888)
Barnes Medical College	(1909)
St. Louis Coll. of Phys. and Surg.	(1904) (1910)
Washington University, St. Louis	(1909)
University Medical Coll., Kansas City	(1901) (1903)
Coll. of Phys. and Surg., Kansas City	(1897)
Columbia University, Coll. of Phys. and Surg.	(1901)
Vanderbilt University	(1889)
University of Vermont	(1904)

Book Notices

LEHRBUCH DER KINDERHEILKUNDE FÜR AERZTE UND STUDIERENDE. Von Dr. med. Bernhard Bendix, Privatdozent für Kinderheilkunde dirigierender Arzt der Charlottenburger Säuglingsklinik. Sechste, Durchgesehene und Verbesserte Auflage. Paper. Price, 15 marks. Pp. 671, with 83 illustrations. Wien: Urban & Schwarzenberg, 1910.

Professor Bendix has for many years held a foremost place as an authority on diseases of children. The present edition of this work, the sixth, has been extensively revised and much of it wholly rewritten to include the latest advances in every department of pediatrics. This is especially true of the chapters on nutritional disorders in infancy. The book everywhere gives the mature observations of one of Germany's greatest pediatricians, and is highly commended to every physician who is interested in diseases of children.

THE VEGETABLE PROTEINS. By Thomas B. Osborne, Ph.D., Research Chemist in the Connecticut Agricultural Experiment Station, New Haven. Price, \$1.20 net. Cloth. Pp. 125. New York: Longmans, Green & Co., 1909

Until the appearance of this monograph, one of a series on biochemistry, the data on the chemistry of plant proteins had not been collected and presented in a systematic way. It was not until recent years that the importance and the practical value of knowledge regarding vegetable proteins were appreciated and then largely through the well-known researches of the author himself. As a large portion of this monograph is in reality an abstract of the author's investigations, it is very accurate and covers the most recent work in this field.

The chemistry of plant proteins is considered historically, beginning with the study of gluten in wheat and covering the more recent discoveries of other proteins in various plants.

The book is not intended as a laboratory guide or hand-book, but is a complete collection of descriptions of the various plant proteins, which have been investigated. Aside from the complete descriptive matter, the monograph contains tables and a very complete and valuable bibliography of the protein chemistry literature.

PHYSICAL EXAMINATION AND DIAGNOSTIC ANATOMY. By Charles B. Slade, M.D., Chief of Clinic in General Medicine and Instructor in Physical Diagnosis in the University and Bellevue Hospital Medical College, New York. Cloth. Price, \$1.25. Pp. 146, with 36 illustrations. Philadelphia: W. B. Saunders Co., 1910.

The author has attempted to give in a concise manner practical points and definitions in the technic of physical examination, chiefly of the thorax and abdomen, with some reference to information that may be obtained by general inspection. The book, intended for students, is elementary in character, deals chiefly with the normal subject, and does not pretend to enter into the diagnosis of specific pathologic conditions, making reference to them only to illustrate the application and object of the different methods employed to elicit information. The topography of the chest and abdomen and the various anatomic structures within is well shown by numerous diagrams, and a few photographs are used to illustrate certain points. It is a practical and useful elementary exposition of the subject of physical diagnosis.

CLINICAL TREATISES ON THE PATHOLOGY AND THERAPY OF DISORDERS OF METABOLISM AND NUTRITION. By Dr. Carl von Noorden, Professor of the First Medical Clinic, Vienna. Part VIII, Inanition and Fattening Cures. Part IX, Technic of Reduction Cures and Gout. Cloth. Price, \$1.50 each. Pp. 103 and 112. New York: E. B. Treat & Company, 1910.

The scientific considerations which are involved in the attempt to restore the nutrition to normal in emaciated individuals are first explained in chapters dealing with the phenomena of inanition and undernutrition and then the practical application of these principles in the treatment of these cases is explained. The exposition of the calculations necessary to determine the individual's nutritive requirements and the addition of several important tables make this part (Part VIII) of the book a very valuable guide. The important fact that a mere increase of adipose tissue does not always secure the highest grade of nutrition is particularly emphasized and the inability of the organism in certain conditions to avail itself of the increased pabulum furnished is clearly brought out. Incidentally the author exposes the fallacy of attempting to restore a normal condition of nutrition in certain tissues by supplying merely the component elements of the tissue. The use of calcium in rickets on this principle is shown to be fallacious. In a similar way the absurdity of the claims for the use of lecithin in nervous disorders is shown. It is a defect of the work that so much prominence is given to a much-advertised American breakfast food.

Part IX treats of reduction cures and puts a method of treatment which began in empiricism on a scientific basis. For the specific plans such as the Banting cure, etc. the author substitutes exact calculations of the needs of the patient based on his body weight and the calorific value of the different classes of food. The uric acid theory of gout and renal lithiasis is discussed with a frank admission of the paucity of our actual knowledge. The dietetic treatment is based on the principle of excluding exogenous purins and determining by experiment the degree of tolerance of the individual patient for purins on the same principle as we determine the power of the individual diabetic to metabolize sugar. The purin content of various articles of diet is described. The author makes no distinction between white and dark meats, as his own experience as well as the results of chemical analysis has taught him that the white meats present no advantage over the red in this respect. The uselessness of the so-called uric acid eliminants for the treatment of gouty arthritis is emphasized, although the author admits that we can influence to some extent the solubility of uratic deposits in the genito-urinary tract. This volume will form a useful and suggestive manual for those who treat this class of cases which is undoubtedly more numerous in this country than commonly supposed.

Medicolegal

Corporations Cannot Practice Medicine

The Court of Appeals of New York says: In re Co-operative Law Company (92 N. E. R. 15), where it holds that a corporation can neither practice law nor hire lawyers to carry on the business of practicing law for it, that it cannot do so any more than it can practice medicine or dentistry by hiring physicians or dentists to act for it. The legislature, in authorizing the formation of corporations to carry on "any lawful business," did not intend to include the work of the learned professions. Such an innovation, with the evil results that might follow, would require the use of specific language clearly indicating the intention. Business in its ordinary sense was aimed at, not the business or calling of members of the great professions, which for time out of mind have been given exclusive rights and subjected to peculiar responsibilities.

Salary of County Health Officer

The Supreme Court of Mississippi says, in Adams County vs. Aikman (52 So. R. 513), that the latter-named party had been for several years health officer for Adams County. In July, 1907, the board, by order on its minutes, fixed his salary for the 12 months next thereafter at \$50 per month. No further order was entered with reference to his salary, but he continued to receive as such the sum of \$50 per month until the expiration of his term, on April 30, 1909. On May 15, 1909, he was reappointed as such health officer. At its June, 1909, meeting, the board of supervisors, by order duly entered on its minutes, over his objection, fixed his salary at \$300 per annum. At the August meeting of the board he filed his claim for an allowance of \$50 per month, which claim was rejected by the board and a warrant directed to be issued to him for \$75, or \$25 per month, which he declined, and shortly afterwards brought suit for \$150 for the months of May, June and July. In the justice court, where he brought suit, he recovered judgment, and also in the circuit court, to which an appeal was taken. But the judgment of the Circuit Court is reversed by the Supreme Court, which holds that he was entitled to recover from the county only the sum of \$25 per month, the salary fixed by the board, and that, if dissatisfied with that allowance, he should have appealed from the order of the board fixing the same. Under section 2,509 of the Mississippi Code of 1906, it is the duty of the board of supervisors to fix the salary of a county health officer in advance of his appointment; but, in the event it fails to do so, it may fix his salary at a later date. To hold otherwise would result in depriving such officer of any compensation for services which he might have rendered after his appointment and before his salary was fixed, for the reason that he can receive no compensation except a salary fixed by the board. There is no conflict herewith in the prior decision that, where a salary of a health officer has been fixed by order of the board, it cannot be subsequently reduced to such an amount as virtually to abolish the office.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

October 8

1. *The Carbohydrate Diathesis. W. E. Deeks, Canal Zone.
2. *Treatment of Diabetes Mellitus. T. S. Hart, New York City.
3. Anesthesia. J. T. Gwathmey, New York City.
4. *Residual Appendix. O. C. Smith, Hartford, Conn.
5. *Treatment of Typhoid with Vaccine. A. W. Hollis, New York City.
6. Hemophilia Treated by Transfusion. M. Habn, Washington, D. C.
7. *Typhoid Fever. A. K. Sallom, Philadelphia.

1. **Carbohydrate Diathesis.**—Deeks maintains that patients suffering from one or more of the following disorders are consumers of an excess of carbohydrate food: indigestion, gastric ulcer, decaying teeth, stomatitis, constipation, chronic

pharyngitis, true rheumatic bronchitis, anemia, most dysmenorrhoeas, enuresis, etc. He believes the diet to be indirectly responsible for appendicitis, and frequently for tuberculosis. He does not state what the exact nature of the products of carbohydrate fermentation is, but he contends that his statements can be verified clinically, and from a humanitarian standpoint the results are worthy of a further investigation. In the tropics, unless engaged in active physical exercise, the nearer men keep to a diet consisting of meat, fish, poultry, milk, green vegetables and fruit, the less they suffer. In this combination is found an energizing, tissue-forming, low heat-producing food, free from fermentative properties and containing enough of the indigestible vegetable cellulose to stimulate intestinal peristalsis and elimination. Sugars should not be consumed at all, except in solution, on an empty stomach, and then sparingly. The amount of starch ingested should be proportionate to the physical exertion involved.

2. **Treatment of Diabetes Mellitus.**—Hart emphasizes the importance of taking proper care of diabetes with the mild type of the disease, and of subjecting them to suitable restrictions early in its course. By the painstaking control of the diet, under the guidance of accurate records based on careful observation, the progress of diabetes, in the majority of instances, may be so checked that it will never reach the most severe form. In other instances, although the disease becomes more severe in spite of our best efforts, we are nevertheless able materially to hinder the progress of the malady, and we may save our patients much suffering and lengthen their lives by a number of years.

4. **Residual Appendix.**—Smith believes that from our knowledge of the pathology of appendicitis and the comparative frequency with which appendicitis recurs sooner or later following an appendiceal abscess or general peritonitis caused by appendicitis, we must conclude that the residual appendix—that is, the appendix left after abscess and drainage—is much more subject to inflammation than the appendix which has not been diseased. If its mucosa is continuous with the cavity of the cecum it is still exposed to infection. In addition to that, its circulation has usually been partially destroyed, it has become adherent to the abdominal wall, or some other organ, and is in a position to be strained or traumatized. Moreover, there may be residual concretions and residual pockets of pus within the lumen which did not escape at the primary attack. If these deductions are correct there can be no doubt of our duty in advising a secondary operation, and explaining thoroughly to the patient the reasons for, and the advantages of, this procedure.

5. **Typhoid Fever.**—In the series reported by Hollis, 21 patients were treated by the older method of hydrotherapy, either by the tub bath or by sponging; 11 patients were treated with vaccine without hydrotherapy. In the remaining 5 cases the patients were too short a time under treatment to make any comparisons. The diet, in general, was of the high caloric variety. No drugs were employed, but strychnin and whiskey were used as stimulants in the severe cases. The bowels were moved by enemata. The patients who were treated by hydrotherapy, barring a few who were given sponge baths because of poor response to tubbing, had a tub bath at a temperature of from 80 to 90 F. for 15 minutes, with friction, every 4 hours from noon until midnight inclusive if the rectal temperature was 103 F. or higher. At 8 a. m. all received a warm soap and water sponge. Those treated by vaccination received no baths other than a daily warm soap and water sponge. In a very few cases 250,000,000 bacilli were employed but no different clinical or laboratory effect could be noticed between the smaller and larger doses. No fever reaction was obtained. No case ended by crisis. No death occurred among the vaccinated patients; 4 occurred in the other series, one from hemorrhage, one from toxemia, one from perforation and one from pulmonary thrombosis with necrosis of the whole left upper lobe of the lung. Headache, gastrointestinal symptoms and toxemia were far less frequent in the vaccinated series than in the other cases, and the absence of discomfort seemed striking, while convalescence was more rapid.

7. **Typhoid Fever.**—Sallom gives charts of the mortality curve of morbidity of 68,943 cases of typhoid observed in Philadelphia, from January, 1898, to June, 1909. Of this number 8,012 died, a mortality of slightly over 11.75 per cent. Mortality rises in February and March, falls in April and rises again in May, reaching its acme in July. It then falls again and rises toward October. The relationship of morbidity to mortality is striking. Morbidity reaches its lowest ebb in July, and is highest in September. The maximum of morbidity coincides with the minimum of mortality. The author believes that season has an important effect on mortality. With the maximum morbidity a minimum percentage of mortality is present, and vice versa, as morbidity falls mortality rises.

New York Medical Journal

October 8

- 8 Medical Photography. N. T. Beers, Brooklyn, N. Y.
- 9 Radiograms of Digestive Tract. L. G. Cole and M. Einhorn, New York City.
- 10 Intranasal Sarcoma. R. B. Scarlett, Philadelphia.
- 11 Bone Formation in the Mastoid Process. E. Amberg, Detroit.
- 12 The Doctor's Duty in Tuberculosis. J. Girdwood, Baltimore.
- 13 Inversion of the Puerperal Uterus. R. E. Davison, Pittsburg, Pa.
- 14 Retroversion of the Uterus. E. A. Schumann, Philadelphia.
- 15 Epidemics Among the Alaska Indians. S. A. Savitz, U. S. S. Gedney.
- 16 Alcohol and Its Relation to Legal Medicine. M. Keschner, New York City.
- 17 Plea for More Vigorous Campaign Against Malarial Fevers. G. E. Henson, Crescent City, Fla.

Boston Medical and Surgical Journal

October 6

- 18 Immunity with Special Reference to Vaccine Therapy. T. Leary, Boston.
- 19 *Types of Exophthalmic Goiter. J. G. Mumford, Boston.
- 20 Hysteria, with Necropsy. W. R. Woodbury and C. Reed, Boston.

19. **Exophthalmic Goiter.**—The first case reported by Mumford was that of a woman, aged 42. At the age of 37 she consulted her physician for what appeared to be a trifling heart lesion, for she found herself troubled with occasional dyspnea on exertion. Her physician discovered a slight mitral leak and some dilatation of the heart. Careful treatment and prolonged rest resulted in no benefit; gradually there developed further a constant distressing dyspepsia, pain and nausea after eating and a state of continual apprehension. These symptoms persisted for two years, when there developed further a mild, bilateral tremor of the fingers. At this stage she consulted Mumford and he suggested the diagnosis of exophthalmic goiter. Within a month there developed a series of characteristic symptoms: the thyroid became enlarged, with a typical thrill; the eyes gradually became prominent, with lagging of both lids and widening of the palpebral fissure; and the tachycardia became pronounced, the rate of the heart ranging between 110 and 130. Mumford instituted the use of hydrobromate of quinin, neutral, in 5-grain capsules, 3 times a day, and continued the medication without intermission for 15 months. During the early months of treatment the patient experienced great relief.

Twelve months after the beginning of the quinin treatment, through the accident of a serious grief, all her discomforts reappeared; the eyes became prominent and anxious, with their associated abnormal lid phenomena; her tachycardia returned; the heart became irregular; dyspnea became extreme; she was troubled with a constant diarrhea and distaste for food; profuse sweating became pronounced; the tremor returned in force; and the right lobe of the thyroid rapidly doubled in size. Thyroidectomy was done, and 8 months after the operation the patient appeared to be well, except for a slight exophthalmus.

The second patient, a vigorous young woman, of active habits, about 32 years of age, and the mother of 4 children, suddenly became extremely nervous; within a week she took on symptoms that suggested to her physician a rapid neurotic breakdown; she was sleepless, fretful, irritable and almost impossible to live with, as her friends asserted. Within a week after the surprising development of these symptoms her physician discovered a marked tumor of the thyroid gland. There was no other evidence of hyperthyroidism, with the

exception of the nervousness; there was no exophthalmos, no tachycardia or palpitation, no tremor, no digestive disturbance, no sweating; in fact, the diagnosis was founded almost solely on the nervousness and the rapidly enlarging thyroid.

This patient's physician, Mumford states, had the courage of his convictions, and his convictions were sound and accurate. Without stopping to employ drugs, and without waiting to see the development of the case, he proceeded at once to a surgical operation, and his activity seems to have been justified by the results. He removed the whole of the left lobe of the thyroid, leaving, however, the isthmus, with a considerable pyramidal lobe, and the whole of the right lobe. The lobe removed was the most affected; those parts which were left seemed to be but slightly hypertrophied. The patient promptly recovered from the operation and regained her normal health. Her symptoms of hyperthyroidism gradually returned after a year and became more settled and more pronounced than before. A second operation was decided on. Every reasonable operative precaution was taken to avoid increasing the hyperthyroidism. The operation occupied about 35 minutes and was extremely tedious, but the patient bore it well. Trouble began immediately after the patient was put to bed, however; she sank rapidly and died of acute hyperthyroidism about 36 hours after the operation.

Lancet-Clinic, Cincinnati

October

- 21 *Surgery of the Great Sciatic Nerve. B. M. Ricketts, Cincinnati.
 - 22 Erysipelas as a Complication of Mastoid Disease. J. A. Stucky, Lexington, Ky.
 - 23 What! Not Blind Yet? G. M. Gould, Ithaca, N. Y.
21. Abstracted in THE JOURNAL, Oct. 1, 1910, p. 1220.

American Journal of Medical Sciences, New York

October

- 24 *Dilatation of the Aorta. T. McCrae, Baltimore, Md.
- 25 *Heart Block with an Indication of Genuine Hemisystole. A. Stengel and W. Pepper, Philadelphia.
- 26 *Treatment of Aneurysm of the Aorta. A. A. Eshner, Philadelphia.
- 27 *Orthodiagraphy in Pathologic Conditions of the Heart and Aorta. T. A. Clayton and W. H. Merrill, Washington, D. C.
- 28 *Etiology of Subacute Infective Endocarditis. E. Libman and H. L. Celler, New York.
- 29 Syphilitic Febrile Pylephlebitis. A. R. Edwards, Chicago.
- 30 Treatment of Cardiospasm and Idiopathic Dilatation of the Esophagus. M. Eibhorn, New York.
- 31 *Medical Uses of Rectal Infusions. H. Sewall, Denver.
- 32 *Roentgen-Ray Treatment of Status Lymphaticus. B. K. Rachford, Cincinnati.
- 33 *Splenomegaly Associated with Marked Anemia of the Pernicious Type. R. D. Rudolph and C. E. Cole, Toronto, Canada.
- 34 *Spinal Cord Lesions in Two Cases of Pernicious Anemia. C. N. B. Camac and L. S. Milne, New York.

24. **Dilatation of the Aorta.**—McCrae claims that dilatation of the aorta, considered apart from aneurysm, is relatively common and probably occurs more frequently than aneurysm. Two main etiologic factors stand out: (a) acute infections, notably rheumatic fever, and (b) those which cause general sclerotic changes. The symptoms often suggest disease of the heart itself. The physical signs are often very definite, of which visible pulsations in the upper interspaces, dullness over the upper sternum and adjoining interspaces, and the fluoroscopic examinations are the most important. Pressure signs are comparatively common, but are rarely severe. The diagnosis, as a rule, can be readily made from aneurysm. The outlook as regards dilatation is good.

25. **Heart-Block.**—The case of heart-block which furnished the basis for the observations made by Stengel and Pepper is said not to have been of such exceptional character that a separate publication of the clinical features would be of value, but the numerous tracings which were obtained furnished some interesting information and one of these proved of unusual importance in throwing some light on the possibility of true hemisystole. Although for a time complete heart-block existed and later partial heart-block, during the patient's stay in the hospital no Stokes-Adams syndrome

was present. The complete block, after the administration of atropin, promptly changed to an incomplete block with a 3 to 1 rhythm, then to a 2 to 1 rhythm, and later to a normal rhythm. The 2 to 1 rhythm and the normal rhythm for a time alternated one with the other, and a number of tracings were obtained showing this change while the tracings were actually being made. It furnished indications of genuine hemisystole during the transition of the normal rhythm to a 2 to 1 rhythm. From this same tracing it could be demonstrated that the origin of the *c* wave is the right ventricular contraction, rather than the carotid pulsation. The *a-c* interval is longer in such cases as this during normal rhythm, while it may be normal in length during partial block. The auricular rate becomes faster when the normal rhythm changes to a 2 to 1 rhythm, and slower when the opposite change occurs.

In attempting to determine the cause of greater auricular rate during 2 to 1 or 3 to 1 rhythm than when no dissociation existed, it occurred to the authors as reasonable that the interference with auricular outflow, which is present at each alternate or third auricular contraction, would necessarily leave the auricle relatively unemptied and would thus occasion an earlier stimulus to contraction, which would result in a more rapid rate. When a change from normal to 2 to 1 rhythm occurs the quickening of auricular rate is less prompt than is the showing when a 2 to 1 rhythm changes to the normal. An explanation for this circumstance may be found in the fact that resumption of normal rhythm after a 2 to 1 rhythm at once relieves the auricle of back pressure and the consequent stimulus to increased rate. Such a sudden relief is followed by prompt re-adjustment of auricular activity, whereas the effect of the change from normal to a 2 to 1 rhythm and the consequent gradual overfilling of ventricle and auricle would be met by a slower response. In this case, during the time of complete block, the ventricle rhythm was not at all times regular, although the ventricle usually contracted about 20 times to the minute, or about every three seconds; at other times there were irregular pauses, the longest being 5.4 seconds. There were, however, no extrasystoles at any time. It is known from physiologic experiment that, owing to poorly developed or retained independent rhythmicity, a portion of the ventricle, as, for example, the severed apex of the ventricle, tends to cease contracting after a time and will resume regular contractions only after an external stimulation. It is possible, therefore, that the continued action of the ventricle sometimes for long periods and despite occasional long pauses in cases of complete block may be due to the stimulus of distention with blood resulting from the continued auricular action.

26. **Aneurysm of the Aorta.**—Eshner concludes that aneurysm of the aorta is essentially a fatal disorder, although exceptionally spontaneous cure takes place. Accordingly, treatment can, as a rule, be only palliative, relieving symptoms and prolonging life. Deligation is inapplicable from anatomic considerations. Rest, ergot, iodids, gelatin, calcium chlorid, adrenalin chlorid, and introduction of foreign substances, with or without the passage of a galvanic current, have been employed. Horsehair, catgut, needles, watchspring and wire of various kinds have been introduced, with varying results, and a galvanic curve has been passed through conducting substances. Wiring with electrolysis has been employed in a moderate number of instances, with satisfactory results in the majority. The procedure has proved simple and safe, but it is applicable only to sacculated and not to fusiform aneurysms.

27. **Orthodiagraphy.**—According to Clayton and Merrill the orthodiagraph is of real value to the clinician, and as it becomes more commonly used we may be able to formulate some useful facts which as yet it is unwise to attempt. The instrument is by no means necessary in all cases, but may be an aid to diagnosis in many more or less obscure pathologic conditions of the heart and aorta.

28. Abstracted in *THE JOURNAL*, May 28, 1910, p. 1806.

31. **Medical Uses of Rectal Infusions.**—Sewall believes that it must be admitted that the favorable results accompanying the use of proctoclysis in appropriate medical cases indicate that this method of quasi-internal hydrotherapy deserves such a thoroughly detailed study as will accurately establish its indications and limitations in medical therapeutics.

32. **Status Lymphaticus.**—A study of the two cases mentioned by Rachford indicate that the disappearance of the lymphocytosis under the roentgen-ray treatment of the thymus in status lymphaticus is so marked that a careful study of the blood state in this condition will give important information not only as to the efficacy of the treatment, but as to the length of time this treatment should be continued. It will be wise, perhaps, to discontinue treatment when the lymphocytosis disappears, even though there still be left some cough and stridor. The chloro-anemia which is not improved under the roentgen-ray treatment may be aggravated if it be continued too long. Following the roentgen-ray treatment in these cases, hypodermic injections of iron, with careful feeding and fresh air, may be necessary to restore the blood state to a normal condition. In both of the cases here reported slight cough and stridor were present when the roentgen-ray treatments were discontinued, but disappeared entirely a few weeks later.

In the roentgen-ray treatment of status lymphaticus in infants and young children, although no portion of the body is exposed to the influence of the rays except that which directly holds the thymus, there are the following results of this treatment:

1. The hyperplastic thymus decreases in size and the cough, stridor and asthma disappear.
2. The enlarged spleen and lymph nodes decrease in size.
3. The exhaustion and general feebleness of constitution gives place to normal conditions of health and strength, and physical and intellectual growth are greatly stimulated.
4. There is rapid disappearance of the marked lymphocytosis which characterizes this disease.
5. Excessive physiologic action of the thymus gland is controlled.

The slight return of the symptoms, stridor, cough, etc., at intervals of three or four months in one of the cases, and the quick control of these symptoms by one or two exposures to the roentgen-ray, indicate that the gradual regeneration of the thymus following the roentgen-ray treatment may be accomplished by a gradual reproduction of the same pathologic conditions, hypersecretion, etc., which were present before the treatment was begun.

33. **Splenomegaly.**—The blood-picture in the case suggested a diagnosis of pernicious anemia; the marked number of nucleated red cells (13,000), and especially the great proportion of megaloblasts (29 per cent.), making it probable that it was the plastic form of this disease. The splenomegaly present, although being unusual in pernicious anemia, would by no means exclude it, as cases are on record in which the spleen was quite large and in which the disease was undoubtedly of the pernicious type. Osler records such a case, which was at first taken to be one of splenic anemia, but subsequently came to necropsy and proved to be one of pernicious anemia, and in something like 1 per cent. of all cases of pernicious anemia the spleen is so large as to reach to the umbilicus. But assuming that the case be one of pernicious anemia, even then it presents several most unusual features. In the first place the disease commenced at the age of 8 years, if not earlier, which is very unusual. Again, it has lasted for at least 20 years, and the patient is still in comparatively good health; and yet the longest cases recorded, apart from 6 cases of apparent recovery, only lasted between 14 and 15 years. Further, according to the patient's history, he was so well between the ages of 14 and 28 that he was never laid up nor did he require any medical advice, that is, he seemed to have a remission of 14 years, and yet the longest recorded remission from prostrating symptoms on record is 6 years, although McPhedran recently reported a case in which there was a remission for 17 years.

As regards splenic anemia, the enormous size of the spleen with the marked anemia and anormal differential white blood-count would superficially suggest such a diagnosis, but

the very profoundness of the anemia would be against this conclusion, and further, the fact that the anemia was always of the pernicious form with a high color index would seem to exclude this diagnosis. Other forms of splenomegaly with anemia, such as congenital syphilis, tumor, malaria, and even a possibility of filaria were all carefully weighed and excluded. The case would appear to be one either of pernicious anemia of an exceptionally prolonged type, commencing at an exceptionally early age, and associated with an exceptionally large spleen, or one of splenic anemia with an exceptional blood-picture.

34. **Cord Lesions in Pernicious Anemia.**—These two cases illustrate two of the types of nervous-system involvement occurring in the course of pernicious anemia. In the first case, which had the longest and more pronounced history of anemia, the nervous symptoms were at a minimum and the posterior columns of the cord, particularly in the cervical region, alone showed degeneration, characteristically patchy in distribution. In the second case, the nervous involvement, particularly in the later stages, overshadowed the anemia. Here the spinal cord presented very extensive, yet incomplete degeneration with slight replacement gliosis in the posterior columns, and also a similarly irregular but more diffuse degeneration in the lateral tracts, which, however, was a rather less complete and apparently somewhat more recent process.

Woman's Medical Journal, Cincinnati

September

- 35 Diabetes Mellitus. L. L. Gannett, Adams, N. Y.
- 36 Athletics in Our Schools and Colleges. A. Camp, White Plains, N. Y.
- 37 Prenatal Influences. J. G. Wildman, Toronto, Canada.

Atlanta Journal-Record of Medicine

September

- 38 Early Diagnosis of Peritonitis. R. M. Harbin, Rome, Ga.
- 39 Practical Aids in Medical and Surgical Diagnosis. L. M. Gaines, Atlanta, Ga.
- 40 Chronic Non-Gonorrhoeal Infections of the Prostate. E. G. Ballenger, Atlanta, Ga.
- 41 Hypertrophied Tonsils and Adenoids an Etiologic Factor in Backward Children. G. H. Cooper, Opelika, Ala.
- 42 Considerations in Surgical Convalescence. H. P. Cole, Mobile, Ala.
- 43 Nature of Neurasthenia. T. A. Williams, Washington, D. C.

Journal of the Michigan State Medical Society, Battle Creek

October

- 44 *Medical Organization, Education and Legislation in Michigan. J. H. Carstens, Detroit.
- 45 The Profession of Medicine. E. T. Abrams, Dollar Bay.
- 46 *Incontinence Following Rectal Operations. L. J. Hirschman, Detroit.
- 47 Gynecology. R. R. Smith, Grand Rapids.
- 48 Tuberculin: Its Value in the Diagnosis and Treatment of Tuberculosis. L. W. Howe, Coldwater.
- 49 Distressing Bladder Symptoms. F. W. Robbins, Detroit.
- 50 *Varicose Ulcers of the Leg. D. W. Roos, Manistique.

44. Abstract of this appears in department of society proceedings this issue.

46. **Fecal Incontinence.**—Hirschman says that if one is familiar with the anatomy of the sphincter muscles, avoids the use of the actual cautery or the injection of escharotics, is careful not to injure the muscular layers of the bowel in excising hemorrhoids, incises the sphincters at right angles in excising fissures or fistulas, and uses common sense in his after-care—avoiding packing and using drainage—there is no reason why incontinence of feces should ever be held up as a reproach to those who are doing honest and conscientious work in rectal surgery.

50. **Varicose Ulcers.**—The formula most frequently used by Roos in the treatment of these ulcers is the following:

R		gm. or e.c.
Gelatin	ʒi	30
Zinc oxid	ʒss	15
Glycerin	ʒxlv	55
Water	ʒiij	90

Mix and prepare over a vapor or hot-water bath.

The amount of any of these ingredients may be varied, the other medicants, such as ichthyol or boric acid, may be added. This is spread, while quite warm, over the entire surface of the cleansed and disinfected leg by means of a brush. When the paste begins to harden, a muslin bandage is placed around the leg, and a second coating applied, and this is fol-

lowed by a second muslin bandage. A window must then be cut through the dressing directly over the ulcer, through which dusting powder and absorbent material may be applied daily. This dressing may remain for from 3 to 7 days and is easily removed with hot water. Later, it may remain 2, 3 and even 4 weeks. It exerts a gentle elastic pressure, and is much more comfortable than an elastic bandage or stocking. Roos says that this dressing will also be found of good value as a prophylactic during pregnancy, when these veins sometimes become engorged and extremely painful.

Quarterly Bulletin of Northwestern University Medical School,
Chicago

September

- 51 Old World Uncinariasis. A. A. Goldsmith, Chicago.
- 52 Experimental Blastomycosis. P. D. Gutierrez, Chicago.
- 53 Subcutaneous Traumatic Rupture of the Liver. E. C. Riebel, Chicago.
- 54 Blood-Vessel Surgery. V. D. Lespinasse, Chicago.
- 55 The Teaching of Infant Feeding. I. A. Abt, Chicago.
- 56 Desmoid Test in Gastric Disturbances. L. J. Osgood, Chicago.
- 57 Congenital Hydronephrosis. C. Smith, Spokane, Wash.

Maryland Medical Journal, Baltimore

October

- 58 The General Practitioner Then and Now. F. R. Smith, Baltimore.
- 59 *Value of Employment of Patients in State Hospitals. R. P. Winterode, Catonsville.
- 60 Benjamin Rush and Early American Medicine. H. M. Cohen, Baltimore.

59. **Employment of Patients.**—Winterode in summarizing his paper states that the remedial benefit from a therapeutic standpoint is as follows:

To the Curable Cases.—When instituted in the incipency of psychoses it offers an opportunity for early mental restitution, thereby affording facilities for the treatment of new cases.

To the Incurable Cases.—It is a means of re-education, transforming those of filthy and vicious habits with destructive inclinations into tidy, contented and useful members of the household.

To Alcoholic Psychoses and Drug Habitués.—It acts as a prophylactic, lessening the predisposition to relapse by creating new habits, instruction in new vocations, which will encourage inclination along different paths having more favorable environments and different associates.

Farm Colony.—It relieves congestion, admitting of classification, with home environments and greater amount of freedom.

Economic Value.—This consists in utilization of products in the hospital, manufacture of which has been the means of restoring the patients to health. The saving is in cost of furniture, clothes and other articles which may be destroyed; also in extra supervision of patients to prevent assaults, to say nothing of the quantities of hypnotics which would be necessary were they not kept busy.

Cooperation of state industries, Winterode says, provides a market free from competition with organized labor; produces, by means of the hospital, articles cheaper and better suited for their needs at sufficient profit than can be purchased on the open market; encourages development of other industries, and also acts as an incentive to instruct patients in skilled labor, which will come in good stead when discharged. This will take place as follows:

To the State.—Relief of burden of taxation, the necessary consequence were they to become charges for life.

Farm Colony.—The most economical plan of caring for the insane, with rational reduction of accommodations as well as maintenance, without reducing essential comforts.

Ethical Value.—Placing in homelike surroundings, with supervision, where pernicious habits are corrected, provides a disciplinary agent and reorganizes habits, or, in other words, prepares the individual for competition with his fellow-men.

Journal of the Tennessee State Medical Association, Nashville

September

- 61 *Treatment of Salpingitis. J. H. Carter, Memphis.
- 62 Surgical Aspect of Epilepsy. G. G. Buford, Memphis.
- 63 Treatment of Acute Ailments in Persons Addicted to the Habitual Use of Narcotic Drugs. G. E. Pottet, Memphis.

61. Abstracted in THE JOURNAL, April 30, 1910, p. 1467.

United States Naval Bulletin, Washington, D. C.

October

- 64 *Insanity in the Navy. H. Butts, U. S. Navy.
- 65 Presence and Prevalence of *Necator Americanus* in Samoa. P. S. Rossiter, U. S. Navy.
- 66 Problems of Sanitation in Landing and Expeditionary Service in Tropical and Subtropical Regions. Translation P. J. Waldner, U. S. Navy.
- 67 *Helminthologic Technic. P. E. Garrison, U. S. Navy.
- 68 Improved Incubator for Ships. L. W. McGuire, U. S. Navy.
- 69 An Efficient Rat-Killing Device for Use on Board Ship. F. M. Munson, U. S. Navy.

64. **Insanity in the Navy.**—In the Government Hospital for the Insane, Washington, D. C., are gathered together more than 2,900 mental and nervous bankrupts. During the period January 1, 1899, to June 1, 1910, Butts found that there were 634 admissions of insane men of the Navy and Marine Corps to this institution. Of this number, 34 have been readmissions and 72 have been retired officers, naval beneficiaries, and supernumeraries who could not properly be considered in the same statistical tables with those men who just prior to their admission into the hospital were performing active service in the Navy or Marine Corps. There remain then 528 cases of insanity from the active lists of the service during the period named which have on one or more occasions been admitted to the hospital. The conspicuous features of Butts' study are the large number of recoveries—49.24 per cent.—and the very small number of deaths—6.64 per cent. He found also that 67.24 per cent. of the insanity of the navy occurs in men under the age of 30.

Of the foreign-born, Ireland has furnished a conspicuously large number of insane men, while her average annual percentage of enlistments has been relatively small, the ratio being 7.95 per cent. insane men to 1.91 per cent. enlistments. Germany, on the other hand, has furnished a much larger average annual percentage of enlisted men than any other foreign country, and a relatively small percentage of those men have become insane—very much smaller than Ireland—the ratio being 2.65 per cent. insane men to 2.22 per cent. enlistments. The Government Hospital for the Insane was opened in 1855; from that date up to and including June 30, 1909, there have been admitted into the institution 5,865 foreign-born insane patients. Of this number 2,282 were born in Ireland and 1,614 were born in Germany. Only one insane Filipino, a musician, has thus far found his way into the hospital. Next in importance to alcohol, had heredity and syphilis, heat or sunstroke, seems to have been the most frequent etiologic factors.

From his examination of the insane men of the Navy and Marine Corps now undergoing treatment at the Government Hospital for the Insane, and the case records of those who have been discharged from the hospital, Butts has been impressed with the great desirability of inquiring into the family and personal histories of candidates of enlistment before accepting them as recruits. He feels sure that if more care were exercised in this respect by recruiting officers that an immense amount of money could be saved the department, as well as extra work for other medical officers, and there would be great diminution in the number of admissions of insane men of the Navy into hospitals for their care.

67. **Helminthologic Technic.**—The essential steps of the methods employed by the U. S. Naval Medical School Laboratories in the collecting, killing, preserving, clearing, staining, mounting, and sectioning of flatworms, roundworms, and ova, respectively, are given by Garrison as follows:

Collecting: Wash in warm water, or, preferably, salt solution; in case of ova wash thoroughly by repeated sedimentations in water.

Killing: Flatworms.—Kill in following solution: Saturated aqueous solution of bichlorid of mercury, 70 per cent. alcohol, equal parts; mix and add 1 per cent. glacial acetic acid; use heated to about 70 C.; wash in running water; remove residue of bichlorid with iodine alcohol.

Roundworms.—Kill in 70 per cent. alcohol heated to about 80 C. Allow to cool.

Ova.—Kill as for roundworms, or add 5 per cent. formalin.

Preserving: Transfer to 70 per cent. alcohol—5 per cent. glycerin mixture. (Except formalized ova.)

Clearing Without Staining: Roundworms and Ova.—Clear on the slide with caustic-potash solution (30 per cent.) or with glycerin, or first with the caustic, followed by glycerin. Clear in bulk by allowing the alcohol to evaporate from a glycerin-alcohol mixture, leaving sufficient glycerin to cover the specimen.

Flatworms.—May be treated as for roundworms, but are usually stained (q. v.).

Mounting from Glycerin: Either mount directly in glycerin, ringing cover glass heavily with cement or balsam or (for more durable preparations) transfer to glycerin jelly, mount, and ring cover glass.

Staining and Mounting in Toto: Flatworms.—Flatten between two slides held by a rubber band and stain in carmine from one or two to twenty-four hours or longer. Remove from between slides and decolorize in alcohol or in acid alcohol, watching progress of decolorization under microscope. Replace between slides and pass through dehydrating alcohols to xylol and mount in balsam. (If aqueous carmin is used the specimen need not be compressed until after decolorization.)

Roundworms and Ova.—Little or nothing can be gained by attempting to stain ova or roundworms except when the latter are first sectioned.

Sections: Flatworms.—Usually stained in bulk before sectioning. Dehydrate, clear, and imbed in paraffin, carefully orienting the specimen. Cut sections thick.

Roundworms:—Sections seldom needed. Cut worm in pieces to allow fluid to penetrate from the ends. Impregnate thoroughly with a hard paraffin. Cut thick sections and stain on the slide in alcoholic carmin.

Wisconsin Medical Journal, Milwaukee

September

- 70 *The Wassermann Reaction in the Pathology, Diagnosis and Treatment of Syphilis. R. M. Pearce, New York.
71 The Wassermann Reaction. C. A. Baer, Milwaukee.
72 *Prophylactic Measures in Development of Insanity. A. W. Rogers, Oconomowoc, Wis.
73 Dermatitis of Unusual External Origin. O. H. Foerster, Milwaukee.

70, 72. Abstracted in THE JOURNAL, July 23, 1910, pp. 343 and 344.

Military Surgeon, Washington, D. C.

October

- 74 *Camps of Instruction for Militia Medical Officers in 1909. G. S. Crampton, National Guard Pennsylvania.
75 House Construction in the Tropics. H. H. Rutherford, U. S. Army.
76 Mathematics and Medicine. L. C. Duncan, U. S. Army.
77 The Red Cross First-Aid Corps. G. M. Bloch, Chicago.
78 Infection of Southern Recruits with Intestinal Nematodes. A. G. Love, U. S. Army.
79 Venomous Snakes of the United States, Their Bites and Treatment. W. C. Lyon, U. S. Army.
80 Catatonic Dementia Praecox, and Its Economic Importance to the Naval Service and the Government. H. Butts, U. S. Navy.
81 *A Freezing Microtome. N. Roberts, Washington, D. C.
82 Variola Hemorrhagica. R. E. Ebersole, Washington, D. C.
83 Medical Conditions in Liberia. P. M. Ashburn, U. S. Army.
84 The Private Sanitary Filipino Scouts. E. L. Ruffner, U. S. Army.

74. Abstracted in THE JOURNAL, Nov. 13, 1909, p. 1683.

81. **Freezing Microtome.**—The apparatus described by Roberts is identical in principle with the ordinary carbon dioxide operated freezing microtome, except that the cold is applied by a slow current of brine at a minimum temperature of about 12 C. instead of by a rapid current of carbon dioxide gas at 30 C. or lower. In fact, with a few easily made alterations, the same instrument might be used for carbon dioxide and brine alternately. The brine is usually made by the interaction of fine ice and salt in a slightly elevated reservoir, and is run into and away from the microtome by rubber or metal tubing. The flow is regulated by a cock of some sort; a brass stop-cock mounted on the base of the instrument is best, but a simple screw-cock compressing the rubber tubing answers every purpose. To secure an even distribution of the cold, the brine, on entering the drum of the instrument, should first strike the center of the freezing plate and then radiate equally in all directions and be drained off below. This is brought about without difficulty by a suitable arrangement of entrance and exit tubes and a baffle plate. The advantages of this apparatus are said to be: simplicity, cheapness in the first cost and operation, wide availability (it can be used wherever ice and salt are to be had), and rapidity combined with great steadiness and regularity of operation, due to the high capacity for heat of the brine as compared with that of the gases used in other forms. Moreover, the brine can easily be prepared of any temperature desired down to -12 C., which is plenty low enough, and maintained at exactly the desired temperature. The freezing being under perfect control, much better sections can be cut than with carbon dioxide freezing, where the temperature and rate of flow of the freezing medium are subject to wide and only partially controllable variations.

American Journal of Physiology, Boston

October

- 85 Preparation and Properties of Thrombin. W. H. Howell, Baltimore.
86 Latency of Knee-Jerk Response in Man. C. D. Snyder, Baltimore.

Journal of the Medical Society of New Jersey, Orange

October

- 87 *Personal Experiences in Renal Surgery. G. N. J. Sommer, Trenton, N. J.
88 *Stomach Surgery. E. Stachlin, Newark.

87. **Renal Surgery.**—Briefly, Sommer's cases were as follows: Case 1.—Abdominal section and drainage for tumor in lower abdomen mistaken for mesenteric cyst. Second abdom-

inal operation and removal of an ectopic kidney. Recovery. Case 2.—Acute septic infarction of the kidney; nephrectomy. Recovery. Case 3.—Acute infection in hydronephrosis; nephrectomy. Recovery. Case 4.—Chronic pyonephrosis; nephrectomy. Recovery. Case 5.—Hypernephroma; nephrectomy. Recovery from operation; death later from recurrence. Case 6.—Carcinoma; nephrectomy and appendectomy; operative recovery. Death from recurrence later. Case 7.—Stone in the pelvis of the kidney; pyelotomy. Recovery. Case 8.—Calculus in pelvis of the kidney; pyelotomy. Recovery. Case 9.—Calculus in hydronephrosis; nephrectomy. Recovery. Case 10.—Calculus pyonephrosis; nephrectomy. Recovery.

The skin preparation of these patients has been of two kinds, the first being the usual hot water and soap, alcohol and 1 to 1,000 solution of biclorid; the second, the iodine method, which consisted in painting the operative area with an 8 per cent. solution of iodine crystals in 95 per cent. alcohol. This is applied twice just before operation and covered with a sterile dressing. Both methods have been satisfactory. The kidney has usually been exposed by an incision beginning at the outer border of the erector spinae muscle, 2 c. m. below the last rib. It runs downward and forward parallel with the last rib toward the inner side of the anterior superior spine of the ilium. If necessary to secure room the incision is made to the outer border of the rectus. The perirenal fat is torn through or removed with the diseased organ when necessary, as in malignant disease or severe perinephritis.

In removal of the kidney the ureter is tied off as low down as possible with chromic catgut and the stump sterilized with carbolic acid and alcohol. The vessels are usually tied with silk. When the pelvis of the kidney has been opened the wound has usually been closed with plain catgut interrupted sutures and a cigarette drain placed down to the suture line. No leakage has been noted in cases in which this was done. In nephrectomy the wound has usually been drained with gauze or rubber tubes. The wound is closed with chromic catgut for the deep layer and interrupted silkworm gut sutures which are removed on the tenth day. The drain comes out on the third day and is not replaced. The patient is usually permitted to drink freely of water after the operation, and when the urinary secretion is deficient, spartein sulphate, 2 grains hypodermically, is given every 3 hours.

88. Abstracted in THE JOURNAL, Aug. 6, 1910, p. 527.

Medical Fortnightly, St. Louis

September 26

- 89 The Owen Bill for Establishment of a Federal Department of Health, and Its Opponents. S. A. Knopf, New York City.
90 Alterations in Stools as Indications for Change of Food in Infants. J. Zaborsky, St. Louis.
91 Stenography for Physicians and Nurses. A. L. Benedict, Buffalo, N. Y.

American Medicine, Burlington, Vt.

September

- 92 Treatment of Flat-Foot. R. E. Soule, New York City.
93 *Relation of Nasal Disease to Hay Fever and Asthma. C. G. Crane, Brooklyn, N. Y.
94 *Administration of the Public Health. D. E. Hoag, New York City.
95 Friedreich's Ataxia in a Child Five and a Half Years of Age. M. Neustaedter, New York City.
96 The Medical Library and Its Influence on Medical Culture and Remuneration. B. Holmes, Chicago.
97 Rheumatism—Its Symptoms and Differential Diagnosis. S. V. Haas, New York.

93. **Relation of Nasal Disease to Hay Fever and Asthma.**—Crane reports five cases which he believes support his view that hay fever and asthma are reflex neuroses caused in many instances by nasal disease. Therefore treatment of the nasal condition is indicated.

94. **Administration of the Public Health.**—The establishment of bureaus of health is advocated by Hoag. He would have each bureau with its own building and its corps of physicians be the administrative health bureau for the particular neighborhood in which it was located. One or more experienced physicians would be in charge with a dozen or more assistants according to the needs of the locality. These would all be under municipal pay, as the whole system would be under the municipal control and supported from the city's funds.

The duties of the assistant municipal physicians would be to visit from time to time, daily or tri-weekly, every family within their district, attend cases of illness when needed, advise regarding sanitation and infection, and report cases of violation of law. Conditions and circumstances or cases of illness which they were incompetent to handle would be reported to their superior officers, whose duty it would then be to direct and take charge of them. A system of promotion according to time of service and ability would also be a part of the system. The admission into the ranks of the physicians attached to the Bureau of Public Health would be by competitive examination.

The whole system would be a valuable clinic for the physician before entering private practice, for he would get actual experience in visiting families in their homes which is never obtained either in the dispensary or the hospital. This would in nowise affect the private practitioner or his livelihood. There would always be a demand for the private physician by the better classes just as we have private tutors, although there is a public school system, or have private detective septic methods are concerned. Young physicians on graduating would elect whether they should wish to enter on private practice at once or enter the ranks of municipal health officers.

95. **Friedreich's Ataxia in a Child.**—A boy, aged 5½ years, family history negative as to tuberculosis, alcoholism or syphilis, born after normal labor, a breast-fed baby, was well nourished and robust up to the age of 3 years. At that time, vomiting without apparent cause at the rate of once in two or three months after drinking a cup of tea. Two and a half years ago his vomiting came on once every week, soon after rising in the morning, stomach being empty. After a few weeks the vomiting became more frequent, three times a week for two weeks, and then once every day, always in the morning soon after rising. This continued for six months, at the end of which time he was vomiting a few times a day. No medication could stop it. During these six months, the father noticed that his gait began to be slightly unsteady and that he could not run about as heretofore. During these six months he also complained of severe headache, then vomiting suddenly ceased and the headache left the patient when he was taken ill with fever which left him after three days, but he was unable to rise or walk without being supported, and that condition is present to-day. Six months after the onset of this fever he began to show an ataxia in the upper extremities which is fully developed to-day.

The musculature of the body is in a decidedly hypotonic state; patellar reflexes absent. Argyll-Robertson pupil present. The gait is that of typical tabes; speech is rather slow. Examination of the fundi of the eyes showed negative results. There is no nystagmus and hearing is normal. There is marked ataxia in the upper extremities; no disturbance of sensation, sphincters normal. The intelligence of the child is absolutely intact. Noguchi's modification of Wassermann's reaction of the blood is positive. The child is unable to walk or stand without being supported; deep muscular sense is gone; otherwise, he is doing very well.

Chicago Medical Recorder

September

- 98 Sterile Catgut. F. Kuhn, Kassel, Germany.
- 99 Management of the Sick-Room. G. F. Butler, Chicago.
- 100 Nose and Throat Disease a Contributory Cause of Pulmonary Tuberculosis. L. J. Lautenbach, Philadelphia.
- 101 Open Operative Treatment of Fractures of the Patella. A. P. Heineck, Chicago.

Archives of Ophthalmology, New York

September

- 102 Histologic Findings in a Case of Tuberculous Cyclitis, and a Theory as to the Origin of Tuberculous Scleritis and Keratitis. F. H. Verhoeff, Boston.
- 103 Glaucoma from Adhesion of the Lens Capsule to the Cornea. A. Knapp, New York City.
- 104 Optic-Nerve Diseases Due to Poisoning with Organic and Inorganic Arsenical Preparations. O. Schirmer, New York.
- 105 Implantation of a Metal Ball in Tenon's Capsule. W. M. Sweet, Philadelphia.
- 106 Tumor of the Adrenal Gland with Metastasis in the Orbit. A. Quackenbuss, Boston.
- 107 Hemeralopia. C. Hess, Würzburg.
- 108 Blood-Vessels of the Cornea. A. Brueckner, Würzburg, Germany.
- 109 Pathology of Vitreous Fibrils. R. Greeff, Berlin, Germany.
- 110 Traumatic Affections of the Orbit. F. Cause, Würzburg, Germany.

Monthly Cyclopedia and Medical Bulletin, Philadelphia

September

- 111 *Senile Epilepsy. E. D. Fisher, New York.
- 112 Autogenous Vaccines in Recurrent Abscess Formation. G. G. Ross, Philadelphia.
- 113 Etiology of Alcoholic Inebriety. L. D. Mason, Brooklyn, N. Y.
- 114 Preparatory Treatment of Surgical Patients. A. M. Crispin, New York City.

111. Abstracted in THE JOURNAL, May 28, 1910, p. 1811.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

September 2

- 1 Use and Abuse of Lime Salts in Health and Disease. J. Barr.
- 2 *A Curative Treatment of Cholera. H. Rogers.
- 3 Cholera. M. M. Basil.
- 4 *Diagnosis and Treatment of Syphilis. E. J. Feibes.
- 5 *Pityriasis Rubra Pilaris. J. G. Tomkinson.
- 6 Serodiagnosis of Syphilis. J. E. R. McDonagh.
- 7 Rice Diet in Acute Skin Diseases. L. D. Bulkley.
- 8 Treatment of Favus. J. F. H. Dally.
- 9 Varieties of Molluscum Contagiosum. P. S. Abraham.
- 10 Actinomycosis, with Special Reference to Treatment by Potassium Iodid. R. B. Wild.
- 11 Electrolysis for Hirsuties. W. Evans.
- 12 Pemphigus Vegetans. G. Pernot.
- 13 Investigation of a Dermatitis Among Flower-Pickers in the Selly Islands, the So-Called "Lily Rash." D. Walsh.
- 14 Paleogenesis. J. Hutelinson.
- 15 Treatment of Skin Diseases by Vaccine Therapy. J. L. Bunch.
- 16 *Cutaneous Diptheria. G. W. Dawson.
- 17 Solid Carbon Dioxid in Dermatology. E. R. Morton.
- 18 *Treatment of Roentgen-Ray Burns. A. Eddowes.
- 19 Human Trypanosomiasis. D. Bruce.
- 20 *Features of Tuberculosis in India. J. R. Roberts.
- 21 Leishmania Tropica or Oriental Sore in Cambay, India. R. Row.
- 22 "Tropical Broncho-Oidiosis." A. Castellani.
- 23 Special Factors Influencing the Suitability of Europeans for Life in the Tropics. R. H. Charles.
- 24 Serum Treatment of a Horse Suffering from Trypanosomiasis. A. Connal.
- 25 Lacto-Bacillin in the Treatment of Tropical Intestinal Ailments. J. Cautley.
- 26 Phlebotomus or Sandfly Fever. C. Birt.

2. **Treatment of Cholera.**—Feeling convinced that a careful study of the changes in the blood would yield valuable indications for treatment, Rogers has carried out a long series of researches on these lines, especially during the past three years. The first result was the reduction of the death-rate to barely one-half by the use of hypertonic saline intravenous injections in the collapse stage, and blood-pressure-raising measures as a preventative of later uremia. From 1895 to 1905, the death-rate was 59 per cent. In 1906, when normal salines were used intravenously, it fell slightly to 51 per cent., but on these being given up once more in 1907, as of little use, it rose again to 59.5 per cent. The hypertonic solutions were commenced early in 1908, and during two years' observations the mortality among 294 cases was only 32.6 per cent., or but little more than one-half the previous rate, thus affording conclusive evidence of the great life-saving value of the new method. However, an effectual cure of cholera is most likely to result from some simple method of destroying or rendering harmless the toxins within the bowel itself, thus preventing their absorption in fatal doses. Rogers therefore set to work to find such an agent of a non-poisonous nature, and this agent he believes to be permanganate salts. The permanganates are given in two different ways. First, in solution, to drink *ad libitum* in the place of water. Beginning with from one-half to one grain to the

pint, on account of the unpleasant astringent taste, the strength is rapidly increased up to from 4 to 6 grains in 1 pint, or even stronger if the patient will swallow it. Fortunately, in severe cases the thirst is so great that no difficulty is usually experienced in pushing the drug in this way. Vomiting may occur, but does no harm. On the contrary, it probably helps to remove some toxin. Calcium permanganate is the best salt for this purpose, Rogers believes, being somewhat less astringent than the potassium salt, while as it is divalent it will exert a greater oxidizing action. The calcium element may also possibly lessen the effusion through the bowel wall. The other method of administration is in pill form, for which purpose the potassium salt is more easily dispensed on account of the hygroscopic properties of the calcium and sodium compounds. The simplest method is to mix two grains of potassium permanganate with a little kaolin powder and vaselin, and make as small a pill as possible. It is then coated so as to dissolve only on reaching the alkaline small intestine, where its action is wanted. It is important to see that the pills dissolve readily as they sometimes become hard and inefficient after being kept some time, and may then pass through the bowel unchanged. Rogers now gives one pill every quarter of an hour for the first two hours, and then every half-hour until the stools are colored green and become less copious, which usually occurs in about twelve hours. In mild cases they need only be given during alternate four-hour periods. Barley water may also be administered to maintain the strength, as it is not readily acted on by the permanganates. At the beginning of the second day eight more pills are given, and in severe cases this is repeated on the third day in order to avoid relapses, which have occurred in three cases. They all promptly yielded to a renewal of the permanganate treatment, however, thus furnishing an additional reason for believing its action to be directly curative. The internal administration of permanganates in cholera for the purpose of destroying the specific toxins within the alimentary tract was commenced by Rogers in August, 1909. By the end of the year 17 cases, including 10 severe attacks requiring transfusion, had been treated, with only 1 death.

4. **Diagnosis and Treatment of Syphilis.**—For a thorough mercurialization, Feibes is of the opinion that the method of "Schmierkur" (rubbings) is the most efficient; with no other treatment, he says, can we so thoroughly regulate the admission of mercury; we can stop it at a moment's notice, and easily prevent the discomforts and dangers of acute mercurial poisoning. If for any reason the "Schmierkur" is inapplicable, injections of calomel may be recommended as being of equal value; their disadvantages are the painfulness, the risk of abscesses, and their dangers in cases of idiosyncrasy. They are undoubtedly of great efficacy, especially as regards producing an effect quickly.

5. **Pityriasis Rubra Pilaris.**—Sixteen years ago, after commencing work as a lithographic stone polisher, the palms of the patient's hands became red and thickened. Recently, follicular papules appeared on the proximal phalanges of the fingers of both hands, later on the middle phalanges of the third and fourth fingers, and subsequently on the back of the hands, affecting in the main the skin over the first, second and fifth metacarpal bones. Later, the fronts of the wrists, the outer aspects of the forearms, and the backs of the elbows became affected. On examination, in addition to the lesions already mentioned, isolated follicular papules were seen on the lower abdomen. Large horny, dark gray follicular papules were conspicuous over the dorsal convexity of the spine, extending laterally. In the summit of the intergluteal fold—namely, over the sacrum—the papules were closely aggregated, presenting a somewhat verrucose appearance, and a similar condition was present over both ischial tuberosities. The knees were similarly but not so markedly affected, and there were some hyperkeratoses where the boot is laced. The soles were erythematous, the neighborhood of the heels was markedly hyperkeratotic, as was also the center of the right sole. The forehead was slightly erythematous, but no scaling was observed. The upper half of the bridge of the nose showed telangiectases. A few comedones were present on

the face, and also on the back of the neck. The scalp was scaly but not markedly so. The affected areas of the hands, fingers, intergluteal fold, and ischial tuberosities were slightly but definitely erythematous, and there was a suspicion of erythema on the mid-dorsal region of the trunk. The erythema appeared to begin perifollicularly and spread laterally until neighboring specific centers of origin coalesced into one continued patch. The finger nails were longitudinally striated. The papules throughout are distinctly follicular and contain a central horny cone. According to the patient's story, the first evidence of the disease was on the palms after commencing work as a lithographic stone polisher. Tomkinson suggests that these clinical signs doubtless point to pressure as a determining or accessory agent in the development at least of some of the lesions in this and, perhaps, on closer observation, in other cases, but nothing more, otherwise pityriasis rubra pilaris could be by no means a rare affection. Doubtless the actual cause must be sought for internally.

16. **Cutaneous Diphtheria.**—Of the 10 recent cases Dawson has seen 4, and in 9 of them there was no membrane or other usual manifestation of diphtheria. All but 2 of these cases occurred in children; 4 of them ended fatally, 7 of them were of an impetiginous eczematous type, and in 3 of them there were vesicles and bullæ which gave rise to a profuse discharge. In 4 there was severe conjunctivitis, with copious serous and purulent discharge. The commonest and therefore most typical form occurs in children, and has the appearance of an impetiginous eczema, nearly always affecting the head and face, and associated with severe conjunctivitis, sometimes with otorrhea and rhinitis, the whole forming a clinical entity from which a diagnosis may be deducted with some degree of confidence.

18. **Treatment of Roentgen-Ray Burns.**—The chief object of Eddowes' paper is to call attention to an operation which he has introduced for the relief of bad cases in which painful ulceration has occurred and proved rebellious to ordinary treatment. Slight cases can be easily managed by the application of fomentations, lotions, and pastes of various kinds, and Unna's zinc-gelatin. For some of the chronic cases, particularly those commonly involving the backs of the hands in x-ray workers, he has found few remedies to equal compound tincture of benzoin. In severe cases in which there is pain, rigidity and ulceration, it sometimes happens that the ulcers heal but slowly, if they heal at all; and, if healed, easily break down again. In these cases Eddowes resorts to nerve section. He says that not only do incisions relieve pain and tension, and cure the ulcers, but they also, by bringing in extra new tissue, increase the mobility of the parts.

20. **Tuberculosis in India.**—Roberts attempts to show that tuberculosis manifests itself in India rather differently than in Europe, not at all in the tuberculous lesions of organs but in the beginning of the disease, and that it adds another prolonged fever to the many fevers encountered in that country. There are three forms in which early tuberculosis shows itself. They differ, curiously enough, and for some unexplainable reason, from the early signs seen here in Europe: (1) An acute febrile form resembling a typical typhoid, which Roberts calls "acute tuberculous fever," and encountered principally in young adults; (2) an irregular fever with enlargement of the cervical glands, the carotid chain, and those under the jaw, and seen principally among children; (3) a debility associated with dyspepsia and constipation, resembling tropical debility. Even here the thermometer shows afternoon or evening rises to about 100 F., very easily overlooked.

Lancet, London

September 24

- 27 Etiology and Treatment of Rheumatoid Arthritis. P. W. Latheau.
- 28 *Clinical Surgery in Japan. Y. Takaki.
- 29 Uterine Prolapse. J. B. Heller.
- 30 Bilateral Papilloedema and Ring Scotoma Due to Sphenoidal Sinusitis. C. G. B. Wood and G. F. C. Wallis.
- 31 Microscopic Diagnosis of Tumors at Time of Operation. E. H. Shaw.
- 32 *Pneumonia. W. E. McKechnie.
- 33 *Radical Cure of Hemorrhoids. J. O'Connor.
- 34 Malignant Diphtheria with Multiple Lesions in an Infant. J. D. Rolleston.

35 A Visit to Professor Treupel's Clinic; the Use of "606." J. G. Garson.

36 The Wandering Womb and Fumigation. D. McKenzie.

37 Motoring Notes. C. T. W. Hirsch.

28. **Clinical Surgery in Japan.**—The number of patients operated on by Takaki for hemorrhoids by the Whitehead method is 176—124 males and 52 females. They were all treated by the same method and completely cured, except in 7 cases—3 cases of stricture, 2 cases of ulcer on the mucous membrane, 1 case of paralysis of the sphincter, and 1 case of pulmonary embolism. Of 3 cases with stricture 2 were patients in the Charity Hospital. They left the hospital a few days after operation and did not return to the hospital for some time. So the stricture was due to the early discharge and their carelessness. The other case was due to the early opening of the bowels before the wound had had time to unite properly. Two cases of ulcer were due to leaving the mucous membrane too long, so that after the wound healed a portion of mucous membrane appeared outside the anus and the ulcer was formed by the rubbing of the trousers. This could have been prevented by removing the mucous membrane at the time of operation. One patient complained of the inability to retain the feces, especially when suffering from diarrhea. This patient had had prolapse of the rectum for 8 years and even before the operation he was unable to retain the feces. So Takaki does not consider this patient to have been paralyzed by the operation. Three of these operations were done under local anesthesia. Of course, it was more difficult owing to the rigidity of the sphincter, but it can be done without much pain. In one case of prolapse it was fairly easy.

Takaki treated 7 cases of carcinoma with thymus gland. For making the powder he used the fresh calf's thymus gland. It was dried under low temperature and ground into powder. It was given by the mouth and the doses were from 0.01 to 0.05 gram twice a day between meals. After a few trials it was Takaki's habit to give sodium sulphate combined with it. He says that it is wonderful how the pain disappears. The thymus powder seems to have some power of disintegrating the tissues of the malignant tumor by suppuration or necrotic changes. The size of the tumor was in one case diminished, and in two cases became smaller by disintegration. It seemed to retard the growth of the tumor. It has more effect on carcinoma than on sarcoma. Ludigestion is liable to occur.

32. **Pneumonia.**—It is McKechnie's practice to give morphin in the early stages of pneumonia if there is pain preventing sleep, or if there is much restlessness, or if the amplitude of the respiration appears to be sufficiently diminished to cause an accumulation of carbon dioxide. The diminution in amplitude of respiration is no doubt a protective process which gives rest to the inflamed lung. On the one hand, he says, we have the diseased lung for which rest and repair is the best thing; on the other hand, we have the patient, the owner of the lung, to whom a certain continued respiratory activity is essential. The physician must try to hold a judicious balance between these more or less temporarily conflicting interests, always remembering that he must ease the amount of physiologic work the lungs have to do as much as possible, and at the same time enable the patient to live over the crisis. The first dose of morphin McKechnie gives is usually 0.008 gm., and, he says, one seldom needs to give more than 0.016 gm. He invariably gives morphin hypodermically; as he considers this to be the only sound and safe way, as the effect of the dose becomes apparent in a few minutes and there is no danger of unabsorbed doses causing unexpected poisoning.

During the last ten years he has given morphin to between 200 and 300 adults suffering with acute lobar pneumonia, usually giving it during the first three days of the attack, most frequently on the evening of the first or second day. Out of all these cases he can not recollect a single instance in which there appeared to be any harmful effect. On the contrary, the benefits have usually been marked. The breathing becomes easier, the pain is relieved, the circulation improved, and the patient gets some of that rest and sleep which is such an important element in conserving the energy and in

diminishing the manufacture of carbon dioxide. The use of ice, hot compresses, poultices, etc., may be dispensed with, and the patient need no longer battle with a gigantic poultice on his already overtaxed and overheated chest; morphin relieves the pain and gives sleep far more efficiently. McKechnie's experience causes him to doubt the soundness of those warnings against the use of morphin which are indulged in at present. It seems to him probable that the fear of using morphin has been based on some unfortunate results, possibly really unconnected with its administration, perhaps due to its employment in an injudicious way, as, for instance, by oral administration.

33. **Radical Cure of Hemorrhoids.**—After proper preparation for the operation, about one minute is spent in placing four of Lane's artery forceps to the four cardinal points of the anal circle; these, irrespective of rugosities, are applied exactly at the junction of the mucous membrane and the skin. The forceps, say, on the north and east are seized, the intervening portion is rendered taut, and with a good scissors the mucodermal line is rapidly divided; the same process is repeated with the remaining three segments, and thus the circular dissection is effected. The depth of this primary cut includes skin and some subcutaneous tissue. In the next stage the left index finger is introduced into the anal canal to act as a guide, and the tissues are snipped carefully with scissors—right round and straight down to the submucosa; as the external sphincter comes into view it is pushed upward with a blunt dissector. This process of defining the submucosa and pushing the sphincter up out of harm's way must be carried out thoroughly all round, and on no account must any advance be made until the adit level is struck—the submucous coat. During this process of freeing the mucous cuff it is necessary to apply six or eight pressure forceps to the cut edge of the mucous membrane for traction purposes; the latter, by the way, must be done gently, for the forceps are liable to slip off or tear their way out. The cuff having been freed up to the transverse fold of the mucous membrane which indicates the site of the internal sphincter, a vertical slit is made in the former up to this point, and immediately the apex is sutured to the skin, a series of small transverse snips are then made through it at this level, and sutures applied. If any vessel spurts it is seized and ligated. When concluded the area of sutured circle ought not to exceed the size of a half dollar, unless there has been considerable previous prolapse. A morphin suppository is inserted, the part is thoroughly cleaned and dried, and a dry gauze sponge is applied and is kept in position by a pad of wool and a T-bandage. On the third evening 5 grains of calomel are given, followed by a tablespoonful of oil on the fourth morning. As often as the bowels act the dresser cleanses and dries the part, and reapplies dry gauze dressing. On the tenth day the patient is allowed out of bed and is discharged a few days later with a pot of carbolyzed petroleum, which he is instructed to apply into the rectum three times a week for a month.

38. This number is devoted exclusively to educational matters.

Medical Press and Circular, London

September 14

38 Educational Number.

September 21

39 Prognosis in Phthisis Pulmonalis. T. D. Lister.

40 Effect of Foodstuffs in Prevention of Dental Caries. J. S. Wallace.

41 Luxuries as Remedies in Cardiac Diseases. M. Herz.

42 Iodoform and Thyroidism. A. R. Short.

42. **Iodoform and Thyroidism.**—A middle-aged woman was treated for a carbuncle in the perineum, which was dressed by a medical practitioner and a nurse with very ordinary quantities of iodoform. During three weeks, about half an ounce of the powder was dusted on, and altogether about 40 inches of narrow iodoform gauze packing were used. The carbuncle healed well under this dressing. For weeks after the cessation of treatment she continually complained that she could smell and taste iodoform, though there was in reality none in the house. She went to the South of England to reconquer her strength three or four weeks later, and stayed ten days. On her return she was noticeably ill; there was great emaciation, she was nearly 28 pounds below her normal

weight, the pulse was always 120 or more, the thyroid was moderately enlarged, tremor was marked, and she was exceedingly nervous and restless. Short considered it a case of exophthalmic goiter. The onset of the present illness was in January, 1909. There has been very slow but decided improvement, and now, April 1910, she is almost well, but has to lead a very quiet life.

Short connects this case with the use of iodoform because the trouble followed soon after the application of the drug, although it was not diagnosed for about a month. She undoubtedly suffered from iodoform poisoning, because the smell haunted her long after the drug was omitted. Iodoform is proved to cause hyperthyroidism of the acute type, and it is therefore reasonable to suppose that in a susceptible person chronic thyroidism might be produced. Iodoform should be used sparingly on absorbing surfaces, especially in adults. It should be avoided if there is any reason to suspect a tendency to exophthalmic goiter. The treatment of early cases of parenchymatous goiter should be directed to altering the drinking water and to introducing iodine. It would appear, since iodoform causes thyroidism more readily than iodids, that iodine ought to be given to such patients in organic combination. In the treatment of exophthalmic goiter, iodine starvation should be worth a trial. This could be effected by a meat diet.

Clinical Journal, London

September 15

43 Pneumonia. J. Broadbent, and others.

September 21

44 Rectal Fistula. F. C. Wallis.

45 Early Diagnosis of Subacute Combined Degeneration of the Spinal Cord. E. F. Buzzard.

46 Diagnosis and Differential Diagnosis of the Pathologic Processes Causing Enlargement of the Kidney. C. G. Cumston, Boston.

Indian Medical Gazette, Calcutta

September

47 *Ipecacuanha Treatment of Acute Hepatitis. H. W. Pilgrim.

48 Id.—F. J. Drury.

49 Id.—J. T. Calvert.

50 Id.—A. H. Nott.

51 Effect of Ipecacuanha on the Leukocyte Curve in Amebic Hepatitis. E. D. W. Greig.

52 Report for 1909 of Medical College Hospital, Calcutta. F. J. Drury.

47. **Ipecacuanha Treatment of Acute Hepatitis.**—The treatment of the acute hepatitis preceding the formation of liver abscess is described by Pilgrim as follows: When not associated with loose stools and the bowels are inclined to be costive, a mild mercurial purge is first given; otherwise the ipecacuanha treatment is begun on the evening of admission or diagnosis of the disease. It is necessary that the patient should have nothing to eat or drink for at least two hours before or after the giving of ipecacuanha. Twenty minutes before taking the ipecacuanha, Pilgrim gives 20 grains of chloral, and then in average cases he gives 25 grains of ipecacuanha. In severe cases in which the full influence of the drug is immediately required, he gives 30 grains for the first 3 or 4 nights, after that reducing it to 25 and 20 grains gradually. He has occasionally given 40 grains, but he believes that this is seldom necessary, and the cases treated by him have responded very favorably to 30-grain doses and less. As a rule he finds one dose daily suffices, but in severe cases he does not hesitate to give it night and morning, and also in cases not apparently severe, but in which the leukocytosis does not rapidly reduce. The ipecacuanha is given in keratine capsules, 5 grains in each; given in capsules both the nausea and vomiting are greatly reduced. Many patients do not vomit at all, but only suffer for a short time from nausea, while some few are absolutely free from any unpleasant or abnormal sensation; it is all a question of whether the capsule breaks or comes undone before it has passed through the pylorus. After swallowing the ipecac, the patient is enjoined to lie absolutely still in bed, when under the influence of chloral, he usually soon drops to sleep, and if he wakes up 2 or 3 hours later, feeling uncomfortable, the drug will at all events have largely exerted its influence. Pilgrim thinks it a mistake to put on mustard plasters or other local applications to the stomach, which only attract attention to that

organ and interfere with the drowsy feeling which begins to steal over the patient ending soon in sleep. The daily dose of ipecac. is continued till the leukocytosis falls to 10,000 or less, and the temperature has become normal, and the pain or discomfort in the region of the liver has gone, this latter being among the first symptoms that disappear under this treatment. Then the ipecac. is continued for another week in daily doses of 20 grains, for by this time even in cases in which the drug has proved obnoxious, toleration is usually established, and the patient seeing the result obtained is seldom refractory. Other important accessories, such as diet and rest are very carefully arranged for. At the end of about two weeks such patients are allowed up, and after a few days are sent away cured for a change, and urgently advised never to touch alcohol in any form, no matter how moderately, so long as they have to reside in India.

Annales de Médecine et Chirurgie Infantiles, Paris

September 1, XIV, No. 17, pp. 521-548

53 Case of Epidemic Poliomyelitis Commencing with Meningitis. (Réaction méningée intense au début d'un cas de paralysie spinale infantile.) P. H. Haushalter.

54 *Diabetes in Children. P. Maurel.

55 *Radiotherapy of Suppurating and Fistulous Glands. F. Barjon.

54. **Diabetes in Children.**—Maurel found that the diabetes in his child patients generally assumed the form of the severe pancreatic diabetes of adults. He thinks that children will be found to have diabetes much more commonly than is generally supposed if it is sought for more systematically. The disease usually develops insidiously until the rapid falling off in weight, the polydipsia and polyuria attract attention. Arrived at this stage, the disease runs a rapidly fatal course as a rule; the younger the child the more rapid the course. Infants with this disease should be given a teaspoonful of Vichy water with each meal; older children should be dieted like adult diabetics—measuring the amount of urine every day and weighing the child every three or four days, limiting him to milk in case of accidents, in other respects following the principles of treatment of adults, with possibly a course of saline and arsenical mineral waters.

55. **Radiotherapy of Glandular Lesions.**—Barjon found that radiotherapy gave good results in treatment of inflammatory glandular lesions, and he has recently been applying it in suppurative processes in glands and their complications, and the results have surpassed his anticipations. He describes his experiences with 56 patients. With closed lesions a minute puncture followed by radiotherapy gave perfect cosmetic results. Radiotherapy is most effectual, he states, after the suppuration has ceased under the influence of repeated punctures. If the suppurative process has opened a way outward the cosmetic results naturally are not so good, but even then they surpass those obtained by other measures. In one case suppurating glands in the inguinal region had been removed some time before but the wounds had not healed and they suppurated anew, until there were six large ulcerations extending down on the thigh and around on the buttocks and showing no tendency to heal. Four days after the first application of radiotherapy a turn for the better was apparent, and after the sixth sitting, in as many weeks, healing was complete, the new skin being thin and supple.

Presse Médicale, Paris

September 7, XVIII, No. 72, pp. 673-680

56 Intra-Intestinal Hemorrhage after Wounds of the Intestine. M. Guibé.

September 10, No. 73, pp. 681-688

57 *Prophylaxis of Compressed-Air Disease. (Réglementation du travail dans l'air comprimé.) J. P. Langlois.

58 "Staff" for Use in Orthopedic Appliances. (De l'emploi du staff en orthopédie pour le moulage des crêtes et des aspérités du squelette.) L. Menclère.

September 14, No. 74, pp. 689-696

59 Mechanism of Camidge Reaction. (A quel est due la réaction de Camidge?) L. Grimbret and R. Bernier.

60 *Absence of Pause between Expiration and Inspiration. (La respiration continue.) R. Pla y Armengol.

57. **Prophylaxis of Compressed-Air Disease.**—Langlois discusses the bases for international regulation, remarking that the French law may serve as a model. One of the provisions

of this law insists on safeguards for workmen coming out of the compressed-air chamber so that if they should become dizzy there is no chance for a dangerous fall. The public authorities also post in the pay office a placard warning the workmen that it is imprudent to stay for more than 8 out of the 24 hours in air at a pressure of 2 kg. (8.8 pounds); 7 hours, of 2.5; 6 hours, of 3; 5 hours, of 3 or 3.5, and 4 hours, of 3.5 and 4. The law further insists on ventilation to insure that the proportion of carbon dioxide does not surpass 1 per thousand.

60. Continuous Respiration.—Play Armengol has encountered this peculiarity of the respiration only in patients with tuberculous infiltration of the lungs during the first stage of infection. There is no pause between expiration and inspiration; they follow close on each other so that respiration is continuous.

Semaine Médicale, Paris

September 21, XXX, No. 38, pp. 445-456

- 61 Metamorphosis of Neoplasms. F. de Quervain.
- 62 Pseudocongestion of the Lungs from Pushing Up of the Diaphragm from Below. M. Roch and G. Fulpius.
- 63 The Present Status of Stroganov's Prophylactic Method of Treating Eclampsia. R. de Bovis.

Archiv für klinische Chirurgie, Berlin

XCIII, No. 1, pp. 1-291. Last indexed October 8, p. 1328

- 64 Treatment of Diffuse Peritonitis. J. Rötter.
- 65 Behavior of Striated Muscle after Myoplastic Operations. (Verhalten quergestreifter Musculatur nach myoplastischen Operation.) A. v. Mutsch.
- 66 *Treatment of Tuberculous Coxitis. G. Neuber.
- 67 Experimental and Clinical Experiences with Plastic Operations on the Utra. (Duralplastik.) G. F. v. Saar.
- 68 *Hæcecal Tuberculosis. M. M. Eschenbach.
- 69 *Puncture of the Brain for Diagnosis and Treatment. (Beitrag zur diagnostischen und therapeutischen Hirnpunction nach Neisser-Pollack.) F. Hesse.
- 70 Persistence of the Thymus with Exophthalmic Goiter. (Zur Frage der Thymuspersistenz bei Morbus Basedowii.) H. Gebele.
- 71 Fate of Living Bones Transplanted into Soft Parts. (Schicksal lebender Knochen, die in Weichtheile transplantiert worden sind.) W. Pokotilo.
- 72 *Collective Inquiry in Regard to Spinal Anesthesia during 1909. (Sammelforschung über die Lumbalanästhesie im Jahre 1909.) F. Hohmeier and F. König.
- 73 Peritonitis from Perforation of the Gall-Bladder. (Experimentelle Untersuchung zur Gallenblasenperforationsperitonitis.) W. Noetzel.
- 74 Permanent Success of Experimental Plastic Operations on Bones. (Dauererfolge der Osteoplastik im Thierversuch.) P. Franzenheim.
- 75 Experimental Suture of the Aorta. (Experimenteller Beitrag zur Aortennaht.) N. Guleke.
- 76 Experimental Study of Action of Trypsin on the Vessels. (Beitrag zur Wirkung des Trypsins auf die Gefässe.) F. Rosenbach, Jr.
- 77 Apparatus for General Anesthesia with Differential Pressure. (Apparat zur Überdrucknarkose.) F. Lotsch.

66. Treatment of Tuberculous Hip-Joint Disease.—Neuber advocates earlier application of operative measures, before extensive caries has developed and in all cases when caries is under way if the general health permits and severe lesions of internal organs are not evident. He gives an illustrated description of the technic which he has found gives best results in his experience at Kiel. The ultimate favorable position of the joint depends mostly on the energy, perseverance and care of the patient, himself, after the operation, and Neuber keeps him under supervision for several years to encourage and influence him in this direction. Neuber seeks to avoid the use of complicated walking apparatus as it prevents the functional strengthening of the muscles which is such an important factor in the final outcome. He incises from the front, severing the sartorius and rectus femoris, which permits ample access to the joint and inguinal glands and revision of the wound without moving the patient. The final result is that the patient can sit comfortably, move his limb actively sideways, bend it and twist it a little; the shortening is counteracted by the dropping of the pelvis. The gait with a cane is approximately normal; without it there is a slight limp.

68. Ileocecal Tuberculosis.—The great difficulty in treatment is that the affection is not differentiated until so late that extensive operations are necessary. Eschenbach has had 27 cases in his service, it being thus shown to be the most frequent of all tuberculous abdominal affections with the excep-

tion of peritonitis. Fourteen of the patients survived the operation and the first few months afterward, and with the exception of a tendency to hernia in a few the 11 patients recently examined were free from all disturbances. In 4 cases 3 and 4 years have elapsed since and the patients are in the best of health although the operation was very extensive.

69. Puncture of the Brain and Lumbar Puncture for Intracranial Hemorrhage.—In the case reported by Hesse the patient was still unconscious two hours after a fall on the head; breathing was stertorous, pulse 64, and a small hematoma was evident in the right orbit and temple. Within the next half hour the pulse dropped to 48 and the patient seemed moribund. A Neisser-Pollack puncture was then made back of the right Krönlein point and 8 or 10 c.c. of black blood released. The breathing ceased to be stertorous at once and the pulse increased to 68; the condition improved rapidly to such an extent that osteoplastic trephining became possible; 35 c.c. of blood were evacuated from the hematoma, and recovery was soon complete. Punctures in another case revealed multiple hematomas, the patient improving wonderfully while 70 c.c. of fluid was being evacuated from the right posterior Krönlein point, opening his eyes and asking questions during the operation. This was the third puncture.

72. The Balance Sheet to Date of Spinal Anesthesia.—Hohmeier and König have examined the records of 2,400 cases in which spinal anesthesia was applied in 41 well-known institutions, and they state that the idea that this is a harmless procedure will have to be abandoned. There are 12 fatalities for which it seems to have been directly responsible. The list includes 4 cases of death from paralysis of the respiration center; in 7 of the fatal cases the patients were over 70, but one patient was only 32. In rather a large proportion of cases the patients years after seem to suffer to an unusual extent from paresthesias, neuralgia, weakness, headache or vertigo, suggesting possibly a tardy effect of the spinal anesthesia. They urge physicians and surgeons to re-examine now anew patients to whom the spinal anesthesia technic was applied at any time. This may reveal an unexpectedly large number of cases of late injuries of the central nervous system from the spinal anesthesia years before. Their conclusions are that the method should be reserved for the exceptional cases.

Berliner klinische Wochenschrift

September 12, XLVII, No. 37, pp. 1693-1732

- 78 *Theory to Explain Beneficial Action of Oatmeal in Diabetes. (Zur Theorie der Hafermehlkur beim Diabetes.) M. Klotz.
- 79 Ehrlich's "606" in Syphilis. (110 Fälle von Syphilis, behandelt nach Ehrlich-Hata.) L. Michaelis.
- 80 Technic for Injection of Ehrlich's "606." (Eine bequeme, schmerzlose Methode der Ehrlich-Hata-Injektion.) L. Kromayer.
- 81 Arrow-Poison in East Africa. (Das Pfeilgift der Watindigas.) M. Krause.
- 82 Fracture of Twelfth Rib with Severe Neuralgia of Its Nerve. (Rippenbruch mit Intercostal neuralgie.) A. Most.
- 83 Severe Chronic Spasm of the Colon. (Ein eigenartiges Symptomenbild der Hysterie.) R. Schütz.
- 84 Case of Huge Sarcoma of the Pleura with Calcification, Secondary to Sarcoma of the Tibia. F. Grabow. Commenced in No. 35.
- 85 *Early Symptoms and Serotherapy of Tetanus. K. Evler. Commenced in No. 35.
- 86 The Problems and Achievements of Recent Research in Zoology. O. Kuttner.

78. Explanation of Action of Oatmeal in Diabetes. Klotz has found, he states, that wheat flour becomes transformed to sugar and the transformation stops there, while oatmeal is transformed a step further and is assimilated as an aglyco-genic, anhepatic carbohydrate, and has thus an antiaetoneuric action.

85. Early Symptoms of Tetanus.—Evler bases his study of the early symptoms of tetanus and the effects of serotherapy on thirteen cases, one in his own person. The feature of the early symptoms, he states, is that they appear transiently and are slight at first. Sometimes there are only traces of symptoms which the patient does not think of connecting with his often slight and rapidly healing lesion. A day or so after the infection there may be restlessness, sleeplessness, distressing dreams, difficulty in urination and more frequent impulses, oppression in the chest, violent headache, drawn features.

no-bleed, sweating, fatigue, excessive yawning, vertigo, darting pains at various points and chilliness. Sometimes the local disturbances are more prominent; swelling of the injured limb, notwithstanding the limb is raised, is suspicious of tetanus; it feels hot but is not red, and the local arterial pressure is unduly high. There may be occasional local pains and in a day or so the lymph cords show red and the region is very tender. Single groups of muscles may be tonically contracted and cannot be voluntarily relaxed; the contraction at first causes no pain but merely hinders moving the limb a little. Contracture and tremor may be observed in the injured limb, sometimes clonic twitching, but they are not painful and do not attract the patient's attention; more and more muscles gradually become involved and fibrillary movements may be evident at times. If the wound is on the hand, on grasping the forearm twitchings in the different flexor tendons may be felt, and the fingers tremble and twitch. One of the first signs, the third day, is a persisting pain after the involuntary contractions of the muscles induced by effort; nothing is to be seen at the spot at first but later the muscles contract to form a painful lump which disappears after a time but returns anew if the part is touched again. The lymph glands were swollen in several of his cases, the inguinal glands in some resembling the findings with syphilis. In one case the ulnar gland was so swollen and painful that it was excised under local anesthesia. Vertigo is an especially important early sign; it is often so severe that this is what first brings the patient to the physician. Ocular symptoms are also important, and there may be a spasmodic cough. The pulse is generally tense, slow and full. The hearing at first may be unusually acute but later there is more or less deafness. Speech is slow, probably from disturbances in the cortex and tongue. The benefits of serotherapy are apparent from the detailed history of his patients and of his own case. He was infected in operating on one of the patients and early symptoms developed within 24 hours, but he continued his practice for 9 days notwithstanding he presented nearly all the symptoms enumerated above. Serotherapy was commenced on the fifth day. Nutrient enemas became necessary on the seventeenth and the following day but by the nineteenth day the teeth could be opened a little and recovery then progressed although insomnia and headache persisted for some time and the gait was stumbling for weeks. Chilliness and occasional sharp pains were noted for months with muscular twitchings. Two of the 12 patients died. In one of the fatal cases no portal of entry for the germs could be discovered.

Correspondenz-Blatt für Schweizer Aerzte, Basel

- September 10, XL, No. 26, pp. 817-818*
87 Case of Neuroparalytic Keratitis. A. Dutolt.
September 20, No. 27, pp. 878-880
88 *Public Hygiene and Infectious Diseases. W. Kolle.

88. **Public Hygiene and Infectious Diseases.**—Kolle's historical and critical review of this subject concludes with the remark that the infectious diseases have nothing to do with the evolution of the species by survival of the fittest, as those best equipped for the struggle for existence, both physically and mentally, are the very ones who are carried off by the infectious diseases. The aim should be, he reiterates, to impress on every citizen, high and low alike, the duty of being healthy as a patriotic duty he owes his country. Prophylactic hygiene, he added, is not merely an index of the degree of external civilization to which a state has attained, it is also an index of the internal culture, and nothing can compare with it as a factor for culture in general. He delivered the address at the recent dedication of the Institute for Infectious Diseases at Berne.

Deutsche medizinische Wochenschrift, Berlin

- September 15, XXXVI, No. 37, pp. 1689-1736*
89 *Cosmetic Medicine and Surgery. (Ueber Kosmetik.) H. Paschki.
90 Reinjections of Ehrlich's "606" in Syphilis. (Reinjektionen von Dioxo-diamidarsenobenzol.) Wechselmann.
91 Ehrlich's "606" in Syphilitic Eye Disease. (Arsenobenzol gegen syphilitische Augenleiden.) E. v. Grosz.
92 Mercury Atoxylate in Syphilis. (Ueber die angebliche Brauchbarkeit des atoxylsauren Quecksilbers zur Behandlung der menschlichen Syphilis.) R. Bergath.

- 93 Influence of the Depressor Nerve on the Work of the Heart and Elasticity of the Aorta. (Einfluss des Depressors auf die Herzarbeit und Aortenelastizität.) O. Bruns and J. Genner.
94 *Differential Diagnosis between Multiple Sclerosis and Compression of the Spinal Cord. M. Nonne.
95 Diagnosis and Treatment of Duodenal Ulcer. F. Mendel.
96 Congenital Deformity of the Vertebra as Cause of Curvature of the Spine. (Ueber angeborene Wirbelanomalie als Ursache von Rückgratsverkrümmungen.) G. Joachimsthal.
97 Etiology of Goiter. (Zur Frage der Kropfätiologie.) B. Bircher.
98 Foreign Bodies in the Esophagus. (Fremdkörper in der Speiseröhre.) L. W. Pernice.
99 Leprosy. P. H. Gerber.
100 The Wassermann Test Not Yet Adapted for Office Work. (Die Wassermannsche Reaktion in der Sprechstunde.) L. Münz.
101 *Text of Application for Patent on Ehrlich's "606."

89. **Cosmetics.**—Paschki urges physicians to pay greater attention to the correction of minor disfigurements and advising patients how to attain the aspect of well-groomed health. He states that he was the first, years ago, to urge physicians to study this branch of medicine from the scientific and active standpoint instead of leaving it to manicurists, masseurs, hairdressers and quacks. Much of this belongs to the dermatologist and internist, and for practitioners to treat the whole subject of "beauty doctoring" as beneath their dignity he regards as a great mistake for a number of reasons.

94. **Differential Diagnosis of Multiple Sclerosis and Compression of the Spinal Cord.**—Nonne gives the details of six cases to show that it is sometimes impossible to differentiate these conditions during life. One of his cases was remarkable in that the supposed tumor compressing the spinal cord was not found at the exploratory laminectomy which, however, was followed by subsidence of all the symptoms and during the five years since the young man, a gardener, has been in good health. The atypical forms of multiple sclerosis, and the atypical course of tumors compressing the cord explain the difficulties encountered.

101. An editorial on this subject appeared in THE JOURNAL, October 1, page 1204.

Fortschritte der Medizin, Leipzig

- September 1, XXVIII, No. 35, pp. 1089-1120*
102 Changes in the Upper Air Passages during Pregnancy and the Puerperium. (Veränderungen der oberen Luftwege in Schwangerschaft, Geburt und Wochenbett.) R. Imbofer.
103 Tuberculosis in Shop Clerks. (Tuberkulose bei Handlungsgehilfen.) G. Zickgraf.

Medizinische Klinik, Berlin

- September 18, VI, No. 38, pp. 1471-1518*
104 *Attack of Gout in the Eye. (Ueber okuläre Gichtanfälle.) E. Krückmann.
105 *Retention of Bromin after Administration of Bromids and the Influence on it of Intake of Salt. A. Ellinger and Y. Kotake.
106 *Local Immunization of the Portals of Entry for Infection. (Lokale Immunisierung der Eingangspforten von Infektionen.) H. Lippmann.
107 Autolysis and Metabolism. (Autolyse und Stoffwechsel.) E. Laqueur.
108 Psychic Disturbances of Korsakow Type after Attempted Strangling. (Psychische Störungen nach Strangulation.) E. Meyer.
109 Rare Complications of Cholelithiasis. O. Samter.
110 Pulsating Varices with Tricuspid Insufficiency. G. Joachim.
111 Effects of Passive Congestion of the Heart. (Ueber das Stauungsherz.) M. Lissauer.
112 Polycythemia and Softening of the Brain. (Polyzythaemie und Hirnerweichung.) K. Goldstein.
113 *Recurrence of Carcinoma of the Uterus after the Fifth Year. (Spätrezidive des Uteruskarzinoms.) M. Semon.
114 Acute Lymphemia. W. Carl.
115 Question Blank Symposium on Ehrlich's "606." Commenced in No. 37.
116 Forensic Importance of Hemochromogen and its Crystals. G. Puppe and W. Kürbitz.
117 Artificial Production of Vocal Sounds. (Ueber künstliche Erzeugung von Sprachlauten.) O. Weiss.

104. **Gout in the Eyes.**—Krückmann states that he has encountered six cases in which attacks of gout occurred in the eyes. The acute pain came on suddenly during the night; the conjunctiva and eyelids became swollen, red and angry with extremely severe sharp pain, aggravated by the slightest touch or movement of the head. In some cases the disproportion was striking between the insignificant changes in the interior of the eye and the intensity of the external symptoms. Notwithstanding the stormy onset, the whole attack passes over, leaving scarcely a trace; even functional disturbances are rare afterward. Opacity of the vitreous body occurs and persists only when there are pre-existing

changes in the eye and the gout attack is particularly severe. In the first three of his cases the attack in a single eye was the first manifestation of the constitutional gout, and its true nature was not confirmed by other manifestations of the gout until several months later when a typical attack in the great toe cleared up the diagnosis. One such patient still has an occasional attack of gout but the eyes have never been affected since. The prompt improvement under colchicum is another argument in favor of the gouty nature of the attacks in all the cases. It is possible, he remarks, that many forms of headache are due to an attack of gout involving the dura mater just as the sclerotic was involved in his cases. In one of his patients the attack developed the third night after an operation for cataract and was exceptionally severe while complete restoration followed. This suggests an explanation for many postoperative eye disturbances, such as iridocyclitis, which subside without leaving a trace. In another case a traumatic iritis was evidently the seat of a typical attack of gout for which it provided a predisposition. In one case the gout seemed to be due to deposits of lime rather than of urates; the patient had ankylosis of the vertebrae and of some of the joints and radioscopy showed deposits of lime in one foot.

105. Crowding Out of Bromids by Chlorids in the Tissues.—The research reported seems to confirm the fact that the bromids are crowded out of the tissues by the chlorids. Retention of salt from insufficiency of the kidneys may affect the utilization of bromids, as also the changes from an intercurrent disease. In treatment it is important to know whether deficiency of salt or the specific action of the bromids is the main factor in the effect of treatment or in the intoxication.

106. Local Immunization of the Portals of Entry for Infections.—Lippmann's research seems to open further horizons for effectual immunization, the results indicating that it is possible to develop a local immunity in the mucosa lining of the alimentary canal so that it will be immune to infection by this route. This was realized in his experiments even when the animals were as susceptible as the controls to infection by other routes. The effect is like that observed with the colon bacillus; this causes no disturbances in the alimentary canal, but brought in contact with the bladder mucosa, it is liable to set up at once a lively cystitis. He experimented with 77 mice and with botulin toxin, introduced into the stomach of the mouse through a ureter catheter, the tip being first softened in the Bunsen flame to prevent injury as it was introduced through the cardia. In the few cases in which the mucosa was injured, the toxin acted as if given by the subcutaneous route, the mice all dying within 24 hours. The mice were immunized with 13 doses of the toxin, given at five-day intervals, the amounts ranging from 0.03 to 0.16 gm. After this the animals bore without injury ingestion of a dose of 0.5 gm. of the toxin while 0.000025 gm. by the subcutaneous route proved promptly fatal. The facts observed throw light on the experiences with immunization against typhoid, cholera and anthrax. Notwithstanding a general immunity realized from the immunization procedures, evidenced by the attenuation of the disease in the vaccinated, the intestinal mucosa seems to be as susceptible in them as in the non-immunized.

Among the 424 soldiers contracting typhoid in the African troops in 1905 were 100 who had been vaccinated against typhoid, but the disease ran an exceptionally mild course in them. On the other hand, Lippmann continues, an attack of typhoid modifies the intestinal mucosa in such a way that the individuals thereafter can ingest highly virulent typhoid germs without contracting the disease. When the cells have once learned to make antibodies, they react afterward to the slightest specific stimulus in this line, and even to the non-specific, with vigorous production of antibodies. A person immunized against typhoid, dysentery or cholera would probably react to either of these germs with antibody production which would render the germs harmless even if they lingered in the intestinal tract as in healthy bacillus-carriers. It may be possible, he adds, that this same principle of artificial local immunization might be applied to prevent further spread of an infectious process already installed.

Leber has succeeded in curing an experimental serpiginous ulcer by subconjunctival injection of pneumococci aggressins, while the process in the other, untreated eye showed no tendency to heal. There are also clinical experiences on record demonstrating a curative influence on furunculosis and impetigo contagiosa and colon inflammation of the bladder from local applications of the antigens.

113. Recurrence of Uterine Carcinoma After Five Years.—Semon insists that women who have been operated on for uterine cancer should be kept under supervision even longer than 5 years as he has observed recurrence later than this. In one case the woman of 53 returned for examination as ordered for 6 years after vaginal hysterectomy for carcinoma of the cervix. All was found in good order at these regular examinations but 4 years later there were pains in the pelvis and leucorrhœa, and finally a little blood escaped from the vagina. Examination two days later showed extensive hard infiltration around the vagina and a polypous growth in the depths of the vagina which proved carcinomatous. In another case the recurrence developed 5 years after total vaginal hysterectomy. The operation was done on account of a hemorrhagic myoma, but when the uterus was examined afterward a small carcinoma was found in the body of the organ, concealed entirely by the myoma close to it. He has found very few cases on record of recurrence of carcinoma of the body of the uterus; in his case the recurrence had the aspect of inoculation of the scar in the vagina, and yet the external os had been sutured together when the uterus was being removed. This case warns anew of the possibility of coincidence of carcinoma of the body of the uterus with submucous myoma; it may escape discovery even with careful palpation and microscopic examination of scrapings. If the operation consists merely of myomectomy, the interior of the uterus should be examined again carefully afterward for traces of cancer.

Monatsschrift für Geburtshilfe und Gynäkologie, Berlin

September, XXVII, No. 3, pp. 241-384

- 118 History of the International Gynecology Congresses. (Der V. internationale Kongress für Geburtshilfe und Gynäkologie.) A. Martin.
- 119 *Present Status of Placenta Prævia. (Kritische Beurteilung der gegenwärtigen Ansichten über Placenta prævia.) L. Gussakov.
- 120 Suction Apparatus in Treatment of Puerperal Endometritis. (Über Saugebehandlung der puerperalen Endometritis.) A. Sitzenfrey.
- 121 Lecithin Bouillon for Determining Virulence of Streptococci. R. Franz.
- 122 *Clinical Study of Retroversion of the Uterus. L. Adler.
- 123 Suture of the Levator Ani Muscles as Typical Operation for Prolapse of the Uterus. W. Latzko.
- 124 Etiologic Treatment of Prolapse of Genital Organs. J. Schiffmann and R. Ekler.
- 125 Primary and Permanent Results of Operations for Perineum Tears. (Resultate bei kompletten Dammsriss-Operationen.) K. F. Schaback.

119. Present Status of Management of Placenta Prævia.—Gussakov concludes from a comparative study of the recent literature on this subject and his own experience with 25 cases of total, and 112 of partial placenta prævia, that everything tending to induce contraction of the uterus should be avoided if the membranes are still intact. He also believes that tamponing is not effectual in arresting hemorrhage while it invites infection. Puncturing the membranes frequently checks the hemorrhage with partial placenta prævia; if this does not succeed, he advises introducing the inflatable bag inside the membranes. This latter procedure is gentler and he believes that it guarantees better the birth of a living child than does the Braxton-Hicks version. With total placenta prævia, he advises boring through the placenta rather than attempting to separate it. Cure is necessary to prevent air embolism; no negative pressure must be permitted in the abdominal-pelvic vessels and the air in the birth canal must not be exposed to any increased pressure. In all such statistics he urges listing separately the cases of partial and total placenta prævia and the mortality separate with each. In his 137 cases, 6 per cent. of the women with total and 1.7 per cent. of those with the partial died, and 50 per cent. of these 8 deaths were due to air embolism, 12.5 per cent to

infection, while only 37.5 per cent. succumbed to anemia. The prognosis with presenting total placenta praevia is very grave and Cesarean section is justified, he says, in case the woman wishes a living child at any price.

122. **Treatment of Uterine Retroflexion.**—Adler relates that at Schauta's clinic in Vienna no attempt is made to correct retroflexion unless it causes disturbances, and he states that displacement alone is not able to cause menstrual irregularity. Even during the first months of pregnancy the displacement is corrected only if it is impossible to keep the woman under control and if it is causing much disturbance. If the woman complains of trouble ascribable to the displacement, gentle attempts are made to correct it, avoiding instrumental aids, except a pessary if this is able to hold the uterus in its normal position. Schauta disapproves of pessaries except as a transient means of relief; if operative measures are necessary he gives the Doléris technic the preference. In case of fixed retrodisplacement he has frequently found that conservative measures put an end to the disturbances, leaving the displacement uncorrected. The patients return once a year or so for a few weeks of massage which frees them again from all disturbances for another long period.

Münchener medizinische Wochenschrift

September 13, LVII, No. 37, pp. 1921-1976

- 126 *Operative Mobilization of Stiff Joints. (Operative Mobilisierung ankylosierter Gelenke.) E. Payr.
 127 *Acute and Chronic Streptococcus Sepsis and its Relation to Acute Articular Rheumatism. H. Steinert.
 128. Functional Tests of the Vagus Innervation of the Heart. H. E. Hering.
 129 No Modification of Wassermann Reaction by Modern Medication. W. Schwartz and P. Flemming.
 130 Phenol and Camphor as Prototypes of the Symptomatic Acting Antipyretics. E. Harnack.
 131 Physiologic Standardizing of Drugs. (Physiologische Wertbestimmung von Drogen, speziell der Folia Digitalis.) W. Straub.
 132 *Simple Method for Eosinophil Count and Its Practical Value. (Einfache Methode der Zählung der eosinophilen Leukozyten und der praktische Wert dieser Untersuchung.) R. Dünker.
 133 *Causal Relations between Syphilis and Idiocy. E. L. Brückner.
 134 *Course and Outcome of Chronic Strumitis. B. Riedel.
 135 Biologic Action of Roentgen Rays. R. Werner.
 136 *Resuscitation by Ventilation of the Air Passages. (Wiederbelebung durch Ventilation der Luftwege per vias naturales.) F. Kuhn.
 137 *Impressions of a Psychiatrist on a Trip Around the World. S. Lilienstein.

126. **Operative Mobilization of Ankylosed Joints.**—Payr gives an illustrated description of the methods that have given him satisfactory results in 9 out of 30 cases of ankylosis of various joints. The main factors for success are precision in diagnosis, and in determining the indications, with technic improving with experience both in the operations and in the after-care. Especially instructive is his study of the cases in which the outcome of his measures was unsatisfactory.

127. **Streptococcus Sepsis and its Relation to Acute Articular Rheumatism.**—Steinert reports eleven cases of acute or chronic streptococcus sepsis, beginning with an insidious course or with sudden embolism of an artery in the Sylvian fossa or slight diarrhea, or the syndrome may suggest an old valvular defect. In other cases pains in the joints were the first symptom; in one case pain in one hip was the only sign of trouble for months, until finally a slight occasional rise in temperature was noted. In other cases there was a long period of vague general disturbances. The syndrome at first did not seem at all grave but death was the invariable outcome, from cardiac insufficiency or embolism or from cachexia. Various strains of streptococcus are able to induce this syndrome; the sepsis assumes an acute form as a rule, but in those who have had acute articular rheumatism at any time the sepsis develops in a milder, more chronic form. This suggests that acute articular rheumatism is a streptococcus disease and modifies the reaction to later streptococcus invasion. It also explains Litten's "chronic, malignant, rheumatic, non-septic form of endocarditis" as a specific, chronic, malignant sepsis and endocarditis lenta occurring probably only in those who have had acute rheumatism in the past. Four of Steinert's patients were young women and the

streptococcus sepsis ran an acute fatal course. Another patient was a robust man. A recent endocarditis was the principal feature of the syndrome in all, with severe ulceration in the eight cases that came to necropsy. (Schottmüller's description of endocarditis lenta was summarized in these columns, May 14, 1910, page 1658.)

128. **Testing the Functioning of the Heart Vagus.**—Hering first describes the action of the vagus on the heart in checking the frequency of the heart beat and conduction and rendering the contractions weaker. Then he reviews the various tests for estimating the energy of its action in one or all of these directions, commenting on the acceleration of the heart beat during a deep inspiration and the retarded heart beat during apnea, the Cermak test by pressure on the vagus and Delio's atropin test, and the interpretation and clinical importance of their findings.

132. **Improved Technic for the Leukocyte Count.**—Dünker describes a simple technic for determination of the eosinophils. The blood is mixed in the pipette in the proportion of 10 to 1 with a mixture of 10 parts each of acetone and of a 1 per cent. aqueous solution of eosin with distilled water to 100 parts. This keeps well and shows up the eosinophils prominently.

133. **Causal Relation of Syphilis to Idiocy.**—Brückner found 16 among the 216 idiots in the institution in his charge who presented stigmata of syphilis or a positive Wassermann reaction, and he thinks that there is probably a causal connection with syphilis in a still larger proportion. On the least suspicion of idiocy the general practitioner should apply the Wassermann test to the child and its parents. Better still would it be, he adds, to make compulsory the Wassermann test of the blood from the umbilical cord at birth. This would reveal the taint in time and would enable successful prophylaxis of abnormal conditions leading to idiocy later.

134. **Course and Outcome of Chronic Strumitis.**—Riedel has encountered 3 cases of chronic strumitis among 1,064 cases of benign goiter in which he has operated. One of the patients has been under observation for 15 years. Silatschek not long ago added another to the 7 previously on record, and his patient spontaneously recovered. This possibility of spontaneous retrogression may explain the rarity of the condition, in case conditions progress to threaten suffocation, excision of a wedge-shaped piece out of the isthmus is the most rational treatment and is generally followed by spontaneous retrogression of the rest of the thyroid. A typical case is given in detail; a young man with a subacute swelling of the thyroid, which was of stony hardness, was threatened with suffocation, but there was no fever. After wedge excision the rest of the gland gradually subsided to normal size and there have been no further disturbances. The microscope showed an accumulation of young connective tissue between the normal elements of the gland, crowding the latter out, and there was a mild endarteritis as with many chronic inflammatory processes.

136. **Resuscitation by Artificial Ventilation of the Air Passages.**—Kuhn hails Meltzer's work in intratracheal insufflation as a great advance; it supplements admirably, he declares, his own work along the line of intubation for inhalation anesthesia, resuscitation, etc. Practical resuscitation should include the use of oxygen or a bellows or large rubber bulb to pump in air. A peroral intubation two-way tube or two single tubes and a longer tube like a catheter should also be on hand. The life-saver should clear the mouth from water, mucus, etc., and then introduce the thinnest tube deep into the larynx, and permit oxygen to flow through it continuously until the arrival of the physician, aiding the ventilation of the lungs by rhythmic compression of the chest as by the ordinary measures for artificial respiration. If the physician is on the spot or when he arrives, he should introduce the two-way tube and continue the inflow of oxygen through the finer catheter tube passed through the other. Whether and when the peroral tube is indicated it is for the physician to determine; the finer tube alone may answer all purposes. If there is no oxygen on hand, a large rubber bulb may be

used to pump common air into the trachea with this same technic through the tube. The patient is benefited by these simple measures and obtains more air than by the use of the oxygen tank with a mask. The mechanical measures for respiration must be kept up continuously according to the usual technic. Kuhn believes that his spiral peroral two-current tube has the advantage over a catheter tube that it does not interfere with the outflow of air as the patient rouses and commences to breathe. He declares that oxygen has no advantage over good fresh air for resuscitation purposes, but the oxygen tank gives a more even and controllable flow. Too little attention hitherto has been paid to the necessity for prompt evacuation of the carbon dioxide in resuscitation of the apparently drowned and others. A two-current tube with air or oxygen forced into the larynx from a tank or ordinary air blown in by a bellows or by a large rubber bulb answers both requirements of introduction of air and escape of waste products. All that the life-saver need have on hand therefore is the two-way tube, the fine catheter tube and the oxygen tank or bellows or bulb.

137. Impressions of a Psychiatrist on a Trip Around the World.—Lilienstein describes his impressions of a trip from one insane asylum to another around the world. At the Cairo asylum, alcoholism could be incriminated in the etiology of only 6 among the 425 Mohammedan inmates, but pellagra was responsible for the psychosis in 65 and hasheesh intoxication for 72 among 572 cases. The smoking of hemp, *Camabis indica* or hasheesh, is the vice of the lower classes throughout the Orient and helps to fill the insane asylums. In Ceylon the asylum was more in the nature of a prison, as also in some of the older of the five asylums in Australia. The distances that have to be traversed sometimes to bring the insane to the asylums in Australia are so great that the acute psychoses, curable under other conditions, become confirmed and incurable during the long trip to the asylum. He speaks with admiration of the asylum at Sydney, which is managed on the most enlightened principles and where all the discharged are kept under constant supervision; they or their family or guardian have to sign a contract to return for medical inspection every week or fortnight; if they fail they are promptly fined or otherwise punished or the former patients have to return to the institution. Lilienstein regards this as a most admirable provision. At Singapore he saw a peculiar form of psychosis. Epidemic convulsions and retrograde amnesia are its main features; it affects mostly middle-aged women from a certain district. Hysteria and psychic infection may be excluded. The separate attacks last from one to three days. In China neither the state nor the community takes any heed of the sick and least of all of the insane, outside the sphere of the work of the missions. In Japan, the asylums and clinics resemble eastern European models; alcoholism is rare, as also opium and hemp smokers' psychoses. The constant tea drinking in Japan does not seem to lead to nervous disturbances. Lilienstein comments on the resemblance of the coolies to each other; it was impossible even for a trained neurologist like himself to tell them apart. [A traveler in California recently said that the coolie workers there are paid "a certain wage and find themselves, but they are all so exactly alike that the hardest part of their work must be for each to find himself."] Lilienstein remarks that one would expect a very exalted grade of asylum in America after leaving the Japanese institutions, but one is disappointed in that respect. They have no special features. He refers to the Bicêtre hospital at Paris as the most interesting collection, Queen's Hospital for Paralyzed and Epileptics at London as the best neurologic clinic, that is, where the most careful diagnoses are made and treatment individualized, but nowhere, he says, were conditions all around so satisfactory as in Germany.

Therapie der Gegenwart, Berlin

September, LI, No. 9, pp. 385-432

- 138 Principles of Psychotherapy. P. Dubois.
139 *Insufflation of Air in Treatment of Pleurisy with Effusion. (Behandlung der serösen Pleuritis mit Lufteinblasung.) J. H. Gesellschaft.
140 *Digitalis in Treatment of Spontaneous Epistaxis. (Entstehung des spontanen Nasenblutens und seine Behandlung mit Digitalis.) C. E. Focke

- 141 *Ehrlich's "606" in Syphilis. (Ehrlichs Syphilitisheilmittel bei eingen Füllen innerer Lues.) Meidner.
142 *Idem. (Ueber die Ehrlichsche Syphilitisbehandlung.) W. Fischer.
143 *Hot Baths in Whooping-Cough. (Heisse Bäder bei Keuchhusten.) T. Schrohe.

139. Insufflation of Air in Pleurisy with Effusion.—According to the experiences at the Groningen medical clinic, air is as effectual as oxygen or nitrogen for therapeutic injection into the pleural cavity unless it is necessary to apply protracted compression to the lung; in this case the less absorbable nitrogen is preferable. In pleurisy with effusion the main points are to introduce the drain so as to empty the pleural cavity completely, and to allow the air to take the place of the effusion as it is drained away, thus preventing any sudden changes in the mechanical conditions in the thorax. The relief is immediate and great; the air being so much lighter than the effusion or other fluid in the pleural cavity, the diaphragm is not so weighted down. Some think that the air may prevent further effusion by the compression it exerts on the vessels in the pleura, but it is more likely that as the air is gradually absorbed the resulting negative pressure in the chest favors absorption rather than effusion of fluids. The only objection to this method of treatment is the possible liability to eclampsia of the pleura; this may be induced by the mere introduction of the cannula and is as liable to follow introduction of a drain or exploratory puncture. Extreme care is necessary on this account with all these measures.

140. Digitalis to Arrest Tendency to Spontaneous Epistaxis.—Focke has given digitalis for this purpose in 84 cases and it proved successful except in a hemophiliae and in a woman given to excessive coffee drinking and tight lacing. In 75 per cent. of the patients the tendency to nosebleed was promptly and permanently arrested within 24 hours after taking the digitalis, even in a few cases in which the bleeding was due to some anatomic anomaly, correction of which later permanently arrested the tendency to epistaxis. He adds that digitalis formerly was a common remedy for a tendency to hemorrhages but it was abandoned towards the close of the last century for theoretical reasons which have since been shown to be erroneous.

141. Ehrlich's "606" in Syphilis.—Meidner has treated 34 patients with the "606" and reports the details of some of the cases. He found the remedy effectual in curing syphilitic lesions on the skin and mucosa; with internal lesions it proved as effectual as a prolonged mercury and iodid course. Tabes and paralysis were not materially influenced, the only trace of effect being on disturbances in the ocular muscles and on the ataxia.

142. Idem.—Fischer reviews the entire list of publications on the subject; nearly all have been reviewed in these columns as they have appeared. The recurrences that have been observed show that a definite cure is not realized by the drug. Fischer states that his conclusions as to its efficacy are that it ranks just above calomel, one injection of the "606" accomplishing what it takes two injections of calomel to accomplish. Certain patients refractory to calomel seem to be favorably influenced by the "606." On the other hand, he says, syphilitic affections of the nervous system, on which calomel has a favorable action, respond well to the "606" in some cases, while in others it seems to have no influence or an unfavorable one. Frequently, papulous early syphilides seemed to respond more favorably to calomel than to the "606." On the whole, he states, one may count on obtaining with two or three injections of calomel equally good results, occasionally even better and sometimes not so good. To this he adds that calomel in small doses is much less harmful for the nervous system than the new drug. No syphilologist would think of such a thing as submitting all his syphilitic patients, responding normally to mercury, to a course of calomel. He would reserve the calomel, and this is what Fischer advises for the "606," for the rare cases of syphilis in which mercury and iodid fail. Only critical testing of its value for years to come will finally determine its rank in therapeutics. Already the tendency is noticeable, he says, to

increase the dosage; and this, as well as repeating the doses, exposes to dangers which impose the greatest caution. Fiseber is assistant in the skin diseases service at the Virchow hospital at Berlin.

143. **Hot Baths in Whooping Cough.**—Schrohe has always witnessed great relief follow a hot bath given toward evening. The water should be about 99 F. and the child should stay in the bath for from 10 to 15 minutes, the head being kept cool with a cold water compress. The children sleep well after it, and the number and severity of the paroxysms seem much diminished. He has noticed that the skin of children with pertussis is pale and cool, indicating contraction of the vessels in the skin; the hot bath counteracts this, and thus relieves the internal organs, promotes elimination of toxins and soothes the nervous system and the tendency to the paroxysms.

Wiener klinische Wochenschrift, Vienna

September 15, XXIII, No. 37, pp. 1307-1334

- 144 Spirochetes Uninfluenced by Mercury or Arsenic. (Ueber Quecksilberfestigkeit der Syphilisprochäten nebst Bemerkungen zur Therapie mit "Ehrlich-Itata 606.") M. Oppenheim.
145 Tubercle Bacilli in the Blood. (Vorkommen von Tuberkelbazillen im zirkulierenden Blut.) S. Acs-Nagy.
146 Operative Cure of a Perforated Duodenal Ulcer. J. Gobiet.
147 Industrial Morbidity and Mortality in Leipsic and Vienna. (Berufliche Morbidität und Mortalität in Leipzig und Wien.) S. Rosenfeld.

Zeitschrift für Urologie, Berlin

September, IV, No. 9, pp. 641-728

- 148 The Supporting Tissue of the Kidneys. (Zur Kenntnis des Stützgewebes der Nieren.) R. Külster.
149 Operations for Diffuse Cancer of the Penis. (Operationen beim diffusen Krebs des männlichen Gliedes.) R. N. Cholzoff.
150 Determination of Urease and its Clinical Importance. (Ueber Ureasebestimmungen und ihre klinische Verwertung.) E. Simon and E. Meyer.

Zentralblatt für Chirurgie, Leipsic

September 17, XXVII, No. 38, pp. 1249-1280

- 151 Access to the Anterior Mediastinum by Transverse Resection of the Sternum. (Öffnung des Mediastinum vermittels querer Brustbeindurchtrennung.) P. L. Friedrich.
152 *Semicircular Clamp for Removing Hemorrhoids. (Neues Verfahren zur radikalen Beseitigung der Hämorrhoiden.) W. Schaack.

152. **Hemorrhoid Clamps.**—Schaack's clamp forms a semi-circle when closed around the base of the hemorrhoids; two clamps are used, thus forming a complete circle around the previously dilated anus. The projecting tops of the hemorrhoids are then cut or burnt off, and a few sutures taken through the base under the clamps. The anus is then packed with gauze around a large drain; the clamps are removed and there is nothing left of the hemorrhoids except a linear wound encircling the anus. Not a drop of blood is lost with this technic, while the hemorrhoids are radically removed and the rectum is drained without danger of infecting the wound. As the cicatrix is outside the sphincter and sonnd mucosa extends inward from it, there is no danger of stricture later. The curving clamp is illustrated.

Zentralblatt für Gynäkologie, Leipsic

September 17, XXVII, No. 38, pp. 1233-1256

- 153 *Actinomycotic Parametritis. O. Bondy.
154 Technic for Draining the Abdominal Cavity. (Bauchhöhlen-drainage.) J. Fabricius.

153. **Actinomycotic Parametritis.**—Bondy reports a case of parametritis in an unmarried woman of 28, a factory worker. The actinomycosis involved the ovaries and tubes on both sides and encroached on the connective tissue in the pelvis. As the health continued to decline under weeks of ordinary conservative treatment, the adnexa were removed. The fever subsided at once but the cachexia was too far advanced and the patient soon succumbed. On account of the possibility of radical cure under appropriate iodid treatment in time, the discovery of extensive, very tough parametritis, especially when there is a tendency to perforation toward the abdominal walls, should warn of the necessity for bacteriologic examination of the pus and histologic examination of the granulation tissue which can generally be readily obtained from the abdominal walls. The prognosis depends on this being done in time so that proper treatment can be instituted.

Gazzetta degli Ospedali e delle Cliniche, Milan

September 6, XXXI, No. 107, pp. 1129-1136

- 155 *Intubation for Small Foreign Bodies in Air Passages of Young Children. M. Gioseffi.
September 8, No. 108, pp. 1137-1144
156 Curability of Tuberculous Meningitis. I. Celeste.
September 11, No. 109, pp. 1145-1160
157 Biology of Embryonal and Neoplastic Tissues. G. Fischera.
September 13, No. 110, pp. 1161-1168
158 Seroprophylaxis of Tetanus. (Nota a proposito delle iniezioni di antitossina nel trattamento preventivo contro il tetano.) C. Visconti.

155. **Intubation for Foreign Body in the Throat.**—Gioseffi reports three cases of infants suffocating from a foreign body in the throat. Attempts to relieve the suffocation and to remove the foreign article by intubation all failed. Intubation has no chance of succeeding unless the foreign body is extremely small and free or only loosely lodged in the air passage, but Bokay and others have reported a few cases in which the child was saved by this means.

Policlinico, Rome

September 11, XVII, No. 37, pp. 1155-1186

- 159 Concrement and Suppuration in Submaxillary Gland. (Pioscialolitiasi della sottomascellare.) O. Cignozzi.

Riforma Medica, Naples

September 12, XXV, No. 37, pp. 1009-1036

- 160 Functional and Organic Stomach Disease. (Gastropatie dinamiche ed organiche.) G. Rummo.
161 Experiences with Local Anesthesia for Major Operations. C. Mainoli.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

A TEXT-BOOK OF BOTANY AND PHARMACOGNOSY. Intended for the Use of Students of Pharmacy, as a Reference Book for Pharmacists and as a Handbook for Food and Drug Analysts. By Henry Kraemer, Ph.D., Professor of Botany and Pharmacognosy, and Director of the Microscopical Laboratory, in the Philadelphia College of Pharmacy. Fourth Edition. Cloth. Price, \$5 net. Pp. 888, with 2,000 illustrations. Philadelphia: J. B. Lippincott Co. (1910).

HANDBOOK OF REGIONAL ANATOMY. By Francis C. Ford, M.D., Professor of Anatomy, Head of Department of Anatomy and Senior Demonstrator of Anatomy in the Hahnemann Medical College and Hospital, Chicago. Cloth. Price, \$1.50 net. Pp. 193. Chicago: Francis C. Ford, 1910.

TOBACCO AND ITS DELETERIOUS EFFECTS. A Book for Everybody, Both Users and Non-Users. By Charles E. Slocum, M.D., Member of Local, Ohio State, and the American Medical Associations. Cloth. Price, \$1. Pp. 70. Toledo: The Slocum Publishing Co., 1909.

THE TAXONOMIC VALUE OF THE MICROSCOPIC STRUCTURE OF THE STIGMAL PLATES IN THE TICK GENUS DERMACENTOR. By C. Wardell Stiles. Hyg. Lab. Bull. 62, August, 1910. Paper. Pp. 72, with 134 illustrations. Washington: Government Printing Office, 1910.

OBSTETRICAL NURSING, FOR NURSES AND STUDENTS. By Henry E. Tuley, M.D., Professor of Obstetrics, Medical Department, University of Louisville. Cloth. Price, \$1.50. Pp. 246, with 72 illustrations. Louisville: John P. Morton & Co., 1910.

HISTORY OF CHEMISTRY. By Edward Thorpe, F.R.S., Author of "Essays in Historical Chemistry," etc. Two Volumes. Vol. II, from 1850 to 1910. Cloth. Price, 75 cents. Pp. 202, with 180 illustrations. New York: G. P. Putnam's Sons, 1910.

THE CAUSE AND CURE OF COLDS. By William S. Sadler, M.D., Professor of Physiologic Therapeutics, the Post-Graduate Medical School of Chicago. Cloth. Price, \$1 net. Pp. 147, with illustrations. Chicago: A. C. McClurg & Co., 1910.

THE STORY OF THE BACTERIA AND THEIR RELATIONS TO HEALTH AND DISEASE. By T. Mitchell Prudden, M.D., Second Edition. Cloth. Price, 75 cents. Pp. 232, with illustrations. New York: G. P. Putnam's Sons, 1910.

HEALTH AND ITS DANGERS. By T. Mitchell Prudden, M.D., Author of "The Story of the Bacteria," etc. Second Edition. Cloth. Price, 75 cents. Pp. 113, with 6 illustrations. New York: G. P. Putnam's Sons, 1910.

REPORT OF THE THIRTY-SECOND ANNUAL MEETING OF THE AMERICAN BAR ASSOCIATION. Held at Detroit, Aug. 24-27, 1909. Cloth. Pp. 1188. G. Whitehead, 1407 Continental Trust Bldg., Baltimore.

WORLD CORPORATION. By King C. Gillette, Discoverer of the Principles and Inventor of the System of World Corporation. Cloth. Price, \$1. Pp. 240. Boston: New England News Co. (1910).

HYPNOTISM AND SUGGESTION IN DAILY LIFE, EDUCATION AND MEDICAL PRACTICE. By Bernard Hollander, M.D. Cloth. Price, \$1.75. Pp. 295. New York: G. P. Putnam's Sons, 1910.

PROCEEDINGS OF PENNSYLVANIA PHARMACEUTICAL ASSOCIATION. Thirty-Third Annual Meeting. [Edgar F. Heffner, Leck Haven.] Held at Bucna Vista Springs, June 28-30, 1910. Paper. Pp. 416.

The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOL. LV, No. 18

CHICAGO, ILLINOIS

OCTOBER 29, 1910

RECENT PROGRESS IN THE MICROSCOPIC ANATOMY AND DIFFERENTIATION OF CANCER*

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Cancer is a clinical term applied to malignant epithelial new growths. From the pathologist's point of view it may be defined as an epithelial tumor which infiltrates, and which may give rise to metastases. To understand the full significance of this definition it is necessary to study in groups by themselves all the tumors which arise from each variety of normal epithelial cells and which tend to differentiate like them. Each group has peculiarities of its own.

The tendency is steadily increasing to place together and study in a group by themselves all the tumors built up from the multiplication of single type-cells which tend to differentiate in a similar manner. As example of type-cells may be mentioned the fibroblast, the smooth muscle cell, the neuroglia cell. It must be borne in mind, however, that two or more varieties of the same type-cell often exist normally. For example we have the ordinary smooth muscle cell of mesenchymal origin and a second variety occurring only around the coil and mammary glands and ducts, and generally believed to be of epithelial origin. Both varieties of cells tend to differentiate in the same way. In like manner we have cardiac and striated (skeletal) muscle cells of different origins, in which a like differentiation of the cytoplasm takes place.

In the past, tumors arising from the same type-cell have been grouped and discussed separately because of differences in arrangement of cells, rate of growth, and tendency to invade tissues and to give rise to metastases, as though the tumors thus arbitrarily separated had little or no relation to each other. Thus adenomas have been put in one class and carcinomas in another; in like manner angiomas and endotheliomas have usually been separated and discussed as having little or no relation to each other.

The newer method of classification recognizes that every simple tumor is due to the proliferation of one of the type-cells and that the blood-vessels and stroma are furnished by the surrounding and included tissues and are not themselves tumor-cells. The type-cell out of which the tumor is built is the one important element and gives the name to the tumor. Rate of growth, arrangement of cells, invasion of surrounding tissues,

formation of metastases, and retrograde changes are all features of secondary importance.

This method of studying and classifying tumors demands exact knowledge of the morphologic and chemical differentiation of the normal cells, both in their fully developed state, as found in the adult, and in their early developmental stages as seen in the embryo, so that the information obtained may be applied to the study of tumor-cells; because long-continued observation has demonstrated that tumor-cells tend to differentiate as the cells from which they arise would do under normal conditions.

The epithelial tumors form the largest and most important group of the simple tumors, and are on this account often put in a division by themselves in contrast with all the other simple tumors. They should be studied together, not separated on a clinical basis into two groups, the benign and malignant epithelial tumors. Studying them together enables us to determine what features are common to all epithelial tumors. Inasmuch, however, as there are many varieties of epithelial cells of various origin, we must divide this large group into as many subgroups as there are normal varieties of epithelial cells in order to ascertain what are the peculiar characteristics of each subgroup of epithelial tumors. This subdivision is already recognized to some extent and has led to valuable results, but should be carried out completely and thoroughly. Thus the tumors derived from the epithelial cells of the enamel organ, of the chorionic villi, and of the adrenal cortex are usually grouped by themselves. This method leads to a careful study of all the epithelial tumors arising from an epithelial organ or tissue. It leads also to a separation of those tumors of which the cells differentiate like the cells of the organ involved from those arising from included epithelial cells of other origin; for example, adrenal tumors in the kidney and liver. It demands full knowledge of embryologic development and of embryologic possibilities in the way of cell remains and displacements from which tumors may arise.

In a brief presentation, such as this necessarily is, I am able to discuss and illustrate only a few of the various groups of epithelial tumors and to call attention to certain interesting points brought out by this method of studying them.

The different epithelial tumors are derived from a heterogeneous variety of epithelial cells most of which are not very sharply characterized. Epithelial cells produce no intercellular substances, unless possibly epithelial fibrils and the so-called intercellular bridges should be so regarded. We are limited, therefore, to the differentiation of nucleus and cytoplasm and to certain chemical products for our power, to recognize the different varieties of epithelial cells. Owing to this limited differentiation of the normal cells it is easy to go astray when

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

* EDITOR'S NOTE:—This article is part of a Symposium on Progress in the Problems of Cancer. The other articles and the discussion appear in this issue of THE JOURNAL.

the tumors derived from them are studied, because the differentiation of the cells in them is usually less than that of the normal cells. And yet the careful study of the differentiation of the different types of epithelial cells is unquestionably the key to the full understanding of this large and important group of tumors.

The properties of the different groups of epithelial tumors vary greatly. Those derived from certain cells uniformly invade the surrounding tissues and give rise to metastases, while others derived from a different type of cell grow expansively only and cause disturbance solely by pressure. From still other cells both types of tumors frequently arise.

Of the different groups of epithelial tumors, two which have already been thoroughly studied and which are usually classified under distinct headings, will be mentioned. Little or nothing apparently remains to be



Figure 1



Figure 2



Figure 3

Figs. 1, 2 and 3.—Cells of rodent ulcer, characterized by their cubical, cylindrical and spindle shape, their small amount of cytoplasm and their intimate relation to each other, frequently producing long fine and coarse fibrils running in the long axis of the cells. These cells do not differentiate like the cells of the surface epithelium.

added to what is now known about them. I refer to the adamantinoma and to the chorionepithelioma. The cell differentiation peculiar to each and the embryologic origin of the tumors have been fully worked out and described.

ADAMANTINOMA

The adamantinoma arises from cells which differentiate like those of the enamel organ. The cells of this structure are of epiblastic origin, but do not undergo cornification. The cells of the outer layer are cuboidal in shape, those of the inner cylindrical. The cells between these two layers form the enamel pulp, and correspond to the prickle-cells of the epidermis; they become more or less separated from each other by vacuolization

but remain connected by cell processes so that they resemble to some extent mucous connective tissue cells. The nuclei in the cylindrical cells of the inner layer are situated away from the underlying connective tissue instead of close to it, as is usual in most other epithelium lining surfaces. It is these cylindrical cells which lead to the formation of enamel, and hence are known as adamantoblasts.

The cells of tumors which arise from adamantoblasts tend to differentiate like them: they produce cells like those in the enamel pulp but do not give rise to enamel so far as my experience goes. The tumor grows as branching masses of epithelial cells. There is a moderate amount of connective-tissue stroma in which bone derived from the jaw is occasionally present. Cysts often form in the epithelial masses owing to distention and coalescence of the vacuoles between the cells, corresponding to those in the enamel pulp; other cysts, which may be more numerous and larger, often occur in the connective tissue of the stroma as the result of focal collections of fluids. Rarely the cells corresponding to those in the enamel pulp assume a concentric arrangement and suggest epithelial pearls.

The adamantinoma grows expansively only, and produces no metastases. In sections it presents an alveolar arrangement with solid masses of cells or in consequence of edema a glandular or cystic appearance. Owing to its location and the size it sometimes reaches it may cause clinically much local disturbance.

CHORIONEPITHELIOMA

The chorionepithelioma arises from cells which tend to differentiate like those covering the chorionic villi. It contains, therefore, two varieties of cells which characterize it, epithelial-like cells, corresponding to the layer of Langhans, and multinucleated cells corresponding in structure to the syncytial layer. The syncytial cells originate either from the cells of the layer of Langhans or both arise from some one common cell.

The chorionepithelioma, a tumor of fetal origin, apparently always invades. It usually gives rise to metastases. Clinically it almost invariably is malignant and leads to death. In the tissue it invades it causes little or no reaction on the part of the connective tissue and hence no well-marked stroma is produced.

The pathology and origin of this tumor and its intimate relation to hydatidiform mole have been thoroughly investigated. Little or nothing seems to remain to be added to our knowledge of the subject.

ADRENAL-CELL TUMORS

A third group of epithelial tumors usually classed by themselves are those differentiating like the adrenal cells. The cortical cells of the adrenal are fairly characteristic, with their delicate vacuolated cytoplasm filled with fat droplets, the prominent cuticle, and the relatively small round nuclei, but other adrenal cells are not so well characterized. The adrenal tumors are therefore not always recognized with ease and certainty. One feature is noticeable; like the adrenal itself they contain little connective tissue stroma. Some of them grow expansively only, and are regarded as adenomas; others grow rapidly, invade readily, and give rise to metastases. Clinically these latter tumors may be rapidly fatal. The origin of these tumors in the kidneys and elsewhere from displaced adrenal cells has been generally taught and accepted. While much is known about these tumors it is doubtful if the subject can as yet be considered finished.

Other varieties of epithelial tumors can be best understood by studying in a group by themselves all those which originate from cells differentiating in the same way; for example, those derived from thyroid cells, liver cells, etc. In no other way is it possible to obtain a just appreciation of this large group of tumors and realize the nature and possibilities of the destructive tumors which may arise from each.

I wish to speak here a little more specifically about two or three groups of tumors bearing on this question.

EPITHELIAL BREAST TUMORS

The epithelial cells lining the glands and ducts of the breast are not particularly well characterized morphologically, but they possess in common with the cells lining the sweat-glands one distinguishing feature. Between them and the surrounding connective tissue is a layer of smooth muscle cells believed to be of epithelial origin.

In the breast arise a variety of epithelial tumors: some grow expansively, others infiltrate and frequently give rise to metastases. As will be shown, it is not possible to separate these tumors sharply into two groups and say definitely that clinically one group is benign and the other malignant. Certain tumors are on the border-line and may at any moment invade the surrounding tissues.

In the adrenal there is little connective tissue stroma; in the tumors of adrenal origin little stroma is produced. In the breast the epithelium rests on a layer of smooth muscle cells outside of which is a large amount of connective tissue. In tumors of the breast the muscle layer is produced in those which grow expansively or in papillary form within the ducts and glands, but disappears when the epithelium infiltrates outside the muscle layer. The connective tissue usually grows abundantly so as to form a well-marked stroma. It is so prominent in the ordinary type of adenoma that it is regarded by some pathologists as forming a part of the tumor which they look on as a simple type of mixed tumor, an adenofibroma. The epithelial cells of a cancer of mammary origin usually arouse the production of an abundant stroma wherever they are carried, for example, into lymph-nodes or bone-marrow, showing that they exert some specific influence on the proliferative activity of fibroblasts.

In chronic mastitis it is common to find small areas of proliferative activity on the part of the epithelial cells lining the ducts and glands. The cells often project in small papillary masses into the lumen. As these masses enlarge connective tissue and blood vessels grow into them. In this way a cellular, papillary growth may fill and dilate the ducts and glands. The epithelial cells in these areas may grow under the lining epithelium, between it and the smooth muscle layer, forming a mild type of invasion. Such a tumor may fill all the ducts and glands of the breast with epithelial cells and yet not pass beyond the smooth muscle layer. This type of tumor is rare but occurs. How is it to be classed? In the ordinary carcinoma the cells infiltrate the lymph-spaces, the lymph-vessels, and the blood-vessels.

It is this relation of the different types of epithelial tumors of the breast to each other and to proliferative processes occurring as the result of chronic mastitis, which requires more careful comparison and study.

The cells of the epidermis are characterized by the formation of numerous short fibrils, which bind the cells together and are known as intercellular bridges. Longer fibrils are sometimes present which are known as epithe-

lial fibrils. The exact relation of these two kinds of fibrils to each other and to the cell is not fully determined. They seem to be due, for the most part at least, to a differentiation of the cuticle of the cell, and not to be an intercellular substance. The cells of the epidermis are further characterized by retrograde changes involving the formation of eleidin and keratohyalin and ending in cornification. In tumors derived from epidermis the cells tend to undergo these same changes and the resulting cornified epithelial cells collecting in masses are termed epithelial pearls. The mitoses occur entirely in cells corresponding in development to the lowest layer, the rete Malpighii; but even in this layer the surface of the cells usually shows the characteristic surface fibrillation which becomes more prominent in the prickle cell layer.

RODENT ULCER

There is another tumor of the skin which deserves mention here. It is usually but not always the lesion which is known clinically to the dermatologists as rodent ulcer. It has been very unfortunately named and elaborately classified into numerous varieties by Krompecher on the theory that it is derived only from the rete Malpighii and that therefore the cells do not undergo the usual transformation into prickle-cells and cornified epithelium.

The tumor in question usually grows slowly; it may spread widely in the corium and form connection with the overlying epidermis at many points. It rarely in-

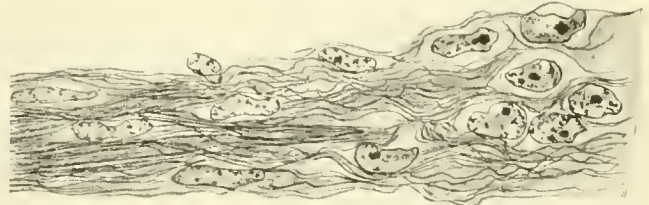


Fig. 4.—Showing that the cell differentiation in rodent ulcer is similar to that found in the adult and embryonal cells forming the hairs, having the oval to spindle-shaped nuclei, surrounded by little cytoplasm, forming no intercellular bridges, but giving rise to numerous delicate fibrils, indicating their origin from the hair matrix rather than from the rete of the epidermis.

vades the deeper tissues or gives rise to metastases. The cells may occur as large masses of spindle-shaped cells running in bundles so that seen by themselves they suggest a spindle-cell sarcoma. They also occur in broad and narrow connecting bands. The cells are characterized by their cubical, cylindrical, and spindle shape, their small amount of cytoplasm, and their intimate relation to each other. In addition they frequently produce numerous long fine and coarse fibrils (Figs. 1, 2 and 3) running in the direction of the long axis of the cells. Rarely there is a hint of the formation of intercellular bridges, and small epithelial pearls are occasionally formed. These cells do not differentiate like the cells of the surface epidermis.

If, however, the cells forming the hairs are studied in the adult and embryo, it will be found that the cell differentiation is much more like that in these tumors. The cells forming the hair shaft have oval to spindle-shaped nuclei surrounded by very little cytoplasm. The cells form no intercellular bridges but give rise instead to numerous delicate fibrils (Fig. 4) which later fuse to form a homogeneous mass which becomes the hair. The cells around the hair-shaft are cubical to cylindrical in shape, produce only short and delicate intercellular bridges, and undergo only a slight form of cornification.

The cell differentiation in this class of tumors strongly suggests, therefore, that they are derived from cells of a hair matrix and not from the rete Malpighii of the epidermis. They should be grouped and studied by themselves because they have pathologic and clinical characteristics of their own. They infiltrate, but rarely give rise to metastases. They are locally destructive but can hardly be considered clinically very malignant.

A third group of tumors which requires more careful study is that arising in and around the ovaries. The accidental finding of a small, infiltrating, ciliated, papillary adenocystoma in the broad ligament suggests that these tumors may arise from remains of the Wolffian tubes in the ligament. Similar ducts and glands lined with ciliated epithelium and surrounded by smooth muscle frequently occur in the uterine tube. It is the ciliated papillary adenocystomata which prove clinically to be especially malignant. It seems much more probable that they are derived from the ciliated remains of the Wolffian and perhaps Müllerian ducts than from displaced intestinal epithelium as suggested by Ribbert.

What is needed is the careful study of early cases before the ovaries are infiltrated and destroyed and all relations lost. The finding in ordinary routine examinations of small solid masses of squamous epithelium in the wall of two different normal uterine tubes and the occurrence of a thick layer of squamous epithelium lining one fold of the tubal mucosa while the rest was perfectly ciliated suggests the possible origin of epidermoid carcinomas in this region.

I have thrown a few sidelights on the subject of epithelial tumors and have called attention to the lines along which I believe our knowledge of their origin and development can be broadened from the morphologic side, namely, by a more thorough study of the embryologic origin of each kind of epithelial cell and of the histological differentiation which each type of cell undergoes. Each group of epithelial tumors of which the cells tend to differentiate alike should be studied in a group by themselves. To say which of them should be classed as adenomas or papillomas and which as carcinomas (the point about them in which the clinician is most interested) is not easy. From a pathologic point of view we may define cancer as an epithelial tumor which infiltrates and which may give rise to metastases. The infiltration may be only beneath the lining epithelium of a duct or a gland, but it is a beginning. Usually it is into lymph-spaces, lymph-nodes, and blood-vessels.

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MECHANICAL ILEUS COMPLICATING PREGNANCY

PHILIP SCHUYLER DOANE, M.D.
CHICAGO

Mechanical obstruction, or ileus of the large or small intestine, is not infrequently encountered. Late diagnosis, together with imperfect technic, or late protracted operations, may be responsible for a high death-rate in all cases of this character. Refinement in diagnosis, with a perfected, rapid technic, will produce a marked reduction in this mortality. Nauwyn reports a recovery of 75 per cent. of all patients with ileus operated on the first or second day of the attack, but the mortality was very great in all patients operated on the third day or later. This is verified by an analysis of cases reported during the past year as listed in the index.

Very few cases are reported of ileus occurring during pregnancy. Williams reports two cases of intestinal obstruction complicating pregnancy. In one an intussusception occurred at the site of a tuberculous ulcer; the second was due to constriction by peritoneal adhesions in a case of tuberculous-peritonitis. Death occurred in both instances. He further states that ileus is a very rare complication of pregnancy.

Comparatively few text-books on obstetrics mention this subject in any way, and those doing so give the matter but meager consideration. Peterson recommends immediate Cesarean section if the complication occurs late in pregnancy.

Obstruction by bands and diverticula is given by Gibson as the second most frequent cause of intestinal obstruction. In his collection of reports of 1,000 cases, he classifies the ordinary form called ileus as an obstruction caused by bands and diverticula. The causes as given by him are:

Hernia 35 per cent.

Bands and diverticula 19 per cent.

Intussusception 19 per cent.

Volvulus 12 per cent.

Miscellaneous (fecal impaction, tumors, strictures, foreign bodies, gall-stones, worms, dynamic or adynamic conditions) 15 per cent.

He also states that 6 per cent. of all cases are due to Meckel's diverticulum.

The accompanying table of cases reported during the past two years shows the various causes of obstruction, the treatment of the incarcerated bowel, the time elapsing after initial symptoms and the result. From this report it is noted that death resulted in all but one case in which resection was done after the second day.

It will be seen that many patients were operated on before the bowel became gangrenous, so that resection was not necessary. This fact is most encouraging, for it shows an increasing ability on the part of the surgeon to make a diagnosis early. A study of cases previous to 1908 does not show this.

Abnormal openings in the omentum, mesentery or broad ligament may allow the bowel to become incarcerated.

A. E. Halstead had a case in which the ileum, with its long mesentery, became involved in an abnormal opening in the broad ligament with a resulting incarceration and strangulation.

The development of the pregnant uterus may cause a displacement of the abdominal viscera, and if the band or diverticulum preexists, it may be seen that strangulation could readily take place.

The delayed diagnosis and the subsequent severe shock and prostration in these cases occurring during pregnancy, has made the mortality very great. Accordingly, this may account for the few successful cases of this type being reported.

A well-advanced pregnancy may make the diagnosis more difficult, but the existence of the pregnancy should not deter the operator from relieving the strangulation at the earliest possible moment.

An ileus of the mechanical type may be relieved in its early stages by severing the bands which cause the strangulation. In many of these cases the progress is a slowly developing one; sometimes days elapse before the circulation is so shut off as to cause gangrene of the bowel. Once it has become gangrenous, there is no alternative but to resect and to make such anastomosis as the judgment of the operator may dictate. A lateral anastomosis is usually

selected because of its security, with less danger of subsequent stricture.

If resection is done, drainage must always be employed, but care must be exercised in the placing of this drainage in order that pressure necrosis may not follow. A gauze cigarette drain is used by most operators, the drain resting at one side and not on the anastomosed bowel.

The symptoms of intestinal obstruction should be familiar to the obstetrician as well as to the general surgeon.

Generally speaking, the symptoms may be summarized somewhat after the plan given by Van Zwalenburg, and are as follows:

1. Sudden onset of pain.
2. Vomiting, first of stomach contents, bile and mucus; the mucus with regurgitation of gas, and last, of mucus and

flammation seven years previous to the formation of the ileus; the inflammation at that time having been severe enough to produce adhesions which undoubtedly existed for a number of years:

REPORT OF CASE

History.—The patient, Mrs. M. B., housewife, aged 27, whose family history was negative, had had no eventful illness until the age of 21, when she had some abdominal inflammation which lasted a number of weeks and was evidently some form of peritonitis. Shortly after this abdominal disturbance, constipation was noted, increasing year by year. In the summer of 1906 constipation was very marked, and in August, 1907, a cystic tumor was found developing from the left ovary and bound down by adhesions into the cul-de-sac of Douglas, pressing upon the rectum, to which it was bound by dense adhesions. I removed it on August 27, 1907, at Michael Reese Hospital. Dense adhesions were encountered throughout the

TABLE OF CASES OF ILEUS

Author.	Cause.	Disposition of Bowel.	Time of Operation.	Result.
J. P. Lord.....	Suppurative appendicitis.....	Resection.....	7th week.....	Recovery.
J. P. Lord.....	Perforating appendicitis.....	Loop entered by catheter.....	9th day.....	Recovery.
J. P. Lord.....	Suppurative appendicitis.....	Enterostomy.....	20th day.....	Recovery.
J. P. Lord.....	Complicated conditions.....	Enterostomy.....	Not given.....	Recovery.
C. Van Zwalenburg.....	Chronic peritonitis.....	Operation not stated.....	36 hours.....	Recovery.
C. Van Zwalenburg.....	Sudden onset.....	Resection.....	5th day.....	Death.
C. Van Zwalenburg.....	Following childbirth.....	Operation not stated.....	2d week.....	Recovery.
C. Van Zwalenburg.....	Chronic pelvic peritonitis.....	Operation not stated.....	24 hours.....	Recovery.
C. Van Zwalenburg.....	Pregnancy.....	Operation not stated.....	24 hours.....	Recovery.
C. Van Zwalenburg.....	Appendectomy two years previous.....	Operation not stated.....	24 hours.....	Recovery.
L. G. Hauley.....	Uterine fibroid.....	Operation not stated.....	24 hours.....	Recovery.
L. G. Hauley.....	Strangulated hernia.....	Operation not stated.....	36 hours.....	Recovery.
L. G. Hauley.....	Extra-uterine pregnancy.....	Operation not stated.....	Not given.....	Recovery.
G. W. Ely.....	Appendectomy two years previous.....	Resection gangrenous bowel.....	10 days.....	Death.
G. T. Vaughan.....	Meckel's diverticulum.....	Resection.....	74 hours.....	Death.
G. T. Vaughan.....	Obstruction from band.....	Resection.....	7th day.....	Death.
G. T. Vaughan.....	Band following appendicitis.....	Operation not stated.....	Not given.....	Death.
G. T. Vaughan.....	Band following appendicitis.....	Operation not stated.....	31 hours.....	Recovery.
A. E. Rocky.....	Appendicitis.....	Adhesions separated, removal of appendix.....	Immediate.....	Recovery.
A. E. Rocky.....	Appendicitis.....	Appendectomy, intestine opened by puncture.....	Not given.....	Recovery.
A. E. Rocky.....	Band adhesions.....	Adhesions broken up.....	Not given.....	Death.
A. E. Rocky.....	Appendectomy.....	Adhesions separated.....	Immediate.....	Recovery.
A. E. Rocky.....	Suppurative appendicitis.....	Adhesions separated.....	Not given.....	Recovery.
A. E. Rocky.....	Following appendectomy.....	Thick band severed.....	Not given.....	Death.
A. E. Rocky.....	Appendectomy.....	Short firm band severed.....	Immediate.....	Death.
A. E. Rocky.....	Sudden onset.....	Adhesions severed.....	5 days.....	Recovery.
A. E. Rocky.....	Tuberculous peritonitis.....	Distended intestine opened and evacuated.....	Immediate.....	Recovery.
A. E. Rocky.....	Congenital malformation.....	Entero-anastomosis.....	5 days after birth.....	Death.
A. E. Rocky.....	Sudden onset.....	Intestine punctured.....	Not given.....	Recovery.
A. E. Rocky.....	Fall of 25 feet.....	Not given.....	5th day.....	Recovery.
A. E. Rocky.....	Chronic constipation.....	Intercolic anastomosis back of twist.....	Not given.....	Recovery.
A. E. Rocky.....	Double twist of sigmoid in pelvis.....	Colon emptied.....	7th day.....	Recovery.
A. E. Rocky.....	Hernia.....	Intestine opened.....	Not given.....	Recovery.
H. Rutherford.....	Gall-stones.....	Removal of gall-stones from duodenum.....	Not given.....	Recovery.
E. F. Neve.....	Sudden onset.....	Reduction by enemas.....	Not given.....	Recovery.
E. F. Neve.....	Sudden onset.....	Enterotomy—opened and evacuated.....	Not given.....	Recovery.
E. F. Neve.....	Sudden onset.....	Enterotomy and drainage.....	Not given.....	Recovery.
E. F. Neve.....	Hernia.....	Reduction and drainage.....	Not given.....	Recovery.
E. F. Neve.....	Chronic obstruction.....	Opened and drained twice.....	Not given.....	Death.
E. F. Neve.....	Chronic obstruction.....	Operation not stated.....	Not given.....	Recovery.
E. F. Neve.....	Incarcerated hernia.....	Adhesions broken up.....	Not given.....	Recovery.
M. DeForest.....	Mechanical obstruction.....	Adhesions broken up.....	Not given.....	Death.
A. Theilhaber.....	Cesarean section.....	Abdomen not opened.....	Not given.....	Recovery.
W. L. Rodman.....	Post hernia.....	Reduction.....	Not given.....	Recovery.
W. A. Downes.....	Gall-stones.....	Ileum opened.....	Not given.....	Recovery.
J. B. Deaver.....	Appendectomy.....	Band severed.....	Not given.....	Recovery.
W. Martin.....	Tubal pregnancy with adhesions.....	Band severed.....	Not given.....	Recovery.
M. Kirmisson.....	Meckel's diverticulum.....	Resection.....	Not given.....	Death.

regurgitation of gas with possible fecal matter, or a liquid substance resembling feces in odor and color.

3. Absence of fever the first four or five days.
4. Moderate diffuse tenderness, not always localized.
5. Obstipation, after bowel below obstruction has been emptied.
6. Marked and generally increasing prostration.
7. The visible peristalsis wave, falling as it reaches the point of obstruction.
8. Abdominal distention above point of ileus.
9. Borborygmus, or the sound made by flatus passing from one loop of intestine to another, as emphasized by John B. Murphy.
10. Leukocytosis in most advanced cases, but not dependable, especially in the early stages of any case.
11. Previous history of peritonitis or knowledge of existing adhesions.

The mechanical form of ileus is shown in the following report. There was a history of some intestinal in-

pelvis. The upper abdomen was not explored. Recovery was uneventful, with no symptoms of infection at any time during the two and a half weeks of convalescence. Constipation was relieved at once and the condition of the bowels remained normal up to the time of her pregnancy about one year later. In June, 1908, she was married, pregnancy following almost immediately. Nausea and abdominal distress were marked from the beginning. Constipation was again noted with continuous distention of the bowels by gas. Nov. 14, 1908, the patient was suddenly seized with abdominal pain which was located in the epigastric region, radiating to the right abdomen and back, a diagnosis of appendicitis being made by her then attending physician. Nausea was present within a few hours after the onset of pain. Vomiting also commenced within a few hours, vomitus being stomach contents with some bile. Pain was somewhat relieved by morphin given hypodermically, and the bowels were moved by an enema with good results. Symptoms then subsided for forty-eight hours, pain being present almost constantly but not as severe. There was

then a recurrence of the severe pain, vomiting and much gas from the stomach, which began to have a fecal odor. Cathartics were given but very promptly vomited. A slight action from the lower bowel was obtained by repeated enemata. Some distention of the upper abdomen was noted at this time, but all symptoms were again relieved by the use of morphin and did not recur with any great severity until the fourth day, when acute pain again became unbearable, the retching being pronounced. No gas passed by the bowel nor was any movement obtained by enemata or otherwise. The upper abdomen was markedly distended, with pulse growing rapid and weaker. Temperature first noted at this time 101. These symptoms were somewhat relieved by the administration of $\frac{1}{2}$ gr. of morphin, patient sleeping for several hours. The following morning the patient was sent to St. Joseph's Hospital still under the effects of morphin and feeling fairly comfortable.

Examination.—She then came under my care, and examination showed pulse 108, temperature 99. The patient was vomiting bile and mucus which had a fecal odor, but the vomitus at no time consisted of fecal matter. The abdomen was markedly distended; a five months' pregnant uterus partially filling the lower abdomen, while a distinct tumor mass could be palpated above the umbilicus, its outline being somewhat sausage-shaped. This mass extended from the lower border of the ninth and tenth ribs on either side, and from



Ileus delivered showing constricting band while pregnant uterus forces bowels upward.

the point a little below the ensiform cartilage to the umbilicus. The mass was markedly tympanitic and on pressure pain was elicited to the right and below the umbilicus, radiating apparently toward the cecum and to the back. The stomach was found distended. The patient claimed that the amount of fluid vomited was far in excess of that swallowed. Vaginal examination revealed some bulging at the en-de-sac. The five months' pregnancy was verified. Rectal examination revealed nothing but empty bowel. No marked peristalsis was visible at this time. Normal salt enema was given at a very low pressure but with negative result. The stomach was washed out. The pulse was rapid and thready and gradually growing weaker. Prostration of the patient became marked. A leukocyte count of 16,100 was noted the first hour after entrance into hospital, with one of 18,500 two hours later. The urinalysis made at the time of the second leukocyte count was negative, save for a high specific gravity and a distinct reaction for indican. A diagnosis was made of intestinal obstruction and immediate operation decided upon.

Operation.—After usual preparation the abdomen was entered through median line incision at upper part of old scar of previous operation. Omentum was found adherent to peritonium with much free fluid in abdomen. The pregnant uterus was filling the pelvis and the lower abdomen, causing the intestines to be pressed upward. The intestines first observed were found collapsed and empty. Approaching the tumor mass dense adhesions were encountered, several being of

the thick band type and evidently of long standing. The abdominal incision was enlarged upward about and above the umbilicus. The mass was then seen to be a black gangrenous loop of small intestine, forming a typical so-called ileus of the mechanical variety, a thick band passing from the free surface of the ileum at a point about 20 cm. from its junction with the cecum, then passing about a loop of the same intestine and apparently attached to the posterior wall of the abdominal cavity. The occluded bowel with its mesentery was enormously distended and gangrenous. The serosa of the intestine not occluded by the strangulating band was covered by a fibrinous exudate and was very dark in color. This part of the bowel also was somewhat distended. The band was severed at once. The gangrenous intestine with that portion of the mesentery which was in the same condition was clamped off and removed. It was 30 cm. in length. An end-to-end anastomosis was then made after bringing together the edges of mesentery where the V-shaped portion had been resected. A large cigarette drain was carried down to the bowel close to the anastomosis and the abdomen closed.

Postoperative History.—One pint of hot physiologic salt solution was given per rectum every two hours. The patient continued an uneventful course until the eleventh day, when she miscarried a five and one-half months' fetus. The shock following this was severe, but she rallied and her recovery was complete. It is now over a year since her operation and she remains in excellent health, with no more symptoms of the preexisting constipation.

It is possible that adhesions followed the operation of the year previous when the ovarian cyst was removed. The absence of any symptoms of infection, the quick and perfect convalescence with relief of constipation at that time, however, would refute this. Old and numerous adhesions were encountered at the first operation, differing in number and thickness from those usually associated with an ordinary ovarian cyst. The abdominal viscera were not molested in any way at that time, and from the accompanying drawing it is seen that the band was high up in the epigastric region. Had not pregnancy ensued this band might never have caused any trouble. The enlarging uterus gradually crowded the bowel upward until the band became taut about a loop of the incarcerated bowel, which became distended with gas and eventually completely strangulated.

It would seem that in this case the process was somewhat slow in developing. The administration of large doses of morphin, which usually tend to cloud symptoms, may have lessened intestinal peristalsis and delayed the process. Had it not been delayed, it is doubtful that an operation five days after the onset of symptoms would have been anything but fatal to the patient.

A diagnosis of appendicitis was first made by the physician in attendance. From the location of pain and the vomiting, together with the fact that the abdomen was distended by the existing pregnancy, the diagnosis was excusable. Very little credit can be claimed for making a diagnosis in the last stages of these cases. As has been shown here, the symptoms were typical, and it only remained to act quickly and decisively.

To relieve an ileus or intestinal obstruction by operation is usually an attempted life-saving measure of the last resort. The appalling death-rate of late operations proves most emphatically that grave mistakes have been made by procrastination. In no other abdominal work is speed of operation so necessary. Adjoining viscera, already devitalized by inflammatory processes, impaired circulation and restricted nerve-supply, should be handled as little as possible. Anatomic relations should be borne in mind, but not sought after.

If amputation is necessary, resection and anastomosis must be carried out with a rapid and simple technic. If

the serosa of the two ends of bowel adjoining the resection are healthy, a lateral anastomosis may be done quite as speedily as an end-to-end one. If, however, the bowel is covered with an exudate and is cyanotic, while the mucosa looks normal; or, if the mesentery has been resected and cannot be coaptated without folding under, as in a lateral anastomosis, then the end-to-end method must be employed. On the other hand, if the lumen of either distal or proximal end of the resected intestine differ greatly, a lateral anastomosis must be done.

Drainage is usually employed in cases of resection. Such drainage as will absorb exudate or leakage must be used and so placed as not to cause pressure on the sutured bowel.

After-treatment is important, but stress is laid only on the non-administration of such stimulants as those which favor peristalsis and increase blood pressure.

If pregnancy accompanies an ileus any attempt to relieve the patient of the pregnancy will jeopardize her life; that is, if the ileus is diagnosed late and a resection necessary.

Early diagnosis, followed by immediate and rapid operation with minimum anesthetic, means a lessened mortality in the treatment of intestinal obstruction by ileus.

34 Washington Street.

COLON BACILLUS INFECTION OF OPERATION WOUND

REPORT OF INTERESTING CASE

EDMUND A. BABLER, M.D.

Visiting Surgeon City Hospital, Junior Surgeon Deaconess Hospital
ST. LOUIS

Escherich's classic description of the colon bacillus marked an epoch in medical literature and was quickly followed by an appreciation of the frequent presence of the organism in various parts of the body. Tavel was the first, however, to find the colon bacillus in the tissues of the body outside of the intestinal canal. He found this organism in the wound resulting from removal of a tumor of the thyroid gland.

Colon bacillus infection of a mild character of an operation wound is of not infrequent occurrence in abdominal surgery. I have a patient at the City Hospital who is now convalescent following gun-shot wound of the liver and colon, in which the abdominal incision became infected with the colon bacillus; the operative wound opened *in toto* on the sixth day, when Dr. Chamberlain removed the clips. Fortunately, however, the operative wound does not usually suffer very much from a colon bacillus infection, because the patient's body forces are able to combat the invasion successfully.

The following case of colon bacillus infection of the operation wound exemplifies the distressing result that occasionally follows such infection:

REPORT OF CASE

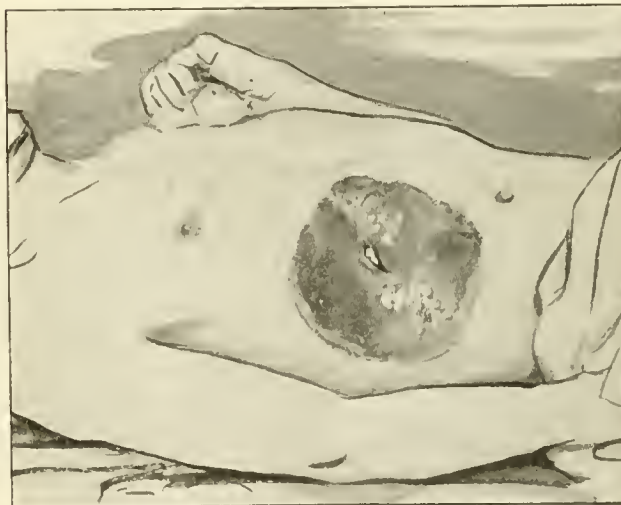
History.—J. McQ., a white man, a laborer, aged 45, was admitted to the medical department of the City Hospital, May 14, 1910. He had had frequent attacks of malaria; denied syphilis or any serious illness; was accustomed to drink and smoke moderately. Three days previous to admission, while tying his shoe, the patient was suddenly seized with a "stitch" in his right side. This had been more or less persistent since onset. The next day he had a chill, followed by fever. He now complained of severe pain in

region of the ninth right intercostal space in the anterior axillary line.

Physical Findings.—Inspection showed the patient's expression anxious; he was anemic and emaciated; respirations somewhat shallow and accelerated; he had a slight cough, which caused pain in the right side; the patient was nervous and excitable; had been drinking. Faint tremors of tongue and fingers were present. Auscultation in right axilla revealed harsh inspiratory and blowing expiratory sound. Numerous dry râles were heard throughout chest. Vocal and tactile fremitus were exaggerated over middle and lower lobes of right lung; relative dullness over left lower lobe; friction rub audible close to right costal margin, heard on both inspiration and expiration. On May 14 the chest was aspirated, but no fluid obtained.

Blood.—On May 16, the leukocyte count was 19,100. On May 30, it was 24,800. On June 5, it dropped to 10,700, while on June 11, it reached as low as 9,850. July 31, the blood showed 85 per cent. polymorphonuclears, 1 per cent. large lymphocytes, 13 per cent. small lymphocytes and 1 per cent. eosinophils. (This latter count was one month after operation.) Later the blood showed the presence of the colon bacillus.

The stools were devoid of amebas, and tubercle bacilli were absent from the sputum.



Necrotic operation wound, infected with colon bacillus.

On June 18, the patient came under the care of Dr. Luton, a member of the staff, and the diagnosis of subphrenic abscess was made. On June 23, I saw patient in consultation with Dr. Luton, and confirmed his diagnosis.

Operation.—On June 24, an incision, two inches in length, was made (under cocaine anesthesia) in the anterior axillary line over the most prominent portion of the bulging mass. About two quarts of fluid, resembling that of a liver abscess, were evacuated. Examination showed the abscess to be a subphrenic one, although the palpable liver surface was roughened. A double drainage-tube was inserted. Examination of the fluid evacuated showed liver cells absent, but a pure culture of colon bacilli.

Postoperative Course. The discharge from the wound was very profuse and the patient did not respond to treatment, although he was able to be up about two weeks after the operation. On July 18, the margins of the wound became very red and somewhat swollen. This process became more and more extensive. On July 23, the wound margins became necrotic and discharged a grumous substance. On July 24, a culture from this substance showed colon bacillus only. On August 10, six minims of a vaccine made from bacteria recovered from fluid from the pleural cavity of the patient, each cubic centimeter containing 100,000,000 dead bacilli, were injected. This injection was followed by a temperature

of 102 F., and seemed to make the patient worse. Injection was not repeated. Blood analysis showed the presence of colon bacilli.

The area of skin destruction became more and more extensive, until at the time of death, two months after the operation, the wound was necrotic to extent shown in the drawing made by Mr. Tom Jones. I am indebted to Drs. Kimzey and Burns, interns at the City Hospital, for valuable assistance rendered the artist.

Autopsy.—This was made by Dr. Gould. The principal findings were destruction of greater portion of the diaphragm between the base of the right lung and the liver. The abscess floor was formed by the liver, while the base of lung formed its roof.

COMMENTS

The true origin of the subphrenic abscess was not clearly determined. The fact that a large portion of the diaphragm was destroyed by the bacterial invasion is interesting. The main feature of the case centered in the action of the colon bacilli on the postoperative wound. I have not been able to find a similar report in the available literature. In my opinion the patient's lowered vitality, combined with the extensive distribution of the organisms, permitted but feeble opposition to the invasion into the skin and subcutaneous tissue.

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THE TUBERCULOUS TONSIL *

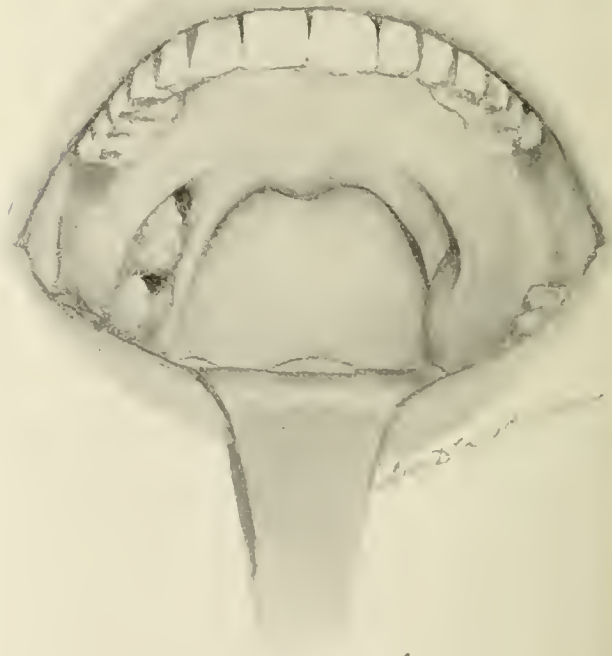
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In 1886 Trautman¹ made the statement that children of tuberculous parents suffering from hyperplasia of the pharyngeal tonsil showed marked local and general reactions following the injection of tuberculin, the continued use of which resulted in cure of the hyperplasia. From this he argued that such tonsillar affections were tuberculous. It was not, however, until 1895 that any serious attempt was made to prove by laboratory investigation the relationship between hypertrophy of the pharyngeal and faucial lymphoid tissue and tuberculosis. At this time intense interest was awakened by the experiments of Dieulafoy,² and, although it has since been shown that these experiments could not be considered conclusive, the interest awakened thereby resulted in the development of an enormous literature, much experimentation and more or less conclusive as well as confusing reports. To a clinician accustomed to using laboratory methods only for purposes of confirming diagnoses made from subjective and objective manifestations, the statement that tonsillar tuberculosis was found in twenty cases out of thirty-four of tuberculosis (Walsham³) came as a decided shock. Wood's⁴ table of seven observers gives 69 per cent., and it is generally conceded that a very much higher proportion of tonsillar tuberculosis exists than had previously been recognized. The reason for this changed belief may be ascribed to newer methods of investigation based principally on histologic findings and laboratory and animal experimentation. Clinically one finds evidences of tuberculosis of the pharynx with or without tonsillar involvement

among the rarer manifestations of tuberculosis. This being the case, I have frequently questioned whether the clinical diagnosis or the laboratory diagnosis should stand. For the purpose of comparing the frequency with which tuberculosis of the tonsils could be clinically diagnosed with the reports of laboratory findings by others I reviewed very thoroughly my private records. In a study of 450 cases of laryngeal tuberculosis I found the following:

Some portion of the pharynx was involved in 64 cases. The pharynx exclusive of the tonsils was involved in 32 cases; the pharynx and tonsils were involved in 24 cases; the faucial tonsils alone were involved in 8 cases.

In other words, of the 450 cases of laryngeal tuberculosis some portion of the pharynx was involved in 14.22 per cent., the pharynx alone in 7.11 per cent., the pharynx and tonsils in 5.31 per cent. and the faucial tonsils alone in 1.77 per cent.



Early stage of tuberculous tonsil.

It is generally conceded that laryngeal tuberculosis occurs in a very large proportion of pulmonary cases. The average frequency may be considered at 30 per cent. If this be accepted as a basis for estimating the frequency with which pharyngeal tuberculosis occurs in all pulmonary cases it may be stated that some portion of the pharynx is involved in 4.26 per cent., the pharynx alone in 2.13 per cent., the pharynx and tonsils in 1.59 per cent., and the faucial tonsils alone in 0.53 per cent.

It may seem difficult to make these figures coincide with those of other observers or even those of the authors⁵ published in 1896.

Confirmation of my previous report that pharyngeal tuberculosis occurs in 1.5 per cent. of all cases is found in the table compiled by Lockhard,⁶ which gives 1.47 per cent. as the estimate. Confirmation of my present report

* Read in the Section on Laryngology and Otology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Lewin: *Arch. f. Laryng. u. Rhin.*, ix, 379.
2. Dieulafoy: *Abstr. In Laryngoscope*, 1896, 4, 117.
3. Walsham: *Brit. Med. Jour.*, May 7, 1898.
4. Wood, George B.: *The Significance of Tuberculous Deposits in the Tonsils*, *THE JOURNAL A. M. A.*, May 6, 1905, p. 1126.

5. Levy: *Tr. Am. Laryngol., Rhinol. and Otol. Assn.*, 1896, p. 60.

6. Lockard: *Tuberculosis of the Nose and Throat*, p. 332, C. V. Mosby Medical Book Publishing Co., St. Louis, 1909.

that tonsillar (faucial) tuberculosis is found in 1.77 per cent. of all laryngeal cases is found in Chiari's⁷ estimate of 1.88 per cent. (12 in 635 cases).

The great discrepancy between these figures and those reported from laboratory findings must be a source of much surprise. One explanation is in the present estimate of 30 per cent. instead of 15 per cent. as representing in 1896 the frequency of laryngeal tuberculosis. It also must be concluded that clinical tuberculosis of the tonsils and that determined by histologic examination present marked differences as to manifestations, and consequently as to significance. In order to reconcile this confusion the classification of latent tuberculosis has been made.

Clinical and latent tuberculosis are differentiated essentially by the absence of subjective and objective symptoms in the latter and definite subjective and objective manifestations in the former. Microscopically the differences are not so great, and still we do have distinguishing characteristics. In clinical tuberculosis of the tonsils one sees this structure but slightly if at all enlarged. If an enlargement exists it has no special bearing on the tuberculous process.

The characteristic appearance is a peculiar pallor with a slightly edematous or weeping surface covered with a tenacious, thin, somewhat milky secretion; localized areas of small pin-point or pin-head white or grayish deposits of greater or less extent are seen definitely situated beneath the surface of the mucous membrane. Somewhat later one sees the beginning of ulceration manifesting itself by a superficial excavation, irregular in outline and unattended by inflammatory surrounding redness. As the disease progresses these typical appearances become more pronounced, the ulcerations coalescing in irregular manner, giving a nibbled or mouse-eaten outline to the parts. With the excess of disturbance the edema becomes greater, presenting definitely outlined though not circumscribed swelling. The subjective symptoms are those of discomfort in the throat followed by pain which becomes excessive and is usually associated with more or less marked constitutional symptoms, such as fever, rapid pulse and loss of weight. It is true that these subjective symptoms when confined to the tonsils alone are rarely very marked, but involvement of surrounding pharyngeal tissues takes place so rapidly that the interval between the onset of the tonsillar manifestations and the development of constitutional symptoms is but short. The local appearances presented by this form of the disease are usually definite and characteristic. Occasionally one finds it difficult to distinguish a tuberculous ulceration of the tonsil from one due to syphilis, and this is especially true in instances in which the two diseases are associated. Such cases have at various times come under my observation. The case reported by Lack,⁸ in which tubercle bacilli were found but in which the administration of potassium iodid cured the patient, must be looked on as one of syphilis associated with tuberculosis. Here the histologic examination was suggestive though not conclusive of tuberculosis, but the result of treatment must be considered confirmatory of the diagnosis of syphilis.

The symptoms of latent tuberculosis, on the other hand, are extremely vague. Hurd,⁹ in describing the appearance of such a tonsil, says that it is "usually pale,

the crypts contain cheesy detritus, the edge of the anterior pillar may have a passive hyperemia and the associated lymphatic gland is usually much enlarged and hard." This description might be applied to the appearance of any number of tonsils seen daily.

Botey, quoted by Wright,¹⁰ states that it is impossible by simple inspection to distinguish hypertrophy of tuberculous character from the common hypertrophy of tonsils with which every one is familiar.

Baup,¹¹ in speaking of the symptomatology of larval tuberculosis, says that "this is still very vague" and that "locally the tuberculous tonsil is not distinguished from the hypertrophied tonsil."

Walsham,¹² in describing his twenty cases of tuberculosis found in thirty-four autopsies, states that all but two of these cases showed no tuberculous manifestations before death.

Histologic examination may also be subject to question and many of the findings attributed to tuberculous changes occur in other pathologic conditions.

Wyatt Wingrave,¹³ after examining a large number of so-called tuberculous cervical lymphatic glands, concludes that there are a large number of chronic non-suppurative glands included in the term "tuberculous" which are not due to tubercle at all, but which present all the histologic features minus the specific organism.

Wood¹⁴ states that giant cells and lesions resembling tubercles may result from irritation of foreign bodies and that certain acid-fast bacilli will sometimes give rise to changes scarcely distinguishable from true tubercles. One cannot but be impressed with the apparent difficulty of demonstrating the presence of tubercle bacilli in so-called histologic tuberculosis and authors are generally agreed that without the presence of these microorganisms the diagnosis must of necessity be still questionable. The elaborate and competent work of George B. Wood¹⁵ of Philadelphia forms an important part of the extensive research and literature devoted to this subject. In his experiments on guinea-pigs Pig 3 was the only one showing marked evidences of tuberculosis, and here tubercle bacilli were found in all of the glands. Wood quotes Ravenel's experiments in which after being fed tubercle bacilli by the mouth four hogs developed tuberculosis, three of the four showing ulcerative lesions of the tonsil, which is further evidence in favor of the contention that when these organs are truly tuberculous gross lesions, as shown by ulceration, are present. It may be possible that the ulcerative process is not of necessity a tuberculous manifestation and that, as Wood states, this lesion may be due to a mixed infection of a tuberculous structure whose ordinary resistance to bacterial invasion is lessened. Be this as it may, one must certainly feel better satisfied with a diagnosis based on definite physical signs than with one based on indefinite appearances.

"In undoubted tuberculosis the histologic findings are typical. In a case of unquestioned early tuberculous lesion of the right tonsil, of which a drawing is herewith presented, the histologic examination made by Professor Todd of the pathologic laboratory of the Denver and Gross College of Medicine showed the following:

7. Chiari: Die Krankheiten des Rachens, Franz Dentioke, Leipzig and Vienna, 1903, p. 151.

8. Lack: Jour. Laryng. Rhin. and Otol., April, 1903, p. 217.

9. Hurd and Wright: Med. Rec., June 26, 1909.

10. Wright: New York Med. Jour. Sept. 26, 1896, p. 413.

11. Baup: Ann. Otol., Rhinol. and Laryngol., ix, 249.

12. Walsham: Brit. Med. Jour., May 7, 1898.

13. Wingrave: Jour. Laryngol. Rhinol. and Otol., January, 1905, p. 45.

14. Wood, G. B.: THE JOURNAL A. M. A., May 6, 1905, p. 1427.

15. Wood, G. B.: THE JOURNAL A. M. A., May 6, 1905, p. 1429.

The tissue consists of three rather soft whitish pieces which have been preserved in weak formaldehyd solution. The largest measures about 4 by 5 by 6 mm.

In general the histologic structure is that of tonsillar tissue. Scattered throughout all the sections are typical tubercles. They consist of a reticulum with numerous cells of the endothelial type and a very few lymphoid cells. Most of the tubercles contain one or more giant cells—in most cases typical tuberculous giant cells, having caseous centers and peripheral arrangement of nuclei. The tubercles themselves do not show caseation.

The covering of stratified squamous epithelium is intact over much of the free surface, but contains rather numerous wandering cells.

At certain points the tubercles reach the surface and coalesce so as to form a layer of rather diffuse endothelial hyperplasia with an occasional giant cell. Over these regions the epithelial covering is absent, and the most superficial portion is densely infiltrated with polynuclear leukocytes (ulceration).

A number of the sections were stained for tubercle bacilli. In an hour's search only one small group of bacilli were found lying among the endothelial cells at the periphery of a tubercle.

Here tubercle bacilli were found and, although Professor Todd would make a diagnosis of tuberculosis from such histologic appearances, nevertheless the tubercle bacilli must be considered essential factors. Any histologic report containing less than the above typical findings is open to question.

The significance of the latent form of tuberculosis of the tonsils is of particular importance in its relation to glandular involvement. It is known that many varieties of infection may pass through the tonsils and other portions of the pharyngeal lymphatic ring to the nearest glands, causing enlargement of these structures. It has also been shown that among the micro-organisms causing such disturbances tubercle bacilli have been demonstrated and that their passage through the tonsils has been followed by no change in these organs. Friedman,¹⁶ Strassmann,¹⁷ Krüeckman¹⁸ and others may be quoted in this particular. The significance of this phenomenon must be considered, as Grünwald¹⁹ puts it, dubious. Furthermore, it is not necessary to attribute all forms of cervical adenitis to tuberculosis, for, as Goodale²⁰ states, there are many instances of enlargement of the glands of a non-tuberculous nature which he is inclined to regard as of toxic origin. In a large number of children presenting various degrees of adenoid or tonsillar changes, enlarged cervical glands were almost invariably found. Tuberculin tests, such as the Moro or von Pirquet, were used in these patients, with the ultimate result that while many of them showed positive reactions the proportion in which negative results were obtained was sufficiently large to be considered as evidence of the non-tuberculous nature of the glandular enlargements.

The question of latent tuberculosis is of special importance in children. The frequency with which adenoids and hypertrophied tonsils are found in early life would make one incline to belief in the occurrence of this form of tuberculosis in children to the extent believed by some, but the infrequency with which clin-

ical, definite manifestations of this affection are found in children must be an argument against this belief.

A tonsil should not be considered tuberculous except under certain well-defined conditions, both clinical and histologic, as outlined above. Nevertheless these organs must be looked on as important gateways for infections of various kinds, tuberculosis included. At the same time one must not conclude that because many infective conditions have their initial lesions in the tonsils, tuberculosis, even though it be brought to the system through this channel, must also be attended with a tuberculous initial lesion here. The infrequency with which tuberculosis is localized in children is a matter of common observation, although it must be stated that exceptions have been reported. The cases of Plicque²¹ and Siegert²² are especially noteworthy.

The manner in which definite local signs of tuberculosis of the tonsils develop may be considered as due to a special reaction to the infection. The experiments of Cornet,²² in which an ulceration occurred at the point of inoculation almost invariably, are extremely suggestive. The cutaneous reactions described of recent years, in which pronounced local changes showed themselves in patients having tuberculous foci, suggest an explanation of the development of many of the lesions found and localized in the upper air passages. It is stated by Labbé and Levi-Surugue²³ that adults show lesions of the tonsils more commonly than children because of absence of expectoration in the latter, leaving the inference that tubercle-laden sputum is the source of direct infection.

Baldwin,²⁴ in his lecture on "Hypersusceptibility to Tuberculin in Tuberculosis, etc.," makes the statement that many symptoms and pathologic products in tuberculosis are probably due to this reactive function, and quotes Koch's experiments with dead tubercle bacilli, stating that a dose which is sufficient to kill the animal can produce an extensive necrosis of the skin in the region of the injected spot. May we not therefore consider the possibility at least of tuberculosis of the tonsils developing as a result of a local reaction?

PROGNOSIS

In discussing the prognosis of tuberculosis of the tonsils the form of the disease must be taken into consideration. That in which we as clinicians are especially interested is the clinical variety, because of the fact that the diagnosis is less obscure. This form of tuberculosis must be looked on as attended with most serious consequences, presenting evidences of the gravest form of tuberculous infection. Its curability is extremely doubtful. It is usually associated with involvement of other structures in the pharynx, larynx and elsewhere. When it occurs an unfavorable prognosis is justified.

The tuberculous tonsil as represented by the latent form less well recognized and less easily determined offers questions for prognosis also of great interest and importance. Among these questions that of the development of tuberculosis in adults from such infection during childhood has been considered at some length by Harbitz,²⁵ who concludes that this cannot at present be demonstrated, but that such infection must certainly be

16. Friedman: *Am. Jour. Med. Sc.*, February, 1902, p. 292

17. Strassmann: *The Year-Book of Nose, Ear and Throat*, 1900, p. 94

18. Krüeckman: *Abstr. in Internat. Centralbl. f. Laryngol. u. Rhinol.*, p. 775.

19. Grünwald and Newcomb: *Atlas of Mouth, Pharynx and Nose*, 1903, p. 127.

20. Goodale: *The Year-Book of Nose, Throat and Ear*, 1907, p. 291

21. Plicque: *Abstr. in Laryngoscope*, 1898, v. 189.

22. Cornet: *Quoted by Lockard*, p. 350.

23. Labbé and Levi-Surugue: *Abstr. in Anns. Otol., Rhinol. and Laryngol.*, ix, 93.

24. Baldwin: *Am. Med. Jour.*, February, 1909, p. 259.

25. Harbitz: *Sixth Internat. Congr. on Tuberculosis*, I, 156.

considered of great significance. Campbell,²⁶ on the other hand, believes that if the tonsil and adenoids were more frequently removed infectious diseases, including tuberculosis, would be more infrequent. The supposed immunity from infection in childhood is also discussed by Harbitz, who states that for the time being this must be only a hypothesis.

TREATMENT

The infrequency with which manifest tonsillar tuberculosis is found, except as a complication of tuberculosis of other portions of the upper air-tract, makes the treatment by extirpation a method rarely if ever indicated. Of what value is the removal of tuberculous foci here in the presence of numerous foci adjacent or more remote? In these cases the only results that have been of value have been obtained by methods of treatment applicable to all the lesions found. These have been obtained by the use of local palliative measures, more or less vigorous application of the galvanic cautery, especially after the method of Grünwald²⁷ and by the use of tuberculin in well-selected cases in conjunction with judicious general, hygienic and climatic treatment.

The treatment of latent tuberculosis of the tonsils consists in their removal by the most complete method possible. The purpose of such an operation is not so much to remove a possible tonsillar involvement as it is to prevent further infection through structures known to favor such infection. The question as to whether all tonsils associated with enlarged cervical glands require operation depends on the view one takes as to the nature of the lymphatic involvement. The utter impossibility of determining this by inspection must be evident. The histologic diagnosis cannot be made until after the treatment has been carried out; therefore the judgment of the observer alone must be dependent on. Generally speaking, I believe that when there exists cervical adenitis of considerable degree and that whenever the patient's general condition indicates lowered resistance, such as is demonstrated by frequent colds and evidences of malnutrition, even though other well-recognized indications for tonsillectomy are absent, the best interests of the patient will be subserved by radical operation.

SUMMARY

Tuberculosis of the tonsils occurs more frequently than previously recognized, owing to newer methods of investigation.

Clinically, tuberculosis of the pharynx, with or without tonsillar involvement, must still be looked on as among the rarer manifestations of tuberculosis.

Clinical tuberculosis of the tonsils and that determined by histologic examination present marked differences. They are differentiated by the absence of symptoms in the latter and definite subjective and objective manifestations in the former.

Many of the histologic findings attributed to tuberculous changes occur in other pathologic conditions.

The diagnosis of true tuberculosis of the tonsils is more satisfactory when based on definite physical signs corroborated by typical histologic findings.

It is not necessary to attribute all forms of cervical adenitis to tuberculosis.

Tuberculosis of the tonsil may be considered the result of a local reaction.

The clinical form must be looked on as very grave, its curability being extremely doubtful.

Extirpation of the tonsils is rarely indicated in clinical tonsillar tuberculosis.

In the presence of cervical adenitis, lowered resistance and evidences of malnutrition the best interests of the patient will be subserved by radical tonsillectomy even though other well-recognized indications for the operation be absent.

Metropolitan Building.

CONDITIONS DEMANDING ENUCLEATION OF
THE FAUCIAL TONSILS *

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It is my belief that, with the rarest exception, whenever the tonsil requires surgical interference enucleation should be the procedure, and, consequently, whatever I may say of the pathologic conditions in the tonsil itself, in its immediate neighborhood and in the system in general, it will be understood that I consider radical removal of the tonsil required to improve these conditions. The subject of the pathology of the tonsil, with special reference to its causing not only local and regional disturbances, but also general manifestations, has been so thoroughly discussed in the past two or three years that I can add but little that is new and only confirm observations made by others.

In regard to the many general disturbances mentioned in this paper for which the diseased tonsils are held responsible, one may be led to believe that it is my intention to attribute too many diseases to this source of infection. Every one of the conditions to be mentioned, however, has the following three points to support this contention: First, many authenticated reports exist; second, attacks of tonsillitis, mild or severe, preceded the general manifestations, and, third, following the enucleation of the tonsils the general manifestations were either markedly improved or completely cured.

There are, however, two pathologic manifestations in connection with the tonsils on which I desire especially to dwell. These are the influence of the removal of the tonsils (1) in enlarged glands of the neck and (2) in the cardiac complications of the rheumatic affection.

CONDITIONS BENEFITED BY ENUCLEATION OF TONSIL

The following are some of the conditions which are distinctly and beneficially influenced by complete enucleation of the tonsils. They may be subdivided into three groups:

1. Local, or conditions affecting the tonsil itself.
2. Regional, or conditions in close proximity to the tonsil.
3. Systemic or general.

1. The local conditions demanding enucleation of the tonsils are the following:

1. Chronic lacunar tonsillitis in which there are repeated acute attacks.
2. Chronic lacunar tonsillitis in which there are repeated attacks of peritonsillar abscess.
3. Tuberculous tonsil.
4. Primary chancre of the tonsil.
5. Malignant disease of the tonsil.
6. Acute infections, such as diphtheria, scarlet fever, etc.

26. Campbell: New York Med. Jour., May 1, 1907.

27. Grünwald: Die Therapie der Kehlkopf Tuberculosis, J. P. Lehmann, Munich, 1907.

* Read in the Section on Laryngology and Otology of the American Medical Association, at St. Louis, June, 1910.

2. The regional conditions demanding enucleation of the tonsils are as follows:

1. Chronic persistent pharyngitis, especially lateral.
2. Tubal catarrh, with associated middle-ear disease.
3. Enlarged glands of the neck.
4. Apical tuberculous infection.
5. Perpetuating bronchitis in children.

3. The general or systemic conditions are the following:

1. Rheumatism, with its complications and sequela, as, endocarditis and myocarditis, arteriosclerosis, arthritis, pericarditis, pleurisy, peritonitis, perineuritis, and myositis—so-called muscular rheumatism.
2. Blood changes, as chronic septicemia with secondary anemias.
3. Gastro-intestinal disturbances, such as gastro-enteritis, and duodenal catarrh, with a subsequent cholangitis.
4. Parenchymatous changes, such as parenchymatous nephritis, hepatitis and pancreatitis.
5. Changes in the special organs, as episcleritis and phlyctenular kerato-conjunctivitis.

RESULTS OF OPERATION

My cases exhibiting the above-named conditions have been carefully observed and recorded, so that definite conclusions can be drawn from them. It is unnecessary to tabulate all of them and a statement to the effect that either a cure or marked improvement was the result following complete enucleation of the tonsils is sufficient.

Comparative tests in which one tonsil was removed and the amelioration of the disease observed, while after the removal of the second tonsil a complete cure was obtained, were not at all rare. Some of the striking results were the following:

Tuberculous Tonsil.—Primary tuberculosis of the tonsil has occurred but once in my practice, and complete enucleation was followed by cure.

Primary Chancre of the Tonsil.—In one case of primary chancre of the tonsil, in which the operation of complete enucleation was performed, in 1907, the patient has remained free from any specific disease, negative Wassermann reaction was obtained three months ago.

Malignant Disease of the Tonsil.—In several cases of malignant disease, as sarcoma and carcinoma, in which complete enucleation was done, recurrence and death followed except in one case of sarcoma.

Acute Infections.—Acute infectious diseases, such as diphtheria, scarlet fever, etc., have been prevented by a complete enucleation of the tonsils; and when these diseases occurred, they have been of a very mild form. In the diphtheria hospital in Chicago, enucleation is performed on patients as soon as their cultures are negative.

Tubal Catarrh, with Associated Middle-Ear Disease.—In regard to the influence of complete enucleation of the tonsils in tubal catarrh and chronic adhesive middle-ear inflammation, I have observed distinct improvement in the symptoms of deafness and tinnitus, in five cases out of twenty-seven, and, in many of the remaining cases, which belong to the more progressed types, some improvement.

Enlarged Glands of the Neck.—That enlarged glands of the neck are caused by infections from the mouth and pharynx, is an established fact, and that Waldeyer's lymphatic ring, when infected, contributes the greatest source of infection to these glands, is equally well known. That the faucial tonsil, the largest of the

lymphoid bodies in this region, causes the greatest amount of infection is fairly well established in the surgeon's mind, and that the removal of this structure prevents reinfection of these glands is the contention of most observers. While the general surgeon who is dealing with the subject of enlarged glands of the neck, frequently spoken of as tuberculous glands, believes this statement, he has been accustomed to practice the radical removal of all the chains of lymphatic glands, with practically no attention to the atrium of infection, the tonsil.

I have heard one of the most prominent general surgeons of this country say, in connection with a case of enlarged glands of the neck: "This patient has now had three radical operations on the glands of the neck, the condition always recurring; and knowing that the tonsil, which in this case is diseased, is most probably the source of infection, we will direct our efforts to eradicating this source." I then saw him take a Matthews tonsillotome, ablate the protruding portion of the tonsil and, with a finger and a gauze sponge, curette the remaining portion. This is the usual attention given to this source of infection and, in many instances, even less is done; that is, the interior of the oral cavity is entirely ignored. Again, general surgeons have made statements that, notwithstanding the attention given to tonsils, adenoids, etc., recurrence in the glands of the neck have occurred, when, as a matter of fact, the greater portion of the tonsil was allowed to remain hidden in the supratonsillar fossa, or at the base.

In order to prove the efficacy of the enucleation of the tonsil in causing enlarged glands of the neck to disappear and preventing recurrence of the same, I have made the following tests: Taking a case of bilateral glandular enlargement, in which the tonsils appeared to be diseased, I performed a radical operation on the glands of one side, extending from the stylomastoid region to the region below the clavicle, in the anterior as well as in the posterior triangle, superficial and deep, amounting to forty-six enlarged glands. Some time after the recovery of the patient, an enucleation of the tonsil was performed on the opposite side where the glands of the neck had not been operated on. The patient was placed under the best hygienic, dietetic and climatic conditions and, after six months, returned for examination. I found the patient much improved. The glands on the side where the tonsil was enucleated had disappeared, whereas on the opposite side where the glands had been radically removed, but the tonsil left in place, four glands had become newly enlarged below the sternomastoid muscle. The conclusive evidence that the tonsil is the source of infection of these glands is given by its enucleation. When the glands do not disappear after a tonsil operation, one must assume either of the following conditions to be responsible for this: first, the tonsil was not radically enucleated; second, the infection is from some source other than the tonsil; or third, caseation or abscess formation has already taken place.

The thirty-nine cases of enlarged glands of the neck that I desire to place on record may be briefly analyzed as follows:

Analysis of Cases.—Of the patients, twenty-seven were males, and twelve were females, ranging in age from 3 to 46. Sixteen had radical removal of glands, some, as often as five times. Histologic examination of these glands showed twelve to be tuberculous, and four simple enlargement. Twenty-three patients never had had operation for enlarged glands. Ten had incomplete ton-

sil operations; thirty-six had evidences of tonsillar disease; eight showed distinct lung tuberculosis; five, joint tuberculosis; three, rectal fistulas; twenty-six, family history of tuberculosis; twenty-one positive tuberculin reaction.

Results of Treatment.—Twenty-seven of these thirty-nine patients who had complete enucleation of the tonsils, including the ten who had formerly been incompletely operated on, the stump being removed subsequently, never had any recurrence of enlargement of glands. Among the twelve remaining patients who also had complete enucleation of the tonsils, there was some recurrence of enlargement. These patients were treated along general lines, x-ray, hygienic, dietetic, climatic and medicinal with some improvement in that the glands did not break down. The histologic examination of the enucleated tonsils showed true tuberculosis with caseation in one case and, in four, slight evidences of tuberculous disease. The section revealed the characteristic picture of a chronic lacunar tonsillitis.

Apical Tuberculous Infection.—Patients suffering from lung tuberculosis and chronic lacunar tonsillitis improved markedly after complete enucleation. I do not, however, mean to imply that the patient was cured of his lung tuberculosis by the enucleation of the tonsils.

Chronic Bronchitis in Children.—A chronic bronchitis in children which does not yield to the ordinary expectant and medicinal treatment does yield invariably to the enucleation of the tonsils and removal of adenoids.

Rheumatism with its Complications and Sequela.—The group of so-called rheumatic affections mentioned in the classification above, which resisted all means of local and general treatment, were either cured or much improved when the tonsils were enucleated. The cardiac complications, to which I desire to call special attention were noticeably influenced for the better. For instance, a patient with loss of compensation with valvular disease which followed each attack of acute tonsillitis in a chronic lacunar infected tonsil, was markedly benefited by the enucleation of one tonsil, and cardiac compensation permanently restored after enucleation of the second tonsil. The analyses of these cases is most interesting and complete histories of them would, no doubt, be of additional value, but space does not permit me to give them. I wish, however, to place on record the cases, numbering twenty, all of which give a history of repeated attacks of tonsillitis, with rheumatism and cardiac complications, these cardiac complications consisting, as a rule, of loss of compensation, following each attack of tonsillitis. The patients vary in age from 8 to 50; fourteen were females and six were males. The last was operated on more than a year ago. All of the patients have remained in good condition since the operation. The primary bleeding was greater and the healing not as prompt in these cases as in cases in which cardiac complications did not exist. There was no deleterious effect noticed on the heart at the time of the operation.

Blood Changes.—In a large group of cases such conditions as chronic septicemia with secondary anemias, in which the symptoms of a low grade of vitality or malnutrition, slight rise of temperature in the afternoon and secondary anemias are present, cures are obtained by the enucleation of the tonsils.

Gastro-Intestinal Disturbances.—Patients suffering from attacks of gastro-enteritic disturbances, such as loss of appetite, constipation, diarrhea and flatulency, which usually are aggravated following the acute attacks of tonsillitis in the chronic inflamed tonsils, are cured

by the complete enucleation of the tonsils after other local and general measures have failed. Following acute attacks of tonsillitis in a chronic lacunar inflamed tonsil one not infrequently observes marked symptoms of gastro-duodenal inflammation such as jaundice, rise of temperature, loss of appetite, etc., which never recur after complete enucleation.

Parenchymatous Changes.—Nephritis, hepatitis and pancreatitis, which have resisted all other methods of treatment, have yielded beautifully to the complete enucleation of the tonsils and removal of adenoids.

Changes in Special Organs.—Phlyctenula, kerato-conjunctivitis, iritis, scleritis and episcleritis, when other methods fail, are permanently cured when the tonsils are enucleated and adenoids removed.

CONCLUSION

My views of the result of the tonsillar enucleation may appear excessively enthusiastic, and perhaps they are; at the same time I must insist that I have mentioned only facts based on actual cases in my practice, which have been observed long enough to justify these conclusions.

Before closing I should like to present a theory as to the raising of the opsonic index of the blood to all infections when the tonsils are enucleated. If, for instance, there exists some pathologic condition of the body, near to or distant from the tonsils, which refuses to yield to the treatment applied to the said condition, if there exists merely a lack of healing power, due, most probably, to the constant absorption of toxic matter from the diseased tonsils, and if this toxic absorption is done away with by the complete enucleation of the tonsils and the pathologic condition heals, is it not reasonable to assume that the drain on the system has thus been stopped and the blood given a chance to become powerful enough to cure the disease in question because of the enucleation of the tonsil? For example, operation is performed several times for osteoperiostitis of the zygoma, but the tissues refuse to heal in spite of all treatment, medical as well as surgical. The tonsils, which are diseased, are enucleated and the disease of the zygoma promptly heals, while every other evidence of marked improvement in the general health is presented. Again, we all recognize the increase in weight and improvement in the general health, especially in children, after the removal of the tonsils and adenoids.

This theory, moreover, applies not only to the tonsil, but to other structures as well; for instance, a man has tuberculosis of the kidney with an external fistula and a hip-joint tuberculosis; if the latter is arrested the patient gains in weight and strength and the fistula and tuberculous kidney promptly heal.

Such results as these are more than mere coincidences and, to my mind, can best be explained by the above-mentioned theory.

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Causes of Itching in Children.—In making a diagnosis of the cause of itching the age of the patient is an important factor. In children the most common causes are urticaria, scabies, pediculi, and ascariides. The presence of papules and wheals, the history of the lesions appearing "as if the child had been stung with a nettle," are diagnostic of urticaria, while the distribution of a scabies eruption, the presence of burrows on the hands and wrists, and the identification of the acarus leave no room for doubt. Thread-worms are a frequent cause of pruritus and in children, and when these have been got rid of the itching will be found to disappear.—J. L. Bunch, in *Merck's Archives*.

ENUCLEATION OF THE FAUCIAL TONSILS *

ITS DIFFICULTIES AND CONTRA-INDICATIONS

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DETROIT

It is indeed a sad commentary on surgical procedure that it should be necessary to discuss at the present day any problem connected with the removal of the faucial tonsil. The fact remains, however, that an investigation of this operation throughout the civilized laryngologic world reveals many widely diverging and conflicting ideas in physiology, pathology, therapeutics and surgery. It is particularly the function of this Section, acting as a higher judicial court, to weigh such problems, and to establish, between enthusiasm and experience, a just and definite scientific basis of practice.

HISTORY AND STATUS OF THE RADICAL OPERATION

A glance at the extensive bibliography of McKenzie shows that tonsillectomy was performed by the ancients, and that Celsus recognized the value of enucleation by the finger.

Writing in the year 10 A. D., Celsus¹ says: "Tonsils which remain indurated after inflammation, if covered by a thin membrane, should be loosened by working the finger round them and then torn out; but when this is not practicable, they should be seized with a hook and excised with a scalpel." Aetius in 480 A. D., takes a more conservative view and advises that one-half the gland or the projecting portion only should be removed.

Borelli, an Italian surgeon of Sardinia, fifty years ago, describes his revival of the method of Celsus as follows:

The index-finger is placed behind the summit of the gland and by working from above downward with the nail and making traction the tonsil is detached from its bed. A small piece which does not afford sufficient purchase to the finger in order to be torn away is generally left at the inferior part. This is seized with a forceps and separated by a slight movement of torsion.

The admirable historical abstract of the tonsil operation by McKenzie is exceedingly interesting and shows at once that the American furor for complete enucleation is little more than a revival. It is necessary, I believe, to define carefully the terms "tonsillectomy" and "tonsillotomy." Tonsillectomy should be applied to those procedures only which remove the gland with the capsule intact, while tonsillotomy should include all other operations in which some portion of the tonsil remains. Many surgeons who claim tonsillectomy as their favorite method advocate procedures that, in actual practice, leave a considerable remnant of tonsil undisturbed.

For many decades the teaching in the great medical centers of Europe has profoundly influenced American surgery. The waves of radicalism have originated in some foreign university city and swept quickly over our country. To-day the tide has turned, and the idea of radical enucleation of the tonsil is taken back to the home of its birth through American influence.

It has been the pleasure and privilege of many persons in this Section to observe tonsil work in the clinics of the Old World. If your personal experience agrees with mine, you have never seen a tonsillectomy performed in any of these great centers of teaching, except for malignant disease.

It has been my endeavor to obtain the recent views of some of the leading laryngologists of Europe in regard to this question. While in London this summer I asked Mr. Herbert Tilley, Dr. Dundas Grant, Mr. Davis, and others if they performed tonsillectomy. The reply was unanimously against this operation, as it was considered quite unnecessary in England.

It was my pleasure to demonstrate this operation before the postgraduate class of the West London Hospital, where, I am told, the complete enucleation had never been performed. The McKenzie tonsillotome is in general use there; and, usually, in expert hands it removes two-thirds of the gland. Occasionally, an entire tonsil will be removed by this method.

Dr. Logan Turner, of Edinburgh, Scotland, answered my questions as follows:

In the case of children we still as a rule do tonsillotomy. The exceptional cases are those in which the cervical glands are troublesome, and then enucleation is practiced. I find that hemorrhage during the operation under a general anesthetic is the difficulty. In adults we now usually practice enucleation; as a rule, under local anesthesia plus adrenalin injections. The indications are recurring peritonsillar abscess, tonsillitis, loaded crypts with fetid breath and enlarged glands. And occasionally we get cases of ill health, in which no other etiologic condition can be discovered. If the operation is made complete, we are not usually troubled with postoperative hemorrhage.

In France the punch or snare has come into prominence, and Luc describes his tonsillotomy as follows:

I have adopted for the last five or six years, the method of our colleague Vacher (of Orleans), consisting, first, in liberating the gland from its adhesions at the pillars, then in seizing and drawing it from its lodge by means of a Museux forceps previously passed through the loop of a cold snare, and finally closing the snare. For that operation I only have recourse to general anesthesia in young children, whereas in the case of adults I simply use local anesthesia by means of injections of a 1 per cent. solution of novocain under the mucous membrane.

Professor Killian says that, so far as he knows, the radical tonsil enucleation is not done in Germany. The operation is done usually without a general anesthetic. The greater part of the tonsil is removed with the tonsillotome or the cold snare. The radical operation is considered only under special indications and is the exception.

Professor Massei, of the University of Naples, a splendid observer, replies as follows:

In forty years of practice, I have never performed tonsillectomy, and so far as I know, it has never been performed in Italy, particularly by specialists, except for cases of malignant diseases. Personally I believe tonsillectomy (for simple hypertrophy of the tonsils) a fault, not only because I am convinced that the risks of a hemorrhage are more frequent than in tonsillotomy, but also because I think that it is more correct to leave something of the gland. In about three thousand tonsillotomies I have performed, I had only seven or eight severe hemorrhages (one arterial) all controlled by common measures.

If the Austrian methods can be demonstrated by the Viennese teaching in the clinics of Chiari, Hajek, and Koseher, tonsillectomy is rarely, if ever, performed.

* Read in the Section on Laryngology and Otology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Celsus: De Medicina, Chap. 7, Sec. 12.

During my student days the Matthieu tonsillotome without anesthetic was the instrument of choice. The submerged tonsil was never operated on. It is evident, then, that the teaching in all countries except our own, and possibly Scotland, is opposed to the radical operation of enucleation. The two predominating factors that influence the question of conservative or radical tonsil enucleation seem to be, first, the latent doubt of a possible important function which the tonsil tissue may possess; second, the belief that a complete removal is unnecessary. Until these problems are definitely solved by forcible and convincing argument the radical methods cannot become universal.

Physiology has not completely and satisfactorily explained the function of the tonsil. If the normal tonsil has a constant outward current of lymph and secretion, it must have some function in eliminating pathogenic organisms or toxic material from the circulating fluids.

From Richard's admirable collective investigation on the present status of the tonsil operation, in which seventy-seven laryngologists gave their views as to the function of the tonsil, it is fair to assume that science has not definitely settled this question. It is permissible to believe with Bordley, therefore, that these glands in early infancy act as governors over the system of ductless glands and possess an internal secretion from the normal tissue which regulates various ratios of polymorphonuclear and mononuclear blood-cells. We have frequent clinical demonstrations of the relation and association of disturbed conditions simultaneously in the tonsils, the thymus, and the thyroid. We are all familiar with these conditions in the so-called status lymphaticus and sudden death. Numerous examples are on record of hypertrophy of the thyroid gland, together with the faucial tonsils, which hypertrophy subsided on the removal of the tonsils. Three of the prominent causes of exophthalmic goiter are tonsillitis, quinsy, and scarlet fever, all of which greatly disturb the normal function of the tonsil. It is my experience and belief, and that of others, that normal tonsils which produce no symptoms should be left severely alone. This is especially true in early infancy.

DANGERS AND CONTRA-INDICATIONS

As we peruse the literature of this subject, we are particularly struck by the fact that the literary laryngologist is not necessarily the practical surgeon. The dangers and contra-indications of the radical operation are dependent on the experience, judgment, surgical ability and personal equation of the individual operator. The men who persist in giving chloroform, who remove adenoids, and, then, immediately remove the tonsils, and who prefer a general anesthetic in the upright position, must remain in a class by themselves, until some great calamity brings home the fact that their methods of procedure are attended by additional dangers to the patient.

It is necessary to perform tonsillectomy in only one case of pernicious anemia or acute leukemia to impress the individual surgeon and those in his community with the value of a blood examination in all suspected anemias. One case of hemophilia is sufficient to establish the value of a routine examination to determine the coagulation point. One death from chloroform is a life-long lesson in the value of ether.

The dangers and contra-indications may vary from three distinct points of view: namely, observations from (1) the clinic or dispensary; (2) the hospital; and

(3) private practice. Again they may vary from the standpoint of the general practitioner and the specialist.

Tonsillectomy is an operation that requires an abundance of time and attention to the details of technic. It is attended by additional danger when performed in the dispensary under the hurry and pressure of work. The most alarming cases of hemorrhage that have come under my personal observation have occurred in patients who were operated on in the office or dispensary, and had returned home. There is less danger of hemorrhage from tonsillotomy with the tonsillotome or snare than from a bungling or imperfectly performed tonsillectomy. Since the complete enucleation has been recently advocated, a great number of general practitioners and specialists have attempted to change their methods and, in learning the new operation, the pillars have been hacked and torn and removed, with a resulting increase in cases of primary and secondary hemorrhage. If the general surgeon, the ophthalmologist, and the general practitioner must remove tonsils, they are respectfully advised to do a tonsillotomy until they may receive instructions, at least in the details of a complete enucleation.

According to my experience, it is impossible to perform more than a dozen tonsillectomies in an afternoon. In some dispensaries the operation is often hurried or neglected in the rush of work. Our most valuable deductions and lasting impressions come from our work on private patients of intelligence. I believe that in this class of tonsil enucleations we establish our best standards of work. The real criterion is determined by the methods we should choose for our own individual cases, and by the postoperative results five to fifteen years later.

We can agree, I am sure, that the average tonsillectomy is attended by a much greater amount of postoperative pain than tonsillotomy. The dangers of tonsillectomy, hemorrhage, shock, traumatism, and death from anesthesia, diminish greatly with a carefully perfected surgical technic and equipment. The disasters that have been reported occurred from the choice of the wrong anesthetic or a failure to loosen the tonsil completely from its bed before its removal was attempted. Ether is the only general anesthetic advisable, in my opinion, although it is contra-indicated in tuberculosis, abscess or other disease of the lung.

From more than 1,000 tonsil operations and from many observations of other operators, I have tried to select a method which insures safety, thoroughness and rapidity in execution. A general anesthetic is administered to children or those older individuals whose personal and peculiar characteristics of fear, nervousness, disposition, or idiosyncrasy to cocaine lead one to suspect that the operation with local anesthesia will be difficult or prolonged. In this class of cases an incision is made with Freer's knife, or some equally useful instrument between the anterior wall of the tonsil and the pillar and just below the inferior border of the velar lobe that will allow the finger (preferably) or some blunt dissector to pass outside the capsule. This incision I consider the key to the operation. If it is improperly made, the difficulties of the enucleation may be great indeed. The finger is then passed into the opening and upward, and the velar lobe released from its bed. Firm pressure downward frees the anterior border to the base. The attachments to the posterior pillar may not yield as readily. As gentleness is the rule, a blunt dissector may be of service to release some tougher bands. The

finger is usually successful, however, and the tonsil is absolutely free to the base. A good volsellum now holds the loosened tonsil well forward while a strong snare with heavy wire is slowly tightened along the slightly attached inferior portion of the capsule. If this latter part of the operation is unskillfully performed, the uvula or other muscle tissue may be removed; the pillars may be wounded and the contour and symmetry of the arch lost. This may result in impairment of the voice, or sloughing may ensue.

In many cases of tonsillectomy that have come under observation five to ten years after operation, the fact is evident that the successful result is in direct ratio to the more or less complete removal of the velar lobe.

While tonsillectomy may be indicated in incipient tuberculosis, it is contra-indicated in our climate in the more advanced stages. The dangers of shock, hemorrhage, and anesthetic outweigh the value of the complete operation. Septic arthritis and so-called rheumatism of tonsillar origin may certainly demand a complete destruction of tonsil tissue, yet we must carefully differentiate and classify these cases according to our known etiologic factors. Gout is a distinct disease that is often confused with rheumatism, and many of the phenomena classified as arthritis and rheumatism are the result of dietetic errors or faulty elimination from the gastro-enteric tract. This fact has been frequently and forcibly emphasized by Stucky.

I believe that it is a mistake to make an arbitrary rule that, because a patient has had tonsillitis twice in one year, the tonsils must come out. Many cases classified as recurrent tonsillitis are not such *per se*, but the patients are often the victims of prevailing infections of pneumococcus, influenza, or Klebs-Loeffler organisms that would infect remaining gland tissue in the throat on other occasions when the opsonic index is low. Many of these infected tonsilless individuals present themselves and mournfully proclaim their disappointment. Physicians are frequently called on to correct a mistaken idea that the removal of tonsils will prevent sore throat. The enthusiast and optimist must not claim more than results will justify, until Father Time shall have weighed the problem through a succession of years.

In quinsy the indications are established for complete and total removal as the procedure. When cervical adenitis is present it is necessary to differentiate between the simple and tuberculous forms. Many of these infections are of nasal and nasopharyngeal origin and respond promptly to local and systemic treatment. Those which are of persistent and aggravated type and in direct relation to the faucial tonsil require a complete removal of the cause by tonsillectomy.

When we have carefully weighed all argument in regard to tonsillectomy it is evident that the American laryngologist stands as the exponent of the ultraradical operation. He has revived the teaching of Celsus in every detail. He has led the surgical pediatricist, the ophthalmologist and the general surgeon a lightning pace. He has devised a dainty assortment of instruments, a series of dazzling lights and a line of technic that has left the abdominal surgeon thinking at the half mile house. It is good work and well done, but it is not always necessary. The tonsillotome has not outlived its usefulness. I believe that the general practitioner and the specialist, in selected cases, can use it with great relief and comfort to many patients. When the simple methods fail, tonsillectomy by the expert will destroy any offending tissue that may remain.

CONCLUSIONS

1. The normal tonsil should not be disturbed, particularly in early infancy.
 2. Simple hypertrophied tonsils may be removed satisfactorily with the tonsillotome.
 3. Pathologic tonsils, especially those of the submerged type that produce well-defined local or general symptoms, should be completely removed within the capsule.
 4. In children tonsillectomy requires a general anesthetic, preferably, ether. This should be a hospital operation when possible.
 5. Tonsillectomy is an operation that should be restricted to those who are specially qualified.
 6. The removal of the velar lobe and the complete separation of the pillars are the most important parts of the tonsil operation.
 7. Tonsillectomy is not indicated in all cases of so-called rheumatism.
 8. Complete enucleation is usually attended by more pain, a longer period of convalescence and greater danger of infection than tonsillotomy.
 9. When tonsillectomy is skilfully performed the hemorrhage is less than when the average tonsillotomy is done.
 10. Tonsils which have been involved in recent acute inflammation should not be operated on, until all evidence of the acute condition has subsided.
 11. Many tonsils seen by the general practitioner, with every appearance of serious pathologic condition, never develop local systemic symptoms.
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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. LEVY, BECK AND SHURLY

DR. A. H. ANDREWS, Chicago: Dr. Shurly has given us some excellent indications and contraindications for tonsillar surgery, but my impression is that when the tonsil is sufficiently diseased to demand surgical interference on the part of the specialist, tonsillectomy is the only operation to perform. Many simply enlarged tonsils do not need to be removed, and are enlarged because of the presence within their crypts of cheesy material that is undergoing decomposition. If such a tonsil is simply cleaned out a few times the enlargement will subside; if it does not, then, in my opinion, the tonsil should be removed; and, when I say removed I mean enucleated. I agree with Dr. Levy that we never know the tuberculous tonsil until it is examined after operation. When the patient shows lowered vitality, or any trouble can be traced to the tonsil, the tonsil should be removed.

I have been interested in the change of attitude in the profession toward the relationship between rheumatism and tonsillitis, and it is a change which is not so complete as it will be, and in my opinion should be. I believe that rheumatism has absolutely nothing to do with the production of tonsillitis, but that tonsillitis frequently, though not always, is the cause of rheumatism. The attention of the practitioners and laity should be especially called to this fact.

Regarding other causes for cervical adenitis, we should not forget that the teeth may be responsible for this condition; disease of the sphenoid sinus will do the same, although usually the glands involved in this latter condition are the posterior cervical glands. Perhaps some members of the Section have had cases of inflammation about the wisdom teeth when these were coming through and have noticed the adenitis resulting. This shows that the glands of the neck may be involved and often are as a result of dental disease.

I think that there is no question regarding the raising of the opsonic index by the removal of tonsils; the same may be said of the appendix, disease of the antrum of Highmore, or any other condition in which there is absorption of toxins.

DR. W. E. SAUER, St. Louis: I am not sure that I understood Dr. Beck correctly as to the removal of tonsils in scarlet fever and diphtheria. A number of years ago it was

pointed out that in children in whom adenoids and tonsils had been removed diphtheria and scarlet fever ran a more severe course than in those in whom they had not been removed. At that time enucleation was not being done, of course, and the experience of Fraenkle must not be taken too seriously. However, it is a question to consider. We have not had enough experience to know just what influence the entire removal of the tonsils has in these cases. I agree that the tonsil that is simply somewhat enlarged should be let alone if normal in other respects. We have all seen striking results after removal of the tonsils in cases of rheumatism, but whether or not the removal of the tonsils is going to stop further attacks is questionable, because infection can take place through some other part of the lymphatic chain.

Technic is largely a matter of choice. Some men develop a certain technic along one line, and some along another. I agree with Dr. Shurly that the removal of a tonsil *in toto* is not an easy operation. It requires a great deal of experience and skill to do the operation properly. In many operations the pillars are damaged and the patients are worse off than before the operation. The question of bleeding has been touched on very lightly. In my experience, the bleeding from total enucleation of the tonsil has been decidedly less than from the old tonsil operation. At the time of operation we may run across a spurter but it can be tied.

DR. C. F. WELTY, San Francisco: I believe that tuberculosis of the tonsil is much more prevalent than Dr. Levy has shown by his conclusions. In the microscopic examination of tonsils from cases of so-called lung tuberculosis, I was able to demonstrate the tubercle bacilli in 6 different cases (in fact, in all the patients who were examined), and from this fact I believe that all patients with lung tuberculosis should have the tonsils removed when they are in physical condition to go through the operation. In 4 different cases, I was able to diagnose tuberculous lesions of the tonsils, verified by microscopic findings—all the patients had lung tuberculosis. In 3 cases, tubercle bacilli were found in patients who were supposed to be free from tuberculosis. These cases could not have been diagnosed as tuberculosis from the clinical appearance or history. Comparatively few microscopic examinations have been made at my suggestion, principally because I have not the facilities for carrying such work to an ultimate conclusion. So in summing up I am led to believe that tuberculosis of the tonsil is quite frequent.

In a case similar to the one that Dr. Beck reported, the patient had 4 different extensive gland dissections without removal of the tonsils. The glandular swelling was returning again and the tonsils were enucleated. The glands ceased to enlarge or disappeared entirely; tubercle bacilli were demonstrated in the tonsils as well as in the glands.

In an endemic of diphtheria among the nurses at the San Francisco City and County Hospital, 20 nurses contracted the disease; all had diseased tonsils. There were approximately 20 nurses who had the tonsils removed; none of them had diphtheria. It should be an accepted fact that diseased tonsils predispose individuals to diphtheria, as it is practically always the starting point for such infection. There is another condition to which I wish especially to call attention, and that is "underweight." It will be found that 90 or 95 per cent. of the patients have gained weight following tonsillar enucleation. This statement holds good in cases of "underweight" in which organic disease can be excluded and in fact is one of my own indications for the operation.

I wish to call attention to a series of 200 patients who were examined by the anesthetist prior to operation, showing that 20 per cent. had heart lesions.

I believe that adenoids, and tonsils especially, predispose to the whole group of infectious diseases and in fact everything that may enter by way of infection. No doubt whole chapters of internal medicine will be done over by the work we are engaged in to-day.

As to the difficulties encountered in doing the operation, there are many, when one does not understand the *modus*

operandi, which I would liken to a chain made up of links, every one of which must be perfect.

DR. J. E. LOGAN, Kansas City, Mo.: I concur in the main with each of the essayists, but I also desire to add a phase of this subject for consideration which to me is a necessary part of this discussion, viz., the radical extirpation of the pharyngeal tonsil. In my experience, whenever we find faucial tonsils in a state of inflammation or hypertrophy we will certainly find a pharyngeal tonsil in like condition. Whether this pharyngeal hyperplasia be much or little it is more important that it be removed than the faucial tonsils.

DR. O. T. FREER, Chicago: A pathologic condition of great importance in relation to tonsil surgery has not been mentioned in this discussion—I refer to chronic peritonsillitis. This condition is not found in simple hypertrophy of the tonsil, but is a common result of repeated or chronic inflammation of the tonsil, which spreads beyond it into the areolar and muscular structures forming its bed. These recurring inflammatory attacks finally leave a low grade of plastic inflammation which cicatricially unites the tonsil to the tonsillar fossa, firmly joining it to the glossopalatinus and pharyngopalatinus muscles and the fascia of the superior constrictor without. This condition makes enucleation by the finger, or even a blunt separator, an impossibility. Nevertheless, it is constantly being attempted with resulting injury from the violence employed. I have often seen evidences of such violence. A colleague called me in consternation because he had just torn the anterior pillar in two. In another instance both the pillars had been literally rent into shreds; this patient died of sepsis. In another, the posterior pillar had been torn from its bed far down into the pharynx. In many instances, the attempt to enucleate the tonsil bluntly resulted in excessive reaction, fever and prostration. Such results cannot be compared with the comfortable recovery from a clean knife excision of the tonsils such as I described in THE JOURNAL Feb. 13, 1909. While the knife accurately extirpates the diseased organ in a surgical manner, it leaves the surroundings of the tonsil intact, so that the delicate motions of the palate are not in danger of future interference from cicatrices resulting from damage to the pillars. After a long trial I recommend this method most heartily as the only technic required for the total removal of all tonsils whether of the large hypertrophied or cicatricial variety. I have never seen an instance of serious hemorrhage resulting from it, and long ago ceased to use the wire snare because of the rough work it performs in hard fibrous tonsils and the excessive reaction following its use.

DR. F. E. AUIEN, Belleville, Ill.: The tonsils and adenoids are the chief portals through which infection enters the system. The greatest prophylactic measure that has been brought out in recent years is the complete enucleation of these masses, and if it could be possible to enucleate Peyer's patches we would see a great reduction in enteric diseases. I have had seven years' experience in complete enucleation or tonsillectomy and I have never seen an individual who was not benefited and largely so by the operation. I believe that the best tonsil is the one that has been enucleated, just as the best Indian is a dead one. Two of the greatest internists of Berlin advise removal of the tonsils, even in acute muscular and joint rheumatism, to prevent further absorption of toxins into the system. We must remember that the intramuscular spaces and the synovial cavities are a part of the lymphatic system. One can reduce almost to a minimum the diseases of childhood by careful removal of these bodies. The trouble is that often we do not do clean, thorough work.

Two men in this country who deserve great credit for their work in this line are Drs. E. Pyncheon and O. Tydings, of Chicago. When Pyncheon said that it was not a question of large or small tonsils, but a question of their condition, he did a great deal for the advancement of this work. In 1901 I saw Dr. Tydings do what I think was the first tonsillar enucleation in capsule in America. I think the work of these men, and that of others in Chicago (and Chicago is the center from which this work has spread) have conferred a great favor on humanity. I am an enthusiast on the subject.

DR. M. A. GOLDSTEIN, St. Louis: Those who heard Dr. Mygind's reference to his first work on adenoids will recall his remark that it was ten years after the first scientific presentation of this progressive movement before American otolaryngologists took up this problem in an active way. This showed one extreme of conservatism of American otologists. On the other hand we have had in recent years the radical Killian operation on the frontal sinus and the radical work on the mastoid and it is interesting to follow the evolution of the otolaryngologist's mind on this problem. It has taken nearly a quarter of a century for us to become thoroughly familiar with the indications, the time, when and how, to do the radical or simple mastoid operation in each given case; it has taken nearly a decade for us to determine how infrequently we might operate by means of the radical Killian operation and still benefit our patients. It will also take a certain length of time before we are sure of the time and manner of operation on the faucial tonsils. We have perfected the technic of tonsillectomy, and the proper technic is familiar to every laryngologist, but the time to operate has not yet been so definitely determined. I believe in rational radicalism. I believe that there is a time for tonsillectomy and a time for tonsillotomy. The thymus and glandular tissue which develop in early infancy take care of themselves. The surgeon who operates on the thyroid to-day does not remove the entire gland; he leaves a small section. The faucial tonsil is also lymphoid tissue—it also has a function. With all due deference to Drs. Levy and Beck, I want to compliment Dr. Shurly on having produced a masterpiece of common-sense and good judgment, and I think we will all agree later that there is much food for reflection and much time for hesitation before attempting tonsil enucleation in every case.

DR. BRYAN D. SHEEDY, New York: I note by the literature that very few deaths have been reported in connection with tonsillectomy, yet I believe, judging from the large number of deaths, from 7 to 10, in New York City, an opportunity to record valuable information has been neglected. Last week in discussing a recent death with the coroner's physician and in going over his findings at autopsy, I learned that many of the deaths due directly or indirectly to tonsil removal were those of patients in apparently normal condition until the operation was performed, or at least up to the time that the local anesthetic was used. In London, chloroform is the anesthetic most in use; in America, ether and recently gas and ether are preferred. Lately, however, a great many nose and throat men have been using cocaine for local anesthesia combined with adrenalin chlorid. Local anesthesia for the removal of tonsils is very little used in the German-speaking countries, to-day, and it may be of interest for some to know that the operation of tonsillectomy is not being performed in these countries. In New York City all the recent deaths in connection with tonsillectomy have been in cases in which cocaine, with or without adrenalin, was employed. Of the recent deaths autopsies were held in but two of the cases.

DR. HENRY HORN, San Francisco: Following radical enucleation of the tonsils it is possible that some change takes place in the Eustachian tubes producing an exacerbation of an already existing catarrh. I have seen enough cases to be positive that after certain complete enucleation of the tonsils in which the pillars have been somewhat injured there has been some sort of change and a deafness has been increased thereby.

DR. JOSEPH C. BECK, Chicago: Dr. Horn mentioned the effect on the Eustachian tubes of enucleation of the tonsils. My results in 27 cases have been just the opposite of what he describes. That is one of the indications for the operation, tubal catarrh. Dr. Sheedy did not mention any post-mortem findings in the cases of death with the employment of cocaine, so we cannot speak of that. These reports are of hardly any value when we know how many patients receive injections without any harmful effects. Dr. Shurly has absolutely agreed with me as to the indications and I also said that with rare exception is tonsillotomy done. Many

general practitioners do it, but every specialist will prefer to do a tonsillectomy.

I did not mean to say that there are not other portals of infection for scarlet fever and diphtheria, but that when the children who had had the tonsils and adenoids removed had diphtheria and scarlet fever, it was milder in character. Dr. Freer mentioned peritonsillitis; that is known usually, I think, as lateral pharyngitis. That is one of the conditions in which the operation is indicated.

RECENT PROGRESS AND PRESENT STATUS OF EXPERIMENTAL RESEARCH IN CANCER*

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Not uncommonly the criticism is heard that no progress has been made in our knowledge of cancer. I do not believe this statement to be correct and I fear that it may have a paralyzing effect on those who devote all or part of their efforts to this branch of pathology. I attribute this and similar other criticisms, in part at least, to a lack of contact between the theoretical and practical worker in the field of medicine, and I believe it to be due to a lack of knowledge of what has been accomplished in this field, and also to an underestimation of purely theoretical work on the part of the practical worker in medicine. In medicine not less than in physics and chemistry the most far-reaching advances in diagnosis and treatment follow as a natural result, in a certain sense as a by-product, of new theoretical knowledge and conceptions. But apart from all practical considerations a purely theoretical study of pathologic phenomena is not only a justifiable but a necessary undertaking and can claim the same justification as the theoretical study of other branches of biology.

Cancer investigation has been and still is to great extent purely theoretical, although some of its results are beginning to be applied in the treatment and the diagnosis of cancer. The experimental study of cancer is a rather young branch of science; it is only in the last decade that very extended and continuous studies of an experimental character have been undertaken, although a few sporadic though brilliant attempts had been made previous to that period.¹ But the principal researches before the year 1900 were mainly concerned with the microscopic study of cancer; and although this was and still is a necessary and most valuable line of research, unaided by other means it is unable to give us an insight into the physiology of tumor growth, and the latter is especially needed. In all phenomena of growth the number of unknown and variable factors is exceedingly great and only by formulating new equations can we hope to eliminate some of the variable factors. The experiment alone can accomplish such a task. There are several points of attack on the problem of cancerous growth. Ultimately our complete knowledge of cancer will coincide with our knowledge of tissue growth in general. And

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

¹ I refer here especially to the work of Hanau and Morau. Ten years ago the experimental researches were carried out on a large scale with several sarcomas of the thyroid of rats. In these investigations the tumors were carried through many more generations than in the case of Morau and Hanau, and here systematic studies in the biology of tumor-cells were inaugurated. This work was followed by that of Jensen, who used a carcinoma of a white mouse in his investigations.

from this point of view every contribution to the physiology of tissue growth is a step further in our knowledge of cancer growth, inasmuch as the latter is a special variety of tissue growth and new knowledge of cancer growth will also stimulate and enrich the general biology of growth phenomena.

It is furthermore fully acknowledged that morphologic phenomena of growth are invariably connected with chemical processes and are more or less the expression of underlying chemical and physical changes. Simultaneously with the experimental study, there developed, therefore, a chemical study of cancer, a study of its chemical structure and of its chemical activity, especially of its ferment actions. Furthermore we may include under the heading of experimental investigation of cancer, research in the distribution of cancer and in the factors that lead to the development of cancer among animals, the influence of heredity, environment and possibly of micro-organisms—studies which developed in close connection with the experimental investigation of cancer. Now all these lines of investigation, however young their history may be, have already led to the discovery of very interesting facts. Inasmuch as in the other papers in this symposium several of these special aspects of cancer investigations will receive a more detailed consideration, I shall limit myself here to a general survey.

Thanks to the experimental investigation of the last ten years we are beginning to obtain some definite knowledge concerning the physiology of the tumor cells and of the physiology of growth of the various normal mammalian tissues.

To enumerate a few of the facts which have been ascertained: Tumor cells in many cases can be propagated in other individuals of the same species and on the whole preserve their specific character as cancer cells. This fact at once disposes of various hypotheses concerning the etiology of tumors which have caused much discussion within a very recent period, inasmuch as it proves definitely that tumor cells are not merely regenerating tissue cells, and that they differ in their reactions from regenerating cells; and that the activities of cancer cells cannot be merely due to the peculiarities present in the individual organism in which the tumor originated. With this difference in the physiologic behavior of tumor cells agrees very well the discovery that the ferments of tumor cells differ quantitatively and probably also qualitatively from those of ordinary tissue cells.

On the basis of our present experimental data we have very strong reasons for believing that cancer cells may continue to proliferate indefinitely, so long as they obtain the adequate environmental conditions. And this in turn leads us to revise some of our fundamental biologic conceptions, according to which the germ cells are immortal, while the somatic cells are necessarily mortal. Through these investigations it has become very probable indeed that some at least of our somatic cells also possess the potentiality of an immortal life.

We are penetrating more deeply into those conditions which determine the energy of growth of tumor and of tissue cells. We now know that energy of growth of tumors (the rate of the propagation of their cells) is not a fixed character but is amenable to variations which can be produced experimentally. Experimentally it is possible to increase and decrease the rate of tumor growth. And these experimentally produced changes are transmitted to successions of generations of cancer

cells. We have furthermore learned that some experiences which surgeons have had in cancer patients are merely special instances of the more general laws which experimental tumor investigation has established and is continuing to establish.

New and unsuspected properties of cancer cells have been discovered. I might mention here especially their very great capability of recovering from external injurious influences, which may have exerted a markedly depressing effect in their vitality during a certain period of time. The tumor cells possess to an astonishing degree an elasticity which enables them to regain their old vigor, especially after transplantation into another individual.

By selecting for propagation, instead of average tumors, very well-growing tumor cells, it is possible to obtain more rapidly growing tumors, a method especially used by Ehrlich for the cultivation of virulent tumors. I confess, however, that in this case I am not yet certain to which factor the noticeable beneficial influence has to be attributed. These examples may suffice to indicate that we are obtaining outlooks into new fields which were possible only as the result of experimental investigation.

Experimental investigation permits us, however, not only to analyze the activities of the tumor cells but also the conditions in the host on which in part at least, the life of the tumor cells depends. Here also, on the basis of experimental work, very important facts have been found—facts which may appeal to the physician even more than that side of research which we have just spoken of. In this case also I shall avoid going into details and shall limit myself to a few general conclusions.

The transplantability of a tumor depends, first, on the character of the particular tumor and, secondly, on the character of the host. The majority of tumors, as far as we are able to judge at the present time, can be transplanted in the same individual in which the tumor originated; others can be transplanted into individuals nearly related, namely, individuals of the same family; while a certain number grow in a large number of individuals of the same species and a few grow even in different though nearly related species. These facts drew attention to somewhat similar conditions existing in the case of normal tissues—facts that had not received due attention in previous times. They indicate specific relationships, chemical adaptations existing between the body cells and the circulating fluids—adaptations which are of a variable degree of specificity in various cases.

Some individuals of the same species are usually found to be naturally immune to tumor growth; their body cells or body fluids react in such a way that the tumor does not find the suitable condition for growth. Other animals can be rendered artificially immune towards the growth of tumors, by inoculating them with cells of normal organs or with tumor material of the same or perhaps also of certain related species. A very potent immunity can be produced by inoculating living tumor material, the vitality of which has been lowered by previous heating. Such material gives rise to a large number of spontaneously retrogressing tumors after inoculation as I found very early in the course of my investigations. I therefore recommended seven years ago the use of such material for active immunization. Gaylord and Clowes and Sticker were the first to prove the existence of active immunity in animals in which a tumor had retrogressed spontaneously, es-

pecially after tumor material of experimentally decreased virulence had been inoculated. The mechanism of immunization is to be discussed by another essayist and I shall limit my remarks to the statement that, notwithstanding many attempts that have been made in this direction, no serum has been prepared so far which has a decided cytotoxic effect and which could be used for the purpose of passive immunization. Active immunization, on the other hand, appears to be much more promising for practical purposes. And attempts have been made to apply in the treatment of patients, some of the results of the experimental investigation in the tumor growth in animals.

We thus see that the first positive results have already been obtained in experimental immunization against tumor growth, a fact of great theoretical and practical significance. Our principal aim, however, which ultimately we wish to realize, is the perfect experimental control of all these conditions under which cancer develops. It might be argued that we are still far removed from being able to produce cancer experimentally; but even such a statement would no longer be absolutely correct. In a certain sense all those cancers which, as we know, arise in a definite proportion of cases in persons affected over a long period of time, by certain external injurious influences as soot, Roentgen rays and other physical and chemical agencies, may be regarded as experimentally produced cancers. And even in animals in a certain number of cases we have been able to create *de novo* malignant tumors, namely, sarcoma, and perhaps also adenocarcinoma by transplanting carcinoma, although in all these cases the presence of unknown variable factors complicates the observations as yet; but notwithstanding this limitation, we have here another instance in which discoveries, although their interpretation may in part still be obscure, promise us an outlook into new fields and a new point from which to attack the problems.

Stimulated by experimental cancer research and again stimulating the latter, of which indeed it forms an integral part, the experimental study of the physiology of tissue growth has led to some interesting results. Of these I shall mention only two achievements obtained within the last few years. Definite chemical substances, namely, amido derivatives of certain aromatic products have been found to be particularly potent in calling forth infiltrative growth of the epithelium into the underlying connective tissue; and infiltrative growth is one of the characteristic features of the cancerous proliferation. A further advance has been made in the analysis of formative stimuli: it has been found that a combination of an internal chemical and an external mechanical factor may exert a specific stimulus on the growth of certain selected tissues to an extraordinary degree; the chemical substance acting as a sensitizer of the tissues, preparing them for the action of the mechanical factor. We may conveniently designate such stimuli as "combination stimuli." In both of these instances we have not yet to deal with the production of true cancers, inasmuch as the growth is only of a transitory character; but in both cases means have been found of analyzing the two most characteristic attributes of cancerous growth, not only in a qualitative, but in part at least, also in a quantitative way.

In conclusion, I wish to draw attention to the fact that the experimental investigation of cancer has already exerted a stimulating effect on some other apparently unrelated fields of science. Thus the last-named in-

vestigation into the artificial production of deciduomas promises to clear up, to a great extent at least, the mechanism of the sexual cycle in the female mammalian organism, while certain studies in immunity against tumor growth appear to throw an unexpected light on the etiology of eclampsia.

In presenting this, an altogether incomplete and rather hasty review of some of the achievements of experimental investigation in cancer, it is fair to say that the investigators whose work is referred to are certainly far removed from any inclination to overestimate the results obtained or to underestimate the difficulties facing further progress in this field of science. But I am convinced that the facts elucidated within the last ten years deserve to be known well by the biologist and by the physician.

THE BIOCHEMICAL INVESTIGATION OF MALIGNANT TUMORS AND ITS DIAGNOSTIC APPLICATIONS*

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It is not the object of the present paper to review the entire field of the biochemistry of tumors. Large and well tilled as is this field, it would be tempting but impossible to cover the ground in the brief critique assigned me. That aspect of the subject, in this symposium, therefore has been selected, which appears to be of especial interest and importance for the general understanding of cancer as a disease. The present paper will deal with those investigations which have attempted to elucidate the mutual relationship existing between the new growth and its host, the patient—the biochemical evidences regarding the cause of the cachexia and of the anemia induced by neoplasms, and on the other hand the biochemical aspects of the resistance or the relative immunity, which represents the protective mechanism of the host.

That such a protective mechanism exists in experimental animals is now no longer open to doubt, and there are many facts which seem to demonstrate the occurrence in human beings of a tendency which is similar in kind, even though markedly less in degree. At all events it is possible to place this interpretation on the notable resistance which is shown by some patients to the disease, as manifested by the prolonged well-being and absence of cachexia in spite of considerable tumors, and also by the local conservative processes which in some cases hem in the otherwise relentless progress of the cancer.

The two phases of this subject, as above outlined, which have especially occupied investigation are generally known in the literature as the hemolytic reaction and the antiferment reaction.

THE HEMOLYTIC REACTION

It was long ago suggested by Marchand that the overgrowth of other tissues by malignant new growths was probably due to the presence of some toxic substance in the latter which overwhelms the healthy tissues and impairs their resistance. This same hypothetical substance has been supposed by many writers to pass into the gen-

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* Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

eral circulation, where it presumably exercises a similar destructive influence on the general tissues, thus inducing the anemia and cachexia so characteristic of the disease. Recently, indeed, metabolic studies have cast some doubt on this belief, but they have, apparently, not shaken its hold on the minds either of the clinician or the pathologist. Biochemical research has been active in the attempt to isolate and identify this hypothetical toxic substance, and the results, even though not entirely satisfying, are at least of much interest. Two agents have been identified in tumors which might be accused of this toxic influence on the somatic cells, namely, a hemolytic substance and a proteolytic ferment. The hemolytic substance has been studied in some detail by Italian investigators, and by members both of Ehrlich's staff and of the Pasteur Institute. In general, these observers are agreed that tumors contain a hemolytic substance which is coctostable and soluble in alcohol, and belong, therefore, in the group of the simple hemolysins. I have succeeded, further, in isolating another type of hemolysin from tumors, which is thermolabile, and requires activation by a substance corresponding to the "endo-complement" which Lyes and Sachs extracted from red blood-cells, and used to complement cobra-venom. The simple hemolysins are chiefly present in necrotic, and the complex hemolysins in non-necrotic tumors.

The questions arise whether these substances pass into the circulation, and whether they are to be regarded as the active agents of the tissue destruction which accompanies malignant growths. On this point it is at present difficult to reach a final conclusion, although there is ample evidence that such a process does with great probability actually occur. In the first place, it has been possible to identify hemolysins in the circulating blood of individuals affected with cancer. It is true that such hemolysins have also been detected in a variety of other conditions, notably tuberculosis, and even that they have been found in apparently perfectly normal individuals. The inference is natural that the artificial conditions under which hemolytic experiments are performed may contribute materially to the resulting destruction of red blood-cells, whereas it is perfectly conceivable that the vital conditions which they seek to imitate may be entirely free from any such results. A test-tube is not a blood-vessel, nor is two hours in an incubator followed by sixteen hours in an ice-chest the natural habitat of a red blood-cell. I have attempted to meet this objection by incubating a mixture of hemolytic dog serum and of alien dog's cells in the ligated vein of another dog, and have found that hemolysis occurred in the same manner as it did under ordinary experimental conditions. There is, however, a far more potent reason for concluding that these hemolysins are under certain conditions active agents of destruction during the life-time of the individual. This is to be found in the character of the red blood-cells of the cancer patient whose own blood is hemolytic. It was first pointed out, I believe, by Chanel,¹ in 1880, that the red cells under certain conditions of disease become altered in their resistance to certain destructive agents, namely salts in solution. Since that time, a succession of careful investigators, such as Lang,² have shown that especially in advanced cancerous conditions there is a very marked increase in the resistance of the red cells to anisotonic solutions of common salt. During the past

year, Kraus³ and his co-workers in Vienna determined that the red cells of rats affected with carcinoma became extremely resistant, as compared to the normal, against the hemolytic action of cobra-venom. They also found a similar change in the corpuscles of a large proportion of human subjects of cancer. This is an observation which I am able fully to corroborate from a large series of tests. In other words, the corpuscles of cancerous individuals manifest a marked resistance to such widely varying hemolysins as cobra-venom and anisotonic salt solutions. What is the significance of this change? It was pointed out for the first time by Morawitz and Pratt⁴ last year that the injection of phenylhydrazin, a markedly hemolytic substance, into rabbits, produces a severe anemia but that in addition to this, a very remarkable phenomenon supervenes. The red cells of the animals treated in this fashion become excessively resistant, one might almost say immune, to a large variety of hemolysins, including distilled water, saponin, snake-venom, etc. I have found that the same phenomenon could be produced in a much more specific manner by the continued injection into rabbits of graduated doses of saponin, which also results in the marked anemia, and in the production of a race of cells specifically resistant to saponin, but to no other hemolysin.⁵ The same characteristic specific resistance may also be produced by the injection of eel serum (Kossel⁶). It was suggested by Pratt and Morawitz that this result was due solely to the direct action of the dissolved hemoglobin of the disintegrated red cells on the stroma of the remaining cells. This explanation, however, does not seem sufficient, for the reason that this sort of resistance is never found in simple primary anemias, even the severest types of pernicious anemia, and practically in none of the secondary anemias except those of cancerous origin. On the other hand a very instructive analogy may be found in the experiments made by Ehrlich⁷ with trypanosomes. He discovered that by the continuous injection of a trypanocidal substance into the host he was able to produce a race of organisms specifically immune to the poison injected, but still susceptible to the destructive action of other agents. Thus he produced "fuchsin-feste" strains of trypanosomes. The explanation is probably to be sought in a modification of the race by the survival of the fittest—in this specific instance of those individuals resistant to fuchsin, or, as Ehrlich puts it, "deprived of their receptors for fuchsin." In the same way, it is probable that the hemolysin above described destroy the more vulnerable erythrocytes, leaving a non-resistant type, and that this result tends to be perpetuated by a similar action on the generative cells in the bone-marrow.

Whatever be the explanation, the fact remains that anemia of marked grade, with normoblasts in circulation, and the development of a race of resistant erythrocytes can be induced experimentally only by the repeated injection of hemolytic substances. In human pathology, the only anemia which corresponds identically to these criteria is the anemia of cancer; it is, therefore, fair to assume that some hemolytic substance is the agent in its production. If now, the fact be recalled that a hemolysin can be extracted from cancerous material, and that in a considerable proportion of cancer cases a hemolysin

3. Kraus, Pötzl, Ranzi and Ehrlich: Wien. klin. Wehnschr., 1909, xxii, 1027.

4. Morawitz and Pratt: München. med. Wehnschr., 1908, iv, 1817.

5. Weil: Proc. Soc. Exper. Biol and Med., 1909, vi, 49.

6. Kossel: Berl. klin. Wehnschr., 1898, xxxv, 152.

7. Ehrlich: Harbin Lectures, 1903.

1. Chanel: Thèse de Lyon, 1880.

2. Lang: Ztschr. f. Klin. Med., 1902, xliiii, 106.

is found in the circulating blood,⁸ the chain of evidence seems fairly to establish the belief that the anemia of the disease is caused by this hemolysin, and that the resistance of the corpuscles is traceable to its action.

What, if any, are the diagnostic applications of this apparently characteristic biochemical feature of the growth of cancer? I showed,⁹ some years ago, that in dogs experimentally inoculated with lymphosarcoma, the interaction between the hemolysin within the blood and the blood cells themselves resulted in a very characteristic condition. The serum of dogs with tumors was found to be hemolytic for the red blood-cells of normal dogs but not for the red cells of other dogs with tumors; in other words, the latter had become immune to the hemolysin. Thus, in dogs a specific diagnostic criterion was established for the presence of tumors, depending essentially on the resistance of the red cells to the circulating hemolysin. To avoid a confusion which has vitiated a large proportion of the literature on this subject, it should be realized that this method differs essentially from the simple determination of the presence of iso-hemolysins in the serum, as practiced by Maragliano, Ascoli, and others. Very shortly after the publication of this fact, Crile applied the method to the analysis of human serums and reached the conclusion that it afforded practically an absolute diagnostic criterion for human cancer, in exactly the same manner as had been described for dogs. I have not been able to confirm these findings. In my study of human serums, I found that 26 per cent. of the non-cancer cases gave the type of reaction found to be characteristic of tumor in dogs, while on the other hand only 56 per cent. of the cancer cases gave this reaction. Obviously, such a result cannot be considered a specific, or even a diagnostic reaction. This view has received the support of a large number of careful investigators—Richardt,¹¹ Whittemore,¹² Janeway,¹³ Smithies,¹⁴ Blumgarten,¹⁵ Epstein and Ottenberg.¹⁶ Nor has it fared better with the so-called "reversed hemolytic reaction," which Crile described as differentiating the serums of tuberculous from those of cancerous individuals. I believe, therefore, that it may now be considered as settled that in human beings the "hemolytic reaction" as a test for the presence of carcinoma is not diagnostic. A positive reaction does, however, occur in cancer cases with more frequency than in non-cancer cases, and may, therefore, be cautiously considered in connection with other symptoms as an auxiliary to the diagnosis.

THE ANTITRYPTIC REACTION

The antitryptic reaction is another illustration of interaction between the tumor and its host. It was first

shown by Salkowski that the various tissues contain proteolytic ferments, and in 1902, Petry found that such a ferment could be demonstrated in carcinomas. The demonstration of this fact is very simple, depending on the digestion of a proteid such as milk, egg-white, or gelatin, by the tissue extract, and has been thoroughly carried out by Buxton and Shaffer. The function of these ferments is still somewhat doubtful, but it seems eminently probable that they play an important rôle in the metabolism of the tissues. In cancers, these ferments occur in relatively large amounts, which is, perhaps, in accordance with the view of Vernon, that the quantity of ferment contained by a tissue is in direct ratio to its vital activity. Until very recently it was a matter of grave doubt whether these intracellular ferments of the tissues could exercise any direct influence on the general organism. Opie¹⁷ has succeeded in showing, however, that in certain pathologic conditions there is clear evidence that ferments may pass into the circulation, as shown by the fact that there is then a reactive formation of appropriate antibodies, or antiferments. In cancer, the conditions are extremely favorable to the liberation of the intracellular ferments, since there is generally a certain amount of necrosis and cellular destruction. It is not surprising, therefore, that search should have been made in the blood serum for evidence of an antiferment to the ferments liberated by this cellular disintegration in cancers. The difficulty of this problem has lain in the fact that all normal serums contain an antiferment, or "antitrypsin," as it usually is called, so that any reaction due to cancer could, apparently, make itself manifest only as a quantitative variation in the amount of antitrypsin normal present. The quantitative estimation of antitrypsin, however, even in very crude form, has only very recently become possible, largely owing to certain modifications of technic introduced by Brieger and Trebing,¹⁸ and by Bergmann and Meyer.¹⁹ As a result of this work, Brieger and Trebing were able to announce in 1908, that they had discovered evidence of an increase of this antiferment, or "antitrypsin," in the blood of cancer patients; that it occurred in a very high proportion, even as high as 95 per cent., of the cases of cancer, and that it rarely occurred in any other condition. The method of which they made use was to test the inhibitory power of graduated quantities of the blood serum on the digestive action of definite solutions of commercial trypsin. All serums, as had long been known, exercise an inhibiting action, but they found that it was characteristically and markedly increased in cases of cancer. Very soon, however, it appeared that they had overstated their case. An increased inhibitory action of the serum—or, technically, an increased "antitryptic index"—was found to occur not only in cancer, but in many of the infectious diseases, such as typhoid and tuberculosis, and in certain other conditions, such as the anemias and Graves' disease. It has, therefore, come to be understood that the antitryptic reaction may accompany a number of widely differing pathologic conditions; on the other hand, it is also true that its occurrence in cancer is so general as to make it a striking symptom of this disease.

A great obstacle to the general application of the method and to the further analysis of the phenomenon has been the inherent difficulty of obtaining even moderately accurate results; and this holds true both of the

8. Moss (Bull. Johns Hopkins Hosp., 1910, xxi, 63) has recently asserted that he can determine no difference in the hemolytic power of cancerous, as compared with non-cancerous individuals. This finding is not in accord with that of other sera. But even were it true that the hemolysis could never be found in the serums of cancer patients, the characteristic alterations in the resistance of the red cells would still strongly suggest the notion of such a substance, and its disappearance from the serum would be attributable to its absorption by the red cells, just as most toxic substances injected into the blood disappear from the serum and unite with the tissues for which they possess the strongest specific affinity.

9. Weil, R.: The Hemolytic Reactions of the Blood in Dogs Affected with Transplantable Lymphosarcoma, Arch. Int. Med., 1908, l, 23.

10. Crile, G. W.: The Cancer Problem, THE JOURNAL A. M. A., June 6, 1908, p. 1883.

11. Richardt: Deutsch. med. Wechschr., 1909, xxxv, 1340.

12. Whittemore: Boston Med. and Surg. Jour., 1909, clx, 77.

13. Janeway: Ann. Surg., 1909, xlix, 27.

14. Smithies: Med. Rec., New York, 1909, lxxvi, 901.

15. Blumgarten: Med. Rec., New York, 1909, lxxv, 61.

16. Epstein, A. A., and Ottenberg, R.: The Diagnostic Value of Hemolysis in Cases of Cancer, Arch. Int. Med., 1909, lii, 467.

17. Opie: Proc. Soc. Exper. Biol. and Med., 1910, vii, 99.

18. Brieger and Trebing: Berl. klin. Wechschr., 1908, xiv, 1349, 2260.

19. Bergmann and Meyer: Berl. klin. Wechschr., 1908, xiv, 1397.

rum plate and of the casein methods. (Trebing²⁰). This difficulty has been obviated by an alteration in method, which I introduced in collaboration with Dr. J. Feldstein, whereby it becomes a simple matter to make extremely delicate and accurate estimations of the antitryptic content of serum. (Weil and Feldstein²¹). This alteration consists in determining the degree of digestion by an instrument which measures the change induced by digestion in the viscosity of gelatin. Furthermore, the viscosimeter has made it possible to penetrate very much further into the character of the antitryptic reaction. It has already been stated that the inhibitory power of the serum has always been tested against commercial trypsin. This, it may be said, is generally derived from the pancreas of the pig. We have prepared proteolytic or "tryptic" enzymes from a variety of human organs, such as liver and kidney, and also from carcinomas, and have tested the inhibitory activity of the serums not only against commercial pig's trypsin, but also against these various human trypsins. The result is very striking. It appears that each serum has a definite, and distinct, inhibitory value for each of these "trypsins." These values may arrange for the same serum from 5 per cent. of inhibition for one "trypsin" to 95 per cent. for another, while a second serum may reverse this relationship. It is, therefore, evident that the conditions are very much more complex than had hitherto been suspected, and that it is entirely inadequate to speak of the "antitryptic" value of a serum. Indeed, it seems impossible to avoid the conclusions that there are differences between these various proteoclastic enzymes, or "trypsins," as has already been suggested by Vernon and by Aberbalden, and that for each of them the serum may contain distinct antibodies. In general, these studies show that the inhibitory values of human serums for ferments derived from human liver and kidney vary but slightly, while the values for commercial trypsin, and for human pancreas, and cancer extract show very pronounced and decided differences. The measurements by the viscosimeter have amply confirmed the belief that serum from cases of cancer show an increased inhibitory value against commercial (pig's) trypsin. This increased index is, however, by no means universally present. In the group of cancer cases, it does not hold for new growths of ectodermal origin, including those of the larynx and esophagus, no matter how far advanced the resulting cachexia. Nor does it hold without exception for all glandular cancers. A very striking feature of almost all of the cancer cases hitherto tested by us has been the enormous reduction of inhibition for the ferment extracted from human cancers, which falls far below that found in most of the control cases, and contrasts strongly with the increased inhibition for trypsin. The biologic significance of these facts is at present obscure, and it seems wiser not to speculate on them.

The diagnostic application of the antitryptic reaction has received a great deal of attention in Germany and England. The general consensus of opinion maintains that it furnishes a very valuable aid in the diagnosis of cancer, especially if certain complicating factors, such as tuberculosis, can be excluded. As has been shown, the fact that an increased antitryptic index may occur in certain other conditions deprives the reaction of its specific character; but although this diminishes, it does not destroy the value of the test as a clinical adjunct.

The use of the viscosimeter will, I believe, very materially further not only an understanding of the reaction, but its practical applicability and value. Moreover, the use of cancer ferment has added a further criterion, which much more sharply and characteristically defines the serums of cancerous individuals. It is, therefore, certainly not too optimistic to express the hope that still further refinements of technic may develop a reaction of specific value.

The scope of this paper does not permit an exhaustive discussion of the numerous so-called diagnostic reactions for cancer which have developed on the analogy of the well-known specific reactions of immunology. Among these are included a precipitin reaction, a complement deflection test, and an anaphylactic method; none of them has been proved to be of value. Finally, Ascoli has recently suggested a reaction based on the diminution of surface tension when antigen and antiserum are brought together, the "meiostagmin" reaction, but although the early reports are encouraging, it is still too soon to decide as to its merits.

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THE RELATION OF HEREDITY TO CANCER*

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That the development of malignant tumors—commonly grouped together under the name of "cancer"—are the manifestations of inherited peculiarities is a conception probably less generally held than formerly. For a time the subject of heated controversy, the question of heredity with reference to tumors has received little attention in recent years. It seems quite possible that the dictum of the statistician has been too readily accepted, and it is not improbable that something may be learned by a further inquiry and a utilization of certain recently established laws of inheritance.

In inheritance we have to deal with the transmission of certain characteristics, which may be visible, as in the case of coat pigmentation in animals, or invisible, such as those exemplified in physiologic peculiarities, temperament, wildness, etc. Tumors belonging to the group to which the term "cancer" is applied occur most frequently late in life so that, strictly speaking, it is the question of the inheritance of a predisposition to cancer with which we have to deal rather than the inheritance of cancer itself. Most of the characteristics which have been dealt with in the study of heredity appear in the course of development of animals under ordinary conditions of environment. Only the intrinsic factors affecting development are thus considered in the study of heredity.

In the etiology of cancer, however, it is necessary to consider also extrinsic factors, for the frequency with which malignant tumors occur as the result of chronic processes, such as are produced by repeated exposure to the *x*-ray, to heat, to certain chemical irritants, and to mechanical injuries, has been definitely established. With definite knowledge of the influence of external conditions in the development of certain types of tumor, should we therefore ignore the intrinsic factors in the development of all tumors?

20. Trebing: *Berl. klin. Wchnschr.*, 1909, xvi, 2296.

21. Weil and Feldstein: *Proc. Soc. Exper. Biol. and Med.*, 1910, vii.

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

The occurrence of several cases of cancer in a single family often leads the physician to conclude that the condition is based on an inherited peculiarity or "taint." Whether or not the conclusion is correct, it is impossible to establish the fact on isolated observations in the experience of the physician. Cancer not infrequently occurs in several closely related individuals, and even the same organ may be affected. Thus Cullen has reported an instance of uterine cancer in three sisters. It is difficult to believe that such instances are of the nature of coincidences.

Most of the systematic investigation of the question has been of a statistical nature. Statistical inquiry has in practically every instance been undertaken with the object of determining whether the incidence of cancer is greater in the families of cancer patients than in the families of non-cancerous patients. This method of investigation has furnished results that are often diametrically opposed.

Paget, an ardent advocate of the importance of heredity in cancer, maintained that cancer occurred much more frequently in the antecedents of cancer patients than in the antecedents of the non-cancerous. Employing the statistical method, certain investigators obtained results similar to those of Paget while others failed to find a greater incidence of cancer in the families of cancer patients.

The results of the more recent statistical investigations are opposed to the importance of heredity in cancer. Pearson, working with data furnished by Hillier of the Middlesex Hospital, found in the antecedents of 2,368 women with cancer, 359 with a history of cancer, and in the antecedents of 753 non-cancerous women, 102 with a history of cancer. With a probable error of 0.04, the coefficient of 0.0335 for the cancer heredity is opposed to the inheritance of this condition. Pearson states that although these results are not final, they tend to show that there is no marked inheritance.

Bashford found in the data obtained from 669 cases of cancer that there was cancer in the father in 58 cases and in the mother in 114 cases. These proportions of 1 to 11.5 in the fathers and 1 to 6 in the mothers are almost identical with those obtaining for the general population dying from all causes. Guillot has obtained similar results. He found a history of cancer in 10 per cent. of the antecedents of non-cancerous and in 17.4 per cent. of the antecedents of the cancerous hospital patients. He found that a greater proportion of the parents of the non-cancerous were still alive and, revising his figures on this basis, he estimated the incidence of cancer in the antecedents of the non-cancerous as 16 per cent., against 17.1 in the antecedents of the cancerous. His statistics obtained from city records showed cancer in 18 per cent. of the non-cancer antecedents and in 16.6 per cent. of the cancer antecedents. Most of the recent statistical inquiry has, therefore, tended to disprove the heredity of cancer.

Another mode of inquiry has to do with the frequency of cancer in certain families—a phenomenon which is quite generally recognized. For example the famous "family of Madam Z" reported by Broca, in which there were fifteen deaths from cancer in twenty-six offspring who attained the cancer age. Of seven males, one had cancer while in nineteen females there were fourteen cases. The subsequent history of this family is at the present time being followed up by Ledoux-Lebarde. Statisticians, however, point out the great rarity of such families and, from a consideration of the general dis-

tribution of cancer in the population at large, regard their occurrence as falling within the law of probability. A more comprehensive historical review of the investigations of the subject of heredity with reference to cancer will be found in a communication by Ledoux-Lebarde.¹

In statistical inquiries of this sort there are so many contributing factors that the results obtained are of slight value. It is in the first place a most difficult matter to obtain facts concerning the occurrence of cancer in antecedents. Not only are the histories unreliable, but the interpretation of the statements may be a matter of dispute. As Lebarde has pointed out, the cancer and non-cancer series should correspond with regard to age, sex, country, etc. Taking the age factor as an example, cancer would be expected to occur more frequently in long-lived than in short-lived individuals. On the whole, the statistical inquiry of the subject under discussion has proved rather unsatisfactory. This method has furnished results which, though far from conclusive, indicate that heredity is of no great importance in the incidence of cancer. I believe however, that this form of investigation is open to criticism from the failure to recognize that under the term "cancer" are included a greater number of non-related conditions. It would mean much more if the incidence of each type of tumor was taken up separately. Thus, the occurrence of a number of tumors of a single type in a given family would mean much more than an equal number of tumors of various types and organs.

With certain types of tumors, the importance of the heredity factor appears to be definitely established. Thus it is well known that melanosa, known to occur in horses of other color, is much more frequent in gray horses. It has been noted that nearly all the offspring of certain gray stallions have developed melanosa.

The condition known as xeroderma pigmentosum is often found in several members of the same family and in this condition light apparently has an injurious effect on the tissues. As the process continues the epidermis becomes greatly modified and cancer frequently develops. It is evident that for this condition an inherited peculiarity is necessary as well as the light-rays. It frequently occurs in brothers or sisters, but as the individuals either die before maturity or are terribly disfigured the condition is not ordinarily transmitted from generation to generation.

In a third condition, known as von Recklinghausen's disease, heredity is evidently an important factor. About one-fourth of the patients give a history of the occurrence of the condition in the other members of the same family. Harbitz reports this condition in five consecutive generations of a single family, nine individuals in all. The condition is characterized by multiple fibromas situated along the peripheral nerves, and in the skin, associated with anomalies of pigmentation. There are also frequently other anomalies and mental defects. In addition to the typical cases, there are often other patients in the same families who present certain of the features just enumerated, but in whom the condition is not well defined. The fibromas often recur when excised, but are usually cured by repeated excision.

In certain cases the tumors take on more rapid growth, acquiring a sarcomatous nature. These individuals also frequently present tumors of other types—carcinomas, leiomyomas, etc. There is little doubt that in this dis-

1. Ledoux Lebarde: Bull. de l'Assn. franc. p. l'étude du cancer, 1908, xcll.

case we have a distinctly inherited condition in which the individual not only develops multiple fibromas, but is also prone to more malignant tumors.

The experimental aspects of the study of heredity with reference to cancer have been for the most part neglected. In a former communication I called attention to the frequency of tumors of the lung in certain families of mice, and suggested further lines of work in the experimental breeding of short-lived animals. Bashford has recently taken up this problem along similar lines. In the offspring obtained by the inbreeding of mice with mammary tumors, he has as yet failed to find evidence of any increase in the incidence of these tumors, although the investigation is not yet complete.

Whether epidemics of cancer in mice such as have been reported by Borrel, Michaelis, Gaylord, and others are to be attributed to heredity is a question which yet remains to be solved. Borrel states in substance that actual experience is wholly opposed to the notion of a cancer heredity in mice. In a recent article I have shown the great frequency of tumors in a given family, the offspring of a single female with a tumor of the lung. In this family sixty-five mice attained the age of six months and of these twenty, or 32 per cent, presented tumors. In seventeen, the tumors were of the same type as the tumor in the parent (homologous inheritance). On dividing the offspring into two groups, one composed of those neither of whose parents had a tumor, the other composed of those of whose parents had a tumor, it was found that tumors were more frequent (39 per cent.) in mice with a tumor parent than in mice with parents without any tumor (13 per cent.) It is my opinion that results obtained from the experimental breeding of short-lived animals will throw more light on the question of heredity in cancer than is possible by the use of the statistical method with human beings. Even with animals the problem is a difficult one, but here it is possible to obtain facts instead of depending on the statements of patients for data.

Differences in the susceptibility of various races of mice to the inoculable tumors have been noted by various observers. Environment is believed to account for these differences in certain cases. Whether heredity accounts for racial differences in other cases has been left undetermined.

I have found that such racial differences are inherited and persist in mice kept in the same environment. On cross-breeding a mouse of a susceptible with one of an insusceptible race, I have found the hybrids as susceptible as the susceptible parent. Furthermore, the growth of the tumor is more rapid in these hybrids. On breeding the hybrids together their offspring in all subsequent generations are found to be invariably insusceptible. By cross-breeding, therefore, a character apparently accentuated in the first filial generation fails to appear in subsequent ones. Inasmuch as the growth of the inoculated tumor depends on a transplantation of tumor cells, inherited differences in susceptibility to the inoculated tumor will have no bearing on tendencies to develop tumors spontaneously. Thus mice which have been found insusceptible to inoculate tumors may later on develop in certain instances spontaneous tumors.

Cuénot found that there was no correlation between inherited characters such as pigmentation, waltzing, etc., and susceptibility to the inoculable tumors. I have found that this is also true of the spontaneous tumors in mice.

CONCLUSIONS

In conclusion it may be said that heredity plays a rôle in the general incidence of cancer with regard to species as is indicated by the frequency of mammary tumors in mice while they are rare in cattle which, however, frequently develop primary tumors of the liver and adrenal (Bashford).

The question whether tumors are inherited as such is not raised by modern investigators. Statistical inquiries concerning the inheritance of a predisposition to cancer lack accuracy, and are surrounded by almost insurmountable difficulties. The results of these investigations fail in most instances to indicate the inheritance of such a disposition.

The occurrence in rare instances of families in which cancer is notably frequent appears to be well established. The occurrence of these families is regarded by many as not remarkable, but as wholly consistent with the law of chance in the distribution of cancer throughout the population. Others point out that if the occurrence of cancer families is established, the question of heredity will not be solved for peculiarities of environment are not eliminated. In melanosis in gray horses, and in both xeroderma pigmentosum and von Recklinghausen's disease heredity appears to be an important factor.

Although much of the evidence collected tends to indicate that heredity is not an important factor in the development of cancer, it would appear that this question cannot be definitely settled without the use of more accurate methods than have heretofore been employed. For this work the importance of the experimental breeding of animals cannot be overestimated, for here it is possible not only to obtain accurate data, but to shape the course of the experiment.

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RECENT PROGRESS IN SURGICAL TREATMENT OF MALIGNANT GROWTHS*

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The problem assigned to me is strictly a practical one, and if there has been any recent progress in the surgical treatment of malignant growths, it has been due to the fact that a number of surgeons have been critically investigating the accumulated evidence of years of experience in the results of their interventions to eradicate malignant disease.

The best results have been obtained only in those cases in which there has been a painstaking study of the pathologic picture, an exact record of the extent of the operation, or other methods of treatment, and of the ultimate results.

In my opinion the recent progress has led to a better conception, not only of the pathologic varieties of the different neoplasms, but also of their local growth and tendency to metastasis.

Surgeons are beginning to learn that in some instances the extent of the local operation must be increased, while in other cases the patient is assured of a permanent cure with a more restricted operation, which, when

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

the neoplasm is situated in some regions, accomplishes this cure with less mutilation.

It is also my view that there has been recent progress in the fact that surgeons recognize that in many instances malignant disease may have its onset in lesions, which may be present a varying length of time, and during that time be comparatively benign.

BENIGN TUMORS

A large number of benign tumors, the existence of which is known to the host for months or years, in the past have been left alone until they have shown signs of growth, or even until they have assumed the definite clinical picture of malignancy. There is no question that the best time to intervene is during the benign stage. On this fact both the public and the profession need education. Here we need publicity.

I have in the discussion at the symposium on cancer of the skin before the Section on Dermatology brought out the fact that up to the present time there is, to my knowledge, neither among my personally studied cases, nor recorded in the literature, an undoubted permanently cured example of the malignant pigmented mole. To prevent this malignant tumor it is necessary for the public to know that apparently innocent moles may at any time, especially after 30 years of age, show local growth, and this local growth is so quickly followed by dissemination of the cells, that up to the present time no operation yet performed has eradicated the disease. Physicians constantly see these moles in the routine examination of patients for other conditions, but it is only recently that they have begun to advise their removal. In my experience the majority of the profession at this time do not consider seriously this view of the benign mole.

In my paper before the Section on Dermatology, I have presented evidence to urge the immediate removal of certain epidermal and dermal tumors which have a varying period of innocence and which may be either of congenital or later origin. In this stage it is sufficient to remove the tumor with a small zone of uninvolved tissue. These tumors are, with rare exceptions, circumscribed, and there should never be any difficulty in removing them without leaving residues behind. There is sufficient evidence also to make it very clear that it is better to leave such a benign tumor alone than to excise it partially.

In the same paper I have ventured to make the statement that excision with the knife is the best method. There are, however, many advocates of other means of getting rid of the dermal tumor—the x-ray, radium carbon-dioxid snow, caustics, the Paquelin cautery, the electric needle, etc. There is no doubt that these methods, when properly employed, do eradicate the disease. From my experience, however, I cannot but conclude that as compared with excision with the knife, these methods have elements of danger in certain cases. I am willing to admit that incomplete excision with the knife is more dangerous than the treatment with any of the above other methods, but there is no necessity for an incomplete removal with the knife if the operation is to be performed at all. There are some cases of benign dermal lesions, which, on account of their situation on the ala of the nose, eyelid, and the ear, when subjected to excision would leave a somewhat greater deformity than when treated by one of these other methods.

The accumulated evidence of years has shown that it is dangerous to trifle with some of these apparently

innocent dermal and epidermal tumors. Space forbids a detailed account of the questions in this problem, but I am anxious to record here that before undertaking the treatment of an apparently innocent epidermal or dermal tumor the operator should know what the tumor is.

If it is agreed to enlighten the public on the fact that all apparently innocent tumors, wherever they may be situated, should be investigated by one having sufficient knowledge to properly treat them, then we should resolve as quickly as possible on the best method of treatment. There is absolutely no objection to excision with the knife, except the resultant scar when the lesion is situated in certain localities, and it has been my experience that in the hands of a properly trained surgeon the scar here is no more of a defect than when the lesion is removed by other methods. It is well to mention that in some instances, on account of the position of the tumor, the surgeon feels that the scar will be less if the margin of healthy tissue is kept within narrower limits. Here the knife should be replaced by, or combined with, the cautery. This is true of the basal epithelioma of the face when situated near the nose, eye or ear.

I trust that in emphasizing the importance of the removal of tumors in their innocent state, I have placed in equal prominence the fact that the lesion must be properly removed.

Apparently there are other lesions which hold the same relation to malignant tumors as the benign tumors.

TRAUMA AND SARCOMA

From the beginning of the literature on sarcoma, investigators of the clinical type have been impressed with the frequency with which sarcoma follows trauma. Trauma, with its local effect—the wound, and the wound always associated with the inflammatory process, which gives rise, first, to granulation tissue, and then to scar tissue—is an every-day occurrence. Both physician and patient concern themselves with trauma and wounds only when the immediate local conditions demand attention. The various open wounds give rise to the problems of preventing and treating infection and the question whether the wound should be closed or not. Fractures and dislocations always force immediate attention. But the contused wound with unbroken skin and without fracture or dislocation, or injury to a great vessel or nerve, or without extensive rupture of muscles or tendons, receives only the attention that the patients demand on account of discomfort or loss of function. With the rarest exceptions it is after a wound of this character (contusion) that sarcoma develops.

After the injury there may be only slight swelling and discomfort, or not even that; then later, after weeks or months, a swelling develops, which finally assumes the picture of a sarcoma. In other cases there is considerable swelling, due to a hematoma or a more diffuse extravasation of blood. In a few cases this swelling may never completely disappear, but later the signs of sarcoma develop. In other cases it does disappear, and there is a free interval between this and the development of the secondary symptoms due to the sarcoma.

The sarcomas which develop after trauma are usually situated within muscle or bone, either periosteal or medullary. There are also benign lesions, which may be secondary to trauma—the organized hematoma, the different forms of myositis, especially the ossifying

myositis, and the interesting desmoid tumor of the abdominal wall following trauma to the rectus muscle during labor. In the bone there is a distinct ossifying periostitis of traumatic origin. Both tuberculous and pyogenic osteomyelitis may be secondary to trauma. Trauma often localizes the syphilitic gumma or ossifying periostitis.

The point that I wish to emphasize is that the physician should constantly bear in mind the late effects of trauma. The immediate effects of trauma as a rule speak for themselves. The now routine x-ray examination discovers the latent fracture, but rarely if ever are physicians and surgeons keen in searching for the late effects of trauma. In the experience of the surgical clinics throughout the world the first appearance of a sarcoma weeks or months after trauma is rarely appreciated until the patients themselves demand investigation.

It is not necessary to frighten the laity with too cold-blooded statements or too plain speaking in regard to the danger of sarcoma after trauma, because it is relatively rare. But if members of the profession will caution their patients to return to them for examination if the symptoms of the contusion do not quickly subside, or if there is any recurrence of pain and swelling, or any appearance of limp, loss of function or weakness, there will be an opportunity by careful palpation and x-rays to decide whether exploration is justifiable.

I would therefore look on the recognition of trauma as an etiologic factor in sarcoma of the soft parts, and of the bone, and the attempt to get such cases at an earlier period, as definite evidence of progress in the surgical treatment of malignant growths.

PRECANCEROUS LESIONS

The relation of a single trauma to cancer is less distinct and more remote than it is to sarcoma. But the more we investigate the previous condition of the skin and mucous membrane at the site of the carcinoma before the definite picture of carcinoma began, the more often do we find that this epithelial area has been the seat of some form of chronic irritation. Attention has been called to this so frequently in the literature for a number of years, that it is unnecessary to give any references. In the chairman's address before the Section on Surgery, at this meeting, Dr. Charles H. Mayo chose for his subject: "Prophylaxis of Cancer," and he took the opportunity to bring out the various precancerous lesions, and to advocate that when possible surgery should attack the lesion in that stage.

In my paper before the Section on Dermatology, I called attention to the fact that it has been my own experience, and in the publications of the accessible literature every author emphasizes the fact, that carcinoma of the skin of neck, body and extremities rarely begins except in a pre-existing tumor, ulcer, scar tissue, or some local form of chronic inflammation, for example senile, x-ray, and solar dermatitis, or the keratosis of lead and arsenic, psoriasis, syphilitic and tuberculous granuloma, etc. Surgery, therefore, has better and better opportunities to attack and cure the precancerous lesions, and I should look on this as recent progress in the surgical treatment.

DIAGNOSIS

Whether in the precancerous, or in the early or late malignant stage, proper treatment is absolutely impossible until a correct diagnosis has been made. Different pathologic processes can be cured by local operations

of different magnitude. The same pathologic process requires operations of different magnitude, according to its situation in various tissues, organs or regions.

As surgical diagnosis must indicate that operation or treatment which will give the patient the best assurance of a permanent cure with the least mutilation, it is in this sense broader in its application than a pathologic diagnosis pure and simple. Surgeons have opportunities to study the clinical picture and to follow the ultimate results, and, for this reason, are in a better position than the pathologist to apply the pathologic diagnosis to prognosis and to methods of treatment. It appears to me very emphatically that surgical diagnosis, in this broader sense, should be the aim of the physician who operates for malignant disease.

My own studies of tumors, benign and malignant, have shown that the same tumor in various localizations may be eradicated by somewhat different procedures; while in one locality a carcinoma of a certain type may, from its onset, be hopeless on account of its position, in another the tumor is relatively benign, and surgery has accomplished cures by complete excision. For example, in the adenocarcinoma of the colloid type in the upper jaw, as with all the carcinomas involving the antrum, whether primary here or springing from the nose, the most complete eradication, in my own experience and in the literature, has up to the present time failed to accomplish a cure, while in the breast the same adenocarcinoma of the colloid type has been permanently cured with but few exceptions. The surgical diagnosis must therefore recognize the pathologic type of the lesion, and the individual who makes this diagnosis must be familiar with the proper operation for this pathologic lesion in this special locality.

CLINICAL DIAGNOSIS

When the correct interpretation of the pathology of the lesion can be made with sufficient certainty, without an exploratory incision, or without the aid of a frozen section, the term "clinical diagnosis" applies. This, of course, should be looked on as the highest art in surgery, and it should be the aim of all surgeons to educate themselves to become more and more proficient in clinical diagnosis. At the present time, however, a sufficiently positive diagnosis to justify a radical operation without the aid of the gross appearance or a frozen section is impossible in many instances. As a matter of fact, to-day we see more patients in whom a clinical diagnosis of a malignant tumor is impossible or uncertain, than we did ten years ago, and this is due to the fact that such lesions come to surgery at an earlier period.

It is true of malignant disease that, with but few exceptions, no matter where it is situated, clinical diagnosis becomes more difficult the earlier after the onset the lesion is first seen. It is also true of malignant disease, that the easier and more positive the clinical diagnosis, the worse the prognosis. Therefore, the stage at which the best results can be obtained is the one in which the clinical diagnosis is most difficult. Undoubtedly, a larger experience with tumors in this stage will educate surgeons in the ability to make even here a positive clinical diagnosis, but nevertheless it is a fact that to-day surgeons with the largest experience find themselves very frequently unable to make a sufficiently positive clinical diagnosis to allow them to proceed either with the restricted operation for the benign lesion, on the one hand, or the radical operation for the mal-

ignant lesion, on the other. They are of the opinion that justice is not done the patient, unless there is a positive diagnosis before the operation is completed. These exploratory incisions have been made for a period long enough to demonstrate that in such cases the results of treatment are much better than the results of the same treatment for the same disease at a later period in which exploratory incision is unnecessary for diagnosis.

OPERATIVE DIAGNOSIS

I employ this term for the diagnosis made at the operation, either from the gross appearance of the tissue exposed by the knife, or from a rapid frozen section. The method by which the surgeon gets at an exact interpretation of the pathologic process is immaterial in its relation to proper treatment, provided that method is one which will allow the diagnosis to be made at once and with sufficient accuracy for immediate action. Some surgeons have trained themselves to have confidence in their ability to make an exact diagnosis from the fresh appearance; others in addition wish to see a frozen section; some prefer to have a pathologist associated with the clinic to make the cellular diagnosis for them. Apparently it is the consensus of opinion that to cut into the tumor, excise a piece, or even to excise the whole tumor locally, then to close the wound, and wait a few days for a microscopic diagnosis based on a more careful technic of fixing and staining, does not offer the patient as good an assurance of a permanent cure as the method first described.

The ability to make a diagnosis clinically or at the operation, with or without frozen sections, is by no means to be considered sufficient. The surgeon must have kept himself abreast of the times by the careful study of his own cases and their ultimate results and by a study of the literature, so that he may be familiar with the extent of the operation which will give the patient the best assurance of a permanent cure with the least mutilation for the diagnosed pathologic lesion in its special situation.

I shall attempt to bring out practically this broad question of surgical diagnosis by considering lesions of special tissues, glands, organs, and regions.

BONE LESIONS

In the December numbers of *Progressive Medicine*, beginning with 1899 and continuing up to date, I have presented each year the literature and my own experience illustrating the points in treatment as based on correct surgical diagnosis, and have shown that the accumulated experience among surgical clinics which have carefully investigated their material, demonstrates, it seems to me, without question the correctness of the statements made in the introduction to this paper.

In both periosteal and medullary lesions it is frequently impossible to make a correct clinical diagnosis even with the aid of the *x*-ray. As amputation and even resection are operations which produce mutilation and disability, it is imperative for the surgeon, before proceeding with the performance of them, to establish an accurate diagnosis, and to perform these operations only for those lesions in which a permanent cure can be accomplished by these means alone.

At the recent meeting of the American Surgical Association in Washington, I presented a paper on "Bone Cysts, Giant-Cell Sarcoma and Bone Aneurisms." Rather than take space here, I would refer to that paper.

Table 1 gives the relative frequency of the benign and malignant bone tumors of which I have notes in the Surgical Pathological Laboratory. The majority of these patients were treated in the surgical clinic of Professor Halsted in the Johns Hopkins Hospital.

In the first place, it should be noted that among the 154 cases 60 were distinctly benign. With few exceptions the 34 cases of exostosis could be diagnosed clinically from the *x*-ray. Operative diagnosis was unnecessary and operation not indicated, except because of the size or discomfort of the growing exostosis. In small exostoses it may be difficult to differentiate the growth, even in the *x*-ray, from an ossifying periosteal sarcoma. Here exploratory incision should settle the question.

Now and then an exostosis is associated with the bursa, which may become the seat of inflammation and produce a rapidly growing tumor on account of the distention of the bursa with fluid (exostosis bursata). I have had one such observation in which everything in the clinical picture suggested a rapidly growing sarcoma situated in the muscles of the buttocks. The patient was an adult aged 30, and following a trauma there had been a rapidly growing tumor in this region. The veins and the skin over the tumor were dilated, the deeper tissues infiltrated; the tumor had somewhat the feeling of a cellular sarcoma covered with muscle. The *x*-ray showed no bone changes. (The exostosis did not show in the *x*-ray on account of its position; only an antero-posterior view was taken.) The exostosis grew posteriorly from the shaft opposite the great trochanter, and a lateral view to demonstrate its presence would have been a difficult task. The patient was sent to me prepared for hip-joint amputation, and, on account of the intense pain, loss of weight, and emaciation, it seemed justifiable to make such an attempt to give the patient some comfort for the few months he had to live. But following the rule that no such operation should be performed until a positive diagnosis was made, an exploratory incision was made into the tumor. Before reaching the tumor proper the edematous condition of the tissue suggested a sarcoma, but there was quickly exposed a definite capsule which consisted of a membrane 5 mm. in thickness. When this was divided blood-stained fluid escaped. The exploring finger found the exostosis, and the character of the lining membrane excluded a malignant growth. The operation consisted of chiseling the exostosis and the partial removal of the membrane. A complete removal would have been impossible without excising the sciatic nerve. A permanent cure has followed.

The bone cyst is a medullary lesion distinctly benign. Those who have had the largest experience are of the opinion that it cannot be differentiated in the *x*-ray or clinically from the giant-cell sarcoma or the bone aneurism. Such tumors should be explored. As the bone cyst contains a blood-stained fluid, it must be differentiated from the bone aneurism, because simple incision is sufficient for the bone cyst, while for the aneurism resection, or even amputation should be attempted to accomplish a cure. A bone aneurism is a term employed in the literature to describe a rare medullary tumor; there is a bone shell, a very narrow zone of tumor tissue of the round-and-spindle-cell type, and a central hematoma, due to hemorrhage into the originally solid tumor.

The periosteal and medullary giant-cell sarcoma is a very important bone lesion to recognize. This tumor grows rapidly and may break through its bone shell and involve muscle. Yet there have been cures by

local resection, even in this late stage. Many cases of medullary giant-cell sarcoma have been permanently eradicated by curetting. I have reported such a case in which the tumor involved at least one-third of the upper portion of the tibia. All of these cases are considered in the paper just referred to. The giant-cell sarcoma practically can be recognized only at the operation. If one is not familiar with the naked-eye appearance, its peculiar cellular structure can be easily appreciated in the frozen section. If this giant-cell tumor is a sarcoma, it is one in which recurrence after an attempt at a cure by curetting adds no risk to the patient. A number of cases are on record in which a permanent cure has been obtained after two or more operations. I have a patient who had been subjected to three unsuccessful operations for a giant-cell sarcoma of the lower end of the radius; he is now perfectly well, after the fourth conservative operation, and the hand has sufficient good function to allow him to work as a mechanic.

Among the less malignant bone tumors there is one of great interest—the periosteal osteosarcoma. This must be differentiated from the traumatic and syphilitic ossifying periostitis, and from the ossifying myositis. As a rule the diagnosis seems not difficult from the *x*-ray. But in a recent case, which I demonstrated before the American Orthopedic Association, during its visit to Baltimore in May, 1910, the difficulties and dangers of depending on the *x*-ray were well shown. An experienced Roentgenologist was of the opinion that it was an osteomyelitis with periosteal bone formation. A distinguished orthopedic surgeon was quite as positive that it was a syphilitic ossifying periostitis. The operation revealed a periosteal sarcoma surrounding the entire tibia, with periosteal bone formation.

Until very recent years the majority of American and English surgeons had been of the opinion that amputation should be performed as the routine operation for bone sarcoma, and in the past many limbs have been sacrificed for bone tumors, which were strictly benign (bone cysts), or which could have been cured by curetting or resection (giant-cell sarcoma), or for which resection was sufficient (periosteal osteosarcoma, myxochondrosarcoma, and fibrosarcoma). Apparently surgeons had been impressed with the great malignancy of bone tumors, and when now and then a cure was accomplished, even by amputation, they were surprised. If these cases had been studied pathologically it would have been seen that these cured patients suffered from tumors, which had been cured by other surgeons without amputation.

Now, as a matter of fact, the more malignant spindle-and-round-cell periosteal and medullary sarcoma kills by metastasis and rarely by local recurrence. If one is fortunate enough to get such a tumor when it can be removed by local resection, the probabilities of a permanent cure are just as good from this operation as from amputation. Theoretically, they should do better after resection, because such a tumor can be resected only in its early stage, and, as a matter of fact, in the literature, in spite of the small number of cases subjected to resection, this small group has at least an equal percentage of cures.

The experience, therefore, of to-day reverses the old rule: amputation is not indicated and should not be done for sarcoma of bone, unless the resection of the malignant disease would leave a limb without function. Now, if this malignant disease is a spindle or round-cell, peri-

osteal or medullary sarcoma, grown to such dimensions as to require amputation, one cannot expect a permanent cure from an amputation at so late a stage; metastasis has most certainly taken place. These patients should not be subjected to the mutilation of an amputation for the few months they have to live, unless the tumor is giving so much pain or discomfort as to demand operation. On the other hand, if the tumor belongs to the less malignant type, amputation should be performed, because, in the majority of cases it will accomplish a cure. It was von Mikulicz who first took this position against amputation, and he came to this conclusion somewhat indirectly. He found that patients who suffered with bone tumors in their early stage, from which they had but little discomfort or loss of function, refused the amputation advised, but would consent to resection. Von Mikulicz and others then found that some of the most malignant bone tumors which were resected in their very early stage were permanently cured.

It was Koenig who first called attention to the comparative benignity of the giant-cell tumor, and since then the literature on this subject has gradually accumulated. And, as our experience grows, our faith in the conservative principle increases. It should not require courage to perform these conservative operations, but knowledge, which will allow an accurate diagnosis. As a matter of importance, it would be better to err on the side of conservatism. In the past, surgeons, in the majority of cases, have amputated when in doubt.

My own investigation of bone tumors has impressed on me the belief that diagnosis becomes most accurate when the surgeon has before him all the evidence—the clinical picture, the *x*-ray, and the fresh appearance of the tissue exposed at operation and the frozen section. I look on these, as stated before, as the elements of the surgical diagnosis. With this evidence the trained surgeon can act with assurance.

LESIONS OF THE FEMALE BREAST²

If 40 per cent. represents the usual proportion of cases of cancers of the breast, in which the patients remain well after a period of five years, and 80 per cent. the prognosis for the smaller group, in which the operation has been instituted relatively earlier, it seems fair to conclude that the prognosis will be better when laity and profession look on a mass in the breast as an acute disease, and subject it to examination by a properly trained surgeon within a few days of its discovery. When a breast lesion is malignant there should be no compromise in the operative removal. The mutilation by the most extensive dissection and the function of the arm are no worse than after a less radical procedure. The evidence at my disposal proves that, with the rarest exceptions, the prognosis for a relatively *incomplete* operation in an early case of cancer of the breast, when the diagnosis cannot be made from the clinical picture, is worse than after a *complete* operation at a later period.

In the study of the ultimate results after operations performed by Dr. Halsted and his associates, where the tendency, on the whole, is to perform a most radical operation, I have been surprised to find among the relatively few local recurrences, that the majority of them were observed after operations for the most favorable

2. In Kelly-Noble's *Gynecology and Abdominal Surgery*, 1908, ii, 180. I have contributed Chapter XXXI, based on a clinical and pathologic study of 1,048 cases.

type of tumor, and that the notes made at the operation recorded that the area of skin removed was less than usual and that the wound in some cases had been closed without skin-grafting. These facts illustrate that a favorable malignant tumor tends to influence even the most radical surgeon to a conservative position. This conscious or subconscious influence works with a subtlety most difficult to overcome. Especially for carcinoma in those regions where the experience of the surgical world has demonstrated that the best results are only obtained by the most radical, careful and painstaking dissection, it requires eternal vigilance, great enthusiasm and mental and physical strength of a high order to keep one's self at the tedious task. It is so easy to cut corners. There is a great temptation to save time. It is difficult to keep out of the mind the complete closure of the wound.

The time elapsing between the operation and the result in carcinoma has been in the past, and, I am sure, will continue to act in the future, as a negative force. Only those surgeons who keep the most thorough records of the relation between their operations and the results will find sufficient stimulus to still maintain enthusiastic advocacy of the most radical operation for carcinoma in certain localizations. Halsted's operation for cancer of the breast is an example of the method, and its author an example of this type of surgeon.

In the operation for cancer of the breast the skin incision and the subcutaneous dissection should be planned only to give the carcinoma the widest possible berth necessary. It should not for one moment consider the closure of the wound. Only after the operation for the malignant disease has been completed should this become the subject of the surgeon's concern, and there is no danger in such an attitude.

Fortunately for women, not all breast tumors are malignant, nor is the differential diagnosis at the exploratory incision a great obstacle. If the operator is trained to differentiate he will find that a large number of cystic and solid tumors can be recognized, differentiated from the malignant, completely removed, and the patients saved the mutilation of removal of the breast.

As is true elsewhere, so with regard to the breast, this education of the public will bring breast lesions earlier and earlier to surgeons for diagnosis at the operation. It will also be true that the surgeon's ability to diagnose cancer clinically at an earlier period will improve, and that exploratory incision will be required less and less frequently. It seems to be the consensus of opinion that the removal of only the tumor, to be followed a few days later by the complete operation if it prove to be cancer, does not give the patient the same chance for permanent cure as when the same radical procedure immediately follows the exploratory incision.

The benign lesion of the breast most difficult to differentiate at the exploratory incision and from frozen sections is the benign cyst, in the formation of which the breast is the seat of a peculiar epithelial activity most common at the menopause. This has received various names: abnormal involution, senile parenchymatous hypertrophy, chronic cystic mastitis, etc. As I have discussed this disease elsewhere,² it seems unnecessary to take space to do so here. But the ability to recognize this lesion, which is the most frequent benign tumor in the female breast during the cancer age, is of great importance. I would advise, however, that if there is any doubt in the operator's mind, the operation for cancer should be performed.

SYMPTOMS OF ONSET

In this paper on the recent progress in the surgical treatment of malignant growths, I cannot miss the opportunity to devote a few lines to the attitude towards symptoms of onset less frequent in breast lesions than tumor. Apparently the attitude towards tumor has been settled.

An ulcer of the nipple which appears spontaneously in a woman not nursing a child should to-day be looked on as sufficiently positive evidence of cancer (Paget's disease), to justify the radical operation. I have evidence to confirm this statement.

A discharge of blood from the nipple is not a sign of malignancy. If there is no palpable tumor in the breast, there is no danger from non-interference; if there is a tumor, it should be treated like any other breast tumor. The operator may be certain that he will find a cyst with a papilloma, and it will be his duty to distinguish the benign from the malignant.

Retraction of the nipple, or dimpling of the skin, is seldom observed, except when a cancerous nodule can be palpated. If, however, one comes across such a symptom before any tumor can be palpated, it should be looked upon as a sign of cancer.

The relation of *lactation hypertrophy and mastitis* to malignant disease is an important one. Studies of my own have shown that during the enlargement of the breast in a pregnant woman all lesions are very unusual. On account of this fact a mass which appears at this period should immediately be explored, because carcinoma infiltrates so rapidly. The prognosis after removal is distinctly worse than for the same tumor growing in the gland at rest. Now and then the benign fibro-epithelial tumor, which has not shown itself before pregnancy, appears after it. This is due to the fact that the tumor tissue takes on the same lactation hypertrophy as the normal breast tissue. Tuberculous mastitis may have its onset in the breast during pregnancy. I have observed carcinoma during pregnancy as often as the benign tumor or the tuberculous focus, and it is for this reason that I urge exploration for a positive diagnosis immediately after the first appearance of the mass. There is no mutilation and no injury to function after the removal of the fibroepithelial tumor, and it is also best to get at the tuberculous focus early. The breast may be saved, as the lesion is usually single. Of course, if a carcinoma is exposed the most radical procedure should follow. Apparently there is a prevailing impression among the profession that a lump in the breast during pregnancy is some form of mastitis, and for this reason such patients have been observed until the tuberculous mastitis ruptured or cancer becomes evident on account of infiltration of skin or retraction of the nipple.

After the birth of the child the most common lesion of the lactating breast is pyogenic mastitis. The portals of entrance are traumatic lesions of the nipple, caused by the nursing infant. Preventive measures of cleanliness, well understood by trained obstetricians and nurses, usually protect the woman from mastitis. This mastitis is rare after the fourth month. The evidence at my disposal teaches that a cake in the breast up to the fourth month of lactation can be considered, *a priori*, to be mastitis, but this mass should very quickly exhibit the signs of abscess and be treated by incision, or disappear. If this does not happen the suspicion that it is malignant should at once lead to exploration. I have observed

carcinoma as frequently as chronic lactation mastitis. In all of the cases of which I have a record, the lesion unfortunately has been treated as mastitis until the growth of the cancer has become manifest clinically. In this stage the prognosis from operation is practically hopeless. Fortunately obstetricians have found out that massage is bad for mastitis; it is distinctly worse—perhaps fatal—for cancer. A caked breast should receive only one treatment—Bier's hyperemia; in other respects there should be non-interference until the signs just mentioned indicate exploration.

Pain localized in a breast is not a sign of cancer if there is no tumor; it is not an indication for operation. When associated with tumor, it is more often suggestive of benignity than of malignancy. But, as the indication for the exploration of the tumor is distinct, whether pain be present or not, this symptom cannot be looked on as any aid in the clinical diagnosis. If it appears late after the tumor it is suggestive of carcinoma.

The chief reason for the removal of any *single tumor* of the breast immediately after it is first observed is to extirpate cancer at the earliest possible period. But there is another reason: it may be looked on as a preventive measure, locally and completely, to remove a benign tumor. Therefore, if a woman presents herself for the first time with a perfectly circumscribed and freely movable tumor of the breast, which has been present and quiescent for years, this clinical fact practically excludes malignancy. But such a tumor may at any time become malignant, and for this reason it should be removed. If the patient has multiple tumors in one or both breasts it is apparently wiser to remove at least one for a positive diagnosis. In the young woman the tumors are of the fibroepithelial type, usually the so-called intracanalicular myxoma, rarely the fibroadenoma. It is not necessary to remove the breast in order to eradicate the disease. There is no objection, however, to removing those tumors which are growing or causing pain, or to removing all of them if they are few in number, and if this can be accomplished without too much destruction of breast tissue. In a few instances the multiple tumor in the breast may be metastatic from the concealed sarcoma. The removal of one simply establishes early the fact of a hopeless disease.

In older women the multiple tumors are cysts associated with the epithelial disease, which I have mentioned. It has been my experience that cancer has so rarely been observed in such breasts that operation as a preventive measure need not be considered. In fact, my clinical and pathologic study of over one hundred such lesions gives rise to the conclusion that this disease produces immunity from cancer, and for this reason I am of the opinion that in the past we have been unnecessarily radical in our treatment of single or multiple simple cysts. The cysts can and should be removed. The parenchymatous lesion which has caused their formation has a strong tendency to spontaneous resolution.

The frequency with which large intracanalicular myxomas of the breast degenerate into sarcoma establishes a definite operative procedure for them which should never be omitted. When such a tumor has reached such a size that its removal practically amounts to the removal of the entire breast, it should be attacked as if it were sarcoma. That is, the tumor should be removed with the breast, the overlying skin and the underlying pectoralis fascia and muscle. In the first few cases which I studied in which the tumor was re-

moved by enucleation as it seemed encapsulated, local recurrence in the pectoral muscle followed and proved fatal. In a larger number of cases observed since then, in which the rule established on the early experience was followed, there have been no recurrences.

Space forbids the consideration of the recent progress of the surgical treatment of malignant tumors in other regions. In these two papers I have covered considerable ground, more, I think, than sufficient to exemplify the principles of the broad question of surgical diagnosis which must always be the basis for surgical action.

In conclusion I would draw attention to the remark of Koehler in his most recent publication in which he diseusses his twenty-five years' experience with cancer of the stomach. In the critical study of his cases he asked himself the question: What have those cases of cancer of the stomach in common in which the patients have remained well after gastrectomy? He found that all of them were freely movable tumors of the stomach wall, and with few exceptions situated at the pylorus; all of them were adenocarcinoma and many of these of the colloid type; there was but one scirrhus.

When the abdomen is opened and the surgeon palpates in the wall of the stomach a tumor, which is freely movable, gastrectomy should be performed. As a matter of fact this is the best treatment for ulcer and the only hope for cancer. If the mass, however, is adherent, and the surgeon is unable to decide whether it is cancer, resection is contraindicated, because posterior gastroenterostomy will give relief if it is ulcer, while adherent cancer will be practically hopeless. If the lesion is distinctly cancer, resection should, if possible, be attempted, because the patient, if he survives the operation, may be given months, or even a few years of comfort; in doubtful cases resection should not be employed, because an ulcer-patient ought not to be subjected to so great a risk.

CONCLUSIONS

Until we have found some other method of treatment for malignant growths, future progress must proceed along the lines which have developed up to the present time. There must be a correlation between the clinical, gross and microscopic pictures of the lesion in the same locality, and although the time which elapses between the operation and the result is remote, we must bring together ultimate result and operative procedure for lesions of the same kind and in the same locality. In every instance there must be a microscopic study. In this way surgeons will be able to make accurate surgical diagnosis, and, with the knowledge of the local growth and pathology of the lesion, they will be better fitted to plan and perform that procedure which will give the patient the best assurance of a permanent cure with the least mutilation. The surgeon will also understand how to give the greatest comfort to those unfortunates whose malignant disease has passed the period in which there is any hope of a permanent cure. In some the greatest comfort will come from non-interference, in others from palliative interventions.

These pitiable individuals with inoperable and incurable malignant tumors should not be left to the mercies of the quack with his various cancer cures. There is no doubt that the surgeon is able to do more for them and give them greater comfort than is any untrained individual, and there is the hope that, while the former is performing this eminently merciful duty, more opportunities will be offered for that research work

which may in time lead to the discovery of a cure other than operative removal alone.

We have by no means reached the limits of the early recognition and treatment of what might be called the pre-cancerous lesions, nor in the early diagnosis of the malignant lesion itself. There is every evidence that surgery, which in the past has accomplished permanent cures of both cancer and sarcoma, can, along definite lines, increase very greatly the number of cures.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. LOEE, TYZZER, WEIL, MALLORY * AND BLOODGOOD, CONSTITUTING A SYMPOSIUM ON CANCER †

DR. LOUIS B. WILSON, Rochester, Minn.: Dr. Bloodgood has called attention to the importance of the surgeon's ability to diagnose cancers from their gross appearance at the operating table. Dr. Mallory has shown us beautiful pictures, illustrating the diagnosis of cancer by the microscopic examination of fixed tissues. There is between these two view-points an important connecting link, namely, the immediate microscopic examination of stained frozen sections of fresh tissue. Tumors in the stage for most successful operation are frequently of microscopic size and no amount of knowledge of gross pathology will help us in their diagnosis. Yet unless the diagnosis is accurately made microscopically while the initial operation is in progress, the patient is either needlessly mutilated, or, more frequently, suffers an incomplete removal of affected tissues with a resulting extension of the cancer. Some pathologists fail to get satisfactory results from sections of fresh tissues because the tissues are not really fresh; others use microtomes so crude that a good section is an accident; and yet others use single-tone stains which do not differentiate tissues; but most failures are from lack of experience with tissues properly prepared. In the scientific exhibit we have a number of autochrome photomicrographs of sections of fresh tissue stained with polychrome methylene blue, which no competent pathologist would hesitate to diagnose. In St. Mary's Hospital we have given a diagnosis from the microscopic examination of fresh frozen sections in 364 cases of doubtful mammary tumors alone. Subsequent examinations have revealed but one apparent error in this series. This accuracy has been due in part to the fact that in small doubtful mammary tumors the surgeons have invariably submitted to the pathologist the entire tumor with some surrounding tissue, but the diagnosis has invariably rested on the microscopic appearance. Frozen sections by no means give sufficient data for all diagnoses, but, if the data are within the tissues, properly stained, thin sections of really fresh material enable one to determine carcinoma as accurately as may be done from sections of the most elaborately prepared tissue.

DR. F. B. MALLORY, Boston: I would call Dr. Wilson's attention to the fact that in the Massachusetts General Hospital, diagnoses are and have for years been made from frozen sections. The same thing has been done in the Boston City Hospital for thirteen years. It is a common procedure everywhere, so far as I know.

DR. H. GIBSON WELLS, Chicago: Within the last few months I have made some observations regarding the enzymes of cancer, which I wish to place on record at this time. One of the characteristic features of malignant tumors is the persistency of the histologic structure; so if a tumor is primary in one structure and secondary in other organs, it maintains the same histologic structure in all. Few attempts have been made to ascertain whether in their chemical constitution and biologic behavior these tumors also maintain a consistent condition, and fail to partake of the nature of the second organ in which they have formed metastases. It is possible that a primary tumor might retain its original structure

as a secondary tumor, but might acquire chemical or biologic characteristics from that second tissue. I have, consequently, attempted to learn whether we can determine whether the enzymes are different in primary and in secondary tumors. As the best way to learn this with some degree of accuracy, I have selected secondary tumors in the liver, because in that organ we have an enzyme that will oxidize xanthin into uric acid, and this enzyme is not present in any other tissue in the body. A number of experiments have shown that when primary tumors occur in various parts of the body and produce secondary growths in the liver, the secondary growths do not acquire this power of converting xanthin into uric acid.

DR. LOUIS B. WILSON, Rochester, Minn.: I do not wish to claim priority for the frozen-section method, though I published four years ago what has proved to be a useful modification of the technic. But I do wish to urge the importance of the routine examination of contrast-stained, thin sections of perfectly fresh material, as a means of increasing our skill in the rapid microscopic diagnosis of tumors to guide the surgeon during the progress of a patient's first operation. Many pathologists have abandoned the procedure from lack of material, bad technic or insufficient experience, but it too frequently has a vital relationship to the patient's welfare to excuse our failure to perfect ourselves in its use.

CARDIOSPASM WITH DILATATION OF THE ESOPHAGUS *

REPORT OF TEN CASES

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Although the symptom-complex of cardiospasm has been known to the medical world under a variety of names for several decades, but few authentic cases found their way into the literature prior to the last decade. As early as 1821, in fact, the condition had been observed by Purton, and trauma considered by him as a causative factor. Esophagus spasm, however, had been known to medicine even long before this, and it is not at all unlikely that some of the early reports, which go back to 1740, even as far back as Hippocrates, were certain stages of the condition known to-day as cardiospasm.

In 1878 Zenker and Von Ziemssen had collected reports of seventeen cases under the title of "simple ectasia," and stated that in these cases there was enormous ectasia of the tube without any underlying stenosis. The reports of cases collected by them were those of Purton (1821), Hannay (1833), Rokitansky (1840), Delle Chiage (1840), Abercrombie (1843), Oppolzer, Spengler (1853), Wilkes (1859), Giese (1860), Ogler (1866), Luschka (1868), Klebs, Davy (1875), Stern (1876), Dave (1877).

Hamburger in 1871 presented a very lucid description of spastic stenosis of the esophagus with mention of two cases in which, however, there was nothing said of an accompanying dilatation. He described the condition as "stenosis spastica fixa" in contradistinction to "stenosis spastica migrans or intermittens." He understood by the former "the cramp-like contraction of the circular fibers of a small area of the esophagus, which never varies from this position, not occurring paroxysmally, but which remains at one and the same place for weeks and months." According to the present acceptance of

* Dr. Mallory's article is the leading one in this issue.

† Another symposium on cancer will be printed next week, the one presented in the Section on Dermatology at the St. Louis Session.

* Read before the American Gastro-Enterological Association, St. Louis, Mo., June 6-10, 1910.

the subject this would seem to answer a description of cardiospasm in which dilatation had not yet occurred, or was unrecognized.

Since the reports of these earlier cases isolated examples had been recorded up to 1900 by such observers as Strümpel, Mikulicz, Meltzer, Leichtenstern, Maybaum, Reitzenstein, Russell, Rosenheim, Westphalen, Fleiner, Boas, Netter, Strauss and others. At this time Newman was able to find but 10 cases reported in the literature, and even as late as 1904 Mikulicz estimated that reports of a hundred cases could be collected. In the last decade, but more especially in the last five years, the cases have rapidly multiplied, doubtless to twice this number. In this country Erdman, Sippy, Einhorn, Plummer and others have made valuable contributions to the literature. Plummer alone reported forty cases, all of which had come under his own observation, and three-fourths of them in the last four years.

In my own experience nine of ten cases have come under my observation in the last three years. It is quite probable, however, that because of a lack of intimate knowledge of the symptom-complex prior to this time, such cases may have escaped unrecognized. In 1905, for instance, Ibrahim made a most exhaustive study of congenital pylorospasm, reporting 113 cases; of this number no more than ten or twelve were found in American literature. In the past five years this phenomenon in infants has become so frequently recognized as no longer to call for the recording of isolated cases. The same must apply to the condition here under discussion, and the probabilities are that with the wider dissemination of knowledge of this affection it will be much more frequently encountered.

It has been variously described heretofore under the titles "simple ectasia," "spindle-shaped dilatation of the esophagus without anatomic stenosis," "congenital dilatation of the esophagus," "idiopathic dilatation of the esophagus," "spasmogenic diffuse esophagus dilatation," "paralytic dilatation of the esophagus," "cardiospasm with secondary dilatation," etc. While there is still slight confusion as to the name to be applied, the general tendency is to accept the last term to cover all of the cases heretofore described under these various titles.

There has been throughout a remarkable unanimity of opinion as to symptomatology and treatment of the condition, but a vast amount of discussion as to the pathogenesis, and the question of priority of the spasm and the dilatation. Though Strümpel and Mikulicz as early as 1881 had recognized the etiologic significance of spasm in diffuse dilatation of the esophagus, to Meltzer belongs the credit of recognizing its true importance in this connection. He was the first to look on dilatation in these cases as a stagnation ectasia, due to the abnormally contracted cardia, which he attributed to a disturbance in the nervous mechanism controlling the cardia. He based this belief on theories that he had evolved and observation that he had previously made on the physiology of the esophagus. Rosenheim took exception to this theory, maintaining that the dilatation was primary and the cardiospasm secondary, pointing to the fact that in anatomic stenosis of the esophagus as, for instance, in carcinoma, or benign scar formation, sacculation rarely develops. He has been a firm adherer to this belief and still maintains that there is an idiopathic dilatation of the esophagus. Strauss believed that the spasm and dilatation occurred simultaneously, and were due to the same cause, namely, vagus paralysis. In this way he explained

the simultaneous occurrence of the two conditions. Fleiner explained the dilatation on a congenital basis, believing that it existed from birth, and even went so far as to maintain that a congenital dilatation might remain latent for years. Acceptation of this belief has resulted in the reports of cases of so-called congenital dilatation of the esophagus in which the first symptoms occurred even late in life.

My experience in a series of ten cases leads me to the belief that there is a congenital basis for the development of the sacculation, but not according to Fleiner's acceptation of the subject. Though this experience has been limited—too limited perhaps, to justify definite conclusions—I have been greatly impressed in my cases with the relationship existing between this phenomenon and the enteroptotic type of individual. Glénard, Stiller and their followers have shown beyond a doubt that there exists a type of individual, presenting certain well-defined outward evidences, which indicate a congenital tendency to a general asthenic state—asthenia universalis congenita. They are characterized by a slender gracile build, long, flat thorax, acute costal angle, floating tenth ribs, pulsating aorta, splanchnoptosis, etc. In these individuals not only are the viscera in a state of ptosis, but the hollow viscera especially are atonic, manifesting at the same time, paradoxical though it may seem, a tendency to spasticity as well. This is shown in the *corde colique transverse* of Glénard and the spastic cecum and sigmoid so often encountered in these cases.

That cardiospasm is of nervous origin seems to be the general consensus of opinion. How or why it develops in certain persons has, however, never been satisfactorily explained in spite of the splendid work on the physiology and pathology of the esophagus by such distinguished investigators as Sinnhueber, Meltzer, Mikulicz, Rumpel, etc. Many etiologic factors have been considered in previous case reports, but in none, with the possible exception of trauma, has any direct connection been determined. For the development of cardiospasm, as for certain other conditions dependent on nervous causes, there are probably necessary two factors, a predisposition and an irritant. Assuming, therefore, cardiospasm to be a disturbance of innervation, we may expect it most often in individuals with neuropathic tendencies. With the onset of the spasm at the cardia, dilatation of the esophagus could readily be explained, if the congenital tendency to atony which is known to exist in the hollow viscera of the abdomen also is present in the esophagus.

It would not be justifiable for me to assume, simply because of my observation in a limited number of cases, that a majority of cases of cardiospasm with dilatation occur in persons with universal congenital asthenia. The relationship was so striking in my experience, however, that I felt constrained to look on cardiospasm as the expression of an exciting cause, be it trauma or what you will, in that type of individual in whom almost every shock to the nervous system gains expression in some local or general manifestation.

The symptomatology is brought out in the case reports which are appended and will need no repetition here. The same is true of the final results of the treatment in each case. It will be seen that while the ultimate results have not been so uniformly satisfactory as those described by others, on the whole the results have been good. If these cases are carefully followed after stretching of the cardia, I question very much if any of the patients in whom sacculation had occurred will be found

to be entirely free from symptoms at any time. My experience has been that they will always have to exert more or less care in the amount and character of food taken and the manner of ingesting it. In other words, I doubt if complete relief is possible after sacculatation of the esophagus exists.

Therefore, the earlier a case can be recognized the more complete will be the cure, for when sac formation has occurred irreparable damage has been done. While the patient's life may be practically saved and the individual made reasonably comfortable, he can never be restored to a perfectly normal state. These patients are, however, so grateful for the relief given that they always report in optimistic terms, and are apt, therefore, to mislead even the physician. This in all probability is responsible for some of the assertions that absolute cure has been obtained.

The dilator which I have used in the stretching of the cardia is practically the same as heretofore described by Russell, Strauss, Plummer and others, consisting of the double rubber bag with a silk bag inserted between, attached to the ordinary stomach-tube, having no opening in the end. Having had considerable difficulty with the rubber bags obtained from the manufacturer, I have found it expedient to make my own dilators through the employment of what is known to surgeons as the Penrose drainage tubing. This is made of rubber dam and can be obtained in yard lengths of varying diameters, so that the dilator may be varied in size according to the caliber of the rubber dam tubing and the silk bag. This tubing has the advantage of being very durable and at the same time very inexpensive. The outer bag is removed after each operation and discarded. The introduction of the dilator is facilitated by the use of a steel spiral as a mandarin. This can be easily removed after the dilator is in position. The location of the spasm is carefully determined through the use of a sound and a mark made at such a point on the dilator tube as to indicate when the stricture is at about the middle point of the dilating bag. I have not found the thread method of Plummer necessary, nor would it have aided me especially, except in one case. I have rarely failed in the introduction of the dilator when it was preceded by the use of the esophageal bongsies varying from 24 to 36 F. In dilating the stricture a large glass syringe is used, such as is employed in the irrigation of the bladder. With this the exact amount of fluid can be carefully measured and pressure exerted gradually. I have not found a manometer necessary or helpful, because after all, one must depend on pain and the patient's ability to endure it, as an indicator. This is the best indicator of the degree of pressure to be used, and after the first two or three divulsions one can determine very readily the degree of pressure to be used in the individual case. This will vary greatly; therefore a manometer reading would not be especially significant. Having previously noted the amount of water that it will require to dilate the bag to its fullest extent, one can tell pretty exactly to what extent the bag is inflated by the reading on the piston of the syringe. It has been my plan to stretch the cardia biweekly during the first two or three weeks, then each week until the symptoms of spasm have been entirely relieved.

For determining the capacity of the sacculated esophagus, a small rubber dam bag, sealed to the end of a stomach-tube, was introduced and gradually filled with water under pressure, until the patient complained

of a marked sense of pressure. The quantity of water required gives the approximate capacity of the sac.

Often when using the soft tube in these cases to obtain stomach contents, one will be in doubt as to whether the tube has passed through the stenosis into the stomach, or is, perhaps, rolled up in the sac. This can be readily determined by having the patient take a deep breath while holding the distal end of the tube in a glass of water. There being a negative pressure in the esophagus on deep inspiration, water will be drawn into the tube if the other end is in the esophagus pouch, while the opposite will be the case if the tube has entered the stomach. This test also aids in the diagnosis of sacculatation, for if such be present more water will be drawn up into the tube than in the normal esophagus. In the cases here reported there were seven males and three females, averaging 37 years of age, eight whites and two negroes. Two gave histories of injuries, one (Case 7) shortly before the development of the cardiospasm and one (Case 1) thirteen years before; one (Case 2) occurred shortly after childbirth; in one (Case 5) there was an indefinite history of hies, but not until after the development of epigastric symptoms; in one (Case 8) a history of pneumonia with pleurisy fifteen years before. In five there was nothing in the history which could have been considered of the slightest etiologic import. Superacidity of the gastric contents which has been mentioned as an etiologic factor, was present in but one of my cases; a marked subacidity existed in three cases; and the rest were within normal limits. Nine of these persons were definitely enteroptotic, exhibiting the various stigmata.

Four patients declined the necessary treatments for relief. Two of these (Cases 1 and 6) have since died of inanition; the other two (Cases 2 and 3) it is hoped will submit to the stretching of the cardia later. In four of the six patients who have submitted to treatment (Cases 4, 8, 9 and 10) the results have been highly satisfactory. Comparatively speaking, they are well, but strictly speaking there remains evidence of the sacculatation many months after the treatments have been discontinued. They must eat slowly, chew their food thoroughly, avoid drinking cold water, and two patients (Cases 4 and 5) must, through a slight regurgitant effort, empty the pouch of the fluid collecting there occasionally. It is questionable whether the dilated sac is ever entirely empty, for the negative pressure in the sac is probably always sufficient to retain a small column of fluid there, whether it be saliva swallowed, mucus secreted or fluid ingested.

Two patients have been only partially relieved. In one of these (Case 7) the spasm was entirely overcome and deglutition made possible, but an ulcer at the cardia causes most intense pain with every act of deglutition. The ulcer evidently existed prior to the stretching of the cardia, but was unquestionably rendered worse thereby. This patient has recently returned to the hospital with a very small irregular mass on the anterior wall of the stomach near the cardia, either of an inflammatory nature, or an early malignancy. Patient 5 has been greatly benefited, but the treatment has had to be continued from time to time during the past year on account of relapses, in spite of the fact that each time the procedure has been carried to what we consider the rational limit, viz., 4.5 cm. Mikulicz hesitated to employ this method, because he was unwilling to carry out a procedure that he could not control by vision. Though developments have shown that he was not justified in this position, it behooves the operator to use the utmost care.

It is interesting to note that cough was a persistent symptom in Case 4, and was greatly aggravated in the recumbent posture, evidently owing to vagus irritation, as in a case reported by Westphalen. In Cases 4 and 5 water would flow into the mouth during the night if the patient assumed certain positions and would often cause strangulation. The patient often awoke to find his pillow saturated with the fluid that had gravitated into the mouth from the sac.

It was striking to note the regularity with which the patient reported that inability to swallow cold water was one of the earliest symptoms, and we may add, one of the most persistent ones, the cold directly or indirectly stimulating the contraction of the circular fibers at the cardia.

In the various tests to which the esophageal contents has been subjected to differentiate it from the gastric contents, I have seen no mention of sugar. In the former sugar is present in much larger amounts than in the latter, owing to the fact that in sacculations of the esophagus the conditions are ideal for sugar production, namely, stagnation, warmth, the salivary ferment and carbohydrates. For similar reasons (*viz.*, stagnation, sugar, warmth and bacterial flora) lactic acid is present in considerable amount. Case 10 is reported here as presenting a possible congenital dilatation of the esophagus and cardiospasm, because of similar reports which have been handed down in the literature under this name. Certainly if the term "congenital" is ever justifiable in connection with dilatation of the esophagus it would be here. My impression, however, is that we have here to deal with a case of congenital, partial stenosis or atresia of the cardia, with secondary dilatation of the esophagus, in a child with the enteroptotic habitus, rather than cardiospasm.

Judging by a review of the literature there seems to me insufficient justification for ever considering dilatation of the esophagus congenital and primary. It is more likely that in all of these cases there were congenital obstructions, following which dilatation developed. In some of the cases that have been reported in the literature as congenital dilatation there were no symptoms manifested until the patient had attained an advanced age. This seems most illogical.

Case 11, while not strictly belonging to the class of cases here under discussion, may be included in such a report with perfect propriety. This was considered a case of cardiospasm with dilatation of the esophagus, the patient was so treated, and only after an effort to relieve the condition through laparotomy was the true nature of the obstruction revealed. There was found to exist an infiltrating scirrhus carcinoma, involving the entire fundus of the stomach, which had contracted down to the size of a hen's egg. The symptoms in this case had existed for several years. Though it is possible for a growth of this type to have existed for this length of time, it nevertheless seems possible that malignancy developed following or as a result of cardiospasm. I wish to make no definite claim, however, and report the case chiefly to show how one may fall into error in the matter of diagnosis.

REPORTS OF CASES

CASE 1.—*Patient*.—S. R., a man aged 50, with negative family history, thirteen years before seen, January, 1907, had fallen from a wagon, injuring his neck. This accident was followed by partial paralysis of the right side of body, which gradually cleared up. The right leg would tire easily and "went to sleep" often. The present trouble began about the

middle of 1905 with difficulty in swallowing, and stabbing pains in the region of the liver during deglutition, under the lower part of the sternum. In the beginning the patient was unable to swallow meat, which often lodged and was eructated; he could drink fluids more easily, but found coffee and other fluids harder to swallow than water. At this time he was observed at the Jewish Dispensary, but no obstruction could be made out by the physician in charge. The gastric secretions and motility were normal. A few months later he was observed by another physician, who also found that large sounds and tubes entered the stomach without difficulty. In January, 1907, a small bougie met obstruction at the cardia, and at this time he came under my observation.

Examination.—Since the beginning of trouble patient had lost 15 pounds. The esophagoscope was introduced and the obstruction could be easily detected, there having developed as yet no marked degree of dilation of the esophagus. There was at the cardia an annular stenosis, rather white and glistening, showing no irregularities and not bleeding on manipulation.

Course of Disease.—The patient was under observation only a short time, during which I was unable to introduce the cardiodylator, though succeeding with the larger sounds. Unfortunately he passed from observation before we had succeeded in dilating the obstruction. He died about a year later, of inanition.

CASE 2.—*Patient*.—Mrs. B., aged 31, was observed March, 1907. Her present trouble had begun shortly after the birth of her child seven years previously with sharp pains in pit of stomach, belching and sour eructations. The pains disappeared, but there persisted a fulness, as if a "lump lay there"; the food seemed to lodge above the stomach and could be forced down only by taking a few swallows of water. The patient at the time of observation eructated gas after eating and could "spit up food at any time." She tried to eat little and often; otherwise the food would not pass down. She experienced shortness of breath after eating.

Examination.—The patient was a small, emaciated woman of typical enteroptotic type, with acute costal angle, 30 degrees, floating tenth ribs, marked degree of gastropnoia, the lesser curvature being on a level with the umbilicus, and long slender thorax. On the introduction of the stomach-tube into the esophagus 4 to 8 ounces of liquid containing large particles of meat, bread and undigested food were obtained, slightly acid in reaction, containing lactic acid decidedly positive, sugar in considerable quantity, much viscid saliva and no free hydrochloric acid. At the cardia an obstruction was met but was easily overcome, and from the stomach 2½ ounces of well-digested contents were obtained; free hydrochloric acid 12, total acidity 33. If fluids of different color such as carmin and methylene blue were introduced, one into the stomach and the other into the dilated esophagus, after an hour's time the two solutions could be obtained separately. An x-ray plate of the thorax following the ingestion of a quantity of bismuth pap showed the presence of a very large spindle-shaped dilatation, involving more than one-third of the lower esophagus.

Course of Disease.—The patient passed from observation for a time, returning in February, 1908. In the meantime a cardiodylator of the Russell type had been obtained and was employed but once. The patient objected to the distress caused by use of the dilator and passed from my observation.

CASE 3.—*Patient*.—H. W., aged 44, seen April, 1907, had had migraine since childhood; there was no venereal taint, no history of trauma. Six years before he had had pneumonia with pleurisy. When 24 years old, while eating a sandwich consisting of bread and sardines the patient had a sudden severe attack of pain lasting for several hours, just at the end of the sternum. He had the impression at the time that a small bone had lodged there. Ever since had had difficulty in swallowing on account of an obstruction in lower part of esophagus; he was compelled to eat very slowly, chew food thoroughly and at frequent intervals during the meal to wash it down with a glass of water. He would eat enough solid food "to fill up the esophagus" and then drink enough water to force it through into the stomach. For many years he had taken but two meals a day, "because it was too much

trouble to eat." He had not enjoyed a meal in twenty years and "ate only to live." At certain times solid food would pass through better than at others; at other times even water passed through with considerable difficulty. In the beginning the patient often eructated his food, but after he learned how to eat, this rarely occurred. Through a thorough understanding of his case the patient succeeded in keeping himself in a very excellent state of nutrition.

Examination.—The physical examination was practically negative; the patient was not of the enteroptotic type. The soft tube met an obstruction at the cardia, which was easily overcome with bougies of varying sizes. The sac contained at all times a small quantity of fluid, but no macroscopic food particles. The stomach contents showed marked reduction in acidity: free hydrochloric acid 10 to 12; total acidity, 20 to 24.

The patient manages his case so well that he has thus far declined stretching of the cardia.

CASE 4.—Patient.—E. G., aged 46, seen October, 1908, denied lues; had suffered no trauma. Present trouble dated back three years, to a time when the patient began suffering from occasional burning pains in the epigastrium after eating. These would be relieved by taking a drink of water. There was pain occasionally when the stomach was empty and more or less indigestion, characterized by belching, for a year. During the past six months the patient had had difficulty in swallowing and at times had to leave the table to bring up food which would not pass down. He had a cough at night, which would continue for several hours, until he had brought up several ounces of liquid. This would not occur again during the remainder of the night and never during the day. When he lay on right side his pillow would be wet in the morning as if the saliva had been drooling all night. If he took a glass of cold water during a meal he was unable to get anything else down after that and would have to leave the table to vomit. He had been treated for various forms of stomach trouble, but rapidly lost weight, became weak and incapacitated for work and was now compelled to spend most of time reclining.

Examination.—The patient was 6 feet 2 inches tall, with long slender thorax, moderately acute costal angle, floating tenth ribs, relaxed abdomen and pulsating epigastric aorta. The introduction of the tube into the esophagus removed a quantity of undigested food, five hours after eating, slightly acid in reaction, lactic acid positive, no free mineral acid, rich in sugar. The respiratory test was decidedly positive. The stomach-tube encountered an obstruction 49 cm. from the teeth, which could easily be overcome. The tube could then be passed into the stomach and normal stomach contents removed. The free hydrochloric acid was 56 to 70; total acidity 87 to 92 in repeated examinations. The sac easily contained from 3 to 5 ounces. If a methylene blue solution were poured into the stomach, the tube then withdrawn into the esophagus and carmin solution poured into the sac, a half hour later these two solutions could be obtained separately. The *x*-ray, after the ingestion of a bismuth pap, showed marked dilatation of the lower third of the esophagus.

Course of Disease.—From October 2 to 18 the cardioidilator was used every day or two. Amount removed from the esophagus at the beginning of each examination diminished from 5 to 2 ounces, at first containing food remnants of all kinds with lactic acid, etc., and later consisting of nothing but watery fluid, with no food remnants at all and no lactic acid. The patient gained in weight from 138 to 148 pounds. His difficulty in swallowing is relieved and he returned to work.

May 28, 1910: Treatment was discontinued year and half ago, since which time the patient has been at work without the loss of a day. Toward latter part of meal he still feels a sensation of pressure under end of sternum, which is relieved by several swallows of water. He empties the sac every night by leaning over with his head low and forcing the fluid out; there are rarely any food particles, unless it be something like cracker, which floats on water. If the sac is not emptied before retiring he is apt to awake with a slight cough due to the fluid trickling into larynx and is then

compelled to empty the sac. His weight is 160. He finds that cold water is practically the only substance which does not go down freely. He has no difficulty with other fluids. He regurgitates no food and has no pain.

CASE 5.—Patient.—C. D., aged 30, seen February, 1909, had a doubtful primary lesion six months before coming under observation; no history of injury. Present trouble began about two years before observation when the patient noticed that "food seemed to stop above the stomach and gradually pass down." He was compelled to masticate his food well and eat slowly. Cold water met the same obstruction, but hot water always passed without difficulty. The condition grew worse, so that most of the food "clogged up" just above the stomach, and would have to come up. By getting up from the table and moving about the patient could often make the food pass into the stomach, and he then would have relief. He became accustomed to getting up three and four times during every meal. After a time even this failed to give relief, and most of his food had to be regurgitated. He would often have pain in his chest, severe, cramp-like in character, but not lasting long; had often brought up food taken twelve hours before. Sometimes at night while asleep he awoke coughing and almost strangling from the esophageal contents gravitating into his throat. He learned that soft food taken warm would pass with least difficulty. He then gained some weight and strength, but any change from this rigid diet caused trouble.

Examination.—The patient was poorly nourished, of medium height and enteroptotic habitus. He had acne vulgaris, acute costal angle, floating tenth ribs and succussion over stomach. Introduction of the stomach-tube into the esophagus removed a quantity of undigested food, slightly acid, rich in lactic acid and sugar and much viscid saliva. At the cardia an obstruction was met which at first could only be passed with the smallest bougie. After gradual dilatation with bougies the cardioidilator could be introduced and inflated. The respiratory test was positive. The esophagoscope revealed a dilated pouch just above the cardia with food remnants and mucus clinging to the mucosa, which was thrown into vertical folds. The point of constriction itself could not be seen, because of the thick, tenacious saliva which collected at the bottom of the sac, and could not be removed completely.

Course of Disease.—The stenosis was stretched at intervals of three to four days. Patient was instructed to empty the sac after each meal and at night, so that no stagnant food should remain.

May 27, 1910: The patient has now been under observation for over a year and the cardia-dilatation carried out at intervals of a month or more since. The difficulty which he now experiences is such as one might expect from a sac without tone. He cannot take solids easily and cold water will not pass through. Semisolids and mushy foods pass readily, while the more solid foods require water, soup, or some other liquid to carry them down. The patient does not spit up his food at all and whatever he eats finds its way eventually into the stomach, but with considerable distress. He has gained weight and in general is greatly relieved.

CASE 6.—Patient.—Mrs. H. C., aged 40, was seen April, 1909; her father died of apoplexy; she had three children, and two years before the time of observation had rheumatism. The first symptoms of the present disturbance began about five years before the time of observation with pain in the epigastrium, occurring chiefly at night, once or twice a week. It was usually promptly relieved by swallowing water. Occasionally pains occurred soon after eating. There was no vomiting at any time. Shortly after the inception of the pain the patient began to have difficulty in swallowing, "the food simply refusing to go down." A drink of water would sometimes help. This difficulty persisted more or less ever afterward. The patient was able to get small amounts of food down through great persistence. She was treated at the Washington University Clinic for several years by means of bougies, and thus kept alive. There was a slight obstruction at the cardia, but a moment's pause without much manipulation would remove the difficulty and the tube

would enter the stomach easily, without pain or marked discomfort.

Examination.—The patient was greatly emaciated and her lips were slightly cyanotic. Aside from a slow heart-beat, examination of chest was practically negative. The abdominal wall was very thin; there was slight separation of the recti, movable right kidney, palpable, pulsating aorta, vertical stomach, gastroptosis. The gastric analysis showed free hydrochloric acid, no lactic acid. I am indebted to Dr. Fischel for the opportunity of observing this case, and of stretching the cardia on a single occasion.

The patient did not submit to further treatments, and has, I have learned since, died purely of inanition.

CASE 7.—Patient.—D. E., aged 47, seen June, 1909, denied luetic infection. Past history was unimportant with exception of an accident in December, 1906, when the patient was knocked down by the tongue of a wagon, one wheel passing across his chest. He was confined to bed for three weeks. The present trouble made its appearance shortly after this, at first in an inability to swallow solids easily. This condition gradually grew worse and the patient was compelled to take one or two glasses of water to wash the food down. He finally regurgitated both solids and fluids, being able at times to retain warm liquids only; did not vomit or belch, but "spat up food." He consulted a number of physicians and submitted to various forms of treatment without benefit. Two weeks prior to my first observation he began having burning pains in the epigastrium when bougies were passed, and even when he ate or drank. The pains were behind the lower part of the sternum, were greatly aggravated by efforts to swallow and often awakened him at night. In the beginning they were relieved somewhat by the application of hot packs, rest, alkalies, etc., but at the time he was seen by me nothing gave relief.

Examination.—This revealed a weak, emaciated individual, whose facial expression gave evidences of great suffering. The bougie met a resistance at the cardia, which was only momentary, the sound slipping into the stomach. The passage of the bougies caused the patient to complain bitterly of pain, which persisted even after the removal of the sound. The diagnosis was cardiospasm with dilatation of the esophagus and peptic ulcer, either the cause of the spasm, or the result of constant manipulation.

Course of Disease.—It was thought wise to use the cardiodylator to relieve stenosis as well as the irritation, as in dilatation of the sphincter ani to relieve fissures of the anus. The large dilator was inflated to its utmost, namely 3 cm. diameter causing intense pains and returning streaked with blood. Several dilatations were carried out from which the patient obtained great relief, so far as the obstruction was concerned, but the pain was only increased thereby. He gained weight and improved in a general way through the increased nutrition. The pains could be temporarily relieved with orthoform.

June 1, 1910: No obstruction to the passage of food, but the pain still persists. A small, irregular, flat mass is palpable on the anterior wall of the stomach on deep inspiration, and is evidently near the cardia. It is impossible to say at this time whether this is an inflammatory mass extending from the cardia, or whether it is a beginning malignancy.

CASE 8.—Patient.—Mrs. A. M., aged 43, seen November, 1908, fifteen years previously had pulmonary disturbance which was interpreted by her physician as gangrene of the right lower lobe; was confined to her bed for thirteen weeks with fever, expectoration, etc. The pain in the right side continued to exist for many months. There was no history of either lues or trauma. Two years before the time of observation the patient began having difficulty in swallowing and distress under the sternum after eating. Food would apparently "stop halfway" and cause great discomfort until it passed into the stomach. Shortly after this the patient was unable to take cold water, which would be immediately regurgitated. She lost weight and strength rapidly, and was under treatment for a year without benefit. Periods of from one to three days would pass during which she was unable to get a single morsel through the cardia. This condition was

finally relieved by the passage of sounds by her physicians. After this if food did not pass through the cardia promptly she would invariably have to bring it up. The stricture would seem to be spontaneously relieved, when the swallowing was better for a time. It had gradually become worse until November, 1908, when the patient was taking nothing but small quantities of mushy foods and warm fluids.

Examination.—There was slight, harsh, vesicular breathing at the apex of the left lung; otherwise normal thoracic conditions. There were no abnormal physical signs over the region of the right lower lobe. The patient was still fairly well nourished, though 20 pounds below her usual weight. The stomach-tube, passed readily to a point 39 cm. from the teeth, met a slight obstruction which was easily overcome. The same was true of the large bougies. There flowed from the esophagus sac 3 or 4 ounces of fluid containing food particles. The stomach contents showed free hydrochloric acid 43; total acidity 66. The esophagoscope was introduced without difficulty to a point 10 inches from the teeth where the esophagus seemed to bend slightly to the right and backward so that the lumen could not be seen ahead. The lumen of the esophagus at this point, however, was not especially encroached on; the esophagus seemed rather to be pulled to one side by an old periesophageal inflammation. Beyond this point was a dilated sac extending down to the cardia. The cardiodylator was introduced with some difficulty.

Course of Disease.—The dilatations were carried out first twice a week, then once a week, finally once every two or three weeks for a period of about six months, the large dilator, 3 cm. in diameter, being used.

May 31, 1910: Almost a year has elapsed since the treatment of this patient was discontinued. She reports that she has been able to eat a general diet with comparative satisfaction. From time to time she has a little discomfort and must at all times exert great care in the manner of eating. She can never take anything very cold without its being regurgitated; otherwise she never regurgitates her food. There are times even now when the food seems to lodge for a moment and then pass through. Her weight has remained fairly constant. She eats heartily, but has learned to devote twice as much time to her meals as she did formerly. She finds that she should not drink anything while eating, but takes fluid after meals. The sac now holds 180 c.c. of fluid.

CASE 9.—Patient.—C., seen June 7, 1909, had had no injury and denied lues. Present trouble commenced a year previously with disturbance in swallowing and pain in the right half of the chest. In the beginning he could eat solid foods better than fluids, which were usually regurgitated. Ice-water he was unable to drink at all, warm fluids passing down with less difficulty. For a period of two or three weeks at a time the obstruction and pain would entirely disappear, only to return in a more severe form. He was finally unable to swallow any food without taking a few mouthfuls of water to wash it down. Often when the pain was severe, warm water would give relief. Finally the patient was compelled to "fill his gullet with food" and then force it through by drinking hot water. If he did not take water the food would be regurgitated. Often he would leave the table to regurgitate his food and then return and eat again.

Examination.—The patient was tall, slender, emaciated, fairly well developed, with a moderate enteroptotic habitus, costal angle 50 degrees, floating tenth ribs and a mild degree of gastroptosis. The obstruction at the cardia on the introduction of soft tubes was easily overcome.

The cardiodylator was used with almost immediate relief of the spasm. Following two or three introductions the patient was able to eat what he wished, and could even take cold water, which he had not been able to do for months. The esophagoscope was employed a number of times and could easily be introduced into the dilated sac showing corrugated, collapsed walls with mucus and food clinging to them and an injected state of the mucosa. The patient rapidly regained his weight and was able to do hard physical labor.

May 27, 1910: After a year the patient states that he experiences little or no difficulty, if he takes moderate care, in his eating. He must chew his food thoroughly, take plenty

of time to his meals, and finds that he has less difficulty if he takes no cold water with his meals. He must eat nothing that floats on water, otherwise it is apt to come up. He can often evacuate two or three ounces of mucus and saliva through a slight regurgitant effort. The sac is still present and will contain as much as 160 c.c. of water without much discomfort to the patient. This was determined through the employment of a rubber bag in the esophagus gradually filled with fluid until the patient complained of discomfort. Large tubes pass into the stomach without the slightest difficulty. Though the spasm has been practically entirely overcome the dilated sac still remains after one year and continues to produce mild symptoms. It has been possible to remove food remnants when the patient was not aware of their presence.¹

CASE 10.—Patient.—O. F., aged 8, seen October, 1909, was an eight months' child. There was no evidence of lues in him or his parents. He had never been well or strong. He began vomiting within a month after his birth, when he was put on artificial food because of insufficient mother's milk. Up to six months he developed fairly well, but was always under normal weight. Throughout life he had spat up more or less of his food immediately after taking it, with no retching or straining. He was always constipated and passed little urine. He began teething at 1 year and walking at 2 years of age. When solid food was begun, vomiting became even more marked. The patient developed very slowly physically, but was always alert mentally. During the last two or three years he had occasionally had a week of freedom from vomiting, but this was seldom. He was frequently compelled to get up from the table to vomit, and would return to eat more. He complained at the time of observation that the food "lodged under the breast-bone," seldom accompanied by pain. He lives practically on fluids, because of the distress caused by solids. He had been treated for all forms of stomach trouble, though a stomach tube had never been inserted prior to my first examination.

Examination.—The patient was a small, frail, emaciated, anemic child, weighing 36 pounds and appearing to be about 5 years old. He had lobulated tonsils and adenoids, a number of small, palpable cervical glands. The junctions of the second, third, and fourth ribs with the costal cartilage were prominent. There was a floating tenth rib, costal angle of 50 degrees, movable right kidney, etc. A small, soft rubber, nasal tube, 22 F., encountered an obstruction 26 cm. from the teeth, making it impossible to pass the tube into the stomach, even with a mandarin. Paraffin-covered bougies varying from 22 to 26 F. were carefully forced through the constriction with considerable discomfort to the child, the operator gaining the impression that the bougies suddenly passed through a hard, annular, circumscribed stricture. When given half a glass of water the patient was very uncomfortable until permitted to eructate it, which he did without the slightest effort. On swallowing there was no second murmur to be heard anteriorly or posteriorly over the region of the cardia. When large bougies were passed a very small quantity of blood-tinged mucus would follow. The sacculenation of the esophagus would contain about three ounces of fluid. The examination of the stomach contents showed a normal motility and a slight superacidity; free hydrochloric acid 56, total acidity 80.

Course of Disease.—After the introduction of the larger bougies, up to size 34 F., the patient was able to swallow solid foods with little difficulty, so that forcible stretching with the bag was not resorted to until it was found that the cardia would again contract. Stretching was then resorted to on three or four occasions. The patient now partakes of every kind of food, liquids and solids alike, without any difficulty. On June 1, 1910, the patient had been under observation for about six months and had gained 10 pounds, about one-quarter of his entire body weight.

CASE 11.—Patient.—I. G., aged 58, seen August, 1908, for two years had complained of "a clutching pain" under the sternum, at times extending into the right arm, especially

after exertion and after eating. If he would lie down after meals the pain would not occur. Six months after this trouble he began to have pain when swallowing. The food would pass into the stomach without difficulty, but cause "burning" pain as it passed down. The appetite was good and the bowels regular. There was slight dyspnea on exertion. The patient had lost 25 pounds in the last two years; had had much to worry about.

Examination.—There was a mild degree of arteriosclerosis, a slight accentuation of the second aortic sound, blood-pressure 125. Further examination was entirely negative. The case was considered one of mild arteriosclerosis, with angina and accompanying nervous dyspepsia. About eight months later the patient returned complaining of considerable difficulty in swallowing and pains during deglutition. Food seemed to lodge at end of sternum, and he was often compelled "to spit it up." There was great distress after meals until the food had been forced into the stomach. The stomach-tube and bougies encountered an obstruction at the cardia, which it was possible to overcome. On the introduction of the stomach-tube into the esophagus 2 to 4 ounces of viscid fluid could always be removed containing food remnants, a trace of lactic acid, and always more or less sugar. The test breakfast removed from stomach showed free hydrochloric acid, 44, total acidity, 60, with normal motility.

Course of Disease.—The patient obtained considerable relief through the use of dilator and stretchings, which were carried out once and twice a week for a period of three months. There was at no time any bleeding on the introduction of either the sounds or the dilator. Frequent palpation of the abdomen failed to reveal the slightest evidence of any tumefaction in the epigastric region. There was no cachexia or high degree of anemia. Though able to eat much better the patient did not regain weight. It soon became impossible to introduce large bougies through the stenosis and a very small shot on the end of a thread did not find its way into the stomach. Frequent efforts were made with all sorts of devices to get through the cardia, but this was seldom successful. Even if the dilator was successfully used the patient obtained no relief. In view of the rapid emaciation it was deemed advisable to dilate the stricture from below. There was still no cachexia, no tumefaction and no blood in the feces or stomach contents. The dilatation of the esophagus was very evident from the amount of fluid that it would contain and was also revealed by the x-ray. The gradual development of the trouble through a period of two years with the dilation of the esophagus seemed to justify a diagnosis of cardiospasm. A laparotomy revealed an infiltrating carcinoma, scirrhus type, involving the entire cardiac portion of the stomach with the fundus contracted down to the size of a large hen's egg under the left lobe of liver and margin of ribs, the pars pylorica being entirely free. An attempt was made to feed the patient through a gastrostomy, but he died within four or five days.

3894 Washington Boulevard.

STRANGULATED CONGENITAL UMBILICAL HERNIA

I. R. MAERCKLEIN, M.D.
OAKES, N. D.

As strangulated congenital umbilical hernia is rare, I report the following case:

History.—July 7, 1910, I was called to attend Mrs. A. in confinement, but arrived twenty minutes too late, the call being nine miles in the country. I found that the baby had a congenital irreducible hernia. Having answered the call hurriedly I had forgotten my pocket case, so after ten minutes futile taxis, I instructed the parents to keep cloths wrung out of hot water on the hernia during the night and told them that I would return in the morning to operate on the child.

Operation.—The next morning, after again trying taxis and failing to reduce the contents of the sac, I operated,

1. This patient has since died, having developed acute tuberculosis. The autopsy findings confirmed the diagnosis of dilatation of the esophagus, without anatomic stenosis.

opening the sac, which contained about one foot of cecum and ascending colon and eighteen inches of ileum. Being unable to reduce the contained intestine *en masse*, due to adhesions of bowel coils and constriction at the umbilical opening, I broke up the adhesions and incised the constricting bands of the umbilical opening upward and to the left. The bowel loops being considerably inflamed, hot salt solution was applied on sterile towels and the intestines then returned to the abdominal cavity. The sac was then tied and cut off at the umbilical aperture and its stump returned intra-abdominally; with a catgut suture the peritoneum was reunited. Three silkworm-gut sutures were then "purse-stringed" around the remaining opening and tied. I next applied antiseptic dressing of iodoform gauze. The wound healed very nicely.

Subsequent History.—On the fifth day following operation, a hydrocele of the cord developed, which two days later burst spontaneously, discharging about two ounces of pus. The small opening in the scrotum was enlarged and antiseptically dressed, after which the babe made an uneventful recovery.

Remarks.—During the entire operation, from 10 to 12 drops of chloroform were given to quiet the child's movements, the baby (then only 12 hours old) taking the anesthetic fairly well.

A UVULA FORCEPS AND A COMBINED TONSIL SCISSORS AND SEPARATOR

HENRY R. BOETTCHER, M.D., CHICAGO

The fewer instruments one has to deal with in the tonsil operation, the more quickly and successfully can the tonsil be removed. The scissors illustrated here have a keen knife edge, extending completely around the outer margin, making them when closed a double-edged curved separator. This places at once in the hands of the operator in a single instrument a pair of scissors and a double-curved separator to be used in the usual way.

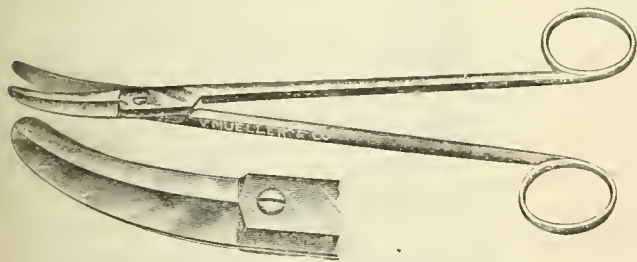


Fig. 1.—The tonsil scissors with knife edge around outer margin, making a combination of scissors and separator.



Fig. 2.—The uvula forceps, to hold the uvula out of the way during operations on the tonsil.

In the tonsil operation there is always more or less danger of the uvula being injured, and especially is this true where the snare is used, a piece or all of the uvula being looped up and snared off. To overcome this point I have been using the forceps here shown by which the uvula is grasped and held out of the way by an assistant.

I find also that applying the uvula forceps as the first step in the tonsil operation assists to uncover the head of the tonsil, and by outlining the pillars makes it easier to grasp the submerged tonsil, and also to separate the pillars from the tonsil. The spring in the forceps is sufficiently strong to hold the uvula for all purposes, but does not mutilate it.

34 Washington Street.

A NOTE ON THE TREATMENT OF TYPHOID

LOUIS M. WARFIELD, M.D.

WAUWATOSA, WIS.

A recent epidemic of typhoid afforded opportunity for observing over one hundred consecutive cases from the laboring class. Many patients had been ill from two to seven weeks and were even desperately ill on admission. A procedure which has seemed to have been life-saving and which, so far as I know, is not mentioned in any books or articles (except in the treatment of bowel hemorrhage), is the following:

The beds of all seriously affected patients are elevated on blocks placed beneath the feet of the beds. The elevation is from 9 to 12 inches.

The position is not at all uncomfortable. We have kept patients in this inclined position for two to three weeks continuously. This position, we believe, tends to keep the blood near the vital centers and causes less work on the part of the heart. When the pulse has been very rapid, the blood-pressure very low, and the patient seemingly *in extremis*, we have applied the method of Crile in the experimental recovery from profound shock. That is, we have bandaged the legs tightly from the toes to the thighs, and have drawn a binder as snugly as possible around the abdomen. The foot of the bed is also elevated. To bandage the legs we use first raw cotton, torn in strips about eight inches wide, wrapped around the legs. A six-inch muslin bandage is then wound around the cotton, an assistant holding the leg well elevated. The pressure is made firm and evenly distributed. These bandages are left on for two hours, removed for an hour or two and replaced for two hours, as often as occasion demands.

Observations made with the Janeway sphygmomanometer have not been conclusive in demonstrating an increased pressure in the brachial artery. Further observations will be reported later, with full records of results for the past year.

The impression gained by us is that we have saved some of our desperately ill patients. For instance, one patient, now well, had for three days a temperature which ranged from 105 F. to 106.4 F.; she had involuntary bowel movements and urination, and was covered over the chest and abdomen with furuncles, many of which necessitated opening and daily dressing. I feel that our results from the employment of this simple, yet rational means of treatment have been so uniformly excellent that I offer it to the profession with the hope that it may aid in further reducing the mortality, which in such a hospital as this is close to 10 per cent.

MEDICINE-DROPPER CLIP

PERCY R. WOOD, M.D., MARSHALLTOWN, IA.



Ordinary droppers are constantly being broken, lost or inadvertently exchanged for others previously impregnated with medicaments. When combined with the stopper they corrode and disintegrate, and for various reasons become useless. The result is that one seldom has on hand a perfectly reliable sterile and serviceable instrument. To overcome this difficulty I have had made, as here illustrated, a blued steel clip, which springs securely over the sides of the bottle and at the same time holds firmly a common rubber pipette, which, after using, is readily returned, to be at hand when wanted, and which, being cheap, is easily replaced.

Special Article

THE HOME OF THE ASSOCIATION

A BRIEF HISTORY OF MATERIAL PROGRESS AND OF THE GROWTH OF THE ASSOCIATION BUILDING

CHAPTER II. THE ERECTION OF THE NEW BUILDING

As stated last week, in spite of twice enlarging the original plant, once by adding a fourth story to the building and extending it in the rear, and a second time by occupying



Fig 4—Wrecking the old buildings.

one of the adjoining houses, more room became a necessity, even though there should be no further development in the various enterprises carried on by the Association, and no further increase in the circulation of THE JOURNAL.

After due deliberation, the Board of Trustees decided that the next step must be the erection of a first-class building on the main corner of the Association's property. The board, therefore, instructed the architects, Holabird and Roche, to prepare provisional plans for a new building.

This was accordingly done, and the proposal to erect a new building, with these provisional plans from the architects, and an estimate of the cost, were submitted by the Board of Trustees to the House of Delegates at the Atlantic City Session in 1909.

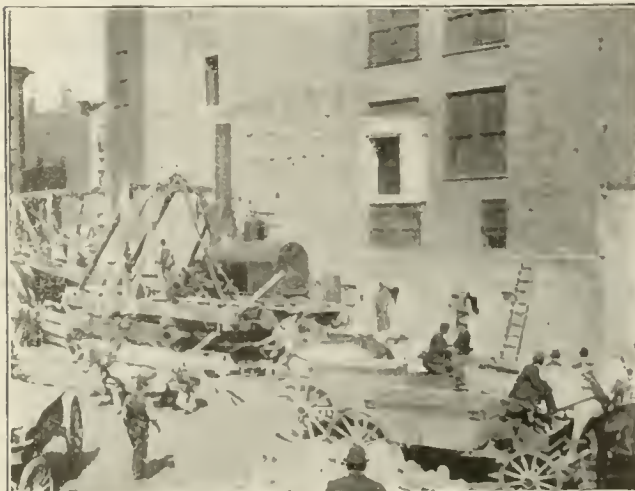


Fig 5—View looking toward the old building, showing the work of excavation still going on and the pile-driver with its power-plant being placed

THE NEED FOR WORKING SPACE

The report of the Board of Trustees in presenting this question is interesting:

"The Board of Trustees is called on to meet and handle many problems, but there is one question that continues to rise before it again and again. This is the question of working space in our building. When the present building was erected it was thought ample for our needs for a considerable time to come, but no one then dreamed of the work expanding so rapidly as it has. Three years ago the building was extended to the full depth of the lot and raised an additional story, which is all the walls will stand. The additional room thus acquired was soon fully occupied, and last year it became necessary again to enlarge our space by extending to the limits under the sidewalk and utilizing the space in one of our buildings next door. The relief, however, was relatively slight, and now we are once more confronted by the same problem, but in a more serious way. Additional space is urgently needed in practically every department. Since the councils and standing committees have become active working bodies and since the permanent working forces of these bodies have wisely been centralized in our own building, our entire clerical force has been augmented materially and is at present unavoidably crowded and badly quartered. We need more space for linotype machines and for our stereotyping department. We are working our



Fig. 6.—Another view of the excavation with the pile-driver at the left and some of the 50-foot piles. Holes in the ground show where piles have already been driven.

men in two shifts of eight hours each and on rush days they are worked overtime in two shifts of ten hours, thus keeping our mechanical departments in operation for twenty hours out of the twenty-four.

"Your Trustees have given this matter careful consideration for some time, and after thoroughly discussing the matter with our architects and with our general manager we are unanimously of the opinion that the only solution of the question is the erection of a new building large enough not only to accommodate us now, but to allow for our growth for many years to come. We already own the ground adjoining our present building and the available funds and securities will permit the construction and equipment of the building as proposed. In view of the urgent need of more room we believe the work should be undertaken at once. The matter is therefore submitted for your consideration. Owing to the great urgency, however, the board has gone ahead and secured, provisionally, architects' plans and construction bids, believing that its action would meet with the approval of this body. The estimated cost of the new building, for which the plans

will be submitted to the House of Delegates, including architects' fees, is approximately \$200,000."

The Board of Trustees which made this report consisted of Drs. William H. Welch, Miles F. Porter, M. L. Harris, W. W. Grant, Philip Marvel, W. R. Townsend, Philip Mills Jones, and W. T. Sarles. Dr. T. J. Happel was also a member, and was present at the board meeting when the matter was discussed, but died May 24, and his name is not attached.

The reference committee of the House of Delegates to whom this question was referred, made the following report:

"This committee is advised that with regard to the project of erecting a new building the conditions are as follows:

"The money is on hand for the enterprise in the shape of bonds, certificates of deposit in banks drawing interest, and cash on hand. The building can be erected without incurring indebtedness and without curtailing the present work of the Association or its committees. The old building can be let for manufacturing purposes, returning a good interest on the money invested.

"The building will enable the Association to conduct its business more economically than at present on account of the present necessity of "overtime" work with double pay, due to the lack of sufficient room. It will provide sufficient space in which to install the working head-



Fig. 7.—View of the excavation with the pile-driver in action.

quarters of the various councils and standing committees, which is essentially the accomplishment of results. The Association already owns the land on which the building is to be erected.

"It is therefore recommended that the Trustees be given full authority to proceed in the matter of erecting the proposed building.

"DONALD CAMPBELL, J. W. PETTIT, D. S. FAIRCHILD,
"E. DENEGRE MARTIN, ALEXANDER R. CRAIG, Chairman."

BUILDING AUTHORIZED

This report was adopted by the House of Delegates, and thus the Board of Trustees was authorized to go ahead with the erection of a new building according to final plans to be approved by them.

The instructions to the architects specified two general principles to be kept in mind: first, that the new building should be a strong one, sufficiently so to bear any reasonable weight on any floor, and second, that it should be absolutely and positively fireproof. The plans and specifications prepared

by the architects provided for a fireproof structure six stories in height with a high basement, covering the whole lot, 60 by 120 feet in size, with provision for future enlargement by the construction of additional stories.

THE EXCAVATION FOR THE FOUNDATION

The design and specifications submitted by the architects having been accepted, the contract was let to the firm of McCarty Brothers, and in March, 1910, workmen began to raze the old building which covered the site (Fig. 4). This work proceeded rapidly, the old material being carted away as fast as torn down, and soon the workmen began widening and



Fig. 8.—General view of the excavation and the old building, with the pile-driver in place.

deepening the excavation. It took about six weeks to complete this work.

The first essential of a strong building is that it shall have a solid foundation. In order to make a solid foundation for this building, piles were first driven into the solid earth (Figs. 5, 6, 7 and 8). Three hundred and seventy-seven piles, or in other words, 377 cypress trees, 50 feet long and 14 inches in diameter at the butt, were used in forming the basis for the foundation.

The driving of a large number of piles in an excavation near the walls of another building has the effect of first raising and later lower-



Fig. 9.—Wall of the old building, showing the method of preventing collapse or damage to the building by the driving of the piles.

ering the latter to such an extent as to make it liable to collapse. To prevent this bricks were taken out of the wall, as shown in the illustration, and jack-screws inserted the whole length of the building to support the wall, and any variations were adjusted by lowering or raising the jacks. These jacks were allowed to remain in the wall until the wall had adapted itself to the new conditions (Fig. 9).

In a later issue we shall describe and illustrate the further progress of the work.

CULTIVATION OF SARCOMA OUTSIDE OF THE BODY

A SECOND NOTE *

ALEXIS CARREL, M.D., AND
MONTROSE T. BURROWS, M.D.

NEW YORK

We have succeeded in cultivating a very malignant sarcoma outside of the body. The purpose of the experiments was to develop a general method which would permit a study of the evolution of tumor tissue under known conditions and to observe living cancer cells at every instant of their growth.

We used a fowl sarcoma that Dr. Rous has propagated from generation to generation for more than a year. Through the kindness of Dr. Rous, two chickens with actively growing tumors were placed at our disposal. Four series of cultures were made with fragments of the tumor extirpated from the animals in four different operations. The cultures started to grow after a very short latent period. While normal tissues of adult dogs and of young kittens began to develop respectively about forty-eight hours and twelve hours after inoculation of the plasmatic medium, sarcomatous tissue of the chicken showed, in some cases, evidence of activity after two and one-half hours. Fusiform cells appeared on the edge of the tissue and after five or six hours, many elongated cells and chains of cells could be seen radiating out into the culture medium. This rate of growth approximates that observed by Burrows in sixty-hour-old chick embryos. After a very short time, the cultures reached their period of full vegetation. The growth of the tissue was extremely rapid. In a culture of the fourth set of experiments we saw, after the tenth hour, a large area of new cells surrounding the fragment of tissue. The surface area of this new growth was greater than the area of the original fragment. At the end of the first twenty-four hours the surface of the new tissue in one of the cultures was fourteen times that of the original fragment. After forty-eight hours this area might reach twenty-two times the size of the original fragment. Associated with this wide extent of new tissue was a slight decrease in the size of the old fragment. It showed that the new growth was partly built of cells wandering from the original fragment into the plasmatic medium. This wandering of cells is a phenomenon frequently noticed in the cultivation of normal tissue. But the new tissue was also composed of new cells. In a culture fixed and stained after twenty-four hours, we observed many karyokinesis figures. The new cells are morphologically different from the chick embryonal cells. They are round, fusiform or polygonal, filled completely or partially with large refractive granules. They grow in many layers in

the medium and are apparently little influenced by the architecture of the fibrin net.

The nature of the plasma has a marked influence on the growth of the tumor. In seven cultures, the plasma of a normal animal was used. Only two positive results were observed. In six test cultures we employed the plasma of the animal from which the tumor had been extirpated. Six positive results were obtained. We have endeavored to cultivate sarcomatous cells in series in order to obtain a pure culture of the more virulent elements. The second generation grew very easily. The original tissue and the adjacent new cells of a culture were extirpated, and the free space left by their removal in the old culture medium was filled with new plasma. The surface of the old medium was also covered with new plasma. In every case the sarcomatous cells entered immediately the new medium. In twenty-four hours long chains of fusiform cells spreading out from the area covered by the sarcoma cells could be seen invading the new medium. On the fifth day of the culture the cells were still in full activity. Up to the present, perfect second generation has been obtained.

These results show that sarcomatous tissue grows luxuriantly outside of the organism, that a second generation can be produced by the cells grown in a first culture and that the whole process can be observed with ease at every instant of its evolution. It is probable that the malignant tumors of the human organism can, in a similar manner, be caused to grow outside of the body. The method, therefore, will be a valuable addition to our means of studying the problem of cancer.

Therapeutics

PROSTATITIS AND SEMINAL VESICULITIS

During the last decade or more great advance has been made in our knowledge of the etiology and treatment of disease of the prostate gland. It is proposed at this time to discuss only its acute inflammation and not its chronic hypertrophy. The most frequent, and the only frequent cause of inflammation of this gland and of the seminal vesicles is gonorrhoea. Without regard to the importance of acute inflammation of these parts the chronic and persistent harboring of the gonococcus by these organs, making the carrier of these germs a menace to himself and others, makes the subject of vast importance. It is hardly necessary to state that most gynecologic inflammations are due to the gonococci, and most frequently the infection is received innocently and is due to a latent gonorrhoea, or a chronic prostatitis or vesiculitis due to an uncured gonorrhoea. Chronic gonorrhoeal infection of the prostate and seminal vesicles is of frequent occurrence. The symptomatic evidences may be slight. There often is an increased frequency of urination; there may be a feeling of fullness or uncomfortableness in the perineal region; there may be a slight sticky, or mucopurulent exudate and the urethral drop, and the urine may be cloudy. On the other hand, the urine is not always cloudy with this subacute or chronic prostatitis.

While it is probably rare to find gonococci in prostatic exudate a year after the original infection, it does occur, and before a year the gonococci may be frequently found when there are no apparent evidences of the previous gonorrhoeal infection. When from massage of the prostate and stripping of the seminal vesicles the exam-

* From the laboratories of the Rockefeller Institute for Medical Research, New York

ination of the slide from the drops of secretion exuded from the urethra show gonococci, of course the diagnosis is positive. If such an examination shows no gonococci in a suspected individual, it has been suggested that from 1 to 2 c.c. (5 to 10 minims) of a 1 per cent. solution of nitrate of silver be injected into the posterior urethra with the Ultzman syringe. The stimulation from this injection will cause, the next day, an increased discharge, which should cause gonococci to be found on microscopical examination, if they are still present.

Besides the local symptoms above described of chronic prostatitis, patients who are suffering from this condition often have symptoms of neurasthenia and hypochondriasis. Men otherwise well, with no apparent cause for symptoms of nerve tire, should be carefully questioned as to previous gonorrhoeal infection, and the prostate and any secretion that can be expressed from it should be carefully examined, even if the local symptoms are negative.

Therefore, too great importance can not be ascribed to, and too great care can not be taken in, determining that a patient who has had gonorrhoea is free from gonococci and is cured of chronic inflammation before he is dismissed from treatment. This means not only frequent examinations by the microscope of slides prepared from actual urethral discharge, but also any discharge that may be expressed from the prostate and seminal vessels, and until such examinations are negative the patient should never be discharged, and lest he stop treatment before he is cured, he should be thoroughly cautioned in the beginning of his treatment of the persistency of this particular germ and the absolute necessity for a complete cure for his own and his family's future.

Acute gonorrhoeal inflammation of the posterior urethra is, of course, readily diagnosed by the cloudiness of the urine. A later involvement of the prostate or seminal vesicles is diagnosed by the finger passed well up the rectum and noting the enlargement and tenderness of the prostate, and, if the seminal vesicles are involved, by noting their fullness and tenderness. Normal seminal vesicles are hardly palpable.

Acute inflammation of the prostate and vesicles should be treated with rest, a diet of milk and simple cereals, plenty of water should be taken, and hot sitz baths once or twice a day. The urine should at first be rendered alkaline with potassium citrate during the acute irritation, and later hexamethylenamin or salol (phenyl salicylate) should be administered. There should generally be no urethral injections and no manipulation of the prostate, and certainly no passing of instruments into the urethra. If the prostatitis becomes localized and causes an abscess, of course the treatment is surgical interference.

In subacute prostatitis the prostate should be gently massaged, and some of the exuded fluid which is received on a glass slide should be examined under the microscope for pus and gonococci. Generally, there will also be found living spermatozoa and often dead spermatozoa, with prostate epithelial cells, and perhaps crystals of spermin. The tenderness of the prostate determines the frequency and the amount of massage that it should receive: perhaps every second day for a short time, and then twice a week. At each massage the seminal vesicles should be thoroughly stripped. During this subacute inflammation all violent exercise must be prohibited; alcohol should certainly not be allowed, and the patient is usually better without tobacco than with it. Tea and coffee, if allowed at all, should be in small

amount. Constipation should never be allowed in any prostatitis. It is always best to wear suspensory bandage during acute gonorrhoea, and during acute and subacute inflammation of the prostate.

The prognosis is good if the patient will give himself the proper rest in the acute condition, if he will take care of himself in the subacute condition, and will persist long enough in his treatment of the chronic condition.

If gonococci are present in this secretion in subacute or chronic inflammation, vesical injections of weak silver solutions, such as from 1 to 500 to 1 to 1,000 of one of the albuminate silver preparations, should be given daily or every other day, and at least every other day or generally every day the prostate should be massaged while the solution is in the bladder. The patient then urinates and thus washes out the bladder. These bladder washings should soon be less frequently repeated, and as soon as the gonococci are found absent from the prostatic secretion, the bladder injections are given only infrequently. A microscopic test should be made once a week for three or four times, and then again in a month. The gonococci remaining absent, the patient may be considered cured of the infection. The old assertion that when the gonococci had infected the prostate vesicles the patient could never be cured, but harbored them for the rest of his life, is probably not now true if the affected individual will allow himself to be properly treated before the germs have found a more permanent harbor deeper within in the glandular tissue.

In chronic prostatitis without gonococci, or after the gonococci have disappeared, besides massage of the prostate once or twice a week, local applications can be made by high injection of from 1 or 2 c.c. (5 or 10 minims) of various silver solutions, the strength of which should vary from 1 to 3 per cent. Instillations should not be used more frequently than once in 5 days. Ichthyol solutions have also been used for this purpose. The cold sound is occasionally of as much advantage in the posterior urethra as it is in gleet conditions of the anterior urethra. Not infrequently the double closed catheter, which allows the circulation of cold water, is one of the best tonic treatments of the posterior urethra and prostate. Such treatment is indicated only in the chronic form of the inflammation when the prostate has not returned to its normal size, normal tone and normal feel.

Like any other inflammation that has become chronic, a patient who has become neurasthenic and mentally disturbed, and perhaps below par physically, should receive tonic treatment and such a vacation as he may be able to take, and the local inflammation will often rapidly improve when it has not improved under more active medication. It should be urged that after the gonococci have disappeared, too long use of instruments should be discouraged.

THYROID

Reid Hunt, in recent experiments on the effect of foods on the activity of the thyroid, has proved, by the tolerance of animals for certain poisons, which tolerance varies with the activity of the thyroid (*Bulletin No. 69, Hygienic Laboratory, Public Health and Marine-Hospital Service*), that dextrose, oatmeal, liver and kidney stimulate the thyroid gland to greater activity.

It was already known clinically that patients with exophthalmic goiter, or, more definitely, with hypersecretion of the thyroid, did better not only without foods rich

in pürins, such as liver and kidney, but also without meat of any kind. It was not known, however, that dextrose and oatmeal stimulated the thyroid. Theoretically, then, oatmeal should not be allowed a patient with exophthalmic goiter.

It of course has been known that the administration of thyroid stimulated the thyroid gland, but Hunt shows that other glands, especially the prostate, ovaries and testicles, are stimulant to the thyroid, while thymus, parathyroid and suprarenals seem to have the opposite or depressant effect on the thyroid.

Eggs, milk, cheese and various fats were apparently shown in these experiments to decrease the activity of the thyroid gland.

These experiments are of great therapeutic value when we apply the knowledge thus gained to the treatment of hypersecretion and hyposecretion of the thyroid, and a very tangible part of the practice of medicine is concerned with the correction of the disturbances in the secretion of the thyroid gland.

DIPHThERIA

Diphtheria is a local infection, and if immediately or soon eradicated, general infection will not occur. The toxin produced by this germ is a circulatory and nerve depressant, and it is this action of the germ that causes it to be so dangerous to life. A large part of the symptoms of throat and nasal diphtheria is due to septic poisoning: in other words, secondary infection from the putridity occurring in the throat. This secondary infection generally represents neglect, medical or lay.

It is well recognized that it is often impossible to make a diagnosis of diphtheria on the first examination of a patient who has a suspicious throat. Generally spots or membrane on the tonsils, whitish in color, rather readily removed by means of a swab, with temperature above 102 F., headache, lumbago and other muscle pains, with a pulse of good tension, show that it is a streptococcal infection and may be termed follicular tonsillitis. In true diphtheria, *i. e.*, infection with the Klebs-Loeffler bacillus, the patient is often found on the first visit with low temperature, soft pulse, no great muscle pains, a throat that is not badly swollen or painful, suspicious dark red patches in the throat; such exudate as is present generally in membrane may, however, be small in amount and of a grayish color, not readily removed with a swab. As just stated, these diagnostic signs are not positive, and should not be positively relied on. If the cervical glands are enlarged, it points rather more strongly toward diphtheria. On the other hand, a diagnosis should generally be made before the glands of the neck have become enlarged from diphtheria. Tender and enlarged glands, however, readily occur from any throat infection. While a probable and many times positive diagnosis can be made from these clinical signs, often only a bacteriologic examination (from a culture made from a sterile swab brushed over a suspected tonsil or pharynx) can make the diagnosis positive.

Successful treatment of this disease means that: (1) infection of others does not occur; (2) any odor coming from the throat or nose is not present after the first twenty-four hours of treatment; (3) the nutrition is kept up; (4) great cardiac weakness does not occur; (5) no subsequent paralysis occurs; (6) the patient has thoroughly recovered his muscular and heart strength before he is considered fit to return to his occupation, school, or strenuous plays. This means that his convalescence should be carefully supervised.

TREATMENT BEFORE A DIAGNOSIS HAS BEEN MADE

1. *Isolation.*—Every suspicious throat should be isolated. This requires no discussion; it has been proved not only from the personal experience of every physician of the contagiousness of even ordinary colds, but from the bacteriologic discoveries that have shown the different kinds of germs that cause different kinds of colds and sore throats, and that many of these particular germs occur in other persons closely associated with the one first infected. When there are spots or membrane in the throat, isolation must be insisted on. In fact, while the results are not so serious from so-called follicular tonsillitis and pharyngitis and streptococcus infection, the contagion is more rapid and infection more easily acquired from these than from true diphtheria. Therefore, always isolate. This means keeping the infected patient in one room, with some one person to care for him; a proper care of drinking and eating utensils; the use of cheesecloth or pieces of old cotton cloth or old handkerchiefs for the secretions from the nose, throat and mouth, to be placed in a paper bag after use and the bag and its contents burned. The gargling should be into antiseptic solutions, and care should be exercised that there are no splatterings during the gargling on anything that cannot be thoroughly cleansed. A newspaper spread over the bed or on a chair on which is placed the gargling basin is the best method for cleanliness; the paper can then each time be burned. If the nurse, or the patient himself, if he is an adult, thoroughly washes the face and hands after gargling, and exercises the simple care suggested, infection of others cannot occur.

2. *Hygiene.*—The most suitably situated, sun-lighted, and well-ventilated room should be selected for the patient, and if possible it should have ready access to a bathroom. As is so well understood with all contagious diseases, as soon as the diagnosis of diphtheria is positive, unnecessary draperies, rugs, and upholstered furniture should be removed from the room. The patient should receive hot sponge baths daily.

3. *Diet.*—A simple diet suited to the amount of rise in temperature the patient may have is correct during the first day or two of the illness, or throughout the illness if it proves to be follicular tonsillitis and not diphtheria.

4. *Bowels.*—As in all fevers and all infections, it is necessary to administer a purgative first, which will clean the alimentary canal, reduce the temperature, and prevent the absorption of toxins from constipation, which almost always occurs in the first stage of a fever, and especially of an infection. Perhaps the best cathartic is calomel. The dose need not be large, and is best administered in one single dose and not in divided doses. An ordinary aloin, belladonna and strychnin tablet given with one or two grains of calomel, administered with a little milk, generally produces splendid catharsis without griping. Of course a more quickly acting purgative may be administered if desired. It has been claimed that calomel in divided doses has a specific action on the throat, causing an increased secretion of mucus and aiding in the loosening of the membrane; consequently, many physicians advise that a 1-10 grain tablet of calomel be administered every hour until ten or more have been taken, or until the bowels begin to move. With this method of administration, salivation may be caused, and, in fact, it is only by this increased flow of saliva and mucus that the calomel can have much specific action in the throat. Many years ago

calomel was used in good-sized doses for this purpose, but such use is inexcusable. After the action of the purgative, on the following day or on the second day, the bowels should be moved with any gentle laxative if they do not move of themselves, and after this time the bowels must move daily. It cannot be too much emphasized that the more perfect the normal activity of the intestines, the fewer toxins accumulate in the blood, the less the liver is disturbed by resorbing old bile and products of indigestion, the better it is able to act as a Pasteur filter to the blood, and the better the blood is able to form its antitoxins and fight the infection. For this same reason there never should be over-feeding or mistaken feeding in diphtheria or any other infection. A good laxative in diphtheria and of advantage in most infections is yeast. From 1/8 to 1/6 of an ordinary moist, compressed yeast cake, dissolved in a glass of water (less quantity for a child) makes a sour drink that is both a laxative and a preventive of bowel fermentation. It also stimulates, on account of its nuclein, the production of white blood-cells which are needed to fight infection. Yeast may also be of value as a gargle in membranous throats.

5. *Local Treatment.*—This is of primary importance in follicular tonsillitis, and is secondary in importance only to antitoxin in diphtheria. It is absolutely inexcusable to administer antitoxin to a patient with diphtheria and expect the throat to care for itself. There is no medical or surgical condition so responsive to continual and repeated care as is diphtheria of the throat and nose. There is no excuse for a disagreeable odor emanating from the mouth or nose in diphtheria after the patient has been under treatment for twenty-four hours; and there is probably but little opportunity for the spread of infection after the patient has been under treatment for twenty-four hours. It must be again urged that this disease is at first local, and is not a general disease, and the more completely the throat is cared for, the less absorption of the toxins of the specific germ and the less absorption of toxins from the pus germs and the germs of putrefaction.

The local treatment, then, consists of gargles, sprays, and insufflations. The best gargle is solution of hydrogen peroxid. It should be diluted with from 1 to 3 or 4 parts of warm water, and this should be gargled thoroughly every three hours during the day and every four hours during the night. About two or three minutes after the peroxid gargle the patient should wash out the mouth and throat with either a Seiler's tablet solution (a tablet dissolved in 1/3 of a glass of warm water), a saline solution (1/4 of a teaspoonful of salt to a half a glass of warm water); or the liquor antisepticus alkalinus (N. F.) diluted with equal parts of warm water. This is to remove the irritant caused by the chemical action of the peroxid, and it also soothes the mucous membrane. Also every three hours, alternating with the peroxid solution, the patient should gargle with either a 4 per cent. solution of boric acid or a 5 per cent. solution of potassium chlorate, or the liquor antisepticus diluted with 1 or 2 parts of warm water. The gargling should therefore be done every hour and a half during the day, at one time the peroxid solution and the alkali, at the other time the boric acid or other solution. The intervals at night may be double those of the day. As the patient often tires of gargling, swishing is just as efficient, and with each solution several mouthfuls should be taken.

If the patient is a child too young to gargle, spraying must be done with an atomizer. The same solutions may be used, only more diluted. As spraying is much

less efficient than gargling, it is advisable with children, and often with adults, to insufflate pure boric acid directly on the membrane or spots of follicular exudate. The boric acid stimulates the flow of the mucus and causes the secretion to loosen the membrane, and it comes off more rapidly than by any other treatment. In the meantime it acts as a gentle, non-poisonous antiseptic. With these local treatments septic infection cannot occur, and the patient will not die of secondary infection.

If there is much congestion and swelling of the throat, weak suprarenal solutions may be sprayed into the throat, or a suprarenal tablet or a little suprarenal powder may be occasionally dissolved in the mouth. It must be remembered, however, that suprarenal solution should not be used too often, as it is absorbed from the mouth, throat and nasal membranes, and may do harm. If the nose and nasopharynx become involved, warm sprays must be carefully directed into the nostrils, or if the patient is older, gentle nasal douches must be used. The solutions must be much weaker than above described. Boric acid diluted with some non-irritant powder, possibly subgallate of bismuth, occasionally may be blown into the nostrils, and should be blown into the nasopharynx.

6. *Internal Medication.*—In the early stages of follicular tonsillitis, rarely in the early stage of diphtheria, headache, muscle aches and high temperature may call for special medication. The following powder is efficient:

R	Gm.	
Acetphenetidini	1	50
Phenylis salicylatis	1	50
M. et fac chartulas 5.		

or ññ gr. xxv

Sig.: A powder every three hours.

Or:

R	Gm. or c.c.	
Acetanilidi	1	25
Sodii bicarbonatis	1	or
M. et fac chartulas 5.		

gr. v
gr. xv

Sig.: A powder every 2 hours.

More than five doses of any antipyretic will not be needed, and even the whole five may not be necessary, depending on the symptoms. In follicular tonsillitis little other internal medication is needed, except perhaps a tonic to hasten convalescence and complete recovery, such as:

R	Gm. or c.c.	
Strychninae sulphatis	2	02
Quinine sulphatis	2	or
Ferri reducti	1	
M. et fac capsulas siccas 20.		

gr. 1/3
3ss
gr. xv

Sig.: A capsule three times a day after meals.

7. At the first visit, or as soon as possible thereafter, when a throat looks suspiciously like diphtheria, a properly prepared swab should be taken or sent to a bacteriologic laboratory for an examination of the culture.

(To be continued)

Duties of Physicians.—We should not only be torch-bearers for the enlightenment of the people, regarding their bodily and mental welfare, but should also be the guardians of the public health. Although at all times recognizing the rights and liberties of the people, it is our duty to enforce the laws of sanitation and to protect the people from their own ignorance and from the dangers of designing quacks and unscrupulous pretenders.—M. B. Heyman, in *Long Island Medical Journal*.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 DEARBORN AVENUE . . . CHICAGO, ILL.

Cable Address "Medic, Chicago"

Subscription price Five dollars per annum in advance

[For other information see second page following reading matter]

SATURDAY, OCTOBER 29, 1910

DATE OF NEXT SESSION

The Board of Trustees, at its meeting last week, appointed June 27, 1911, as the date for the opening of the next session of the American Medical Association, at Los Angeles. This refers to the scientific session; the House of Delegates will meet on June 26. This date was chosen after considerable study, and is in accordance with the wishes of the great majority of those who replied to the letter of the Chairman of the Board of Trustees, published in *THE JOURNAL*, September 17. The date will not interfere with those who are connected with medical colleges, and will be more generally convenient for those who desire to take advantage of this occasion for a vacation. At that time of the year the weather is pleasant in Los Angeles; and the season will be ideal, especially for those who wish to go or return by the northern route, taking in Oregon, Washington and Yellowstone Park.

URINARY CHANGES IN CANCER

Scattered items of information concerning metabolism in cancer indicate that we may find eventually that the presence of malignant tissue, even in small amounts, may have a greater influence on the entire organism than was formerly suspected. Repeated attempts to extract from cancers some poison which shows enough activity to account for cancer cachexia have all failed, when properly controlled. Some observers have sought an explanation of this in the production by cancers of enzymes which cause abnormal cleavage of food and tissue elements, thus introducing into the blood unusual and toxic metabolites. Although the direct evidence for this hypothesis is anything but satisfactory, some support for it may be found in the results obtained by Salkowski and by Salomon and Saxe through their studies of the urine of patients with cancer.

About five years ago Salkowski¹ reported that in certain diseases, and especially in cancer, the urine contained relatively large amounts of nitrogen in compounds of colloidal nature, which could be precipitated with alcohol for quantitative estimation. Recently Salomon

and Saxe² have been studying the occurrence in the urine of one of these colloidal nitrogenous substances, the so-called oxy-proteic acid, and have found that an increase in the excretion of this substance is characteristic of cancer, even in the early stages. Normally about 1.5 per cent. of the total urinary nitrogen is present in this form, the maximum figure not exceeding 2 per cent. Of thirty-eight carcinoma cases, however, in thirty-one the oxy-proteic nitrogen amounted to from 2.5 to 3.5 per cent., and in only three was less than 2 per cent. found. Apparently the size, location and degree of cachexia are not of particular moment in determining the degree of oxy-proteic acid elimination. It is presumable that this oxy-proteic nitrogen and colloid nitrogen indicate an abnormality of cellular metabolism caused by the cancer, in support of which assumption is the fact that similarly high colloidal nitrogen figures are obtained in the urine of advanced pregnancy and in certain liver diseases, both being conditions in which metabolism is notoriously altered.

To the pathologist, these observations are of much significance as adding to our knowledge of the biology of malignancy, but to the clinician they hold forth hope of another point of support in the diagnosis of cancer. The investigators quoted believe that the practical application of their experimental studies will prove to be of much value, especially since the urinary change seems to be present early in malignancy, and to occur in few other conditions likely to cause confusion. Not until the methods of determining these factors—total colloidal nitrogen and oxy-proteic acid nitrogen—have been developed to a degree of simplicity and reliability suitable for routine application in the clinical laboratory, can we hope to secure that great volume of evidence on which alone final judgment can rest; but the needs for help in cancer diagnosis are so pressing that there is no doubt that this clue will be followed to its end with all possible expedition.

ATTEMPTING TO CRIPPLE THE PURE FOOD LAW

Under the powers given it by the Food and Drugs Act, the federal government has done good work in putting out of business those unconscionable scoundrels who defraud sufferers from cancer by selling alleged cures for this disease. The section of the act under which these people are prosecuted is that which declares a drug misbranded "the package or label of which shall bear any statement . . . regarding such article . . . which shall be false or misleading in any particular." From the simplicity of the wording of the law and from the fact that the intent of its framers was to protect the public, one would imagine that there could be little question as to its interpretation. Such does not seem to be the case, however.

1. Berl. klin. Wehnschr., 1910, xlvii, 533

2. Beitr. z. Carcinomforsch., 1910, II, 2.

O. A. Johnson, a quack of the "cancer-cure" variety who plies his trade at Kansas City, Missouri, is legally entitled to practice medicine—to the shame of the state be it said. Not long since, he was prosecuted under the Food and Drugs Act on the charge of shipping misbranded drugs, the government contending that, since Johnson implied on the labels of his nostrums that they would "cure cancer" and since such an implication is an unwarranted falsehood, the stuff was misbranded. Such a contention to the man in the street seems conservative enough, and plain enough. But Johnson's trade has been a profitable one—to him—and one that was not to be given up without a struggle. When, therefore, the United States grand jury indicted this "cancer-curer," his attorneys filed a motion to quash the indictment on the ground that the Food and Drugs Act applies merely to the composition or ingredients of the medications and not to their therapeutic effects. In other words, the defense is that, so long as an exploiter does not falsify on the label regarding the composition of his nostrum, he may lie to his heart's desire concerning its effects. And, strange to say, Johnson's position was sustained by a federal district judge! Fortunately the Supreme Court of the United States will have a chance to reverse this astonishing ruling.

Should it finally be decided that the ruling as it now stands represents the Supreme Court's interpretation of the Food and Drugs Act, the sooner the act is amended the better. Under the decision of the district judge it would be possible for an enterprising scoundrel, fortified by immunity from prosecution, to sell common salt "Guaranteed under the Food and Drugs Act" as a sure and positive cure for cancer, consumption, Asiatic cholera, or for any other deadly scourge that an imagination untrammelled by conscience might suggest.

To all thinking men, to all men who believe that the Food and Drugs Act was intended to protect the public rather than to afford avenues of escape for conscienceless quacks, to all whose mental horizon is not bounded by hair-splitting legal technicalities—to all, in a word, who feel that it is an outrageous shame that those who are suffering or incurably ill can be defrauded and impoverished under protection of the law—to all such the present ruling on the scope and intent of the Food and Drugs Act must seem deplorable.

the requirement is simply a high-school education. The peculiar situation is thus presented of laboratory instructors endeavoring to expound the intricate problems of medicine to classes made up in part of college-trained men and in part of those with only a secondary school training. It is inconceivable how a condition of this kind could exist in a state university which has long held so prominent a place among educational institutions as has the University of Michigan.

This difference of entrance standards is eminently unfair to the students. If they lack the proper preliminary training they will fail to grasp the instruction given, or if they enter with the higher qualifications they will be retarded by the more elementary methods required to teach the students admitted on the lower requirement. This diversity of standards is also unfair to the teacher. Furthermore, indications are that this state of affairs is to go on indefinitely. In an apparent effort to forestall the adoption of more equalizing regulations, the members of the homeopathic faculty are reported to have secured the adoption by the regents of a resolution that in the year 1912 the entrance requirements for homeopathic students be increased to one year of collegiate work or its equivalent. This is still one year less of college work than is now required of all other medical students, and no mention is made in the resolution of any requirement of the preliminary sciences.

Equally astonishing is the clause in the resolution which makes this "one year of college work or its equivalent" subject to the approval of the homeopathic faculty! It may be fairly asked: Why such discriminations in the admission of medical students? Why should two such widely varying standards be permitted? And why should special provision be made for the certification of entrance credentials of homeopathic students, when the credentials of all other students who do not hold collegiate degrees are subject to the approval of the dean of the liberal arts department? This disparity of standards of admission would seem to indicate that to master homeopathic medicine requires less preliminary training than is required for other medical courses.

One would suppose that the homeopaths would be the first to demand an immediate correction of this reflection on themselves.

ENTRANCE STANDARDS AT THE UNIVERSITY OF MICHIGAN

Last year the entrance requirements of the medical department of the University of Michigan were increased to two years of collegiate work, to include a reading knowledge of German or French and at least a year's college work in each of three sciences, namely, physics, chemistry and biology. An exemption is made, however, for those who enter with the expectation of taking their clinical work under homeopathic instructors; for these,

Current Comment

A HEALTH EXHIBIT ON WHEELS

Our local and state health authorities are showing an increasing disposition to use up-to-date methods in educating the public on hygiene and sanitation. In Louisiana the State Board of Health is preparing a "health car," which is to be sent all over the state as an exhibit and as an object-lesson. As it is impossible to bring all of the people to a health exhibit, the board proposes to take the exhibit to the people. A special car has been

donated by Mr. D. D. Curran and Mr. H. B. Hearn, president and superintendent of the Queen and Crescent Route. The car will make its first appearance at the Louisiana State Fair at Shreveport, after which it will start on its journey through the state, crossing on the Vicksburg, Shreveport and Pacific road, thence diagonally across the state again over the line of the Louisiana Railway & Navigation Company, next through the state over the New Orleans and Northeastern, after which it will be transferred from one road to another until the people in every railroad station in the state have had an opportunity to visit it. The car will contain a large collection of normal anatomic specimens in contrast to specimens showing pathologic conditions due to tuberculosis. This exhibit is contributed by the Souchon Museum of Tulane University. Several lecturers will accompany the car and will deliver instructive addresses at every stop. A laboratory has been installed for the examination of milk, water, sputum, etc. At each stop sanitary inspection will be made of the markets, slaughter-houses, schools, churches and other public buildings. Literature on health matters will be distributed. A moving-picture machine will show, at each stop, "The Gymnastic Fly," "The Pesky Fly," "The Man Who Learned" and other story-telling series of pictures, whose educational value is well-nigh unlimited. Lantern-slides showing insanitary conditions existing in various parts of the state will also be used to illustrate lectures. A mere statement of the work to be done by this Louisiana health car is in itself a sermon on the possibilities of public education. The people of Louisiana are fortunate in having a board capable of exhibiting such enterprise, energy and solicitude for the health of the people. A similar exhibit prepared by the State Board of Health of California has done much good and has demonstrated the feasibility of such a plan. If this example could be followed in all of the states and if each state board of health could start such a moving center of instruction, the problems of public education and popular support for sanitary measures would soon be solved.

LET THE ADVERTISEMENT TELL THE TRUTH

According to the press reports government officials recently discussed the plan of extending the power delegated through the Food and Drugs Act to the government to insist on truthfulness in drug advertising, to cover newspaper advertisements. That this position is the only logical one must be admitted. As at present administered, the Food and Drugs Act makes lying on the label illegal but takes no cognizance of the misstatements in advertisements. Under the present limitations of the act, therefore, the nostrum manufacturer who has to restrain his mendacity in writing the labels for his stuff is still able to falsify to the limit of his capacity in his newspaper advertisements. As the majority of nostrum users get most of their information—or misinformation—from the pages of the press it is easy to see that the Food and Drugs Act only indifferently protects the public against this evil. That a large proportion of the newspapers of the country would fight to the last ditch against any such extension of the law as that sug-

gested is doubtless true; yet the number of papers which are taking a high stand in the matter of nostrum advertising is increasing yearly. In Chicago, when the news report regarding the matter appeared, two of the most influential newspapers of the city commented favorably on the suggestion. If the same proportion of newspapers all over the country would take this attitude, one of the greatest movements in the interests of the public health would soon be inaugurated.

WATER-SUPPLY AND SEWAGE-DISPOSAL SYSTEMS AND HEALTH AUTHORITIES

The intelligent cooperation of municipal and health authorities in the provision for water-supply and sewage-disposal systems is the only correct principle to follow. Too often the subject is treated only as an engineering and business problem; and the most important feature—the sanitary—is not sufficiently regarded. Water-supply and sewage-disposal systems are constructed, and their effect on the health of the community is figured out by the health authorities after the systems are in operation and conditions arise which show that the public health is being jeopardized from some cause. An instance of law embodying the correct principle is the law of the province of Saskatchewan requiring the approval of the commissioner of public health before a water-works or sewage-disposal system can be constructed. Any debentures issued for the payment of the cost of such improvements, if not approved by the commissioner, would not be legal, and therefore could not be negotiated. This operates as an effective check on careless methods of providing water-supplies and prevents the adoption of defective sewage-disposal systems, both of which are of the most vital importance in connection with the health of any community.

INFLUENZAL MENINGITIS

There occurs, mostly in very young children, an acute and fatal form of meningitis, caused by the influenza bacillus, or by influenza-like bacilli, which might easily be confused with other forms of meningitis unless carefully studied by bacteriologic methods. Influenzal meningitis appears to be a rare disease, as only about forty cases are recorded, but the fact that Davis¹ ran across seven typical cases in Chicago in little over one year may be an indication that the disease is not so rare as it appears to be. It is a highly and, usually, rapidly fatal disease, the mortality rate being about 90 per cent., and it affects especially young children, the ages in Davis' cases running from five days to thirteen months. These cases occurred at a time when there was no epidemic of influenza. There does not seem to be anything unusual or peculiar about the symptoms in this form of meningeal infection. The cerebrospinal fluid is turbid and contains many polymorphonuclear leukocytes as well as the characteristic bacilli, which are easily overlooked in specimens stained in the ordinary ways, because of being so small. It is well to use dilutions of carbol-fuchsin for

1. Trans. Chicago Path. Soc., 1910, viii, 39.

staining; cultivation is successful only on media containing blood or hemoglobin. After death there is usually a rich, purulent exudate at the base of the brain. It is believed that the infection takes place by way of the nose.

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KISSING THE BABY AS A CAUSE OF DIVORCE

One can readily conceive that the conveyance of certain germs might be as legitimate a cause for divorce as many that are now accepted. According to the newspaper reports, however, a California court has gone a little farther than a good many people can follow it, in granting a decree of divorce to a woman whose plea is alleged to have been that her husband insisted on entering her germ-proof nursery and administering kisses to their aseptic baby when "he was fairly reeking with germs collected on the streets" that he frequented in common with the unsterilized public. Kissing has been so long in fashion and its medically demonstrable effects have been so comparatively innocuous in most cases that the advanced ground taken by the California court seems rather extreme. It is true that too much kissing of babies has been medically condemned, but this is the first instance that we have seen of the legal dissolution of marriage for this reason. One would naturally think that milder antiseptic methods than divorce could have been employed.

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Medical News

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ALABAMA

Vital Statistics.—Dr. William H. Sanders, Montgomery, chief of the department of health, has commenced his second tour of the state in the propaganda to secure more complete vital statistics.

Personal.—Dr. Robert Nelson has been appointed health officer of Birmingham, vice Dr. Robert B. Harkness.—Dr. William H. Oates, Mobile, has been appointed inspector of jails, cotton mills, and almshouses.—Dr. William G. Somerville, Tuscaloosa, has recently returned from Europe and will practice in Memphis, Tenn.—Dr. William W. Dinsmore, Decatur, has been appointed local member of the hookworm commission.—Dr. Albert M. Reid has been elected health officer of Florence.—Dr. Oliver P. Board, Birmingham, has been elected assistant health officer of Jefferson county.—Dr. Abner Farned, Frankfort, is reported to be critically ill.

ARKANSAS

Sanatorium Opened.—The Arkansas Tuberculosis Sanatorium, three miles south of Boonesville, was opened September 1. The buildings are modern, and there is a good system of water supply and an excellent sewerage system.

Personal.—Dr. James W. John, Pine Bluff, has been elected state grand medical examiner of the A. O. U. W.—A health league was organized at Fayetteville recently. Dr. William B. Welch was appointed a member of the committee on program, and Drs. Thomas W. Blackburn, William N. Yates, and Charles F. Adams, were appointed a committee on organization.

CALIFORNIA

Personal.—Dr. Martin Regensburger, San Francisco, has been reelected president of the State Board of Health.—Dr. W. LeMoyne Wills, Los Angeles, has been elected vice-president, and Dr. William F. Snow, Stanford University, secretary of the State Board of Health.—Dr. Thomas B. Roche has resigned as a member of the San Francisco Board of Health.—Dr. Samuel N. Cross, Stockton, has withdrawn from active practice and retired to his ranch at Mantika.

Court Convictions.—Dr. Orra C. Hyde, Oakland, is said to have been fined \$100 recently for selling prescriptions containing opium to drug habitues. The fine imposed is the maximum allowed by the state law.—In the case of J. L. Bohannon, Oakland, an advertising cancer specialist, who was fined \$300 several months ago for practicing medicine without a license, and who appealed the case, Judge Brown, on October 4, is said to have denied the appeal and affirmed the judgment of the lower court.

Hospital Notes.—The new hospital opened recently in Visalia has been named the Visalia General Hospital.—St. Caroline's Hospital and Sanitarium, Redding, was formally opened September 26.—The Los Angeles Federation of Parent-Teachers' Associations, at its quarterly meeting, decided that the chief effort of the federation for the coming year should be the building of a charity hospital for children to be known as the Parent-Teachers Association Hospital.—The San Joaquin Hospital is practically completed and will, it is expected, be ready to receive patients this month.—The supervisors of Yuba county have made arrangements for building a ward for tuberculosis patients at the County Hospital.

ILLINOIS

Chicago

Tag Day for Children.—As a result of Tag Day, October 17, for the benefit of institutions caring for sick, crippled, and defective children, a sum of more than \$60,000 was realized.

Gynecologists Hold Annual Meeting.—At the annual meeting of the Chicago Gynecological Society, held October 21, the following officers were elected: president, Dr. Gustav Kolischer; vice-presidents, Drs. Charles E. Paddock and Rudolph W. Holmes; secretary, Dr. Robert T. Gillmore; treasurer, Dr. Charles B. Reed, and editor, Dr. H. Bond Stowe.

Historical Society Incorporated.—The Society of Medical History of Chicago was incorporated October 21 by Drs. George H. Weaver, Nathan S. Davis, and Henry T. Byford, with the object of preserving data, curios, writings, and specimens pertaining to medical progress in the middle west. Dr. Isaac N. Danforth is president.

Personal.—Dr. Jacob Frank has been appointed consulting surgeon to Michael Reese Hospital.—Dr. Thomas J. Sullivan is reported to be seriously ill in the Post-Graduate Hospital.—Dr. Carl H. Von Klein, who has been ill for some time as the result of a cerebral hemorrhage, has almost entirely recovered.—Dr. L. Blake Baldwin, city physician, has sailed for Europe. The work of his office will be undertaken by Dr. Frank J. Griffin during Dr. Baldwin's absence.

Bequests.—By the will of the late Hon. Lambert Tree, provision is made that, after the death of the son and grandson of the deceased, one-half of the residue of the estate shall go to St. Luke's Hospital for the building of an addition to be known as the "Lambert and Anna J. Tree Addition."—By the will of the late Mrs. Mary Hunt Loomis, \$25,000 is devised to St. Luke's Hospital, \$10,000 to the Children's Memorial Hospital, and \$10,000 to the Home for Destitute Crippled Children.—By the will of the late Ezra J. Warner, \$5,000 is bequeathed to the Presbyterian Hospital of Chicago.

INDIANA

Negro Professions Meet.—The third annual session of the Indiana Association of Negro Physicians, Dentists and Pharmacists met in Indianapolis, September 27. A clinic was held at the City Hospital by Dr. Daniel H. Williams of Chicago, and addresses were delivered by Drs. Samuel E. Earp, Clarence Lucas and Calvin R. Atkins, Indianapolis; Dr. William J. Woodlin, Columbus, Ohio, and Miss Josephine Holmes, head of the Normal Department of Wylie University, Marshall, Texas. The following officers were elected: president, Dr. Henry L. Hummons, Indianapolis; vice-president, D. A. Berthea, Terra Haute; secretary-treasurer, Dr. Calvin R. Atkins, Indianapolis, and executive committee, Dr. William E. Brown, and William W. Stuart, and Ward Wilson, all of Indianapolis. Indianapolis was selected as the next meeting place.

Report of Tuberculosis Clinic.—The report of the tuberculosis clinic of the City Hospital, Indianapolis, from Jan. 1 to Sept. 1, 1910, shows the following results: Patients treated, 331; apparently cured, 4 per cent.; arrested, 5 per cent.; improved, 18 per cent.; unimproved, 16 per cent.; died, 11 per cent.; whereabouts unknown, 18 per cent.; non-tuberculous, 28 per cent. The "apparently cured" patients were those who had tuberculosis in its earliest stages, with few exceptions, and who adhered strictly to the advice and treat-

ment. Not a single patient of this kind grew worse. Of the patients, 14 per cent. were colored; 61 per cent. were married, and 13 per cent. were under 15 years old. Attention was called to the fact that 12 per cent. of all deaths in Indianapolis for the same period were from tuberculosis. Of the patients living in the Tuberculosis Colony on the City Hospital Grounds, 1 patient recovered, 33 improved, 9 did not improve, 1 died and 5 remained.

IOWA

District Medical Society Meeting.—The Second District Medical Society of Iowa held its sixth annual meeting in Davenport, October 11, and elected the following officers: president, Dr. David N. Loose, Maquoketa; vice-presidents, Drs. George E. Decker, Davenport, and George Hofstetter, Lyons, and secretary-treasurer, Dr. John V. Littig, Davenport.

MARYLAND

Personal.—Dr. Timothy Griffith has been appointed first vice-president, and Dr. Abbott R. Walker a member of the executive committee of the Board of Trade of Frostburg.—Dr. John M. B. Rogers, Ellicott City, is reported to be ill with typhoid fever at Govanstown.

Hospital Report.—The annual report of the Springfield Hospital for the Insane, Sykesville, shows a net increase of 30 males and 45 females during the year; that 43 males and 23 females died; that 37 males and 20 females were discharged recovered; 24 males and 15 females were discharged improved, and 14 males and 7 females were discharged unimproved. The total expense was \$274,093. During the year 60 per cent. of the males and 40 per cent. of the females had employment. The superintendent asks for an appropriation to build an amusement hall.

Baltimore

Personal.—Dr. Robert T. Wilson has been reelected president of the Hospital Relief Association of Maryland.—Dr. Charles W. Mitchell has returned after a summer abroad.—Dr. Adolph Meyer, who is superintending the erection of the Phipps Psychiatric Clinic connected with Johns Hopkins Hospital, has settled in Baltimore.

NEW JERSEY

Isolation Hospital Offered.—Dr. John W. Wade, president of the Millville Board of Health, has offered property in West Millville to be used by the town as an isolation hospital.

Tuberculosis Items.—An open-air school has been opened in Montclair with an initial attendance of 21.—The day camp conducted by the Antituberculosis Association at Newark is to be closed November 1 on account of lack of funds.

Personal.—Dr. Ralph R. Charlesworth, Millville, was taken to the Jefferson Hospital in Philadelphia, October 2, with appendicitis.—Dr. Alice H. Ward, Newark, has been appointed a factory inspector.—Dr. Edward S. Sharpe has been appointed a member of the staff of attending physicians of the Atlantic City Hospital, vice Dr. William F. Ridgway, deceased.—Drs. Harvey Lloyd and Edward T. Craney have resigned from the staff of Mercer Hospital, Trenton.

NEW YORK

Chiari Addresses Society.—At the semi-annual meeting of the Medical Society of the County of Albany, held in October, Prof. Hans Chiari, professor of pathologic anatomy in the University of Strassburg, delivered an address on "The Portals of Entry of the Infection of Tuberculosis in Human Beings from an Anatomic Standpoint." At the close of the lecture a reception was given Prof. Chiari at the University Club.

Sanatorium Notes.—The Medical Society of Dutchess county, at its annual session in Poughkeepsie, October 12, urged the immediate building of a tuberculosis hospital on the Pendall farm.—The Welch farm, adjoining the county farm, near Syracuse, will not be approved as a site for a tuberculosis sanatorium in Onondaga county, as the State Health Commissioner is opposed to locating a tuberculosis sanatorium near the county farm.

Personal.—Dr. Montgomery E. Leary, Rochester, has been elected superintendent of the Iola Sanatorium for the Treatment of Tuberculosis, the Monroe county institution, and Dr. John E. W. Whitbeck, president of the board.—Dr. William Kemble, Kingston, broke two ribs in an automobile accident at Dashville Falls, October 7.—Drs. Thomas Curran, Edward S. Yess, John J. Butler, and Roy C. Kestler

Schenectady, have been appointed district city physicians.—Dr. Emmott Howd has been appointed a member of the obstetric staff; Dr. Frank J. Noonan, a member of the medical staff, and Dr. Ovila Mallet, a member of the surgical staff of St. Joseph's Maternity Hospital, Troy.—Dr. George W. Mills has been promoted to second assistant physician at the Central Islip Hospital.

Changes in Faculty.—The following changes in the faculty of the College of Medicine of Syracuse University are announced: Prof. W. H. Stiles, Tulane University, New Orleans, professor of anatomy; Dr. E. H. Haskell, University of Michigan, assistant professor of anatomy; Dr. William A. Curtin, department of internal medicine, and St. Joseph's Hospital; Dr. Henry B. Doust, department of materia medica; Dr. Albert S. Hotaling, obstetrics for juniors; Dr. Eugene W. Belknap, obstetrics for seniors; Dr. Joseph R. Wiseman, department of medicine; Dr. Joseph C. Palmer, department of operative surgery; Dr. William A. Groat, laboratory work at St. Joseph's Hospital; Dean John L. Heffron, superintendent of clinical clerks and laboratory examinations, Hospital of the Good Shepherd; Dr. I. Harris Levy, assistant superintendent of clinical clerks and laboratory examinations; Dr. Frank L. Harter, sectional work for juniors; Dr. Herman G. Weiskotten, department of pathology and bacteriology, and postmortem examinations; Dr. Charles D. Post, department of medicine, and Dr. Harold G. Kline, department of laryngology to assist Dr. Thomas H. Halsted.

New York City

Infirmery Opened.—The Bayside Infirmery, Bayside, Long Island, was recently opened to receive patients, and within a week after the opening, half of the available beds were reported occupied.

Sajous in New York.—At the meeting of the Manhattan Medical Society, held October 28, Dr. C. E. de M. Sajous, Philadelphia, was the guest of the society at a reception, and later Dr. Sajous read a paper entitled "The Adrenals in General Pathogenesis."

Election.—The New York Medico-Surgical Society, at its annual meeting October 16, elected Dr. John A. Irwin, president; Dr. Daniel S. Dougherty, vice-president; Dr. Samuel McCullagh, secretary; Dr. J. Arthur Booth, treasurer, and Dr. John A. Bodine, member of the executive committee.

Dean Recommends Large Hospital.—Dr. Samuel W. Lambert, dean of the College of Physicians and Surgeons, in his annual report, suggests that a hospital building, to be used as the College of Medicine Hospital, be erected on the Morningside Heights Campus at a total cost of from six to eight million dollars.

City to Pasteurize Milk.—At a recent hearing of the budget committee on the estimate on the Department of Health it was explained that this department contemplates establishing pasteurization stations. Borough President McAneny states that the plan is approved, and that, if Mr. Straus should decide to discontinue his work, the city will take it up. They ask \$50,000 additional for this purpose.

College Opens.—The Cornell University Medical College opened September 28 with a total enrollment of 127, distributed as follows: first year, 28; second year, 20; third year, 11, and fourth year, 56, and special students, 12. The decline in numbers from the fourth to the third year, marks the falling off since the A.B. degree with the full year's work in physics, chemistry, and biology is required for admission.

Would Increase Research Laboratories.—Dr. Hermann M. Biggs, general medical officer in the Department of Health, is making a vigorous fight for money for the extension of the work of the city's research laboratories. He asks for \$60,000, but says that the benefit to be derived from this investment will be incalculable to the poor of the city. He wishes to establish a division of specific therapy and preventive medicine.

The Straus Milk Stations.—A mass meeting was held at Cooper Union, October 8, when resolutions commending the work done by Mr. Straus were passed and a continuation of the work was urged. Among the speakers were Dr. Abraham Jacobi and Dr. William A. Evans of Chicago. The aldermen have passed a resolution urging Nathan Straus "to continue his splendid efforts in behalf of the poor and needy in the supply of pure milk."

Anniversary Meeting at the Academy of Medicine.—At this meeting to be held on Nov. 17, the topic for consideration will be "Animal Experimentation in Medicine." Dr. William H. Welch, president of the American Medical Association will

read a paper on "Objections to Proposals of Further Legislation to Regulate Animal Experimentation," and Dr. Walter B. Cannon, Harvard Medical School, one on "The Character of Antivivisection Literature."

Personal.—Dr. Belle J. Macdonald has returned from abroad.—Dr. Isaac S. Hirsch has been appointed roentgenologist to Bellevue Hospital.—Dr. Raymond Kelly, ambulance surgeon of Kings County Hospital, was injured by being caught between the ambulance and a trolley car, October 9.—Dr. Herbert E. Baright has been made associate physician at the Saratoga Springs Sanatorium.—Major Frederick F. Russell, Medical Corps, U. S. Army, delivered the Carpenter lecture on "The Control of Typhoid Fever in the Army by Means of Vaccination," October 20.

Tuberculosis Wards Overcrowded.—At the recent meeting of the State Board of Charities, the overcrowded condition of the tuberculosis wards at the Metropolitan Hospital on Blackwell's Island was under discussion. The charities commissioners have decided that it is necessary for the city to take immediate steps to add to the accommodations on Blackwell's Island and to complete the Sea View Hospital on Staten Island. The report presented states that of 148 rooms examined two-thirds had less than 800 cubic feet of air space per patient and only one had an air space of 1,200 feet. At night the alcoves and hallways are filled with cots and conditions are positively inhuman. The two new infirmary buildings which are soon to be opened on Blackwell's Island for tuberculosis patients can at best but temporarily relieve the congestion. It was also stated that there were hundreds of new cases awaiting attention.

The Question of Venereal Disease.—At a meeting of between forty and fifty women representing as many different organizations, held October 14, at 110 Second Avenue under the auspices of the Women's Prison Association, the following resolutions were passed, after a discussion of the cause of the Page Commission Bill dealing with the medical examination of prostitutes:

WHEREAS, The germs causing the venereal diseases are no longer matters of uncertainty, but have been perfectly and conclusively demonstrated by medical science, and

WHEREAS, The favorable breeding conditions and modes of transmission of these germs are also thoroughly understood by the medical profession, and

WHEREAS, The method of attempting to check the spread of venereal diseases by systematically hunting down certain classes of women only has survived from a period when the germs of these diseases were yet undiscovered and their modes of transmission therefore not certainly demonstrable, and

WHEREAS, A legislative mandate to continue so crude and barbarous a method of attacking any infectious or contagious disease is an offence against scientific truth and an indignity to the medical profession, an insult on women and a slur on the intelligence of the public, therefore be it

Resolved, That health boards should place the venereal diseases on the same status as all other contagious, infectious or communicable diseases; should take the same measures against them, irrespective of class or sex, as are applied in the prevention of all other contagious, infectious or communicable diseases, and should conduct in respect to them the same policy of instruction of the public as to the preventability of these diseases as is now conducted in respect to others; and be it further

Resolved, That public authorities should make ample provision for the full and sufficient free, voluntary treatment of patients suffering from venereal disease.

OHIO

Medical Women Elect. Dr. Olive Johnston was elected president; Dr. Mary D. Crane, vice-president, and Dr. Olive Littlejohn, secretary-treasurer of the Columbus Women's Medical Club, at the annual business meeting, October 11.

Licenses Revoked.—On a rehearing ordered by the governor and attorney general, October 5, the state medical board is said to have sustained the revocation of the licenses of Drs. James M. Luburg, Dayton; Paul DeWitt Hlale, Dayton, and Joseph H. Leatherman, Columbus.

Assistant Physicians' Association.—The sixteenth annual meeting of the Association of Assistant Physicians of the Ohio State Hospitals was held in Cleveland, October 5 and 6. Dr. John C. George, Dayton, was elected president; Dr. Arthur G. Hyde, Cleveland, vice-president; Dr. Dorr, Athens, secretary, and Dr. Mary K. Isham, Columbus, treasurer.

Gift to Western Reserve.—It is announced that Mr. John D. Rockefeller has recently offered to give to Western Reserve University for further endowment of its Medical Department the sum of \$250,000 provided \$750,000 additional is raised. Toward this \$1,000,000 fund, as was announced in May last, Mr. H. M. Hanna of Cleveland has given \$250,000. The trustees are planning to secure the \$500,000 needed to complete the fund.

Personal.—Dr. R. Harvey Cook has succeeded his father, the late Dr. George F. Cook, as medical superintendent of Oxford Retreat, Oxford.—Dr. George W. O'Grady, Lancaster, has been appointed associate physician at the Jackson Health Resort, Danville, N. Y.—Dr. Arthur W. Bartel, Dayton, has been appointed first assistant surgeon in the Home Hospital, Hampton Roads, Va.—Dr. Edward E. Campbell, health officer of Logan, who has been seriously ill with diphtheria, is reported to be convalescent.—Dr. Frederick S. Baron, Zanesville, has returned from Europe.—Dr. James G. Shier has succeeded Dr. William H. Knuss as health officer of Newark.—Dr. August Schumacher, Hamilton, is recovering from a serious illness.—Dr. James B. Ray has been elected city physician of Portsmouth, and Dr. Samuel P. Fetter, president of the board of health.—Dr. Clarence E. Exline, Canton, was seriously injured, October 6, in an automobile accident near his home.—Dr. Clarke D. Sackett, Ashland, sustained a fracture of the right clavicle from the recoil of a gun while hunting, October 1.—Dr. Albert J. Moorman has succeeded Dr. Pearl L. Gunkel as physician of the Dayton Workhouse.—Dr. George S. Weger, Delphos, announces his retirement from the practice of medicine.

Cincinnati

Personal.—Dr. Charles A. L. Reed has returned after a visit to the clinics of Europe.—Dr. Paul G. Wooley, professor of pathology in the Ohio-Miami Medical College, has been appointed dean of the department.—Dr. Leon G. Tedesche, bacteriologist of the Cincinnati water-works has resigned to accept a similar position with the Milk Commission of the Cincinnati Academy of Medicine.

PENNSYLVANIA

Bequest.—The will of the late Mary S. Bean, contains a bequest of \$10,000, to build in or near Norristown a hospital for children suffering from contagious diseases, to be a memorial to her daughter, Emily S. Bean.

Nuns' Sanatorium Opened.—The sanatorium founded at Hyde Park, near Reading, by Rev. George Bornemann, rector of St. Paul's Catholic church was opened October 21. The sanatorium is for nuns of various orders of the church, who are afflicted with tuberculosis.

Physician Convicted.—Dr. Henry C. Lawton, Camp Hill, who has been tried on several counts, charged with a criminal operation on Mrs. Mattie Hamilton, which resulted in her death, is said to have been convicted October 6. The defendant was indicted on eight specific charges, on the seventh of which he was found guilty, namely that of performing a criminal operation by means unknown.

State Secretaries' Conference.—The fifth annual meeting of the Conference of Secretaries of Component County Societies of the Medical Society of the State of Pennsylvania was held in Pittsburg, October 4. The president, Dr. William Rowland Davies, Scranton, delivered an address on "The Year's Work," and each member was called on to give briefly a feature of the work in his particular society. Dr. John J. Coffman, Scotland, was elected chairman, and Dr. Charles E. Shaw, Williamsport, secretary-treasurer. The next meeting will be held at Harrisburg at the time of the meeting of the state society.

To Study Milk Problem. Mayor Reyburn, at the suggestion of Dr. Joseph S. Neff, has decided to appoint a commission of five medical and technical experts to study the milk problem of the city—that is, to examine: 1. Sources of the city's milk supply, within and outside the state. 2. Condition of cattle, dairies, methods of handling milk at dairy farms and creameries, and in transit to the city. 3. Conditions prevailing in the wholesale and retail distribution within the city. 4. Scope and methods of milk inspection as now carried on by the Bureau of Health. 5. The problem of tuberculosis among cattle in the districts from which the city's milk is drawn. 6. Methods of tracing to their sources typhoid fever and other infectious diseases commonly carried by milk. Dr. Joseph S. Neff and Dr. Alexander C. Abbott spoke on this problem at a special meeting of the City Club, October 15. The subject was freely discussed and the motto established was "Cleanliness, Proper Temperature and Expeditious Transportation."

Philadelphia

Pathologic Society to Visit New York.—The members of the Pathologic Society of Philadelphia will be the guests of the New York Pathological Society at the latter's regular meeting, November 9, at the Academy of Medicine, 17 West Forty-Third Street.

New Hospital Building for University's Foreign School.—Authorization of a new hospital building to cost \$16,000 was cabled by the Christian Association of the University of Pennsylvania on October 13, to Dr. J. C. McCracken, of the University Medical School in Canton, China.

New Site for Children's Hospital.—Deeds have been recorded conveying to the Children's Hospital of Philadelphia, the lot at the northeast corner of Eighteenth and Fitzwater Streets, purchased about two years ago by Eckley B. Cox and presented to the hospital as a site for new buildings. Plans have already been prepared but there is no intention to begin immediately the erection of the building contemplated, as the funds necessary to carry out the project have not as yet been subscribed.

Children's Country Week Report.—At the semi-annual meeting of the directors of the Children's Country Week Association, held October 10, a report of the summer's work showed that 5,589 babies and their mothers have been given trips to the mountains and seashore. The total amount of money expended by the association was \$16,727.21. In addition to giving outings and excursions under their direct supervision, the association distributed 18,500 tickets for the Bristol boat excursions to mothers and children who were unable to go to the country.

Changes in University Faculty.—The following changes in the University of Pennsylvania Medical Department are announced: Dr. David L. Edsall has succeeded Dr. James Tyson as professor of medicine; Dr. Edsall has been succeeded, as professor of pharmacology, by Dr. A. N. Richards; Dr. Alonzo E. Taylor of the University of California has been assigned to the new chair of physiologic chemistry; Dr. Richard M. Pearce, New York City, to the new chair of medical research; Dr. Milton B. Hartzell, to the chair of dermatology, vice Dr. Louis A. Duhring, resigned; Dr. Allen J. Smith, dean of the Medical department, has been assigned to the section on tropical medicine.

Councils Approve Health Budget.—Councils' committee has reviewed the budget of the department of health and charities for 1911. Dr. Neff outlined the improvements for which he asked \$6,000,000. The improvements include \$5,000,000 for the erection of hospital buildings for the insane; \$500,000 for the hospital for contagious diseases; \$100,000 for the alteration of the building and maintenance of a home for the indigent; \$45,000 for a cold storage and ice plant; \$15,000 for a tuberculosis sanatorium at Byberry and numerous smaller items. The committee gave its approval, leaving the question of financing the department to the financing committee.

Personal.—Dr. Ivan Clark of the receiving ward of the University Hospital, was removed to the Municipal Hospital October 15, suffering from diphtheria.—Dr. Thomas Stotesbury Githens has been given a fellowship in the pharmacologic department of the Rockefeller Institute for Medical Research.—Dr. Benjamin A. Thomas has been elected professor of genito-urinary surgery in the Philadelphia Polyclinic and College for Graduates in Medicine.—Dr. Allen J. Smith, dean of the medical department of the University of Pennsylvania, was given the degree of doctor of science by Pennsylvania College, Gettysburg, October 20.—Dr. Paul J. Pontius and Dr. John Jones have been appointed to the ophthalmologic department of St. Joseph's Hospital.

Veteran Physicians Honored.—Twenty-nine physicians from various parts of the state, who have been practicing for half a century or more were the guests at a reception given by the Medical Club of Philadelphia in the ball room of the Bellevue-Stratford Hotel on October 21. The following were the guests:

Stephen D. C. Brodhn, '55, U. of P., East Orange, N. J.
John B. Chapin, '59, Jefferson Medical College, Philadelphia.
James E. Clawson, '55, University of Maryland, Philadelphia.
Jacob Solls-Cohen, '60, U. of P., Philadelphia.
Robert S. Dana, '57, Jefferson Medical College, Morrisville, Pa.
James Darrach, '51, U. of P., Germantown.
Emanuel K. Deemy, '60, New York University, Mechanicsburg, Pa.
Robert N. Downs, '56, U. of P., Germantown.
Edward L. Duer, '60, U. of P., Philadelphia.
William B. Erdmann, '50, U. of P., Macungie, Pa.
Jonathan L. Forwood, '57, U. of P., Chester, Pa.
William M. Gullford, '52, U. of P., Lebanon, Pa.
Charles W. Houghton, '60, Pennsylvania Med. Coll., Philadelphia.
Theodore Jacobs, '60, U. of P., Norristown.
William S. Janney, '54, Pennsylvania Med. Coll., Philadelphia.
William F. Knox, '54, U. of P., McKeesport, Pa.
Benjamin Lee, '56, College of P. and S., of Cincinnati, Harrisburg.
John B. Laddy, '56, Western Reserve University, CLEVELAND, Pa.
S. Weir Mitchell, '50, Jefferson Medical College, Philadelphia.
Matthew J. McKinnon, '53, University of Maryland, York, Pa.

Henry C. Paist, '54, Pennsylvania Medical College, Philadelphia.
Jonathan B. Pottinger, '54, Jefferson Medical College, Hamburg.
Peter J. Roebuck, '60, U. of P., Lititz, Pa.
Abraham Stout, '55, U. of P., Bethlehem, Pa.
Samuel R. Shillern, '54, U. of P., Philadelphia.
H. Genet Taylor, '60, U. of P., Camden, N. J.
Benjamin W. Wilson, '57, U. of P., Philadelphia.
Daniel Yoder, '58, Pennsylvania Medical College, Catasauqua, Pa.
William R. Longshore, '60, Pennsylvania Med. Coll., Hazleton, Pa.

TENNESSEE

Medical School Opens.—Vanderbilt University Medical Department opened September 22, with an address by Chancellor Kirkland.

Guilty of Mislabeled.—Dr. Samuel H. Harris, Nashville, charged with selling misbranded drugs, is said to have been found guilty as charged in the indictment. Sentence was postponed pending a motion for a new trial.

Personal.—Dr. Margaret Gilleland, Knoxville, has returned after two years abroad.—Dr. Alfred B. DeLoach, Memphis, has been elected a member of the State Board of Medical Examiners, vice Dr. Frank S. Raymond, deceased.—Dr. William G. Somerville, Memphis, has returned after fifteen months abroad.—Dr. José M. Selden, Sewanee, has located in Chattanooga.—Dr. Cary A. Snoddy has been elected superintendent of the Knoxville General Hospital.

Eastern Tennessee Physicians Meet.—The eighteenth annual meeting of the East Tennessee Medical Society was held in Bristol, September 29 and 30. The following officers were elected: president, Dr. Leon L. Shedd, Knoxville; vice-presidents, Drs. Nathaniel F. Dulaney, Bristol, John W. Cox, Johnson City, and Henry M. Cass, Morristown; and secretary-treasurer, Dr. William M. Copenhaven, Bristol. Morristown was selected as the next place of meeting.

GENERAL NEWS

Military Surgeons to Meet in Richmond.—The Association of Military Surgeons of the United States, whose membership is made up of medical officers of the Army, Navy, Public Health and Marine-Hospital Service, and organized militia, will hold its annual meeting in Richmond, Va., November 1-4, under the presidency of Col. Joseph K. Weaver, N. G., Pa.

Death of Professor Bombarda of Lisbon.—Professor Miguel A. Bombarda, the leading psychiatrist of Portugal and the president of the International Medical Congress at Lisbon in 1906, was shot in his office by Lieut. Grinée, who had entered apparently to consult him, as at one time Grinée had been a patient in his charge. The horror at the murder is said to have been the spark that lighted the flame of the revolution which has resulted in the proclamation of the republic in Portugal.

Southern Association to Meet.—The annual meeting of the Southern Medical Association will be held in Nashville, November 8-10. Headquarters will be at the Hermitage Hotel. General sessions will be held in the auditorium of the Y. W. C. A., the section on medicine will meet in this auditorium, the section of surgery will hold its sessions in the assembly hall of the Hermitage Hotel, and the section of ophthalmology will have its meeting place on the same floor. On November 9, there will be an excursion to the Hermitage, where Dr. John A. Witherspoon will deliver an address on "The Life and Character of Andrew Jackson." In the evening a general reception will be given at the hotel.

Health of the Army.—According to the annual report of the surgeon-general of the army, the general health has shown steady improvement for several years. The constant non-effective rate of 41.48 per 1,000 during the last fiscal year, which compares favorably with the rates for the previous years, were 42.66 in 1908, 46.17 in 1907, and 49.79 in 1906. The total number of deaths from all causes was 370, of which 228 were due to disease. The admission rate for disease was 865.92 per 1,000 of mean strength; a steady improvement since 1899 when the rate was 2,125.74 per 1,000. More tuberculosis was noted than in previous years, but there was a marked decrease in the prevalence of malarial infection. The health of the troops in the Philippines is reported to improve year by year, and the records now show that insanity is no more prevalent in troops in the Islands than in troops in the United States. During the fiscal year 11,338 persons in the army were vaccinated against typhoid, and among these only three cases have occurred, with no deaths. The surgeon-general therefore advocates typhoid fever vaccination as a routine procedure throughout the army.

The Alvarenga Prize.—The College of Physicians and Surgeons of Philadelphia, announces that the Alvarenga Prize for 1910 has been awarded to Dr. M. Katzenstein of Berlin, Germany, for his essay entitled "The Formation of an Arterial Collateral Circulation in the Kidney." The next award of the prize, being the income for one year of the bequest of the late Señor Alvarenga, amounting to about \$180, will be made on July 14, 1911, provided that an essay deemed by the committee of award to be worthy of the prize shall have been presented. Competitive essays may be on any subject in medicine, must not have been published, must be typewritten, must be received by the secretary of the college on or before May 11, 1911; must be sent without signature but must be plainly marked with a motto and be accompanied by a sealed envelope having on the outside the motto of the paper and within the name and address of the author.

Health of the Philippine Islands.—The report of Dr. Victor G. Heiser, director of health of the Philippine Islands, calls attention to the inadequacy of the filter capacity of the water supply of Manila; announces the demonstration of the presence of hydrophobia for the first time in the history of the Islands; notes the confirmation of the theory that beriberi is caused by the continued consumption of polished rice as a staple article of diet; and reports that during early April cholera made its appearance in Pangasinan with a considerable spread in this and adjoining provinces, and the infection of Manila. An effort has been made recently by the medical officers of the Philippine Medical School and Bureau of Health to furnish better obstetric service to the indigent poor. An out-patient obstetric department has been established, to which are attached a sufficient number of physicians and two nurses. During May the average daily number of cases was 37, and the total numbered 1,147 for the month. Many rats were sent to the laboratory and bacteriologically examined, but no plague rats were found. After many delays one sanitary barrio is nearly completed on the San Lazaro estate and another is under construction, so that shortly there will be facilities for transferring from two to three thousand persons living in insanitary surroundings to properly drained land, where every house will face on a street or alley, so that sanitary carts may enter and keep the premises clean.

Meetings of Railway Surgeons.—The American Association of Railway Surgeons, at its seventh annual meeting, held in Chicago, October 19-21, elected the following officers: president, Dr. Albert R. Mitchell, Lincoln, Neb.; vice-presidents, Drs. George W. Cole, Jr., St. Louis, Oliver B. Quinn, McComb, Miss., and Ira K. Gardner, Newhampton, Iowa; secretary, Dr. Louis J. Mitchell, Chicago (reelected); and treasurer, Dr. Henry B. Jennings, Council Bluffs, Iowa.—At the meeting of the Railway Surgeons Association of the Pennsylvania Lines east of Pittsburg with that of the Pennsylvania Lines west of Pittsburg, held in Pittsburg, October 3 and 4, the following officers were elected: president, Dr. Spencer M. Free, Dubois, Pa.; vice-presidents, Drs. Hanson T. A. Lemon, Washington, D. C., and Ellwood Patrick, Westchester, Pa.; secretary, Dr. Amos W. Colcord, Clairton, Pa.; treasurer, Dr. Eugene H. James, Harrisburg, Pa.; and member of the executive committee, Dr. Joseph M. Wells, Trenton, N. J.—The ninth annual meeting of the Association of Seaboard Air-Line Railway Surgeons was held in Birmingham, Ala., October 11 and 12. The following officers were elected: president, Dr. Jarvis G. Dean, Dawson, Ga.; vice-presidents, Drs. Hampden A. Burke, Petersburg, Va., Milton L. Wood, Montgomery, Ala., and Bartlett J. Witherspoon, Charlotte, N. C.; secretary-treasurer, Dr. Jarrett W. Palmer, Ailey, Ga.; and member of the executive committee, Dr. Robert L. Harris, Jacksonville, Fla. Washington, D. C. was selected as the place of meeting for 1911.

Cholera.—The health officer of New York, on October 22, decided that beyond a doubt the case of illness and death on the steamer *Tuormina*, which arrived October 21 from Genoa and Naples, was due to cholera, and the steamer has been held at quarantine for inspection.—The International Bureau of Public Hygiene, on October 21, recommended the calling of an international sanitary conference to combat the cholera epidemic.—On October 19, 37 new cases of cholera were reported in Italy, 13 of which were in Naples and 19 in Caserta. On October 21, 21 cases were reported with 11 deaths.—The surgeon-general of the Public Health and Marine-Hospital Service considers that cholera is not so threatening as in 1893. Between June 25 and October 7, there were 332,881 cases and 153,581 deaths in Russia, and the disease is believed to be increasing. Careful investigation is made at the German frontier by the government and in addition all emigrants are being held five days at the point of embarkation, and the same course

is being pursued in cases of emigrants passing through England. As an additional precautionary measure, every emigrant from Russia and Italy will be followed to his destination by a report from the health officer of the port of entry to the board of health of the community to which he goes.—The North German Lloyd steamship *Breslau* was detained at Quarantine until October 15, in order to permit of the thorough examination of the steerage passengers and their baggage. Three suspects are under observation at present.—Cholera, which had almost ceased in St. Petersburg, is said to have broken out afresh in the Municipal Psychopathic Hospital, from which 33 employees have been sent to the pesthouse, and there are still suspected cases.

CANADA

New Building for Foundling Hospital.—The Montreal Foundling and Baby Hospital will erect a new building to cost \$100,000. The capacity of the present building is inadequate, as 350 babies were refused admission during the last year.

Changes in Insane Hospital Staff.—Dr. William C. Herri-man, assistant superintendent at the Toronto Hospital for the Insane, is to be chief medical superintendent of the hospital at Orillia, vice Dr. Alexander H. Beaton, resigned; Dr. George A. MacCallum of the Penetang Institution, has retired from the service and is succeeded by Dr. William T. Wilson of the Coburg Hospital for the Insane. Dr. Thomas J. Moher, superintendent of the Brockville Institution, replaces Dr. Wilson at Coburg. Dr. James M. Forster, assistant at London, becomes superintendent at Brockville, Dr. Harvey Clare, Mimico, becomes assistant superintendent at Toronto, and Dr. James Rollins, Orillia, is transferred to Mimico.

Personal.—Dr. Murray Maclaren, St. John, N. B., has gone to Germany.—Dr. Bert Wiley, Fredericton, N. B., has returned from Europe.—Dr. Charles Sheard, retiring medical health officer of Toronto, was presented with a gold watch by the staff of the City Health Department, October 4.—Dr. John O. Todd, retiring president of the Winnipeg Medical Association, gave a reception at his home in honor of Dr. Samuel W. Prowse, the new president of the association, October 11.—Dr. Helen MacAlmurchy, one of the newly-appointed medical inspectors of the schools of Toronto, is said to have been asked to resign on account of differences with the chief inspector of schools.—Mr. George G. Nasmith, assistant in the laboratory of the Ontario Board of Health, has been appointed chief of the bacteriologic laboratory of Toronto.

Public Health Campaign.—The formation of the Canadian Public Health Association was completed at a meeting held in Ottawa, October 13. Dr. Peter H. Bryce presided, and the following officers were elected: honorary president, Sir James Grant, Ottawa; president, Dr. T. A. Starkey, Montreal; secretary, Major Lorne Drum, Ottawa, and treasurer, Dr. George D. Porter, Toronto. The Dominion government will be asked to grant increased aid to the work of the prevention of tuberculosis, and steps will be taken to secure crown lands in favorable localities for colonies for persons suffering from tuberculosis, and for their families. Efforts will also be made to establish a permanent national council of health and public health laboratories to manufacture vaccines and antitoxins and to supervise the manufacture, and sale in, and importation of these products into Canada. The proposed central council is to be composed of Dominion health officers attached to the several departments of government at Ottawa and the chief officers of the provincial departments and is to be under the supervision of the Conservation Commission.

MANILA LETTER

(From Our Regular Correspondent)

MANILA, SEPT. 9, 1910.

The Chinese Red Cross Society

The Chinese Red Cross Society, which was organized during the late war in Manchuria, has at last received the official recognition of the Chinese government. The Board of Rites in Peking has prepared an official seal of the society which has been transmitted to Shanghai and formally "opened." The Chinese Red Cross Society was organized by their excellencies Sheng Hsuan-huai (Sheng Kung-poi) and Lu Hsi-huan and other Chinese officials and merchants in accordance with the rules of the Red Cross Society adopted by the Geneva Convention and the Hague Peace Conference, but for some reason it seems that the society did not receive imperial

recognition until last February, when an imperial rescript was issued through the grand council appointing H. E. Sheng president of the society and ordering the Board of Rites to prepare an official seal. The seal, which is cast in Chinese characters throughout, signifies in English: "Official Seal of the Red Cross Society of the Ta-ching Empire." A complete change in the rules has been made since the organization of the society and the institution is now put on a permanent basis. It is reported that the governments of the various powers have been informed of the formal "opening" of the official seal of the society.

Health Standards of the Philippines

An important step in maintaining the present health standard in the Philippines, and particularly in raising the standard as the Americans are striving to do, was the adoption by the Far Eastern Association of Tropical Medicine of resolutions concerning epidemic diseases, particularly those sections relating to publicity and quarantine. The islands now seem to be entirely free from plague, cholera is on the decline in Manila and in the provinces, and the lepers are being collected into a leper colony and segregated on Culion island. Added to these also is the relative scarcity of typhoid and, for a tropical country, the occurrence of very little malaria of any type. Now if the delegates present at the first annual meeting held in Manila in March and the Association as a whole can procure the support of the governments represented the outlook for excellent health conditions in the Philippine Islands will be particularly good. While greatly interested in the unity and advancement of medicine in the Orient promised by these measures, the Philippines are particularly interested in the notification (of epidemic diseases) aspects of the resolutions; for there is not a tropical country in the Orient in which at least one of these serious epidemic diseases is not more prevalent than in the Philippine Islands. Among the resolutions of the greatest local interest are the following:

Resolved, That the Far Eastern Association of Tropical Medicine, appreciating the benefit which would accrue from concerted sanitary action on the part of the eastern governments, be empowered to approach the following governments, namely: Philippine Islands, Japan, Hongkong, French Indo-China, Siam, Netherlands-India, Straits Settlements, and Ceylon, with the view, if possible, of obtaining their official support on the following lines:

To have a common standard for the term "epidemic," when making reports to or imposing quarantine against each other. The following definition is suggested for consideration: Plague, cholera, small-pox or yellow fever shall be considered to be epidemic, when, after the first telegraphic report of its occurrence, any weekly report thereafter shall show the occurrence of an average daily number of three cases.

To agree to notify each other's territories as infected only when the infectious diseases shall have assumed epidemic proportions as defined above, and automatically to withdraw such notification when the average number of cases for three successive weeks has fallen below the status epidemicus as defined above.

To circulate weekly returns of plague, cholera, smallpox and yellow fever among each other, and also a telegraphic report on the first occurrence of any of these diseases, in a clean port or territory.

To insist on a bill of health being carried by all ships leaving a country declared to be infected, which intend to proceed to the port of another signatory; such bills of health to include a return of infectious diseases for the previous 48 hours.

To report by telegram to the country concerned the departure of an infected or suspected ship (as defined by the Paris convention) which may intend to proceed to any port in the territories of another signatory; and to endorse the bill of health of the said infected or suspected ship with a full account of the measures taken to disinfect or otherwise deal with the said vessel.

With regard to plague and leprosy the following is urged:

In our opinion the only practical measure concerning plague that we can recommend is the advisability of each country represented agreeing to notify other countries of the occurrence of cases of plague within its borders, the first case by telegram and afterward by weekly returns. Leprosy is to be regarded as a dangerous communicable disease. Compulsory notification of all cases of leprosy to the authorities is essential. Compulsory segregation of all cases of leprosy is necessary, and preferably in special colonies constructed for that purpose. The entrance of all aliens afflicted with leprosy into a country must be prohibited.

The Tuberculosis Campaign

The antituberculosis movement has spread to the Orient and the Far Eastern Society of Tropical Medicine has pledged itself to "use its influence to cause the formation of a national antituberculosis society in each political entity represented in the Far Eastern Association of Tropical Medicine; these societies to be formed along the lines of existing antituberculosis societies in other parts of the world, yet revised to facilitate work under local conditions." Yet it is doubtful if such societies in most of the Oriental countries will be able to wage an effective campaign. The ignorance of the vast majority of Orientals of any form of modern medical methods, the widespread lack of absolutely any sanitary precautions,

the great density of the population in most of the countries in question and the great poverty of the inhabitants would seem almost to make any campaign against tuberculosis futile.

The Library of the Bureau of Science

One of the most pleasant surprises that a medical or scientific man experiences in coming to the Philippine Islands is the finding of so complete and well-selected a library in both the medical and the general sciences. In the reorganization of the libraries of the Philippines, the scientific library of the Bureau of Science becomes a part of the general library scheme of the Philippine government. All scientific books and journals are collected together into a common scientific library, located in the Bureau of Science. Since its organization the Bureau of Science has been and still remains the center of scientific activity and research in the Philippines and naturally demands the largest scientific library. Investigation of the many local medical problems has from the first been a part of the program of the American administration in the islands. This is particularly true of the Bureau of Health and the Bureau of Science. The problem of making the country a healthful one, not only for the Filipinos, but also for Americans, has been a big one and a great deal of research along medical lines has been and is still necessary. Of course, in this work, not only are scientific men and good laboratories necessary, but also good library facilities. In this line, as well as along other scientific lines and in the field of industrial investigation, the government has shown itself liberal. To make the library funds go as far as possible, there is practically no duplication in the different branches of the general library and the various government bureaus are permitted to borrow books freely from each other.

The current scientific journals form a very important part of the library. The shelves are well supplied with a majority of the better scientific journals in all languages, from English and German to Chinese and Russian. Back numbers and sets of many of the more important journals are to be found. Every branch of medicine is represented, not only by the standard text-books, but also by the current journals. On Jan. 1, 1910, aside from the current journals, the medical section of the scientific library was represented by 5,832 bound volumes, 471 unbound volumes and 818 parts. Many additions have been made since that date and the recent library budget of the Philippine Medical School will bring up the total considerably. Works and journals on tropical medicine naturally form an important part.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Oct. 15, 1910.

Town-Planning

An important conference on town-planning, organized by the Institution of Architects, has been held at the Guildhall. Mr. John Burns, president of the Local Government Board, who represented the government and who has framed an excellent act for the regulation of town building, insisted on the necessity of providing better houses and streets for the workers. The object of his act was to promote comfort in the home, dignity in the streets, space in the roads, with less of the smoke, noise, advertisements, and nuisances that accompanied a city without a plan, because its rulers were without ideas and its citizens without imagination. A picture of the ideal town of the future was sketched by Sir William Richmond. He hoped that all town-planning schemes would make gardens an important element and said that places should be arranged for fountains and bandstands. To render the air as pure and immune from smoke as possible, all grates should consume as much smoke as possible, and every encouragement should be given to the manufacturers of smokeless coal. Indeed it might be the part of the town-planning enterprise to devise, especially for the dwellings of the poor, central heating stations from which the necessary warmth might radiate. Cooking stations and cheap restaurants should also be erected for the poor and encouragement given for them to club together, a system which would promote economy and healthy food. With the smoke evil cured, gardens on the house tops might be possible, even in our climate. At present the dirt produced by London smoke made this impossible. When the necessity for the change from dirt to cleanliness was recognized a whole row of houses of the poorer classes might possess a large area of flat roof which would be a healthy playground for children. The architect, who should

be the prime director of all town-planning, should consult the sculptor and the painter. When the smoke of towns was abated mural painting would probably come into general use.

Outbreak of Food Poisoning Due to a Bacillus-Carrier

An outbreak of food poisoning due to eating pork pies has occurred at Wrexham and resulted in the serious illness of over one hundred persons and the deaths of five. From two samples of the pies, which were all made at one factory, an organism was cultivated which was undoubtedly either the paratyphoid B bacillus or the *Bacillus enteritidis* of Gaertner. The indications generally were in favor of the former organism, which in certain circumstances is of great virulence. The several ingredients which entered into the pies were examined, but the flour, lard and gelatin did not yield the organism. No opportunity was afforded of examining the meat as originally delivered to the baker, but it was ascertained that the meat formed part of a common batch, a portion of which was made into pies by other bakers, which were largely sold and from which no ill effects could be traced. The feces of an employee in the shop in which the pies were made showed numerous colonies of an organism which by its cultural and agglutination characters was found to be identical with the organism in the pies. Professor Smith therefore concluded that the outbreak was due to this bacillus-carrier.

Plague in London

A native member of the crew of the S. S. *Oceana*, which recently arrived in London from Bombay, complaining of illness was landed at the Port Isolation Hospital at Denton for observation and found to be suffering from plague. He is isolated and the ship has been thoroughly disinfected.

Medical Education

When distributing the prizes at the Leeds Medical School Mr. Howard Marsh, professor of surgery at the University of Cambridge, dealt with the increasingly difficult problem of medical education. Medicine had now become a department of biology. It rested on chemistry, anatomy, physiology and pathology. The student had difficulty in keeping pace with his subjects and for the average man this had from the first been hopeless. He was not a sensitive photographic plate on which a short exposure would secure a clear and abiding picture. He had been outpaced. The problem was how to arrange the work so that the curriculum of the student would lead to satisfactory results. The difficulty was one of the oldest in the field of education. It was a question of selection. They had to consider the result of the present system not merely in reference to what the student had learned and would retain in a serviceable form but what kind of mental training he had been passing through, and what effect his work had on his mental evolution. Mere information was but raw material and of little value to the student unless he could manufacture it for his own use. But how could he do that when he was constantly being overfired with material which he could not assimilate? Professor Marsh found that intelligent and serious students showed an altogether deficient acquaintance with, for instance, the essentials of surgical anatomy. The rejections in anatomy and physiology at the conjoint examinations of the Colleges of Physicians and Surgeons in the last five years had been between 39 and 47 per cent. This high rate was in some degree due to the fact that the students were struggling under the incubus of an overloaded curriculum. He suggested that a medical education conference might be held. The meeting of the different teachers would emphasize the fact that the object was not the training of specialists in the individual sciences concerned but the education of students of medicine. As medicine had now become a department of biology they should appeal to specialists in other subjects for assistance. Each teacher should be absolutely independent and in every sense unfettered. Each should be able to make his teaching thorough and turn out students who had acquired not merely an evanescent smattering, but a sound and permanent grip of principles. Demonstrators of anatomy should have constant opportunities for going beyond mere tedious anatomic facts to their meaning as to function and their bearing on medicine and surgery. In the hospital wards the teaching could with advantage be remodeled. Every ward teemed with material for clinical teaching but the surgeon could not give his time to systematic teaching. For this purpose ward teachers should be appointed, as had already been done in some hospitals.

The Relation of Religion to the Falling Birth-Rate

At the Church Congress which has just been held at Cambridge the subjects discussed were not entirely theological; papers attracted considerable attention on sociologic topics, such as heredity, social responsibility, etc., which had important medical bearings. In a paper on parentage the Bishop of Ripon deplored the lessening of the fit and the strong, and the increase of the unfit and the weak, which had been brought about by modern conditions. The shortage of children in the last twenty years was over a million. The decline was not confined to the mother country. In twenty-two years the birth-rate of New Zealand had fallen from 36 to 29 and in thirty years that of Australia from 41 to 27. The problem that had to be faced was an arrest of the birth-force in the English-speaking races and, unfortunately, this decline was greatest in the best classes of the population. An important paper on this subject was also read by Mr. C. Whetham, F.R.S., who said that all previous conclusions in sociology needed re-examination in the light of the voluntary restriction of the birth-rate which began about 1875. Since that year, the average number of children produced by a fertile union had halved in the best families of all classes of the nation. The discrepancy had become so great that no amount of care of children could compensate for the diminished number of births. That this restriction was voluntary was shown by the fact that Jews and devout Roman Catholics in all ranks of life were not affected by it, while the Protestant clergy had been much less affected than the laity. At this period of our evolution, for religion to have its biologic survival value it must have a definite message on the subject. It must teach people that for the sake of the future welfare of humanity, possibly for the ultimate welfare of eternity, large families were to be encouraged among the sound and able stocks, of high moral and intellectual worth, but that where definite hereditary unsoundness existed selfish and irresponsible procreation meant future misery for themselves and a lowering of the average quality of humanity, which was the temporary home of souls of eternal spiritual significance. The new revelation of the power of a conscious selective birth-rate to modify the average character of a nation must be acted on in fearless faith. While those nations who ignored it would suffer deterioration and decay, the race that was taught by its faith to accept and act on the new knowledge would improve, multiply and replenish the earth. It would carry its ideals through nations and its religion to the ends of the world.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Oct. 7, 1910.

Formation of an International Association of School Physicians

At the time of the International Congress of Educational Hygiene, held recently in Paris (*THE JOURNAL*, Aug. 20, 1910, p. 707), the school physicians of various countries met to consider the organization of an international association. The assembly entrusted the organization of the new association to a provisory bureau, the honorary presidents of which are Sir Lauder Brunton of London, Sir James Grant of Ottawa and Professor Chantemesse and Dr. Albert Mathieu of Paris.

The Public Emergency Service in 1909

During 1909, the first-aid stations established in Paris on the borders of the Seine and the canals have received 357 submerged persons (269 men, 88 women), of whom 9 had been too long in the water to revive; 154 had thrown themselves into the water intentionally. The stations in the suburbs received 15 submerged persons, 2 of whom died. As for first-aid to the sick and wounded, 273 persons (255 wounded and 18 sick) received attentions in the first-aid stations of Paris. The litters of the various posts were utilized 517 times—for confinement, illness, sudden death, natural death and accidents. It is interesting to observe that the ambulances installed at the time of the ceremonies and public celebrations received only 285 persons altogether. Carnival Day furnished 40 sick and 23 wounded, and the national holiday 38 sick and 23 wounded—very modest figures compared with statistics of the American Fourth of July accidents.

Injurious Results to the Eye from Tared Roads

At the last session of the Académie des sciences, Dr. True, professor of clinical ophthalmology at the Montpellier college of medicine, and Dr. Fleig, read a paper on the effect of the

dust from tarred roads on the eye. It seems that while tarring roads markedly diminishes the dust raised by the passing of automobiles, the dust from roads so treated has an exceedingly harmful effect on the eyes. More than other dust, tarry dust inflames the conjunctiva and provokes the ophthalmia. Incrusted on the cornea, the particles of tar produce leukomas, which sometimes persist for a long time and sometimes are permanent. Cases of blepharitis and corneal ulcer from this cause are not rare.

Second Conference for the Study of Cancer

The first Conference for the Study of Cancer, convoked by the central German committee for the study of cancer, met at Heidelberg and Frankfurt in September, 1906. A committee, consisting of delegates from thirteen different countries, was authorized by the first conference to arrange for the organization of an International Association for the Study of Cancer, to meet triennially. The opening session of the second conference was held in Paris on October 1. M. Doumergue, the minister of public instruction, presided and made the opening address. On the platform were the official delegates of the twenty-three foreign governments represented at the conference, namely, Great Britain, Germany, Austria, Belgium, Bolivia, Brazil, Bulgaria, Chili, China, Denmark, United States, Greece, Italy, Japan, Hungary, Luxemburg, Mexico, Peru, Persia, Argentina, Russia, Sweden and Turkey.

Professor Czerny, who spoke after M. Doumergue, says that according to the statistics of the last ten years, cancer is increasing and that in civilized countries especially it already holds second place among the causes of mortality among adults. The study of neighborhoods, houses and families seems to be most promising for ascertaining etiology. The work of the French committee, therefore, deserves particular commendation since it is in direct communication with practitioners. By statistics from one country of frequent cases of cancer in a single organ, for example, the stomach, the esophagus or the bladder, and by an exhaustive study of the surroundings and the circumstances in which the patients live, it may be possible to make more rapid progress than by general and universal statistics. The endemic increase of cases of cancer in certain localities and in certain houses, which was reported first in France, then in Germany and in England, speaks in favor of a parasitical cause of many cancers, although the efforts of innumerable investigators to discover this cause have so far remained unsuccessful. New experimental data lend support to the theory of irritation.

Professor Pierre Delbet of Paris closed the series of official speeches by defining the character and spirit of the meeting. "We have," he said, "called it a conference to emphasize the fact that it is a limited association. In an open congress the special aims of the meeting might perhaps have been missed among communications from which neither science nor the patients would draw much benefit." In this conference, only members of associations belonging to the International Association, invited guests and official delegates of foreign governments can participate. The conference has 150 members.

The program was intentionally limited to general questions. Unfortunately, as frequently happens, many papers came too late, so that the printed papers could not be distributed before the conference. It is also unfortunate that the papers in German were published in that language without being abstracted in French, and that the reading of these papers was not followed by such abstracts.

On motion of Professor von Hansemann of Berlin a committee composed of all the foreign delegates was appointed to devise an international nomenclature of cancer before the next meeting of the conference, three years hence. Professor Pierre Delbet spoke of the inconvenience arising from the fact that in various countries the same lesions received different names and the same words were employed in different senses. Therefore, he, with Drs. Ménétrier and Herrenschmidt had drawn up a scheme of nomenclature, which without pretending to be complete, constituted a terminologic framework. Professor Delbet's nomenclature was endorsed as a temporary scheme.

It is probable that the next international conference on cancer will be held at Brussels in 1913, although no decision has been taken as yet.

The Benefit of Surgery in the Army

The new physical requirements for military service have had, among other good effects, that of surgically relieving many young men of more or less troublesome infirmities, such as varicocele, hemorrhoids, hernia, etc., besides improving their general physical condition during their periods of service.

The number of radical cures of hernia (the most frequent surgical infirmity in the army) obtained in the course of military service, has continued to increase since 1903. In 1903, 1,886 radical cures were effected; in 1904, 2,533; in 1905, 2,868; in 1906, 2,896; in 1907, the last year for which statistics have been published, the number of these operations was 3,731. This is explained by the fact that since 1902 hernia has been only exceptionally a cause for exemption, while in 1903 the eliminations for hernia by the Council of Revision reached the enormous number of 3,116; in 1907 there were only 751.

Death of Mme. Pasteur

Mme. Pasteur died suddenly at Arbois, Jura, near where her illustrious husband was born. Her funeral, which was held on September 28, was very numerously attended. The body lay in state at the Pasteur Institute at the entry of the crypt where the mortal remains of her husband already repose. The ceremonies were conducted by the members of the council of administration of the Pasteur Institute, headed by Dr. Roux, director of the institute, and M. Metchnikoff. After the religious ceremony at the church, the body was brought to the Pasteur Institute to the crypt where it will be buried, Mme. Pasteur having expressed the desire to rest near her husband. Dr. Roux pronounced a moving discourse, in which he rendered homage to the character of the admirable woman who was the devoted companion of Pasteur.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Oct. 7, 1910.

Inexpensive Hospitals for Mild and Chronic Cases

This title was the subject of a report made by Professor Grober of Essen at the recent meeting of the German Public Health Association. Grober is director of the hospital there and he urged the erection of such hospitals first for the relief of the large and to a certain extent necessarily expensive general hospitals, in which the stay of the convalescents and those who are recognized as chronic invalids can be materially shortened, and secondly because the development of medicine demands institutional care for classes of cases which formerly were treated without it. For these patients the expensive apparatus of the large hospital is not necessary. Under the auspices of the Prussian department of education, Grober visited a large number of hospitals in Germany, Holland, Switzerland, without having so far found a type which could be regarded as a model. This is due partly to the fact that the requirements for such a hospital in various places must differ because of the varied character of the conditions. The demand is quite general that in the building and equipment, all expense not distinctly necessary must be avoided. In particular the provisions for the purely medical part can be much simpler than in institutions intended for major surgery and severe internal diseases. But it must not be forgotten that the institution must be thoroughly hygienic. In hospitals of this kind in foreign countries this is seldom the case. Medical oversight is necessary and the physician should have the deciding word in the arrangement of the institution. Whether such a hospital should be a branch of an already existing institution or separate from it depends on the special needs and the local conditions. If the house is to be especially for mild cases, it should be more like a private home. For chronic cases the public institution type is preferable. It is quite permissible to erect buildings of several stories on the corridor system. For chronic tuberculous patients suitable arrangements against infection must be provided. It would be very desirable that all the patients received should have been for a time in a general hospital and that the medical direction of both should be in one person's hands. If possible, the management should also be connected for the sake of economy. For this purpose also the patients may be employed in the work of the house. In general a bed can be provided for from \$750 to \$1,000 (3,000 to 4,000 marks), and the maintenance is much cheaper than in complete hospitals. The number of beds should not exceed 1,500.

Education of Girls and Race Hygiene

A short time ago the above title was the subject of a lecture by the renowned Munich hygienist, Professor von Gruber, delivered before a woman's club. This lecture has excited great interest on account of the position he takes in opposition to the modern woman's higher education movement. There is some reason to think that part of the ad-

dress delivered by the Kaiser at Königsberg, which dealt with the woman question, was based on Gruber's address. Professor Gruber is strongly opposed to the attempts of the leaders of women to train every girl to be self-supporting, and to secure the complete economic and political independence of women. In his opinion this effort will result in a destruction of the family and in sterility and will therefore affect most injuriously the strength of the nation. The passionate insistence of women on economic independence, for a trade and a career, is in Gruber's opinion, disastrous, because as a rule (with rare individual exceptions) the physical and mental power of women is insufficient for industrial and professional labor, in addition to the severe burden of bearing, nursing and bringing up their children. The condition is especially serious in the higher intellectual occupations. The conflict between the business career and the position of the woman as wife and mother, leads to prevention or the frequent miscarriage of pregnancy, to weakness and illness of the new-born infants and inability to nurse them, to neglect of the training of children, and avoidance of marriage. As evidence for his claims he cites the report on morbidity and mortality in the Leipzig local Krankenkassen, recently published, as showing the small number of confinements among saleswomen and the like, amounting annually to only 6 or 7 per thousand of the women of child-bearing age (as opposed to the average, 43) and the strikingly large number of premature births among them (28 per cent. of all deliveries as opposed to the average of 17) and for which artificial interference is undoubtedly responsible. Not only is reproduction hindered or limited by the employment of the woman, but also in consequence of economic competition, marriage and the founding of a family are distinctly impeded and in this way the increase of the population is lessened. The birth-rate in our large cities, is rapidly diminishing. The work done by women is not valuable enough, he said, to compensate for the harm which comes from the employment of women. Comparison of the accomplishments of women in science, art, technique and government with the corresponding work of men shows that there is no hope that woman will be able to equal man. The natural task of woman is to become a wife and mother, and her physical and mental nature is fitted for this task. There is no such excess of women in Germany as some claim, Gruber added, for there were in Germany Dec. 1, 1900, about 8.5 million women between 20 and 40, and 8.7 million men between 25 and 50, that is 0.2 million more men of the marriageable age than women. Woman is to be helped, he continued, not by the economic elevation of woman at the expense of man, but by the economic and social elevation of man himself. Gruber admits that for such girls as must refrain from marriage and for women who cannot marry as well as for widows, some provision must be made, but professions should be chosen which are not commonly occupied by men and which correspond to the chief employment of women, namely, motherhood, such as the care of lying-in women, infants, orphans, the sick and the poor. The profession should not close to woman the road to marriage but it should, as far as possible, furnish capability and knowledge which will be of value in the married state. The chief function of the training of girls should still be to make the girls fit for mothers of families and to that belongs, above all, the preservation and improvement of their health. This will be secured by protecting the woman's strength, especially in the years of development, by simple nutritious food, by abstinence, by activity in the house and outdoor physical exercise without overexertion, by much sleep and not much intellectual work. That the leaders of the woman movement do not agree with von Gruber's views goes without saying. Already the president of the woman's club in which the lecture was delivered, Madame Heyl, a well deserving person in many respects and the publisher of a cook book which is very extensively used in Germany, has protested against Gruber's demands. In her opinion a thorough education of woman so as to secure later capability of action, intellectual clearness, strong character and thorough ability assures the better bringing up of the next generation. The existing social conditions require the cooperation of women. In addition to the occupation as mother, which takes only twenty years of the life of a woman, there remains still a long period for a self-supporting career which every girl should strive for. Similar protests from other women will not be lacking.

Ernst von Leyden

Professor von Leyden died October 5, at the age of 78. For many years his mental and physical strength has been diminishing and it was therefore for the good of the first medical

clinic which he conducted when he regretfully decided to resign. Still, with his physical elasticity he would have passed many years in the midst of medical Berlin had he not over two years ago suffered an accident which proved the beginning of a somewhat rapidly progressing illness. The great importance of Leyden as an investigator and teacher is so well known that a few lines will suffice here to show the general character of his achievements. He wrote a pioneer work on diseases of the spinal cord. In various departments of internal medicine he has done very valuable work, especially on diseases of the kidneys and still more particularly, on nephritis in pregnancy. He proved that endocarditis could be produced by the gonococcus, found Charcot's crystals in asthma, wrote an illuminating work on pyopneumothorax, etc. His efforts for the establishment of tuberculosis sanatoriums, which he may be said to have inaugurated in Germany and Austria, are well known. In this his most striking characteristics appear in their best light. He had an indefatigable capacity for work, an inexhaustible fertility in ideas, a remarkable talent for organization, and great shrewdness and energy in overcoming the difficulties which stood in his way; and he was filled with an unconquerable optimism which gave him firm faith in the realization of his plans and the greatest perseverance in pursuing his fixed purpose. To reach his goal he tried all means, for to him success justified everything. He was an opportunist in both a good and a bad sense. This peculiarity appeared even in his scientific work. It was not simply accident that at his clinic alleged discoveries were made, not only by his pupils but by himself, which soon were found to be erroneous; indeed, it must be admitted that the readiness of some of his pupils to fly off at a tangent was merely the natural result of his opportunism. The confident announcement by his assistant Scheurlen of the discovery of the cancer bacillus, which was soon identified as a potato bacillus, will be recalled; and of late years the investigations of P. Jakob on the cure of tuberculosis ended in the complete discrediting of this assistant. The alleged discovery of a cancer parasite by Leyden himself may be attributed to the advanced age at which he undertook the investigation; but the tenacity with which he held to his view in spite of all adverse criticism is characteristic of his optimism. Leyden, on account of his brilliant personal qualities, played a great rôle from the beginning, not only in the medical affairs of Berlin, but also in those of Germany and in the general society of Berlin. The recognition which was accorded him gave him great pleasure; this peculiarity indeed amounted sometimes to weakness. Nevertheless he knew how to win over, by his lovable disposition and shrewdness, those who disapproved of his fondness for distinction, which amounted sometimes to childishness. So up to the time of his resignation he enjoyed an undisputed leadership in many societies, particularly in those founded by himself, like the Verein für innere Medizin and the Kongress für innere Medizin. Wherever he appeared he always was the central point of interest and as such was able to unite about himself opposing interests. Leyden's striking personality will live not only in the history of medicine but in that of many organizations.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Oct. 6, 1910.

Death of Professor Chrobak

One of the best-known gynecologic surgeons of Vienna, or in fact of Europe, Rudolph Chrobak, has died recently, after a prolonged illness, and his death will be a grief to many eminent surgeons all over the world. He was born in 1870, became a physician in 1887, and succeeded Breisky in 1889. Chrobak took up the study of diseases of women at a time when there was no place to learn it, and therefore he regarded it as most important, in building smaller hospitals, to provide special beds for gynecologic purposes, claiming them from the "all-round surgeons" for the gynecologist proper. He became the director of the first gynecologic and obstetric clinic in Vienna, but resigned his post two years ago. His best known pupils were Rosthorn (his immediate successor) and Wertheim (the second successor), of cancer fame.

Chrobak had also a prominent part in the organization of the curriculum of medical students, where he emphasized the necessity of adequate instruction in diseases of women, as well as the thorough teaching of midwives. One of his tasks was the work connected with the new clinics for gynecology, which he supervised very earnestly. He knew he would not

be master there himself, but he did the work for his successor and favorite pupil.

Chrobak was well known as the originator of the method of hysterectomy named after him. His sympathy for his patients was best illustrated by his motto, "primum non nocere." This he had inscribed in all his wards and operating theaters, and it was really one of his proudest boasts that all patients knew, when they came to his service, that they could rely on getting the best of all possible help. He was recognized by the British as one of the ablest surgeons of his time.

Chrobak's books deal mostly with the histology and pathology of gynecologic conditions, while the immense amount of obstetric work done in his clinic (6,000 cases per year) gave him an enormous experience on that subject too, so that his private practice was extraordinarily successful. He was an able teacher, beloved as an examiner and an excellent consultant.

The Work of the Rettungsgesellschaft in 1910

The "first-aid" corps of Vienna, a private institution for all cases requiring instant help, has just published its report for the last month. It had 2,977 casualties attended by its officers, of which 1,039 had to be brought to hospital. The nature of the work is evident by the following figures: 850 sudden attacks of illness, 1,096 injuries and accidents, 69 suicides, attempted and successful, 9 cases of acute mania, 28 persons found dead. Since the existence of the institution, 241,996 cases were attended to (29 years). The institution is a private one, being supported by voluntary contributions and gifts, but the funds are already large enough to give it a material independence. This was evinced some time ago, when a yearly subvention was offered by the municipality, on the condition that the administrative board would admit members of the town council. Political reasons were clear in that offer; the Rettungsgesellschaft promptly declined the grant, saying that "charitable institutions cannot bear to be meddled with by politicians." This act has greatly increased the sympathies of the population for the institution.

The Eighth International Congress of Physiologists in Vienna

September 27-30, there was held in Vienna the eighth International Congress on Physiology, which was frequented by scientists from all parts of the world. The proceedings were very interesting, many papers being read in German, English, French and Italian. As usual social festivities, banquets and receptions interfered somewhat with earnest work. It was much remarked that so many men are working on the electrocardiogram, showing that this modern method of examination is still full of puzzles and problems. Electricity played altogether a great rôle in the proceedings. Thus electric thermopenetration in the treatment of rheumatoid disease was discussed by Docent Ulman. The phenomena of electric discharges of the fish known as the *Torpedo marmorata* were made the subject of a paper by Professors Kreidl of Vienna and Kinoshito of Japan. The electric organ of the fish is exhausted in 30 minutes by involuntary discharges, if the animal is placed in common river-water or well-water. The process is interrupted at once by cocaine or chloral hydrate, while, if the fish gets a dose of strychnin, the organ is discharged rapidly also in sea-water, the usual habitat. The electric condition within the cells and the electric irritability of the various organs of the human and other bodies were also discussed. An important part of the proceedings was taken up by the papers dealing with glycosuria. Bornittau of Berlin, Reich of Vienna and many other scientists gave the result of their experiments with the pancreas and heart muscles of the mammalia. Anaphylaxis was the subject of papers by Kraus, Biedl, Paltani, while Professor Starling of London also contributed a valuable paper in that section. The papers on chemistry of colloids (Bayliss), of imbibition (Hoffmann), of peristalsis (Pal), were very interesting. Trendelenburg reported his experiments on temporary exclusion of parts of the brain or other sections of the nervous system by lowering its temperature to nearly freezing point. Dr. Dubois of Paris discussed the problem of sleep. He asserts that the anterior brain does not possess the function with which it is credited in this respect. A demonstration of artificially made rats by Steinach of Prague was much commented on. Steinach had removed the sexual organs from young female rats and had implanted testicles of rats into their anterior abdominal walls, thus changing the sex of the animals permanently. The rats grew to become normal masculine individuals, proving the effect and influence of the inner secretion of the sexual glands. Naturally the ultramicroscope of Siedentopf, in combination with kinetographic plans of living bacteria,

was much discussed. Physiologic blood conditions of birds were examined by Stübel of Jena, who has found that the pulse-rate and blood-pressure of birds are much higher than in mammals of the same weight. Metabolism in high altitudes was shown by Wendt of Helsingfors, who concludes that, medium heights favor the increase of hemoglobin and erythrocytes; higher levels, however, also cause an increase of muscles. The plankton cells of the ocean, which form the food of the vast majority of the inhabitants of the seas, were examined by Hensen, who asserts that the laws of Darwin do not hold good for these simple organisms. The opening and the closing address, by Riebet of Paris and Ebner of Vienna, were, as is the rule now, of a general nature, except that Ebner took the opportunity to celebrate the centenary of the birth of Schwann, the discoverer of the cellular nature of the higher organisms.

The next congress will take place in two years in Groningen, Holland. Many members of the congress were present at the unveiling of a monument in honor of Gregor Mendel, the priest who discovered the laws of heredity named after him, in Brunn, a city three hours from Vienna, where he was born and died. The occasion was celebrated by the municipality, and numerous official representatives of various countries and corporations took part in the proceedings.

Professional Services to Medical Men

The question of fees among professional brethren has been discussed recently by several medical councils in this country. The Moravian Medical Council, representing about 1,500 practitioners in the northern districts of Austria, has passed a resolution that it shall not be considered unethical for a practitioner to accept a fee for medical services to the family of a brother practitioner, or even to the doctor himself. The doctor is, of course, free to grant his confrère patient a reduction of 50 to 75 per cent. of the ordinary fee. The grounds for the resolution are that very often the physician and his family are worse off in case of illness than any other patient, for since the physician sent for will not accept a fee, the patient does not want to accept an unnecessary favor. Therefore cases of disease in a practitioner's family often lack the adequate and early attention which they would have received had an outside physician been called in. On the other hand, it is only just that the services of specialists, called or consulted by physicians with whom they have no other connection, should be paid for. Physicians who are on friendly terms with each other may, however, recognize services rendered by useful presents. A suggestion by another medical council, that the fee paid by one medical man to another should be devoted to a fund, a providential or other charitable institution, does not meet the requirement that the work should receive its own reward. It has been observed that, while the older generation of doctors was against the acceptance of such fees by a physician, the younger generation favors it. It is intended to settle the question by obtaining the opinion of the profession on the point within a short time.

A Convention of Deaf-Mutes

A convention of deaf-mutes was recently held in this city under the auspices of the ministry of education. As the chief points of the discussion centered around economic and social complaints, medical interest in the proceedings was limited to the fact that deaf-mutes could successfully adopt this method of communication. The proceedings were remarkable for the absence of voice, as nearly all speakers used a combination of the French (finger) method with the German (oral) method. It must be remembered that the oral method has been in use here only for about fifteen years, and that the persons educated after this method are perhaps not yet grown up enough to take part in a congress. At any rate about 300 deaf-mutes, representing all sorts and conditions of men—business men, engineers, clerks, laborers, painters and house-keepers—had gathered, proving that although severely hampered in their progress, they still could become useful members of the community. An attempt was made to obtain reliable data in regard to the cause and duration of the condition among those present, but the exact results are not yet obtainable. One outcome of the convention was the adoption of a resolution that, if possible, both methods of conversation should be taught with due preference to the oral method. An aerobic entertainment, at which all performances were given by deaf-mutes, was also interesting, as it proved that in spite of severe pathologic changes in the cochlea (most likely also in the vestibulum) equilibrium need not be interfered with.

Marrriages

MARCUS E. WILSON, M.D., to Miss Agnes Schneider, both of Cincinnati, October 11.

ALFRED KARSTED, M.D., to Miss Annie O'Donnell, both of Butte, Mont., October 7.

GARLAND DIX SCOTT, M.D., Chicago, to Miss Hester Crowder of Sullivan, Ind., September 13.

PIERRE NORBERT BERGERON, M.D., to Miss Margaret O'Brien, both of Philadelphia, October 18.

PAUL F. COLE, M.D., Steffenville, Mo., to Miss Nora M. Yancey of LaBelle, Mo., October 12.

GREGORY JOSEPH EGAN, M.D., to Miss Freda Kathryn Michel, both of LaCrosse, Wis., October 12.

JOHN RUTHERFORD HERRICK, M.D., New York City, to Mrs. Constance Braine French, October 12.

JOHN BEVERLY POLLARD, M.D., U. S. Navy, to Miss Alice May Albaugh, at Baltimore, October 14.

HUGH A. BEAM, M.D., Afton, Iowa, to Miss Mayme Jones of Rolfe, Iowa, at Des Moines, October 10.

JAMES F. CHURCHILL, M.D., Chicago, to Miss Virginia Busey of Urbana, Ill., at Champaign, October 8.

BEDFORD F. COOP, M.D., Greenville, Ill., to Miss Ethel Reed of Highland, Ill., at East St. Louis, October 4.

SAMUEL WILLIAM HAMMOND, M.D., Norfolk, Va., to Mrs. Elizabeth M. Crockett, at Baltimore, October 10.

RUSSELL ANDREW ROBERTS, M.D., and ANNA KREMER MASTERSON, M.D., both of Kansas City, Kan., October 5.

LEE COLLINS HARLAN, M.D., Madison, Ill., to Miss Margaret Groves of Bunker Hill, Ill., in St. Louis, October 12.

CHARLES AUGUSTUS KATHERMAN, M.D., Sioux City, Iowa, to Miss Helen Louise MacKern of Chicago, October 12.

BRICKERTON L. PHILLIPS, M.D., Frederick's Hall, Va., to Miss Vera Mildred Harris of Louisa county, Va., October 13.

BENJAMIN H. B. HUBBARD, M.D., White Stone, Va., to Miss Lloyd Estelle Betts Smith, at Heathsville, Va., October 11.

CHARLES O. BAKER, M.D., Fort Madison, Iowa, to Mrs. Henrietta Emick of Cedar Rapids, Iowa, at St. Joseph, Mich., October 5.

Deaths

Carl Svantè Nicanor Hallberg, one of the leaders of American pharmacy, pharmaceutical publicist, editor, and teacher, died at his home in Chicago, October 22, after a long illness, aged 54.

Professor Hallberg was born in Helsingborg, Sweden, and graduated from the Philadelphia College of Pharmacy in 1876; he was a member of the Committee on the Revision of the National Formulary in 1886, 1895, and 1906; and a member of the National Committee on the revision of the United States Pharmacopoeia from 1890 to 1910. He was professor of pharmacy in the Chicago College of Pharmacy from 1890 to 1910, and professor of pharmacology in the Illinois Medical College from 1894 to 1896. From 1883 to 1903, he was editor of the *Western Druggist*, and since 1906 has been editor of the *Bulletin of the American Pharmaceutical Association*. He was given the degree of M.D. *honoris causa* by Harvey Medical College, Chicago, in 1903, and that of doctor of pharmacy by the Medical-Chirurgical College of Philadelphia in 1909. He was a member of the American Medical Association and secretary of the Section on Pharmacology and Therapeutics from 1901 to 1909. In great measure to Professor Hallberg's exertions was due the founding of the Council on Pharmacy and Chemistry, of which he was a member from the time of its organization in 1905, and its secretary for one year thereafter.

Charles H. Fisher, M.D., University of Nashville, Tenn., 1864; a member of the Medical Society of the State of Pennsylvania, and a charter and honorary member of the Lackawanna County Medical Society; a medical cadet, acting assistant surgeon, U. S. Army, and surgeon Ninety-Sixth Regiment, United States colored troops, during the Civil War; one of the founders of the Lackawanna Hospital, Scranton, and first surgeon to the institution; a member of the staff of the West Side Hospital, Scranton; died at his home in that city, October 17, from heart disease, aged 73.

Levi Ives Shoemaker, M.D., University of Pennsylvania, Philadelphia, 1886; a member of the American Medical Association,

and American Academy of Medicine; a member of the attending staff of the Wilkes-Barre Hospital, and the consulting staff of Mercy Hospital, Wilkes-Barre; physician to the home for Friendless Children and the Humane Society; local surgeon for the Pennsylvania Railroad and Central Railroad of New Jersey; died in Germany, Sept. 27, 1909, from heart disease, aged 50.

Paul Louis Brick, M.D., College of Physicians and Surgeons, Chicago, 1890; for thirty-five years a practitioner of LeMars, Iowa; a member of the American Medical Association; local surgeon for the Illinois Central Railroad; president of the local board of pension examining surgeons; a member of the State Commission on Insanity; died in St. Joseph's Hospital, Sioux City, October 14, from heart disease, aged 64.

Joseph Lucius Gray, M.D., Northwestern University Medical School, Chicago, 1885; a member of the American Medical Association; formerly of Chicago, and assistant physician of Cook County; for several years health officer of LaPorte, Ind., and coroner and physician of LaPorte County; died in the Holy Family Hospital, LaPorte, October 21, from meningitis following otitis media, aged 50.

William Duffield Bell, M.D., Bellevue Hospital Medical College, New York City, 1888; major and surgeon of the Seventy-First New York Infantry, U. S. V., during the Spanish-American War with service in Cuba; died in the J. Hood Wright Memorial Hospital, New York City, September 28, from acute gastritis, aged 47.

Herbert O. Smith, M.D., Hahnemann Medical College, Chicago, 1881; formerly a member of the American Medical Association; United States pension examiner at Shakopee, Minn.; for several years health officer and a member of the board of education; died at his home, October 4, from cerebral hemorrhage, aged 52.

Frank W. Simmons (license, Texas, years of practice, 1907); for more than 40 years a practitioner of Hackberry, Texas; a charter member of Karnes County Medical Society; for one term a representative to the legislature, and mayor of Yoakum; died recently at the home of his daughter, near Runge, aged 80.

Richard B. Potter, M.D., Medical College of Ohio, Cincinnati, 1866; a member of the American Medical Association; local surgeon at West Palm Beach, Fla., for the East Coast Railway; sanitary inspector of the port of Palm Beach, and local agent of the State Board of Health; died in July, 1909, aged 65.

John Alexander Farnsworth, M.D., University of Colorado, Boulder, 1897; a member of the American Medical Association; at one time president of the Colorado State Medical Society, and twice mayor of Littleton; died at his home in Fort Morgan, October 12, from organic heart disease, aged 40.

John L. Neagle, a surgeon in the Confederate service during the Civil War; comptroller of South Carolina from 1868 to 1872, and thereafter for several years an employee of the Pension Bureau, Washington, D. C.; died at his home in Seattle, Wash., October 19, 1909, from heart disease, aged 72.

David R. Greenlee, M.D., University of Pennsylvania, Philadelphia, 1867; a veteran of the Civil War; for several years surgeon at the Minnesota Soldiers' Home, Minneapolis, and a member of the local pension examining board; died suddenly in that city, October 10, from heart disease, aged 78.

Homer Alvin Smith, M.D., New York University, New York City, 1877; of Bondsville, Mass.; hospital steward in the Navy during the Civil War; formerly a member of the school board of Palmer, Mass.; died at the home of his brother in Stafford Springs, Conn., October 10, from uremia, aged 65.

August Berg, M.D., University of Berlin, Germany; for many years a practitioner of St. Louis; died at the home of his daughter in Collinsville, Ill., September 18, from the effects of a gunshot wound of the head, believed to have been self-inflicted with suicidal intent, aged 74.

William Frederick Holthausen, M.D., College of Physicians and Surgeons, New York City, 1904; a member of the Medical Society of the State of New York; of Brooklyn; was instantly killed in a collision between interurban trains near Tipton, Ind., September 24, aged 29.

Benjamin Franklin Whiteside, M.D., University of Maryland, Baltimore, 1877; of Hickory, N. C.; a member of the American Medical Association; died in the Whitehead-Stokes Sanitarium, Salisbury, N. C., October 2, from septicemia due to a carbuncle of the neck, aged 58.

Louis Auerbach, M.D., University Medical College of Kansas City, Mo., 1882; a member of the Colorado State Medical

Society, and since 1878 a practitioner of Denver; died in St. Luke's Hospital in that city, October 14, two days after an operation for nephritis, aged 58.

George F. Wilson, M.D. University of Alabama, Mobile, 1889; formerly a member of the American Medical Association; a member of the Louisiana State Medical Society; of Bienville; died at the Shunpert Sanitarium, Shreveport, after a surgical operation, October 4.

Richard N. Beauchamp, M.D. New York University, New York City, 1850; a member of the Kentucky legislature in 1890 and 1891; first president of the Logan County Medical Association; died at his home near Russellville, October 10, from senile debility, aged 87.

Isaac Wood, M.D., Queen's University, Kingston, Ont., 1892; successively lecturer on chemistry, assistant professor of obstetrics and gynecology, and professor of pediatrics in his alma mater; died at his home in Kingston, September 1, from cerebral hemorrhage, aged 57.

Luis Abella y Ocampo, M.D. University of St. Tomas, Manila, P. I., 1892; an efficient member of the staff of the Bureau of Health of Manila since the establishment of the United States Government in the Philippine Islands in 1898; died July 12, from heart disease.

Leon Ray Pheasant, M.D. State University of Iowa, Iowa City, 1902; a member of the American Medical Association; was instantly killed in an automobile accident, while making a professional call six miles from his home in Pierce, Neb., October 4, aged 31.

Samuel William Fletcher, M.D. Harvard Medical School, 1858; a member of the Massachusetts Medical Society; surgeon of the Thirty-second Massachusetts Volunteer Infantry throughout the Civil War; died at his home in Pepperell, April 13, aged 77.

Edna D. Timms, M.D. University of Oregon, Portland, 1899; a member of the American Medical Association; of Portland, Ore.; aged 41; while making an emergency call, October 14, was instantly killed in a collision between her automobile and a street car.

Howard Warden Taylor, M.D. Hahnemann Medical College, Philadelphia, 1899; of Pittsburgh; anesthetist to the Homeopathic Hospital; died in that institution October 12, from gunshot wounds, self-inflicted, it is believed with suicidal intent, aged 38.

William H. Riley, M.D. Tulane University, New Orleans, 1861; surgeon in the Confederate service during the Civil War; a member of the first board of fire commissioners, of Algiers, New Orleans; died at his home in that place September 30, aged 72.

Andrew Strang, M.D. College of Physicians and Surgeons, Baltimore, 1880; formerly of Wilkes-Barre and Scranton, Pa.; died in Largs, Scotland, September 10, from epithelioma of the tongue for which operation had been performed a year before, aged 64.

George Edward Miller, M.D. College of Physicians and Surgeons, Chicago, 1905; a member of the American Medical Association; health officer of Sanborn, Iowa; was instantly killed, October 17, in an automobile collision near Struble, aged 37.

George Howard Jones, M.D. Harvard Medical School, 1864; of Brookline, Mass.; assistant surgeon of the Fifth Massachusetts Volunteer Infantry during the Civil War; died in Harrison, Maine, September 15, from valvular heart disease, aged 67.

James H. Donovan, M.D. Louisville Medical College, 1891; a member of the Kansas Medical Society; United States pension examiner at Medicine Lodge; died in Lakeside Hospital, Chicago, August 29, after a surgical operation, aged 46.

Henrik S. Schanche, M.D. University of Christiania, Norway, 1903; a member of the North Dakota State Medical Association; formerly of Park River, N. D.; died at his home in Minot, N. D., June 1, from spinal meningitis, aged 34.

Elera John Abbott, M.D. Chicago Homeopathic Medical College, 1887; of Chicago; a specialist on diseases of the eye, ear, nose and throat; died in Hahnemann Hospital, October 16, from peritonitis, following a surgical operation, aged 51.

Clarence Morfit, formerly a practitioner of Baltimore; an officer in the Confederate service during the Civil War; and later an employee of the Philadelphia mint; died at his home in New York City, May 22, from senile debility, aged 82.

Cyrus Barklay White, M.D. Eclectic Medical Institute, Cincinnati, 1878; a member of the Medical Association of Geor-

gia; a director of the First National Bank of Fitzgerald; died at his home in Fitzgerald, September 29, aged 71.

Chauncey Ely Billington, M.D. Bellevue Hospital Medical College, 1875; for one term coroner of Onondaga county, N. Y.; and a well-known physician of Syracuse; died at his home, October 3, from typhoid fever, aged 62.

Clarence F. Tillman, M.D. College of Physicians and Surgeons, San Francisco, 1903; formerly of Goldfield, Nev., but recently of San Francisco; died at St. Luke's Hospital in that city, September 25, from appendicitis, aged 32.

Frederick J. Bauer, M.D. University of Wooster, Cleveland, Ohio, 1880; of Mogadore; a member of the Ohio State Medical Association; died suddenly, October 5, at the home of a neighbor, from arteriosclerosis, aged 56.

Mary Augusta Stackercoll, M.D. Sioux City (Iowa) College of Medicine, 1905; a member of the Iowa State Medical Society; died at her home in Sioux City, from acute nephritis, and was buried September 23, aged 42.

Orris Kingsbury Griffith, M.D. Eclectic Medical Institute, Cincinnati, 1861; a pioneer practitioner of Huntley, Ill.; president of the village board, and school and township trustee; died at his home September 24, aged 74.

David A. Robertson, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1882; a pioneer practitioner of Williams, Iowa; a veteran of the Civil War; died at his home, September 29, from chronic cystitis, aged 70.

William E. King (examination, Texas, 1907); for twenty-five years a practitioner of Collin County, Texas; died at his home in Oak Cliff, Dallas, September 14, from septicemia, due to a carbuncle on the neck, aged 56.

John Puckett Wolfe, M.D. Ohio Medical University, Columbus, 1899; died at his home in Johnstown, Ohio, October 11, from the effects of cannabis indica, self-administered, it is believed, with suicidal intent, aged 36.

Charles Fletcher Bush, M.D. Vanderbilt University, Nashville, 1902; state inspector of cotton mills, jails and almshouses of Alabama; died at his home in Montgomery, September 24, from tuberculosis, aged 32.

John Turner Mullin, M.D. Victoria College, Coburg, Ont., 1857; for many years medical health officer, and councilor, and for one term mayor of Brampton, Ont.; died at his home in that place, August 14, aged 78.

Louis Plette Walley, M.D. Hahnemann Medical College, Philadelphia, 1883; a member of the Medical Society of the State of Pennsylvania; died at his home in Millintown, in April, from tuberculosis, aged 49.

Andrew E. Thompson, M.D. Michigan College of Medicine and Surgery, Detroit, 1905; a member of the Saginaw Valley Medical Society; died at his home in Elkton, Mich., October 9, from pneumonia, aged 31.

Joseph Fletcher, M.D. Washington University, St. Louis, 1867; formerly a member of the American Medical Association; died at his home near Mendon, Ill., September 26, from paralysis agitans, aged 76.

James Henry Heavrin, M.D. Kentucky School of Medicine, Louisville, 1885; chairman of the board of health of Hancock County, Ky.; died at his home in Hawesville, October 1, from chronic gastritis, aged 48.

George Marshall, M.D. Medical College of Ohio, Cincinnati, 1878; formerly a member of the American Medical Association; died at his home in Columbus, Ohio, September 14, from paralysis, aged 64.

Peter L. Opsvig, M.D. University of California, San Francisco, 1900; of Everett, Wash.; a member of the American Medical Association; died in San Diego, Cal., March 11, from tuberculosis, aged 42.

Henry Levi Bevans, M.D. Washington University, Baltimore, 1869; a member of Garrett County Medical Society; died at his home in Grantsville, Md., September 27, from paralysis, aged 66.

George Steurnagel, M.D. Michigan College of Medicine, Detroit, 1883; formerly a member of the American Medical Association; died at his home in Chicago, October 9, from paresis, aged 57.

Harlan Page Reynolds, M.D. New York University, New York City, 1869; a member of the Canadian Medical Association; was burned to death at his home in Lepreux, N. B., October 8, aged 70.

Frederick W. Smith, M.D. New York Homeopathic Medical College, New York City, 1877; of New London, Conn.; died

at the home of his sister in Niantic, Conn., September 24, aged 69.

Jesse Franklin Jones, M.D. University of Nashville, Tenn., 1874; a member of the Medical Association of Georgia; mayor of Hogsansville; died at his home, October 3, from pneumonia, aged 55.

James Anderson, M.D. Miami Medical College, Cincinnati, 1869; a member of the Indiana State Medical Association; died at his home in Versailles, June 11, from acute gastritis, aged 62.

Ellis A. Merkle, M.D. McGill University, Montreal, 1897; a member of the American Medical Association; died at his home in Gouverneur, N. Y., October 2, from anemia, aged 49.

Rufus Elisha Belding, M.D. Homeopathic Medical College of Pennsylvania, Philadelphia, 1866; formerly of Troy, N. Y.; died at his home in Keuka Park, N. Y., September 21, aged 69.

W. D. Snoddy, M.D. Physio-Medical College, Cincinnati, 1850; of Warrensburg, Mo.; died at the home of his son in that city, September 30, from angina pectoris, aged 88.

James B. Wolford, M.D. Kentucky School of Medicine, Louisville 1889; a member of the Kentucky State Medical Association; died at his home in Montpelier, June 23, aged 53.

William Henry Pollard, M.D. Washington University, St. Louis, 1856; a member of the Pike County Medical Society; died at his home in Eolia, Mo., September 14, aged 76.

William A. Empey, M.D. Queen's University, Kingston, 1891; of Vars, Ont.; was shot and killed by a patient, August 18, while making a professional call in that village.

Isaac J. Hawkes, for more than forty years a practitioner of Henrico County, Va.; died at his home in East Richmond, September 8, from pneumonia, aged 79.

John M. Evans, M.D. Tulane University, New Orleans, 1889; of Corpus Christi; a member of the State Medical Association of Texas; died in Denver, October 5, aged 34.

Allen Perry Poaps, M.D. McGill University, Montreal, 1879; formerly of San Francisco; was found dead near his office in Oakland, May 14, from apoplexy, aged 50.

Cornelius Henrichs (license, Neb.); for many years a practitioner of Henderson; died at his home in that place, August 3, from cerebral hemorrhage, aged 70.

Edward S. Coburn, M.D. New York Homeopathic Medical College, New York City, 1864; died at his home in Troy, N. Y., October 4, from diabetes, aged 69.

Benjamin Franklin Dismant, M.D. University of Pennsylvania, Philadelphia, 1867; died at his home in Limerick, Pa., October 10, from paralysis, aged 65.

Peter Schwind (license, Iowa, 1889); for 46 years a practitioner of medicine; died at his home in La Mars, October 2, from diabetic gangrene, aged 72.

Marcus F. Rodgers (license, Mississippi); a Confederate veteran; died at his home in New Albany, Dec. 17, 1909, from hemoglobinurie fever, aged 58.

Jacob T. Miles, M.D. Cincinnati College of Medicine and Surgery, 1874; died at his home in Bryant, Ind., July 23, 1909, from dropsy, aged 64.

Frank Ferrell, M.D. New Orleans School of Medicine, 1859; during the Civil War; died at his home in Ashland, Miss., September 13, aged 79.

John Albert Jones, M.D. Tulane University, New Orleans, 1873; of Springfield, Ill.; died recently from mental disease, at New Orleans, aged 62.

D. Thomas Robertson, M.D. McGill University, Montreal, 1857; died at his home in Lennoxville, P. Q., September 7, from uremia, aged 74.

William W. Sanders, M.D. University of Maryland, Baltimore, 1861; died at his home in La Plata, Md., October 6, from cancer, aged 74.

John Hewetson, M.D. McGill University, Montreal, 1891; of Riverside, Cal.; died in Victoria, B. C., September 26, from tuberculosis, aged 43.

Frederick Emerson Chandler, M.D. Tufts College Medical School, Boston, 1896; died at his home in Everett, Mass., June 23, aged 51.

Andrew Jackson O'Bannon, M.D. Eclectic Medical Institute, Cincinnati, 1876; died recently at his home in Elizaville, Ky., aged 69.

Carlos C. Sherman, M.D. Hahnemann Medical College, Chicago, 1884; died at his home in Colton, Cal., October 7, aged 64.

Samuel K. Poling, M.D. Eclectic Medical Institute, Cincinnati, 1876; died at his home in Bryant, Ind., July 12, 1909, aged 68.

Alfred J. Lopez, M.D. Howard University, Washington, D. C., 1894; of New Orleans; died in that city, January 11.

Philip B. Rooks, M.D. Nashville; died at his home in Troup, Texas, Dec. 21, 1909, from typhoid fever, aged 78.

Correspondence

List of Drugs for State Board Examinations

To the Editor:—We have noted with interest and pleasure the publication (*THE JOURNAL*, Oct. 8, 1910, p. 1302) of the list of drugs recommended for state board examinations. While we consider this list a good one, and hope to see it adopted by the various state boards, we wish to submit to you a list that might be interesting for various reasons. In the first place, it is of interest because of priority both in its conception and in its adoption. It was devised by the Committee on Pharmacology of the Chicago Medical Society in the winter of 1908, and has since been adopted by the Illinois State Board of Health to serve as a guide in the elaboration of its examination questions in materia medica and therapeutics. Secondly, it is of interest because of the similarity of the two lists, compiled originally by two entirely different bodies. These lists have later been compared and certain minor changes have been made in both in consequence. Thirdly, the therapeutic classification shows the reason for the choice of the agents included in the list, the aim having been to choose at least one typical member of each therapeutic group. Certain useful agents, such as syrup and glycerin, have been omitted because a fair knowledge of their nature is common to all intelligent persons, and because they are not likely to form subjects of examination questions.

We believe that the publication of this list not only will not antagonize the success of the list previously published, but will actually reinforce it by showing how generally has been felt the need for it, and that at least one state board of health has seen fit to adopt such a list.

The list of drugs as presented to the Council of the Chicago Medical Society is given below.

WALTER S. HAINES
BERNARD FANTUS, Chicago.

LIST OF DRUGS

Circulatory Stimulant: Digitalis.
Preparations: Infusion, tincture, extract.
Circulatory Depressants: Aconite.
Preparations: Tincture, aconitin.
Cerebral Stimulant: Caffein.
Cerebral Depressant: Alcohol.
Cord Stimulant: Nuxvombea.
Preparations: Tincture, extract, strychnin sulphate.
Cord Depressant: Bromids of potassium and sodium, and dilute hydrobromic acid.
Vasoconstrictor: Epinephrin.
Vasodilators: Amyl nitrite and nitroglycerin.
Alteratives: Mercury.
Preparations: Gray powder, blue mass, ointment, both chlorids, both iodids, yellow oxid, white precipitate.
Iodin.
Preparations: Tincture, comp. solution, potassium iodid, dilute hydriodic acid, iodoform.
Arsenic.
Preparations: All the official preparations.
Antiperiodic: Cinchona.
Preparations: Comp. tincture, quinin sulphate and hydrochlorid.
Anesthetic (general): Ether.
Anesthetic (local): Cocain hydrochlorid.
Antispasmodic: Camphor.
Preparations: Spirit, liniment.
Narcotic: Opium.
Preparations: Powdered, extract, Dover's powder, tincture, paregoric, morphin sulphate, codein sulphate, apomorphin hydrochlorid.
Hypnotic: Chloral.
Analgesic: Acetphenetidin.
Oxytoic: Ergot.
Preparations: Fluidextract and extract.
Anthelmintic: Aspidium, sautonin, thymol.
Germicide: Phenol.
Emetic: Ipecac.
Preparations: Syrup, fluidextract.
Laxative: Rhamnus purshiana.
Preparations: Extract, fluidextract, aromatic fluidextract.

Simple Purgative: Aloes.
Preparations: Aloin, purified aloes.
Drastic Cathartic: Croton oil.
Hydragogue Cathartic: Magnesium sulphate.
Cholagogue: Resin of podophyllum.
Expectorant: Ammonium chlorid.
Diuretic: Potassium acetate.
Diaphoretic: Pilocarpin hydrochlorid.
Mydriatic: Belladonna.
Preparations: Extract, fluidextract, tincture, atropin sulphate.
Miotic: Physostigmin sulphate.
Astringents, Mineral: Zinc sulphate and oxid.
Astringent, Vegetable: Tannic acid.
Rufefacient: Turpentine.
Vesicant: Cantharides.
Escharotic: Silver nitrate.
Hematinic: Iron.
Preparations: Reduced, mass and pill of carbonate, tincture of the chlorid, Basham's mixture, pyrophosphate, syrup of iodid, ferric hydroxid with magnesia.
Antirheumatic: Salicylic acid, sodium salicylate, phenol salicylate (salol), oil of wintergreen, salicin.
Antiseptic, Urinary: Hexamethylenamin.
Antiseptic, Intestinal: Bismuth subnitrate and subcarbonate.
Antiparasitic: Sulphur.
Disinfectant: Formaldehyd.
Antacid: Sodium bicarbonate.
Acid: Hydrochloric acid.
Miscellaneous: Colchicum.
Preparations: Fluidextract, extract, colchicin.
Diphtheria antitoxin.
Vaccine virus.
Thyroid.
Of toxicologic importance: Hydrocyanic acid, phosphorus, lead, carbon monoxid.

WALTER S. HAINES, Chairman,
BERNARD FANTUS,
C. S. N. HALLBERG,
GEORGE F. BUTLER,
JUNIUS C. HOAG.

Committee on Pharmacology of the Chicago Medical Society.

Iodids in Goiter

To the Editor:—I read with some interest your answer to the question of the correspondent regarding "Simple Goiter and Its Treatment," published in THE JOURNAL, October 8, p. 1306.

I was somewhat surprised that your answer contained a recommendation for the use of iodids in the treatment of simple goiter. Many years ago, I followed out this treatment to some extent without seeing any benefit from it, but I have seen several cases, in both my own and outside practice, in which I believe the iodids converted the simple goiter into exophthalmic goiter. One of these cases, which I saw two years ago, gave such positive evidence of this, that the attending physician who had administered iodids to the patient was convinced of this influence. Strange as it may seem, in the same issue of THE JOURNAL, p. 1329, in an abstract from the *Archiv für klinische Chirurgie*, Kocher is reported as believing that extensive iodid treatment is responsible for the development of exophthalmic goiter in more cases than is generally recognized, stating that this iodin-Basedow, as he calls it, is a frequent form of exophthalmic goiter. He describes a case in which the thyroid was over 160 grams in weight and contained a small part of a gram of iodid. The patient had a simple goiter for nearly seven years and applied local innunction of a mixture containing iodid. In four weeks she lost 16 pounds; then typical exophthalmic syndromes developed.

For the past eight or ten years I have refrained from the use of iodid or thyroid extract in all cases of simple goiter, fearing the influence toward the more serious disease. Under the use of many different kinds of treatment other than iodid in simple goiter I have known of favorable results, but only a few, and also without any treatment at all. The gland will sometimes decrease in size, and again increase independently of any treatment.

W. O. BRIDGES, M.D., Omaha.

[COMMENT: Our correspondent's caution as to the use of the iodids, even in undoubted simple goiter, is pertinent and valuable. It should be carefully determined whether a condition of hypothyroidism or hyperthyroidism exists before iodids or thyroid are administered. But a reading of the question and answer referred to above will show that we did

not "recommend" iodids, our statement being: "It seems to be the opinion of many authors that iodids are the best agents for the condition," etc. We simply attempted to give an enumeration of different approved agents and methods used, without recommending any. We fear our correspondent did not carefully read the article by Kocher to which he refers, as it is said therein that all goiters should be removed which do not yield in a few weeks to careful treatment with iodid in small doses. It will thus be seen that Kocher himself suggests the use of iodids. It is no doubt true, however, that the continued use of the iodids in considerable dosage in any form of goiter would not be advisable, as seems to be proved by the experience of Dr. Bridges and others.—Ed.]

Embryologic Specimens Desired

To the Editor:—I wish again to request through THE JOURNAL that physicians send me embryologic specimens which are constantly falling into their hands. The collection of such specimens at the Johns Hopkins is now one of the best in existence, has been studied carefully by the staff, and is being used constantly by anatomists at home and abroad. About 100 published studies on human embryology are based on this collection, including the "Manual of Human Embryology," in two volumes, published recently by the J. B. Lippincott Co.

Much more material than is now at hand is needed by investigators to further the science of human embryology, as well as to study with greater care the diseases of the ovum and the cause of abortion. To be of most value, the material should be preserved immediately after the abortion in a 10 per cent. dilution of liquor formaldehydi, or by more refined methods, if they are at hand. Small specimens should not be dissected, but preserved entire in formaldehyd solution. Of very great value are good histories of the cases, for through them we may discover the cause of abortions, and ultimately their cure. Studies of this kind enable embryologists to be of use to physicians in active practice. Specimens should be packed in bottles filled *completely* with the preserving fluid, and not wrapped in cotton. If there are no air spaces in the bottle, no amount of shaking will injure the most delicate embryo. Small specimens may be sent by mail, while larger ones should be sent by express, charges collect, addressed to me.

F. P. MALL, Johns Hopkins Medical School, Baltimore.

The Scientific Name of the Spotted-Fever Tick

To the Editor:—In many of the publications on the spotted or Rocky Mountain fever, the tick is referred to as *Dermacentor occidentalis*. This, I believe, is due to an identification of Dr. Stiles, following Neumann, who included it under that species. It is not *Dermacentor occidentalis*. Dr. Stiles, in a paper on this disease in 1905, mentions in two places the name *Dermacentor andersoni*; he furnishes no figure and not a word of description, so that the name cannot, according to the rules of zoologic nomenclature, hold from that date. On June 6, 1908, a revision of the classification of the ticks of the United States was published by me in a bulletin of the Department of Agriculture. In this I described the spotted fever tick as *Dermacentor venustus* n. sp. On July 3, 1908, Dr. Stiles, in a report of the Public Health and Marine-Hospital Service, gave some notes on this species, using the name *D. andersoni*, and mentioning some points in which it differed from other ticks.

According to the rules of zoologic nomenclature, the first name given (provided it is described or figured) is the proper name to use for an animal. The name *Dermacentor venustus*, Banks, antedates the name *D. andersoni* by a month. Dr. Stiles, in a recent bulletin (No. 62) of the Public Health and Marine-Hospital Service, has tried to resurrect his name *D. andersoni* by giving to the first (1905) mention of the name the value of a published description, contrary to the custom of the zoologists. Moreover, he has misapplied my species, *D. venustus*, which was a manuscript name of the late Dr. George Marx, by attaching it to a form that I did not study, although

the type of my *D. venustus* was easily accessible to him (or to anyone) at any time had he chosen to see it.

The recent article of Dr. Stiles will doubtless be seen by many medical men; therefore, I deem it best to call attention in a medical journal to this gross violation of the rules of nomenclature through which he calls the spotted-fever tick *D. andersoni*. The scientific name of this tick is *Dermacentor venustus*, Banks; *D. andersoni*, Stiles, is a pure synonym of it.

NATHAN BANKS.

Washington, D. C.

Interstate Reciprocity in Licensing Physicians

To the Editor:—The letter by Dr. Dunlop in THE JOURNAL, October 15, p. 1397, is of interest to every old practitioner. The ideals for which state boards were created were made by the physicians themselves, but it seems that the moment people create an ideal and secure a law to fulfil that ideal, some state board official will invariably try to interpret it as if he were the law itself. Recent experience with one state board seems to indicate that it is trying to make it just as hard as it can for the older practitioner and just as easy as it can for the new graduate. Reasonable educational standards and ten years of reputable practice ought to entitle any one to receive a reciprocal license in any state.

DANIEL S. HAGER, M.D., Chicago.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

LIABILITY FOR ATTENDANCE ON A RELATIVE

To the Editor:—Some time ago I was called by the patient's sister to a case of typhoid fever. The patient, who was delirious and in no condition to judge for himself, had been brought by his sister to her home. The course of the disease was severe, with relapse; the patient was delirious for several weeks, and this sister suggested that I should call in counsel from a neighboring town, which I did. Can this other doctor and I hold the sister legally liable for the bills for attendance on the patient, medicine, etc.? The patient's father paid the nurse's bill.

S. P.

ANSWER:—It is generally understood that to call a physician for one who needs attendance merely evinces a desire to prevent suffering, and does not necessarily imply liability to pay, unless the relationship is such that this liability naturally follows. For example (we quote from 22 American and English Encyclopedia of Law, 790): "To entitle a physician to maintain an action against a person to recover for professional services rendered a third person, he must show a promise by the defendant, either expressed or implied, to pay therefor When a person requests a physician to perform services for a patient, the law does not raise an implied promise to pay the reasonable value of the services so rendered, unless the relation of the person making the request to the patient is such as raises the legal obligation on his part to call in a physician and pay for his services. Whether or not the implied liability is created must depend largely on the circumstances of the particular case."

The courts have gone even further than this in denying the liability; for example, in the case of *Holmes vs. McKim* (syllabus), 109 Iowa 245, we read: "One is not under any implied obligation to pay for the services of a physician called to attend a minor living with his family and supported by him, but not otherwise related to him, though he acquiesced in the attendance and had on a former occasion paid the same doctor for attending the same minor, the physician knowing, however, the true relation of defendant and said child."

TYPHOID AND THE WATER SUPPLY OF MONTREAL

To the Editor:—1. What is the source of the drinking water supply of Montreal?

2. To what is the typhoid in that city attributed?

3. What is being done to better conditions there and with what success?

T. W. CURRY, Streaton, Ill.

ANSWER.—1. The water supply of Montreal is derived from the St. Lawrence River and receives practically no storage before it goes to the consumer.

2. During the fall and winter of 1909-1910 an unusually severe outbreak of typhoid fever was attributed to the water supply by an investigating committee composed of Drs. Adami, Armstrong, Ruttan, Strakey, Bernier, Guerin, Hervieux and Lachapelle, representing the medical faculties of McGill and Laval universities. The committee found overwhelming evidence that "the chief cause of the disease is the water supply of the city and its suburbs." The report also contains the following statements: "The exhaustive investigations into the conditions of the water supply of the city indicate that while the water may give favorable analyses for some months of the year, none of them is at all times safe. At certain times of the year the waters are actually bad and capable of giving rise to water-borne diseases. We do not consider that any further analyses or examination of the waters are necessary to establish the above conclusions. It follows, then, that the future water supply of the city, whether it consists of unmixed St. Lawrence water from south of Nun's Island or not, must be purified by a thorough system of filtration before distribution to the public. To ensure the proper working of the plant, constant supervision of the filtered water by an expert water analyst, devoting his entire time to the work, is an essential part of such a system."

3. Calcium hypochlorite was employed as a temporary means of improvement of the quality of the supply (see *Engineering News*, April 9, 1910). The municipal board of control has been granted \$15,000 to make studies for a filtration system.

CAUSE OF THE MENSTRUAL FLOW

To the Editor:—What is the latest theory as to the cause of the menstrual flow?

W. H.

ANSWER.—According to the latest views, the menstrual flow is due to a congestion of the uterine mucous membrane which occurs under the influence of ovulation. Previous to the flow, the mucous membrane is thickened and it is believed by some authors that most of the membrane is thrown off and the blood escapes from the denuded surface mixed with pieces of the membrane. According to others, no material destruction of the membrane occurs, but the blood escapes by small capillary hemorrhages. It is believed that the ovaries influence the uterus by an internal secretion which is absorbed by the blood or lymph, and on reaching the uterine tissues serves to stimulate the mucous membrane to a more active growth.

WHY DOES THE GASTRIC JUICE NOT DIGEST THE STOMACH?

To the Editor:—What prevents the gastric juice from digesting the stomach during life?

W. P. H.

ANSWER.—Several theories have been suggested to explain the fact that the mucous membrane of the stomach is not digested by the gastric juice during life. One is that the acid is neutralized by the alkaline blood, so that the digestive agent has no effect; another is that the mucous membrane contains some substance capable of inhibiting the digestive action of pepsin; a third and more plausible theory is that the stomach is protected by the layer of mucus which covers its surface and prevents the access of the gastric juice which has been secreted.

WANTED: BOOKS ON THE GENITAL ORGANS FOR THE LAITY

A correspondent asks for a good book covering the female generative organs anatomically, physiologically and pathologically, treating also of child-birth, written in language easily understood by a layman. He desires to give copies to some of his young women patients.

We shall be glad to hear from our readers concerning any works that may be recommended for the purpose.

THE DRINKING OF SEWAGE BY COWS

To the Editor:—1. If a cow drinks fluid containing diphtheria, typhoid and other pathogenic germs from an open sewer or ditch in which the current flows at the rate of 60 feet a minute, can such germs be found in the milk and in consequence be a source of danger to those partaking of the milk?

2. Is an open sewer such as I have described a source of danger to a community, the contents not in any way contaminating either the food or water supply of said community?

A. I. LAWNAUGH, Calumet, Mich.

ANSWER.—1. When typical typhoid bacilli are fed to cattle in considerable numbers they do not appear in the feces, much less in the milk. Diphtheria bacilli also would probably be destroyed in

the alimentary tract. In regard to tubercle bacilli, as is well known, the matter is somewhat different. It is certainly conceivable that cattle might acquire tuberculosis from the ingestion of sewage.

2. An open sewer of the sort described is not without dangerous features. The precise degree of danger from flies, chance contamination, etc., is a matter about which opinions may vary in the absence of exact information. The danger ordinarily would not be considered great.

The Public Service

Medical Department, U. S. Army

Changes for the week ended Oct. 22, 1910.

Eastman, William R., captain, on expiration of his present sick leave of absence, will proceed to New York City for duty as attending surgeon.

Richards, Robert L., captain, relieved from duty in New York City, on expiration of his leave of absence, and ordered to the General Hospital, San Francisco, for duty.

Rich, Edwin W., captain, on arrival in the United States will proceed to Ft. Mason, Cal., for duty and will report to the Commanding General, Department of California, for duty as attending surgeon, San Francisco.

Sweazey, Verge E., captain, ordered to his home to await retirement.

Blanchard, Robert M., captain, ordered to Ft. Thomas, Ky., for temporary duty during the absence of Major W. M. Roberts, Medical Corps.

Murray, Wilson, first lieutenant, M.R.C., granted leave of absence for two months, about Nov. 4, 1910.

Nichols, Henry J., captain, will proceed to Newark, N. J., in time to lecture on Pellagra, before the Essex County Medical Society, about Nov. 22, 1910, and on completion of this duty return to his station.

Lambie, John S., Jr., captain, granted leave of absence to include Jan. 3, 1911.

Tasker, Arthur N., lieutenant, M.C., on being relieved as surgeon of the *Sheridan*, ordered to the Presidio of San Francisco for duty.

Kellogg, Preston S., first lieutenant, R.C., ordered to Ft. Yellowstone, Wyo., for duty.

Walker, Thomas C., first lieutenant, R.C., on expiration of leave heretofore granted him, will proceed to Ft. Terry, N. Y., for duty.

Weston, Henry R., first lieutenant, R.C., ordered to Ft. Strong, Mass., for duty.

Hogan, David D., first lieutenant, R.C., on abandonment of Ft. Schuyler, N. Y., will proceed to San Francisco and take the first available transport to the Philippines for duty.

Williams, Allie W., captain, M.C., ordered to New York City for temporary duty as attending surgeon.

Clark, John A., captain, M.C., ordered to Ft. H. S. Wright, N. Y., for duty during the absence of Captain Williams.

Hanson, Louis H., captain, M.C., granted ten days' leave of absence to take effect on his relief from duty at Hot Springs, Ark.

Maus, L. M., colonel, Medical Corps; Persons, E. R., major, Medical Corps; Allen, J. H., major, Medical Corps, detailed to represent the Medical Department of the Army at the meeting of the Association of Military Surgeons, at Richmond, Va., Nov. 1 to 4, 1910.

Woodall, W. P., captain, M.C.; Whitecomb, C. C., captain, M.C.; Crabtree, G. H., captain, M.C.; Davidson, W. T., captain, M.C.; Smith, H. M., captain, M.C.; Bartlett, C. J., captain, M.C., ordered to report on Dec. 5, 1910, to Lieut. Col. H. P. Birmingham, Medical Corps, president of the Examining Board, at the Army Medical Museum Building, Washington, D. C., for examination to determine their fitness for promotion.

Krebs, L. L., captain, Medical Corps; Howell, Park, captain, Medical Corps, ordered to report on Dec. 5, 1910, to Lieut. Col. J. D. Glennan, Medical Corps, president Examining Board, at San Francisco, for examination to determine their fitness for promotion.

Medical Corps, U. S. Navy

Changes during the week ended Oct. 22, 1910.

Sheehan, R. F., Kress, C. C., and O'Malley, J. J., commissioned asst.-surgeons on Oct. 5, 1910.

Iden, J. H., surgeon, detached from duty at the Naval Hospital, Annapolis, Md., and ordered to the *Georgia*.

Ames, H. E., medical director, detached from command of the Naval Hospital, Puget Sound, Wash., and ordered to the naval training station, San Francisco.

Norton, O. D., medical inspector, ordered to duty on board the *California* as fleet surgeon of the Pacific Fleet.

McCullough, F. E., surgeon, detached from the naval training station, San Francisco, and ordered to the *Georgia*.

Stuart, D. D. V., Jr., asst.-surgeon, ordered to the Naval Medical School, Washington, D. C., for instruction.

Lawrence, H. E., asst.-surgeon, ordered to duty at the Naval Hospital, Las Animas, Colo.

Norton, O. D., medical inspector, detached from the *California* and ordered to the *West Virginia* as fleet surgeon of the Pacific Fleet.

U. S. Public Health and Marine-Hospital Service

Changes for the seven days ended Oct. 12, 1910.

Wickes, H. W., surgeon, directed to proceed to New Orleans (quarantine) on special temporary duty.

Lumsden, L. L., passed asst.-surgeon, directed to proceed to Huntsville, Ala., on special temporary duty.

McClintic, T. B., passed asst.-surgeon, granted 14 days' leave of absence from Oct. 5, 1910.

McLaughlin, A. J., passed asst.-surgeon, directed to proceed to Chicago on special temporary duty.

Francis, Edward, passed asst.-surgeon, granted 30 days' leave of absence from Oct. 3, 1910.

Rucker, W. C., passed asst.-surgeon, directed to proceed to Baltimore on special temporary duty.

Spratt, R. D., passed asst.-surgeon, granted 4 days' leave of absence from Sept. 28, 1910, on account of sickness.

Alford, Neil, acting asst.-surgeon, granted 30 days' extension of leave of absence from Aug. 29, 1910, on account of sickness and 14 days' annual leave from Sept. 28, 1910.

Barelay, James, acting asst.-surgeon, granted 13 days' leave of absence from Oct. 10, 1910.

Bingham, E. O., acting asst.-surgeon, granted 15 days' leave of absence from Oct. 15, 1910.

Goldthwaite, Henry, acting asst.-surgeon, granted 7 days' leave of absence from Oct. 6, 1910.

Board of medical officers convened to meet at Stapleton, N. Y., Oct. 18, 1910, for the purpose of making a physical examination of a cadet of the U. S. Revenue-Cutter Service. Detail for the board: Surgeon H. W. Austin, chairman; Passed Asst.-Surgeon W. A. Korn, recorder.

Changes for the seven days ended Oct. 19, 1910.

Gassaway, James M., surgeon, granted 1 month's leave of absence from Oct. 7, 1910, on account of sickness.

Sprague, E. K., surgeon, granted 15 days' leave of absence from Oct. 28, 1910.

Mathewson, H. S., passed asst.-surgeon, granted 1 day's leave of absence Oct. 12, 1910, under paragraph 189, Service Regulations.

Goldberger, Joseph, passed asst.-surgeon, granted 4 days' leave of absence from Oct. 26, 1910.

McLaughlin, A. J., passed asst.-surgeon, directed to report at the Bureau on special temporary duty.

Bogges, J. S., passed asst.-surgeon, granted 1 month's leave of absence from Nov. 14, 1910.

Rucker, W. C., passed asst.-surgeon, directed to proceed to New York on special temporary duty.

De Valin, Hugh, passed asst.-surgeon, granted 30 days' leave of absence from Nov. 2, 1910.

Duffy, B. J., asst.-surgeon, relieved from duty at Buffalo, N. Y., and directed to proceed to Tompkinsville, N. Y., and report to the commanding officer of the Revenue Cutter *Seneca* for duty.

Jackson, James M., Jr., acting asst.-surgeon, granted 30 days' leave of absence from Nov. 1, 1910.

Tappan, J. W., acting asst.-surgeon, leave of absence for 20 days from Oct. 1, 1910, amended to read 20 days from Oct. 5, 1910.

Terry, M. C., acting asst.-surgeon, granted 30 days' leave of absence from Nov. 1, 1910.

Board of medical officers convened to meet at the Bureau, Oct. 20, 1910, for the purpose of conducting a physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Asst. Surgeon-General J. D. Long, chairman; Asst.-Surgeon Paul Preble, recorder.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

THE PUBLIC'S ATTITUDE IN MEDICAL FRAUDS

Evidence of the increasing understanding of medical matters by the press is found in an editorial in a recent number of the Fresno (Cal.) *Republican* which is worth quoting in its entirety:

"CAN'T DO IT"

"The directors of the San Francisco Medical Association, aroused by the Eva Swan malpractice case, have instructed their secretary to take steps toward the prosecution of the numerous alleged 'doctors' practicing in San Francisco who are known to have no licenses, nor any qualifications on which to procure them. These men are of course all frauds, and are on the brand-order list of the United States postal department, but they are also in large part engaged in actual criminal practice, and the recent publicity given to these practices is the motive of the effort against them.

"It is a laudable effort, but we doubt its success. There is plenty of law against practicing medicine without a license, but there is very little sentiment, in or out of courts, to enforce it. Judges, lawyers, jurymen and laymen alike share the medieval superstition that medicine is some kind of magic, of which there are various sects and schools, as there are of religion; that there is no such thing in medicine as truth or falsehood, knowledge or ignorance, but only some kind of a mysterious knowledge what drug or treatment will 'cure' each of the recognized diseases. Every quack has 'cured' a lot of cases, and can prove it. Every legitimate practitioner has found a lot of cases which he could not 'cure,' and it can be proved against him. Plenty of people have been 'cured'

by the incantations of Indian medicine men, and by the more modern and refined forms of the same treatment. These facts of course are nothing to the point, but nearly every judge, lawyer and juror thinks they are. Also, nearly all the juries have the notion that a medical association is some kind of a labor union, and that its only objection to unlicensed practitioners is that they are 'scabs.' And, while in the trades which they can understand their sympathy is all with the union man against the scab, in the trade of medicine it is the other way. You see, the relation of the public to the physician is that of employer, and the unreasoning employer always prefers non-union labor.

"So, for all these foolish and ignorant reasons, the law against unlicensed healing is unpopular, and therefore unenforceable. It is particularly so because in this one case the judge and the lawyers are usually quite as ignorant as the most ideal juror a typical panel can show."

The editor of the *Republican* aptly summarizes the weaknesses of restrictive medical legislation when he says that "judges, lawyers, jurymen and laymen alike share the medieval superstition that medicine is some kind of magic of which there are various sects or schools as there are in religion." Until the public, including the bench and the bar, is sufficiently intelligent to see that there is no more possibility of "schools" in modern medicine than there is in modern chemistry or engineering, it will be impossible to secure a sane, rational interpretation and administration of medical police regulations such as is given to similar regulations in other lines. "Schools" of medicine are and ever have been the curse of the medical profession. There is danger of their also becoming a menace to the public.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Third Month—Third Weekly Meeting

INFECTIONS OF THE KIDNEY

VARIETIES: Pyelonephritis, pyonephrosis, pyelitis, abscess of kidney.

ETIOLOGY: Infection may be (1) hematogenous, descending, from pneumonia, typhoid, puerperal sepsis, etc.; (2) ascending, from inflammation or ulceration of ureter or bladder; (3) direct extension from adjacent viscera, liver, spleen, appendix, etc. Micro-organisms usually found.

SYMPTOMS: Hematogenous: General, history of preceding infection, chills, fever, prostration, pain. Examination of urine. Terminations. Ascending: History of lesion of bladder or ureter. Pain. General symptoms. Examination of urine. Terminations.

TREATMENT: Medicinal and general. Surgical, removal of primary lesion, and treatment of kidney. Indications for nephrotomy, for nephrectomy.

TUBERCULOSIS OF THE KIDNEY

ETIOLOGY: Frequency, age, sex, calculus, nephritis.

PATHOLOGY: Routes of infection. Primary and secondary. Miliary and caseous forms. Associated lesions in genito-urinary tract. Effect of mixed infection. Involvement of second kidney.

SYMPTOMS: Insidious onset. Irritable bladder, polyuria, colic, pyuria, hematuria. Examination of urine. General symptoms. Physical examination.

DIAGNOSIS: Early, dysuria, acid pyuria and occasional hematuria with absence of bladder and ureteral lesions; later, changes in bladder.

Differentiate from calculus, pyelonephritis, tumors, essential hematuria.

INFLAMMATION OF PARANEPHRIC TISSUES

FORMS: Fibrosclerotic, lipomatous, suppurative. Pathologic changes in each.

SYMPTOMS AND DIAGNOSIS.

State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, Little Rock, November 8-9. Sec., Dr. F. T. Murphy, Brinkley; Homeopathic, Little Rock, November 11. Sec., Dr. P. C. Williams, Texarkana; Eclectic, Little Rock, November 8-9. Sec., Dr. G. A. Hinton, Hot Springs.

CONNECTICUT: Regular, City Hall, New Haven, November 8-9. Sec., Dr. Charles A. Tuttle; Homeopathic, Grace Hospital, New Haven, November 8. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave.; Eclectic, Hotel Garde, New Haven, November 8. Sec., Dr. Thomas S. Hodge, 19 Main St., Torrington.

FLORIDA: Palatka, November 9-10. Sec., Dr. J. D. Fernandez, Jacksonville.

LOUISIANA: Homeopathic, New Orleans, November 7. Sec., Dr. John T. Crebbin, 1207 Maison Blanche Building.

MAINE: City Council Rooms, Portland, November 8-9. Sec., Dr. Frank W. Searle, 806 Congress Street.

MASSACHUSETTS: State House, Boston, November 8-9. Sec., Dr. Edwin B. Harvey.

NEBRASKA: State Capitol, Lincoln, November 9-10. Sec., Dr. E. Arthur Carr, 141 S. Twelfth Street.

NEVADA: Carson City, November 7-9. Sec., Dr. S. L. Lee.

TEXAS: Palestine, November 22-24. Sec., Dr. R. H. McLeod.

WEST VIRGINIA: Morgantown, November 14-16. Sec., Dr. H. A. Barbee, Point Pleasant.

Illinois April, May, and June Reports

Dr. J. A. Egan, Secretary of the Illinois State Board of Health, reports the written examinations held at Chicago, April 14-16, and June 9-11, and at East St. Louis, May 10-12, 1910. The number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75.

At the examination held in Chicago, April 14-16, the total number of candidates examined was 125 of whom 107 passed, 17 failed and one took an incomplete examination. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Examined.
Howard University, Washington, D. C.	1	(1909)	1
Bennett Medical College	3	(1910)	3
Chicago College of Medicine and Surgery	35	(1910)	35
Coll. of Med. and Surgery, Chicago	5	(1909) (4, 1910)	5
Hahnemann Med. College and Hospital, Chicago	1	(1909)	1
Hering Medical College	1	(1910)	1
Illinois Medical College	2	(1910)	2
Northwestern University Medical School	9	(1899) (1909)	(7, 1910) 9
College of Phys. and Surg., Chicago	18	(1910)	18
Reliance Medical College	1	(1910)	1
Rush Medical College	21	(1892) (1909) (19, 1910)	21
Louisville Medical College	1	(1894)	1
Baltimore Medical College	1	(1906)	1
Detroit College of Medicine	2	(1896) (1901)	2
St. Louis University	1	(1909)	1
University of Missouri	1	(1908)	1
Univ. and Bellevue Hospital Med. College	1	(1903)	1
University of Pennsylvania	1	(1901)	1
Medical College of Virginia	1	(1907)	1
Royal College of Physicians, Ireland (1886), and Royal College of Surgeons, Edinburgh	1	(1889)	1

College	PASSED	Year Grad.	Total No. Examined.
University of Arkansas	1	(1909)	1
Bennett Medical College	1	(1909)	1
Chicago Coll. of Medicine and Surgery	1	(1908)	1
Coll. of Med. and Surgery, Chicago	3	(1908) (1909)	3
College of Phys. and Surg., Chicago	3	(1910)	3
Northwestern University Medical School	1	(1909)	1
Reliance Medical College	1	(1909)	1
Sioux City College of Medicine	1	(1906)	1
Hospital College of Medicine, Louisville	1	(1904)	1
St. Louis Coll. of Phys. and Surg.	2	(1906) (1908)	2
Mebarry Medical College	2	(1907) (1909)	2

At the examination held in East St. Louis, May 10-12, the total number of candidates examined was 116, of whom 100 passed and 13 failed. Two candidates did not complete the examination and one withdrew. The following colleges were represented.

College	PASSED	Year Grad.	Total No. Examined.
Denver and Gross College of Medicine	1	(1909)	1
Chicago College of Medicine and Surgery	1	(1909)	1
Northwestern University Medical School	1	(1909)	1
Rush Medical College	1	(1908)	1
Barnes Medical College	17	(1910)	17
St. Louis University	44	(1910)	44
Washington University, St. Louis	35	(1910)	35

FAILED

Hahnemann Med. Coll. and Hospital, Chicago..(1909)	1
Kentucky School of Medicine.....(1890)	1
Barnes Med. College..(1905) (1907) (1908) (6, 1910)	9
St. Louis Coll. of Phys. and Surg.....(1906)	1
Washington University, St. Louis.....(1910)	1

At the examination held in Chicago, June 9-11, the total number of candidates examined was 260, of whom 236 passed and 24 failed. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Exam-ined.
Bennett Medical College		(1910)	7
Chicago Coll. of Med. and Surg.....		(1909) (28, 1910)	29
Hahnemann Medical College and Hospital, Chicago (1909) (18, 1910).....			19
Hering Medical College.....		(1910)	1
Jenner Medical College, Chicago.....		(1910)	4
Illinois Medical College.....		(1910)	3
Northwestern Univ. Med. School.....		(1909) (93, 1910)	94
Coll. of Phys. and Surg., Chicago.....		(1908) (47, 1910)	48
Rush Medical College.....		(1910)	22
St. Louis Coll. of Phys. and Surgeons.....		(1909)	1
Columbia Univ., Coll. of Phys. and Surg.....		(1905)	1
Eclectic Medical College, Cincinnati.....		(1910)	2
Jefferson Medical College.....		(1910)	2
University of Pennsylvania.....		(1875)	1
Meharry Medical College.....		(1910)	1
Trinity College, Dublin, Ireland.....		(1889)	1

FAILED

Bennett Medical College.....	(1910)	3
Chicago College of Medicine and Surgery.....	(1910)	3
College of Medicine and Surgery, Chicago.....	(1910)	2
Hahnemann Medical College and Hospital, Chicago.....	(1910)	2
Hering Medical College.....	(1910)	1
Jenner Medical College.....	(1910)	2
Illinois Medical College.....	(1910)	3
College of Phys. and Surg., Chicago.....	(1909) (4, 1910)	5
Reliance Medical College.....	(1909)	1
St. Louis College of Physicians and Surgeons.....	(1909)	1
Eclectic Medical College, Cincinnati.....	(1910)	1

Wisconsin July Report

Dr. John M. Beffel, secretary of the Wisconsin Board of Medical Examiners, reports the written examination held at Madison, July 12-14, 1910. The number of subjects examined in was 22; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 60, of whom 54 passed, including 3 osteopaths, and 6 were conditioned. Eighteen candidates were licensed through reciprocity and one was licensed under the exemption clause. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Northwestern University Medical School.....	(1910) 82, 89,		90, 92
College of Phys. and Surg., Chicago.....	(1897) 82; (1910)		84, 87
Chicago College of Medicine and Surgery.....	(1910)		87
Hahnemann Medical College and Hospital, Chicago.....	(1909)		85
Univ. of Minnesota, Coll. of Medicine and Surgery.....	(1910)		87
Hahnemann Med. Coll. and Hospital, Philadelphia.....	(1907)		80
University of Pennsylvania.....	(1899)		87
Wisconsin Coll. of Phys. and Surg.....	(1910) 80, 81, 82, 83, 86		
Marquette University, Milwaukee.....	(1902) 83; (1909) 75; (1910)		76, 77, 77, 77, 78, 78, 79, 79, 80, 81, 81, 81, 81, 81, 82, 82, 82, 82, 83, 83, 83, 83, 83, 84, 85, 85, 86, 86, 87.
University of Christiania, Norway.....	(1908)		79

CONDITIONED

Marquette University, Milwaukee.....	(1909) 75; (1910) 69, 71, 71, 73, 76.
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LICENSED THROUGH RECIPROcity

College	Year Grad.	Reciprocity with
Gross Medical College, Denver.....	(1892)	Colorado
Chicago Coll. of Med. and Surgery.....	(1908) (2, 1909)	Illinois
College of Physicians and Surgeons, Chicago (1903) (1904) Iowa; (1908) Illinois.		
Northwestern University Medical School (1893) (1909)		Illinois
Medical College of Indiana.....	(1904)	Indiana
University of Maryland.....	(1908)	Maryland
Univ. of Michigan, Dept. of Med. and Surg.....	(1903)	Minnesota
Damian University.....	(1906)	Minnesota
Univ. of Minnesota, Coll. of Med. and Surg.....	(1909)	Minnesota
Long Island College Hospital.....	(1908)	New York
Medical College of Ohio.....	(1887)	Ohio
Hahnemann Med. Coll. and Hosp., Philadelphia.....	(1890)	Illinois
University of Tennessee.....	(1907)	Texas

LICENSED UNDER EXEMPTION CLAUSE

College	Year Grad.
Marquette University.....	(1910)

Book Notices

ERGEBNISSE DER CHIRURGIE UND ORTHOPÄDIE. Herausgegeben von Erwin Payr, Greifswald, und Hermann Küttner, Breslau. Erster Band. Paper. Price, 20 marks. Pp. 526, with 152 illustrations. Berlin: Julius Springer, 1910.

The editor, recognizing the increasing mass of literature relating to the various specialties, and the very scattered manner in which articles on related subjects are published, thus making it difficult or impossible for one to keep in touch with all of them, conceived the idea of publishing a series of volumes, of which the present one is the first, which should contain articles on present-day subjects in surgery and orthopedies, written by men of recognized ability and based on a critical review of the literature up to date.

The present volume of 526 pages contains 12 articles as follows: Vessel and Organ Transplantation; Myositis Ossificans Circumscripta; Opsonins; Free Transplantation, Exclusive of Transplantation by Means of Vessel Suture; Treatment of Fractures; Methods of Covering Bony Skull Defects; The Parathyroids; Basedow's Disease; The Present Status of Differential-Pressure Methods in Surgery of the Chest; Benign Tumors of the Breast in the Light of Recent Investigations; The Operative Treatment of Hernia of the Umbilicus, of the Linea Albæ and of the Postoperative Lateral Ventral Hernia in Adults; Hypertrophy of the Prostate. Each article is well-illustrated and is preceded by a rather extensive bibliography covering the last few years. From the very nature of the work, the number of volumes is unlimited, but nothing is said as to the frequency with which they will appear. The intention is to take up as nearly as possible those subjects which have a "live" interest at the time.

The idea is a novel one and the success of the undertaking will depend on the ability to maintain the same standard of excellence in the articles of the subsequent volumes as is found in those of the first volume.

LEITFADEN DER EXPERIMENTELLEN PSYCHOPATHOLOGIE. Vorlesungen gehalten an der Universität Leipzig. Von Privatdozent Dr. Adalbert Gregor, Oberarzt der Psychiatrisch-Neurologischen Klinik Leipzig. Paper. Price, 5 marks. Pp. 222. Berlin: S. Karger, Karlstrasse 15, 1910.

Those who are aware that abnormal psychology is rapidly becoming a separate branch of medicine will not be surprised that special text-books on the subjects are appearing. Though this work is in the form of lectures, it covers the ground well.

The subjects taken up are: the psychopathology of time conception; reaction experiments; pathology of perception; association experiments in health and in mental disease; memory and its pathology; expression; attention; will; the emotions and bodily expressions of psychic conditions as revealed by the sphygmograph, platysmograph, psychogalvanic reactions, etc.; the laws governing intellectual efforts and methods determining intellectual capacity. All of these subjects are thoroughly treated, the literature, particularly the German, thoroughly sifted and a wealth of original observations added. The specialist occupying himself with the neuroses and psychoses will welcome this exhaustive monograph, but the busy general practitioner will find it too lengthy and intricate.

THE NEW INTERNATIONAL YEAR-BOOK. A Compendium of the World's Progress. For the Year 1909. Editor, Frank M. Colby, M.A. Associate Editor, Allen L. Churchill. Cloth. Price, \$7. Pp. 702. New York: Dodd, Mead & Co., 1910.

This third number of the "New International Year-Book" is an improvement over the previous numbers, which should be expected, as the editors of the various departments increase in experience and profit from criticism and suggestion. Almost every subject of human thought and endeavor is treated; brief biographies of persons prominently in the public eye during the year are given; new inventions and great public works are described and illustrated; the articles on the achievements in medicine during the year seem well up to date. The work is informing, and is an interesting summary of the year's progress.

Medicolegal

Sadistic Insanity and Physical Examination of Defendant

The Supreme Court of Nevada says that in the case of *State vs. Petty* (108 Pac. R. 934) the defense relied on by the defendant for killing his wife was sadistic insanity. In support of this defense, he went on the stand and testified in his own behalf. He also called as a witness a Dr. Hepner, who qualified as an expert, and testified, among other things, to having made a physical examination of the defendant prior to the trial, and detailed certain physical conditions existing in the defendant, which, in part, formed a basis for his opinion that at the time of the killing the defendant was insane. For the purposes of rebuttal, counsel for the state requested the court to appoint three physicians and to order that the defendant be submitted to an examination by them relative to the physical conditions detailed in the testimony of Dr. Hepner. Over the objection of counsel for the defendant, the order as requested was made, and three physicians were appointed by the court for the purpose of making the examination. The examination was made in a suitable room in the county jail in the presence of counsel for the state and for the defendant. Each of the physicians so appointed by the court subsequently, on rebuttal and over the objection of the defendant, testified to the facts disclosed by their examination of the person of the defendant within the limits specified in the order of the court.

Exceptions to the order directing the examination, and to the testimony of the appointed physicians, were based on the contention that the constitutional guaranty that no person shall be compelled, "in any criminal case, to be a witness against himself," was violated. The court, however, holds that there was no error in the order or in the admission of the testimony.

In this case the defendant, the court says, had interposed the defense of insanity, had offered himself as a witness solely in support of this defense, had been physically examined by a physician for the purpose of enabling such physician to testify concerning his physical condition as bearing on his alleged insanity, and such physician had testified in regard hereto. He could not therefore interpose any legal objection to the state having the benefit of the same character of expert examination which he had through the testimony of his physician submitted to the jury.

Then counsel for the defendant further contended that it was an error to order the examination of the defendant's person or to permit the physicians appointed by the court to testify to facts disclosed by such examination, for the reason that the purpose of such examination was to contradict the witness Dr. Hepner for purposes of impeachment, and, as Dr. Hepner had, on cross-examination, testified that he had not based his opinion on the physical symptoms of the defendant testified to by him, "except the typical degeneracy written on his face and head," his testimony relative to the defendant's heart and genitals was as to an immaterial matter, and hence could not be contradicted for purposes of impeachment. But the court does not think that the testimony of the physicians appointed by the trial court could be regarded solely in the light of impeaching evidence. Dr. Hepner had testified at length as to the condition of the defendant's heart and genital organs, and it was not until cross-examination that he stated that he did not take into consideration the condition of these organs in reaching his conclusions as to the defendant's mental condition. Counsel for the defendant never withdrew this portion of Dr. Hepner's testimony from the case or offered to have it stricken out. It was all included in the hypothetical question propounded by the witness by the defendant's counsel.

Sadism is a mental disease in which the sexual instinct is abnormal or perverted. Where this character of insanity is relied on, the physical facts, here claimed to be immaterial, would very naturally be given some weight by the jury in the defendant's favor where it was shown by uncontradicted testimony that they were abnormal. The testimony of Dr.

Hepner was that the defendant's heart and genital organs were abnormal, while that of the physicians appointed by the court was that they were normal. The court in ordering the physical examination of the defendant was careful to limit it to the points testified to by the defendant's own expert. If counsel for the defendant deemed these physical facts immaterial, he should not have offered testimony concerning them, but, having offered testimony of the existence of certain physical characteristics of the defendant, he was not in a position to object to the state offering testimony in reference to the same physical facts, and, as before stated, such testimony could hardly be held to be governed by the rules relating to impeaching testimony. At the time the order was made, it could not be told whether the investigations of the physicians appointed by the court would confirm the testimony of Dr. Hepner or not. The purpose of making the order was to enable the court to arrive, if possible, at the truth of the existence or non-existence of certain physical facts, which the defendant had introduced into the case in his defense, and not to impeach the defendant's witness. The mere fact that one expert witness may reach a conclusion different from that of another expert witness does not of itself impeach the former witness.

The objection to the testimony of the physicians appointed by the court was general, and went to all of their testimony, without specifying any certain portion thereof that was claimed to be immaterial. The examination also went to the head, including the mouth, teeth, and tongue, of the defendant, which were conceded to be material points. No specific objection to the testimony relative to the other alleged immaterial points was ever made. If such objection had been made, its overruling could not constitute prejudicial error, unless the defendant withdrew or caused to be stricken out the testimony offered in his behalf concerning the same facts.

Impeachment of Medical Experts

The Supreme Court of Washington says that in the homicide case of *State vs. Newcomb* (109 Pac. R. 355), a physician was called as a medical expert by the defense, and the state in rebuttal called witnesses to impeach him on his general reputation for truth and veracity. The ruling of the trial court in permitting such testimony over the defendant's objection was assigned as error. This was untenable. A medical expert, or any other expert, is subject to the same rule of impeachment as any other witness. He occupies no higher plane than the ordinary witness, nor does he stand on any different footing. The only difference is that he may be interrogated along hypothetical lines; otherwise he is subject to the same methods of examination and must subject himself to the same test of credibility.

Society Proceedings

COMING MEETINGS

Am. Assn. for Study and Prev. Infant Mort., Baltimore, Nov. 9-11.
Hawaiian Territorial Med. Assn. Honolulu, November 26-28.
Ohio Valley Med. Assn., Evansville, Ind., Nov. 9-10.
Southern Medical Assn., Nashville, November 8-10.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

Sixteenth Annual Meeting, held at Pittsburg, Oct. 3-6, 1919

The President, DR. THEODORE B. APPEL, Lancaster, in the Chair

Hospital Appropriations

The House of Delegates passed unanimously a resolution offered by Dr. John B. Roberts, requesting the legislature to appoint a commission consisting of members of the House of Representatives, the Senate, the State Board of Public Charities, two physicians and a lawyer, to investigate the subject of state appropriations to hospitals not under state control, and the management of all hospitals, and to report on a better method than the present of making hospital appropriations.

Pure Food and Public Health

The house reaffirmed its position taken last year on the question of pure foods, endorsing the work of the Federal authorities on this subject. It endorsed also the principles outlined in the Owen Bill, providing for the establishment of a department of health. Commissions were authorized to continue the study of malignant growths, the end-results in the treatment of fractures of the femur and the work concerning trachoma.

President's Address: Purposes of the Society

DR. THEODORE B. APPEL, Lancaster: Analyzing the purposes of this society as set forth in the ordinances we find that they cover a three-fold aim: organization, individual aid, and duty to the public, uniting in the one definite object of advancement of the medical profession in its usefulness as a distinct entity in the body politic. The development of this three-fold aim of our society forms an interesting study. The work of the committees on cancer and on tuberculosis, the work for the prevention of trachoma, and against the abuse of privileges by the refracting opticians, shows the progress in our work for the public. In our relation to the state in the matter of legislation our hope to unite all national efforts for the purpose of fighting disease seems near realization. The record of the sixty-two years of the society's life is a matter of medical history. Problems confronting us must be settled by cooperation of organized bodies with the people.

Infant Mortality

DR. SAMUEL G. DIXON, Harrisburg: Influences which are responsible for excessive infant mortality may be divided into prenatal and postnatal. Preventive measures must be educational and discreetly philanthropic. The problem is one which concerns the mental, moral and physical prosperity of all people throughout the civilized world, and to this extent every force and influence of individuals, societies, churches, schools, states and nations must be solicited and enlisted in a campaign of helpfulness which is the only solution.

Typhoid Fever in Pennsylvania—Past, Present and Future

DRS. SAMUEL G. DIXON and B. FRANKLIN ROYER, Harrisburg: Typhoid fever is preventable by prophylaxis and sanitation. Since the creation of the department of health much has been done, and a forecast shows that still greater advance is possible through hard work, much outlay of money and close cooperation between the family doctor and the health official.

Work of the Council on Pharmacy and Chemistry

DR. DAVID L. EDSALL, Philadelphia, gave a short summary of the problems the Council has met, the support received from the medical profession and from some manufacturers, and mention of the kinds of obstruction offered by other manufacturers. He also made a general statement of what has been accomplished with reference to its value to the profession, and consideration is given to future problems.

Oration on Medicine: Recent Progress in Medical Sociology

DR. CHARLES H. MINER, Wilkes-Barre: The medical profession in this country has probably done more for the benefit of the people and for its own reputation in the past few years through sociology than in any other field of their labor. In this connection may be mentioned the tuberculosis campaign, medical inspection of school children, the temperance movement, the prevention of cancer, and of venereal diseases. Social service in connection with hospitals has great possibilities. We may consider also in this connection the interest taken by the medical profession in industrial insurance and the employer's liability law, and the campaign for the prevention of infant mortality with special emphasis on the value of a clean milk supply.

Gall-Bladder Dyspepsia

DR. JOHN A. LICHTY, Pittsburg: The symptoms of the dyspepsia referred to are nausea, loss of appetite, flatulency,

pyrosis, distress or a gnawing feeling below the ensiform cartilage, at certain times relative to meals. The gall-bladder and gall-duct affections include catarrh of the bile ducts, acute phlegmonous and gangrenous cholecystitis, acute infections and catarrhal cholecystitis, cholelithiasis and cancer. The symptoms usually described as indicating cholelithiasis are found in only from 5 to 35 per cent. of all cases. Hyperchlorhydria was found in about 70 per cent. in 298 cases of gall-bladder and duct affections. From experiments on dogs it seems that hyperchlorhydria is secondary to affections of the gall-bladder and ducts and is a symptom of considerable value. In cases of hyperchlorhydria in which gastric and duodenal ulcer are excluded, before the diagnosis of nervous dyspepsia is made the presence of disease of the gall-bladder should be carefully considered.

The Treatment of Fermentative and Putrefactive States of the Intestines

DR. DAVID L. EDSALL, Philadelphia: In this type of cases attention is too often directed to the bowel to the exclusion of the stomach. Emphasis should be placed on the importance of examination of the feces as a routine measure. Test diets are often misleading, and the examinations should be made rather while the patient is taking the usual diet. Improvement of the general tone of the abdominal muscles, attention to the circulation and blood-pressure are highly important factors. The condition should be regarded less as a disease of the intestines than as a chronic affection situated in the intestinal tract, and should be treated from the standpoint of increasing the resistance. Long-continued use of active purgatives is harmful. Surgical intervention is sometimes indicated.

Gastric Manifestations of Non-Gastric Disease

DR. CLEMENT R. JONES, Pittsburg, discussed the symptom-complex of non-gastric disease as compared with diseases of true gastric origin.

Constipation of Colonic Origin

DR. JUNSON DALAND, Philadelphia: Patients with chronic constipation due to abolition of the rectal reflex may secure relief by a determined effort to secure a movement of the bowels each morning immediately after breakfast. This effort of the patient may be supplemented by the introduction of a properly prepared soluble glycerin suppository or the employment of an enema. Diet, exercise, other remedial agents, drugs or surgery are of value in constipation colonic in origin.

Discussion on Gastro-Intestinal Derangements

DR. I. J. MOYER, Pittsburg: Many beginning gall-bladder cases are due to modern habits of improper eating and nervous hurry. I agree with Dr. Edsall, that the cause of many of the gastro-intestinal conditions must be looked for outside of the intestine. I think the treatment of constipation by the use of irrigations has been abused.

DR. ERNEST LA PLACE, Philadelphia: If we do not find the cause of the trouble in the organ apparently the seat of the difficulty, we should look for it elsewhere and remove it, no matter how foreign it seems to the condition present. We are apt to forget the intimate relation of all the organs within the abdominal cavity.

DR. JAMES N. ANDERS, Philadelphia: I agree with Dr. Lichty that gall-stone dyspepsia is frequently overlooked even by competent observers. In obscure cases, if the symptoms do not yield to ordinary measures, we should at once suspect an anatomic basis, as a rule, outside of the organ implicated, particularly if it be the stomach or intestine. In conditions with an actual pathologic change, medical treatment will not suffice.

DR. J. A. LICHTY, Pittsburg: The object of my paper was to counterbalance the paper, which in the early part of the year was put out by another author, laying considerable emphasis on appendix dyspepsia. Much that is said of appendix dyspepsia can be said of gall-bladder dyspepsia. A point to be emphasized is the obstinancy of the symptoms,

DR. J. DALAND, Philadelphia: I agree with Dr. Moyer that too constant use of irrigation may be harmful, but by carefully determining the quantity, the time of injection and the temperature of the water untoward results may be avoided.

Significance of Transient Cerebral Crises and Seizures as Occurring in Arteriosclerotics

DR. JAMES D. HEARD, Pittsburg: The following are some of the possible causative factors in these cerebral crises: the action of a toxin on brain cells in localized areas; a spasmodic localized contraction of cerebral arteries sufficient to interfere with the function, but not to affect the integrity of a part; so considerable a decrease in a compensatory hypertension that certain areas of the brain are temporarily insufficiently supplied with blood through the sclerotic vessels which supply them; localized areas of edema in the brain substance. In the light of our present knowledge, a toxic basis may be assumed as a general underlying cause for all these conditions. The supposition that the condition is due to a localized poisoning of brain cells is that which Tanzi invokes to explain the closely allied, if not at times identical, seizures of progressive paralysis. A simpler possible factor may be an intermittent closure of the blood-vessels supplying the affected area, which theory has the adherence of Russell, Osler and others. The association of cerebral seizures of an apoplectic nature with migraine is now considered, and J. Mitchell Clark has observed apoplectic seizures in nine members in three generations of a migrainous family in which hemiplegia, usually accompanied with aphasia, was a constant feature. The importance of an appreciation of the nature of these crises rests on the fact that their proper interpretation may influence both prognosis and treatment. There is danger in having a routine conception as to the blood-pressure desirable in an individual of a given age. As the cerebral seizures are usually the result of toxic influences, prompt measures should be instituted aiming at the removal of circulating poisons and the limitation of their further production.

DISCUSSION

DR. T. DILLER, Pittsburg: There are causes of cerebral palsy other than those which most of us learned in our student days. We are sometimes in the presence of a palsy, a hemiplegia, or monoplegia, which is cerebral in character and transitory in duration, and difficulty arises in its explanation. Where we can exclude the three common causes—hemorrhage, thrombus and embolism—we are a good deal at a loss, and while some of the theories advanced are very plausible, it must be said plainly that the diagnosis of the exact situation is difficult. I have seen several of the cases to which Dr. Heard refers. They may be due to arterial spasm, to local edema, or to an occlusion of the artery stopping short of complete closure. In the presence of an apoplectic stroke in a man in the forties, the practitioner should consider the possibility of paresis. The mental condition and history of previous transient attacks are to be considered in this connection.

Clinical Studies in the Auscultatory Method of Determining Blood-Pressure

DRS. EDWARD H. GOODMAN and A. ALEXANDER HOWELL, Philadelphia: By studying the relation of the five phases to one another, much may be learned diagnostically from the auscultatory method. No particular phase is of the greatest significance, but the importance of each phase should be interpreted by its relation to the other phases and by its relation to the total pulse pressure. The length of the individual phase should be recorded and its percentage relation to the pulse pressure should be ascertained. We have formulated the following conclusions: For accuracy and simplicity, the auscultatory method of estimating blood-pressure is to be preferred to any clinical method. In diagnosing aortic insufficiency, absence of the fifth phase is almost pathognomonic. In the diagnosis of cardiac neuroses, the recognition of tonal arrhythmias and irregularities in maximal and minimal pressure, and variation in sequence relation will prove of much value.

Mitral Stenosis

DR. J. C. WILSON, Philadelphia: It is generally agreed that rheumatic endocarditis is the most common cause of mitral stenosis. Whooping-cough is probably the occasional cause of the primary endocarditis as a result of the great mechanical stress on the ventral valve in the paroxysm. That mitral stenosis carries with it some degree of immunity against pulmonary tuberculosis requires confirmation. The etiologic uncertainties are greatly increased by the numerous cases encountered in young women in whom none of the ordinary causes of endocarditis can be determined. Muscular or spasmodic mitral stenosis and the mitral stenosis of acute malignant endocarditis should also be mentioned under causation. Observation of the well-recognized types of anatomic lesions in mitral stenosis shows variations so essentially different in their circulatory effects as to constitute at least two valvular diseases having little else in common than a narrowing of the auricular ventricular orifice, the physical signs to which that narrowing gives rise, and a tendency to the transference of the blood-pressure from the arterial to the venous side of the circulation. In my experience hemoptysis in mitral stenosis, though often very alarming, is usually followed by abatement of the cardiac symptoms and sometimes by prolonged improvement. The prognosis is less favorable than in mitral insufficiency. Treatment must be carefully adjusted to the individual case.

Treatment of Cardiac Irregularities

DR. ALFRED STENGEL, Philadelphia: Following the more common classification the irregularities may be divided into three important types: juvenile; extrasystolic; nodal rhythm. Conditions which ultimately determine myocardial failure are: (a) progressive increase of the myocardial disease; (b) conditions outside the heart, finally causing incompetency. Measures of treatment designed to prevent the former condition are improvement in nutrition, regulated exercise, tonic treatment, antisyphilitic treatment. Measures to prevent overhardening of a damaged myocardium are correction of gastrointestinal troubles, relief of strain and undue blood-pressure, promotion of renal and dermal activity. I would emphasize that in many cases of beginning failure of cardiac power we had better devote attention to the gastrointestinal tract and external conditions. The time will come when we must resort to the final effort of remedies directed to the heart itself.

Blood-Pressure and Other Observations in Hypertrophy and Dilatation of the Heart

DR. JOSEPH H. BARACH, Pittsburg: The observations are based on studies in a series of over 50 young men who had practiced distance running for at least six months and have to do largely with the pure forms of hypertrophy and dilatation such as occur in the absence of valvular lesions and history of previous disease. I can only conclude that there is a usual occurrence of transitory dilatation following cardiac overstrain.

The So-Called Nodal Rhythm of MacKenzie

DR. JOSEPH SAILER, Philadelphia: MacKenzie and others find as an essential feature of the tracing of the venous pulse a wave which occurs before the time of the contraction of the ventricles, which has been pretty definitely ascertained to be due to the contraction of the auricles, forcing the blood back into the veins of the neck from which the tracing is taken. MacKenzie observed in many of his cases of persistent arrhythmia that this wave was lacking. He concluded, therefore, that there was a synchronous contraction or a paralysis of the right auricle. In trying to find the cause of this it occurred to him that the node of Tawara which is found on the wall of the right ventricle and is probably situated on the conduction fibers passing to the bundle of His, might be involved, and that its involvement would account for this condition. It has been shown by the electrocardiograph, that a series of fine contractions due to muscular effort take place in the right auricle between the ventricular contractions, so that complete paralysis of the auricular wall cannot be

present. This however does not necessarily invalidate MacKenzie's explanation. MacKenzie has applied the term "nodal rhythm" to this condition because he believes that the lesion is situated in the node. This view has not met universal acceptance.

Discussion on Heart Lesions

DR. LAWRENCE LITCHFIELD, Pittsburg: I want to emphasize the frequency with which mitral stenosis is overlooked. We make a diagnosis of mitral insufficiency and before the characteristic signs of the stenosis have developed we have ceased to examine the heart carefully enough and the condition is overlooked. I think the point is well taken that nitroglycerin may do much damage.

DR. GEORGE W. NORRIS, Philadelphia: I am willing to admit that nitroglycerin, under some circumstances, is a good drug, but I am strongly convinced that it is often much abused. As a rule it is not correctly given. Men in nitroglycerin factories develop headaches but become immune to the toxic effect of the nitroglycerin if they work long enough. Similarly if a man be given 1/100 gr. nitroglycerin for a week, you may at the end of a week have to give 1/250 gr. Without blood-pressure determination it is impossible to tell what one is doing.

DR. JAMES D. HEARD, Pittsburg: We must all realize the advantage of measures other than drugs to a great extent in the early stages of the conditions.

DR. A. STENGEL, Philadelphia: There is a certain relationship between polycythemia and cardiac disease. In the use of the saline baths the temperature is the most important thing. In a case under my observation the best results were obtained with the temperature at 94 F. Edematous patients do not respond so well as patients without that symptom.

DR. J. SAILER, Philadelphia: I think that nodal rhythm is interesting chiefly from the fact that it introduces to us a further refinement in cardiac diagnosis. I believe that our knowledge of cardiac disease is in an unsettled state. We merely know that the condition of nodal rhythm is one of those forms of cardiac disease in which the lesion seems to be in the conduction apparatus rather than in the valve or in the general muscular structure of the heart. The symptoms and reactions vary so greatly that it seems impossible to bring the cases into one clinical group. Treatment is largely experimental and will be directed according to the individual choice of the physician, by his experience and his impressions received from the experience of others.

(To be continued)

AMERICAN ROENTGEN-RAY SOCIETY

Eleventh Annual Meeting, held at Detroit, Sept. 29-Oct. 1, 1910

(Concluded from page 1491)

Pulmonary Manifestations of Syphilis

MR. H. W. DACHTLER, Toledo, O.: The patients presented the clinical picture of early pulmonary tuberculosis, but failed to respond to the tuberculin test, nor did the skiagrams show any evidence of tuberculous lesion. The history of syphilis was obtained in each case, and the pulmonary findings cleared up under specific treatment, except in one patient, who died from myocarditis. In the skiagrams of these cases there was an increase in density over the lower part of the lungs, more marked on one side than on the other, so much so in one case that the diaphragm shadow was obscured on the right side. These cases might go to prove that whenever mercury produces a favorable result in so-called cases of pulmonary tuberculosis, the case was probably a syphilitic one and not tuberculous.

DISCUSSION

DR. A. W. CRANE, Kalamazoo, Mich.: A positive tuberculin test does not always indicate tuberculosis of the lungs. The disease may be located elsewhere. If syphilis is present, the Noguchi or Wassermann test should be used. It is quite probable that syphilis of the lung is more common than we have supposed.

DR. HENRY HULST, Grand Rapids, Mich.: The x-ray should not be used to make a differential diagnosis between tuberculosis and syphilis of the lung. Other clinical tests should be used for this purpose.

DR. GEORGE C. JOHNSTON, Pittsburg, Pa.: I have seen many cases of syphilis of the lung in colored children. The physical signs were precisely those of tuberculosis, but tubercle bacilli were never found in the sputum.

Fluoroscopy of the Gastro-Intestinal Tract

DR. EDWARD H. SKINNER, Kansas City, Mo.: Fluoroscopy of the gastro-intestinal tract properly performed is of great diagnostic value, even more so than radiography. The fluoroscopic symptoms of pyloric stenosis are dilatation of the stomach, antiperistaltic waves passing from the pylorus to the greater curvature, and interference with the emptying of the stomach. The fluoroscopic symptoms of carcinoma are irregular outline of the stomach wall, abnormal peristalsis, and if the carcinoma involves the pylorus antiperistaltic waves are seen. When there is involvement of the middle portion of the stomach there is hour-glass contraction. There may be adhesions of the stomach to adjacent organs, and the lumen of the stomach is much smaller than normal, except when the carcinoma is at the pylorus. In gastric ulcer, the irregularity in outline of the stomach wall is not so apparent as in carcinoma, because the irregularity is caused by muscular action, and not so much by changes in the stomach wall. When the ulcer involves the pylorus, there is also interference with the exit of food. In the precancerous stage the stomach has a lessened lumen, is placed rather high in the left hypochondriac region, and there is a small *Magenblase*. The pylorus is frequently lost behind the stomach shadow, and the filling shadow of the stomach is funnel-shaped. It is an atrophied stomach, dependent on a certain degree of starvation.

DISCUSSION

DR. HENRY HULST, Grand Rapids, Mich.: While I feel incompetent to diagnose cancer of the stomach skiagraphically. I think that the x-ray is more likely to make the diagnosis than are the clinical findings. In stomach diseases there is a decided place for fluoroscopic work. We can determine the size of the stomach, its location, motility and even the presence of enlargements, such as tumor.

Skiagraphy of Pancreas

DR. A. W. CRANE, Kalamazoo, Mich.: I have attempted to study the anatomic relations of the head of the pancreas to the duodenum. Bismuth salts suspended in water are administered, and will be found to coat the walls of the duodenum. By this means, the position of the duodenum can be determined and thus also the greater portion of the head of the pancreas. I believe that by means of the x-ray we can diagnose diseases of the pancreas, including tumors and cysts of the head of the pancreas, gall-stone obstruction of the pancreatic duct and diabetes. The pancreas is inaccessible to the diagnostician, hence the skiagraph may be of assistance. In all cases of pain in the upper abdomen a skiagram should be made, because the pancreas may be the seat of the pain. I do not believe that the axis of the gland as usually given in the text-books is correct. The loop of duodenum increases with the increase in size of the head of the pancreas. I have been able in a number of obscure cases to make a diagnosis with a skiagram.

Value of the Roentgen-Ray in Early Diagnosis of Carcinoma of Bowel

DR. FEDOR HAENISCH, Hamburg, Germany: I am convinced of the value of screen work in the early diagnosis of carcinoma of the bowel. I have had three cases in which my assumption has proved to be correct by operation. I do not make the diagnosis of carcinoma, because the skiagram cannot show that, but I do say that there is something wrong in the bowel which should be looked after. I determine this by injecting bismuth into the bowel, and watching its passage upward by means of the fluoroscope. In cases of carcinoma

the flow of bismuth stops, the bowel bulges, and then suddenly a little finger-like process of bismuth passes onward again. That is the sign I look for.

Enlargement of Thymus Treated by the Roentgen-Ray

DR. SIDNEY LANGE, Cincinnati: In four cases of enlargement of the thymus in which urgent pressure symptoms were present, I gave *x*-ray exposures and promptly relieved the patient. I then studied the action of the *x*-ray on the thymus gland of young rabbits, and found that it produced a rapid involution of the gland, which was followed by complete atrophy. It is essential, however, in order to avoid any possible after-effects, that the treatment should be pushed only to the extent of causing a reduction in the size of the gland, and not a complete atrophy.

DISCUSSION

DR. H. K. PANCOAST, Philadelphia: The effect of the *x*-ray on the thymus in these cases would probably help to explain the structure of the gland. I think that it consists largely of lymphoid tissue. We must be extremely careful of the dosage, because the patients are usually infants or young children, and to set up a toxemia would be little short of fatal.

DR. W. F. MANGES, Philadelphia: In one patient, a child six or seven months old, the symptoms came on suddenly and were quite severe. A diagnosis of enlargement of the thymus was made by a prominent practitioner in Philadelphia, and I was asked to use the *x*-ray. I did so, and was much surprised to see the child improve, all symptoms disappearing. They recurred for a little while, but disappeared again under *x*-ray treatment.

DR. G. C. JOHNSTON, Pittsburg, Pa.: I saw one very interesting case, in which the father of the child, a physician, made a diagnosis of enlargement of the thymus. I was unable to confirm the diagnosis skiagraphically. The child grew progressively worse, however, and an operation was decided on. As soon as the incision was made, there was a rush of pus and a large postlaryngeal abscess was evacuated. The child made a rapid recovery.

The Roentgen Ray as Aid in Diagnosis of Gall-Stones

DR. GEORGE E. PFÄHLER, Philadelphia: Gall-stones can be shown with the *x*-ray only when they are composed of a substance of greater density than the surrounding tissue. This means that they must contain some cholesterol salts. Therefore, if the patient presents symptoms of gall-stones and the skiagraph fails to show stones, it does not mean that they are not present, but that they are devoid of lime salts and, therefore, did not throw a shadow. These pictures must be made quickly, and while the liver and gall-bladder are absolutely immovable.

DISCUSSION

DR. FEDOR HAENISCH, Hamburg, Germany: We must be very careful in making a diagnosis of gall-stones, because, as was pointed out, we may fail to get any shadow when the stone is of the same density as the film on the plate. However, with the technic Dr. Pfähler employs, I think better work will be done.

DR. HENRY HULST, Grand Rapids, Mich.: Putting a marker over the place where one expects to find a stone, as is done by some, is not wise, because the marker may hide the stone. The Mayos operated recently in a case of supposed kidney stone, seen in the skiagram, but failed to find it. The patient was turned over, the gall-bladder opened, and the stones were removed. That shows the difficulties of diagnosing these cases correctly.

DR. T. E. POTTER, Chicago: In three cases I obtained shadows on the right side which might indicate stone in the kidney, common duct or gall-bladder. Even the stereoscope did not help. Later I found stones in the kidney in each of these cases, with a gall-bladder infection.

DR. C. F. BOWEN, Columbus, O.: Making a skiagram an hour or two after a large meal, when the gall-bladder has emptied itself of bile, might help to give a picture of stone.

DR. PERCY BROWN, Boston: It is essential to have the large colon thoroughly empty; therefore, we should always give a good cathartic before making a skiagram. My percentage of positive diagnoses is about four, and I feel that is pretty good.

DR. E. H. SKINNER, Kansas City, Mo.: We can only expect to find stones containing calcareous material, and as only from 6 to 10 per cent. contain this material, we cannot hope to see the shadows of very many stones. My experience is limited to about 10 cases. One was rather interesting, because the plate showed 2 shadows, widely separated, which could be interpreted as a stone in either end of the gall-bladder. These 2 stones evidently were the only ones containing calcareous material.

DR. L. G. COLE, New York City: In one case in which I was sure stones were present, the skiagraphs failed to show a definite shadow, but I did see a peculiar small stellate shadow in the region of the gall-bladder. The patient was operated on and a soft cholesterol stone was removed. The nucleus of that stone corresponded to the stellate shadow shown in the plate.

Therapeutic Efficiency of Roentgen Irradiation

DR. G. C. JOHNSTON, Pittsburg, Pa.: The glandular affections wherein the *x*-ray has proved itself valuable are tuberculous lymphadenitis and goiter, except the cystic variety. In glandular disease, the results are permanent. In goiter, they are exceedingly gratifying, especially in the exophthalmic type, when seen sufficiently early. I have had twenty-four such cases, in which a cure seems to have been effected. In rodent ulcer, epithelioma and sarcoma of the skin, the Roentgen-ray is most effective; results are obtained in less time and at less expense than with any other method. Lupus, acne, chronic eczema and psoriasis are also tractable. Even in leukemia many good results have been obtained. Malignant tumors on or about the eyelids can be removed easily. Post-operative radiation should be employed as a routine measure after the removal of every breast for carcinoma or sarcoma, especially when there has been glandular involvement.

Roentgen-Ray Treatment of Carcinoma of the Breast

DR. RUSSEL H. BOGGS, Pittsburg, Pa.: In inoperable cases the ray will cause cessation of pain and hemorrhages, abolish discharge and offensive odors and arrest progress of the disease and bring about improvement in the general health of the patient. In some cases, the mass is reduced to such an extent that it will become operable. I have had twenty cases in which the results have been gratifying, but I would advise physicians not to depend on the rays alone, but to enlist surgical aid whenever possible, even in the inoperable cases. The pain in my cases was relieved for a period averaging a year, and in nearly every case the mass was reduced in size, the patient being free from pain and able to attend to her duties. Preoperative treatment is also of great benefit, and one surgeon has all his patients of this kind treated before operation. Postoperative treatment has been adopted by a large number of surgeons; it seems to insure a longer period of freedom from recurrence.

The Roentgen-Ray in Malignant Disease

DR. J. RUDISILCINSKY, Cedar Rapids, Ia.: My experience in the use of the ray in the treatment of malignant disease has been a satisfactory one. It not only often effects a cure, but in operative cases it prevents metastases. It is best to ray both before and after operation, because the infiltrated lymph channels and glands will be converted into fibrous cords and knots, thus preventing metastases. In the inoperable cases much good may be done.

DISCUSSION

DR. ALFRED L. GRAY, Richmond, Va.: The only trouble about preoperative treatment is that it may be given beyond the period when an operation will benefit the patient. This time no one can determine, and, therefore, it may be valuable time lost to proceed with Roentgen therapy. I am heartily in favor of giving a maximum dose just prior to the closing of the wound, while the patient is still under the anesthetic.

Aside from the physical benefit given in the inoperable cases, one of the greatest advantages of treatment by the Roentgen-ray is the comfort to the patient's mind. The patient feels that something is being done; this maintains his interest in life, and thus prolongs it for many days.

DR. W. F. MANGES, Philadelphia: I believe in the operative treatment mainly because so many surgeons are beginning to consider every breast carcinoma inoperable. The influence of such a procedure will be that in time patients having a lump of any size, however small, in the breast will proceed to the surgeon for advice. One surgeon advises Roentgen treatment if enlarged glands can be felt in the axilla, the treatment to be continued until such time as an operation seems indicated.

DR. H. K. PANCOAST, Philadelphia: In one case the breast was removed and the axilla cleaned out, but not the supra-clavicular region. Roentgen-ray treatment was begun soon afterward and administered for thirty or more days. The patient was told to return in three months, but returned before that time because of a ring of nodules, extending from the posterior axillary fold around almost to the sternal line. They were entirely outside of the area of exposure, showing that the ray was effective in preventing a recurrence in the area treated.

DR. GEORGE E. PFAILER, Philadelphia: I am more convinced than ever of the efficacy of Roentgen-ray treatment of malignant disease. In one case of ulcerating mammary carcinoma which was pronounced inoperable, I succeeded in reducing the lesion to an easily removable scar, an inch in diameter. The patient is perfectly well to-day. I feel that we should treat these patients until they are ready for operation; that is, until the disease has become localized. I do not agree to the giving of a large dose before the wound is closed.

Roentgen-Ray Treatment of Leukemia

DR. HENRY K. PANCOAST, Philadelphia: As a result of the observation and treatment of twenty cases, I am forced to the conclusion that the Roentgen ray seems to be no more than a palliative measure in leukemia—one which affords a prolongation of life for a variable period through inhibition of abnormal cell proliferation. It is necessary to ray the bones as well as the spleen. The direct exposure of the bone marrow seems to produce a more powerful and more lasting inhibitory effect on the leukocytic substances. The applications are made over the bones of the entire skeleton, each area being exposed regularly and systematically. Exactness in dosage is essential, so as to avoid a toxic reaction. Prolonged periods of rest from treatment are to be avoided. A symptomatic cure has in some instances been sufficient to prevent a relapse and ultimate death.

Bone Cysts

DR. F. H. BAETJER, Baltimore, Md.: The radiogram has assumed a place of importance in differentiating bone cysts from sarcomas, thereby saving many patients a mutilating operation. In the case of the bone cysts, the bone seems to be swollen, the cortex thinned out and the medulla replaced by a smooth, dark shadow of uniform consistency. The cyst is walled off from the rest of the bone and there is no evidence of an invasion of the shaft. The periosteum is not involved. These are the essential points of difference between bone cyst and other diseases of the bone. I have had six cases, in three of which a clinical diagnosis of sarcoma had been made. In one case the arm was amputated, and when the plate was sent to me afterward I pronounced it a bone cyst, and the pathologic findings confirmed this diagnosis. All that needs to be done in the case of a bone cyst is to open and evacuate it.

Stereoscopic Radiography

DR. EMIL G. BECK, Chicago: Stereoscopic radiography will help solve the problem of correct interpretation. I have employed this method almost exclusively for several years, and as a result I am convinced of its value. I am a strong advocate of stereoscopic work. It will enable even the general practitioner to interpret plates correctly. Shadows may be studied more profitably, and depth and size determined

more easily. In the study of fractures and dislocations, the location of foreign bodies, and in the study of diseases of the bones and joints, of sinuses and abscess cavities, stereoscopic radiography is exceedingly valuable.

Mental Disturbance Caused by Painless Dental Lesions

DR. HENRY S. UPSON, Cleveland: I have had some experience with mental cases, ranging from psychasthenia to dementia præcox and imbecility, in which the exciting cause proved to be some painless dental lesion, such as an impacted tooth. My attention was called to this fact accidentally, and since then I have made it a routine practice to have a skiagram made of all these cases, with the hope of finding some irregularity about the teeth and jaw. I consider the use of the Roentgen-ray in diagnosis as necessary as the stethoscope and the thermometer. Deep-lying lesions are usually painless, but are often disastrous as irritants. I am firmly convinced that in my cases the mental aberration was caused by impacted teeth, alveolar abscess, and other dental lesions.

DISCUSSION

DR. W. C. HILL, Cleveland: The ill effect of eyestrain and adenoids is well-known, and there is no reason why the teeth should not be considered in the same class. Marked irritation from a tooth is fully as disastrous as the irritation of eyestrain. I have seen some of Dr. Upson's cases and can verify his statements.

DR. H. K. PANCOAST, Philadelphia: During the past year I have made skiagraphs of several hundred dental patients, some of whom were Dr. Upson's. I am convinced that peripheral irritation often is responsible for obscure neuralgic pains; and there is no reason why mental aberration should not be produced in the same manner. Recently, I was asked to examine the head of a patient for possible brain tumor or old fracture to account for persistent headaches. The skiagram was made and showed the presence of an impacted molar in both upper and lower jaws, and evident disease of the antrum on the same side.

DR. FEDOR HAENISCH, Hamburg, Germany: I saw one very interesting case of severe trigeminal neuralgia. The patient had been subjected to several operations, but secured only temporary relief. I made several skiagrams of the head, but failed to find anything to account for the trouble. Finally, I made a skiagram of the mouth and found imbedded in the jaw a part of a root of a first bicuspoid. This was removed, the pain ceased within a week and never recurred, after having been persistent for almost seven years.

DR. C. E. COON, Syracuse, N. Y.: I had one case of persistent torticollis, in which the removal of a third molar, which was crowding the first and second molars, effected a speedy recovery.

DR. W. F. MANGES, Philadelphia: A case of persistent neuralgia, in which a bicuspoid had been extracted and later the root of this tooth removed, was shown by the skiagram to have been caused by a single little thread of gauze that had been left behind after the removal of the drainage. This thread was removed and was coated with calcareous material. The patient immediately recovered.

DR. G. C. JOHNSTON, Pittsburg, Pa.: I have seen a number of nervous wrecks among women in which the cause was an impacted tooth.

DR. GEORGE E. PFAILER, Philadelphia: A theologic student had been told that he was suffering from dementia præcox, and was advised to discontinue his studies. I made a skiagram of his mouth and found an abscess at the root of one of the molars. This was treated, and a month later the man had made a complete recovery. In another case, I found the roots of six teeth abscessed. We must make the physical examinations complete, and not limit ourselves to an examination of any one part of the body.

Chronic Joint Disease from Roentgenologic Standpoint

DR. ROLAND HAMMOND, Providence, R. I.: I wish to emphasize the importance of recognizing visceroptosis as a causative factor in chronic joint disease. It may be congenital

or acquired, the latter usually being the ease. It is due to faulty attributes of the body, relaxed conditions of the suspensory ligaments of the viscera, atony of the abdominal walls, skeletal deformities. The Roentgen-ray is particularly useful in determining the character of the changes in the joint. It discloses distinctly thickening of the synovial membranes, ligaments and tendons, change in bony structure, villous growths and accumulations of fluid. Atrophy and hypertrophy are easily recognized. In infectious arthritis the skiagram may not show any change in the joint, even though ankylosis may be present. These cases are probably due to the presence of toxins rather than bacteria. Gout and the various types of rheumatoid arthritides are easily recognizable in the skiagram. The careful use of the Roentgen-ray in the diagnosis of obscure joint affections invariably proves profitable.

Removal of Foreign Bodies Under Fluoroscopic Examination

DR. CHARLES F. BOWEN, Columbus: I have done considerable work with the fluoroscope in removing foreign bodies from the bronchi, trachea, esophagus and elsewhere. I use a special cable for this work, so that both the patient and I are sufficiently protected from the rays. The work can be done very quickly, and much more successfully, than can the average operation performed without the use of the fluoroscope. This method is applicable only in cases in which the foreign body is dense enough to cast a shadow on the fluoroscopic screen. By this means I have succeeded in removing foreign bodies from the esophagus and bronchi in cases in which the surgeons failed utterly. This work must be done under thorough antiseptic precautions, and by a roentgenologist who has surgical experience.

Tumor of Hypophysis

DR. HARVEY CUSHING, Baltimore: For the purpose of determining the exact configuration of the sella turcica, the x-ray is invaluable. It has become one of the most important adjuncts of our diagnostic measures. This is a matter of importance since surgery has found ways of approaching the gland with reasonable freedom from risk. The only cases in which operative measures are justified are those in which the local symptoms are pronounced, and in which the skiagraph shows an enlargement of the sella turcica.

Stereoskiagraphy of the Urinary Tract

DR. EUGENE W. CALDWELL, New York City: I have found the stereoscope almost indispensable in this work. Accuracy is of such great importance, that we cannot neglect any procedure which will be useful in occasional or unusual cases. It is imperative to make at least two complete sets of plates, using proper appliances and technic. A styleted ureteral catheter or an air-inflated bag in the rectum or vagina will aid in determining the exact position of the ureters.

MICHIGAN STATE MEDICAL SOCIETY

Forty-Fifth Annual Meeting, held at Bay City, Sept. 28-29, 1910

(Continued from page 1492)

Use of Carbon-Dioxid Snow

DR. ANDREW P. BIDDLE, Detroit, spoke on the use of carbon-dioxid snow, and demonstrated a new instrument for moulding snow.

DISCUSSION

DR. HENRY R. VARNEY, Detroit: In many of the small benign growths, and in nevi, especially of certain depth, and in lupus erythematosus and lupus vulgaris, this treatment is excelled by no other means of medication or operation. When we destroy a wart, mole, rodent ulcer, or epithelioma, and destroy the pathologic tissue and go through into the true skin, we must expect some discomfort, some pitting, some scarring, so that to promise the patient that there will be no effect following the application of the snow is to my mind a little

bit far-reaching, and I am afraid if we do that we will be a little disappointed. There is no pathologic condition, such as a mole or wart, that we cannot help by application of the snow if we avoid the healthy surrounding tissue. A number of these lesions will recur if other stimulants are not employed to encourage or stimulate the surrounding healthy cell, and replace the destroyed tissue.

DR. A. W. CRANE, Kalamazoo: Carbon-dioxid snow is a destructive agent. It does what an operation would do, namely, destroys the pathologic condition and a certain amount of tissue, and recovery occurs as a process of healing with the pathologic tissue in place. It may be possible that there are some products absorbed into the system so that there will be some blood serum reaction with carbon-dioxid snow. If that is true it would rival the x-ray. The x-ray treatment of a skin lesion, or epithelioma of the skin, is in the long run a blood reaction. It is not a process of local destruction. The skin lesion will heal in some cases even without local inflammation, but in a case of lupus, for instance, if the blood be examined, it will be found that the opsonic index will rise after every x-ray treatment just as though there were a vaccine of a tuberculous substance injected. In some way or other, by the use of the x-ray, we have introduced a vaccine into the circulation.

DR. M. L. HOLM, Lansing: In a case which had been diagnosed lupus, and in which the lesion tended to spread around the nose, the man was treated for three months with the x-ray, and the lesion continued to spread. The patient then went to Dr. Biddle, and within three weeks after the treatment with carbon-dioxid snow was begun, the lesion was practically healed. Whether there will be a recurrence or not, I do not know.

DR. F. W. ROBBINS, Detroit: We must not take too much into account the fact that the tissue has been destroyed, because those who have had experience before these two methods were mentioned apply caustic paste to an epithelioma, and after removing the paste from a tumor or growth an inch in diameter, they would find that healing had taken place.

DR. A. BIDDLE, Detroit: This treatment is not brought forward as a cure. Those who have watched the development of the x-ray know that its limitations in skin diseases have been very great. I know that in some cases the patients are better operated on by the knife, but I claim from clinical experience that there are patients who will not submit to the knife.

Points in the Management of Breast Feeding

DR. THOMAS B. COOLEY, Detroit: If successful breast feeding is to be as common as it ought to be, the general practitioner must give it more attention, and must become better versed in the detail of its management. Contraindications to nursing are not so numerous as some physicians seem to think; artificial feeding is often adopted for very trivial reasons. The contraindications may be summed up as follows: first, the possibility of transmitting a serious infection; second, the danger of a serious drain on an ill or exhausted mother. The last should not be too readily assumed. Under other conditions nursings should be attempted. Rational, normal hygiene and diet are essential for the mother. Unnecessary restrictions in the diet, or distasteful additions, may disturb her nutrition, and thereby the milk supply. Rational exercise and freedom from worry or excitement are important. Gruels and other supposed lactagogues are to be used when needed rather than as routine measures. The intervals between nursings should be at least three hours always, and four hours after the first few weeks. It gives the child's stomach rest and lessens colic and other annoying symptoms; the child also sleeps better and is more comfortable. Feeding by the clock is not advised. Within reason, the child should be fed when it is hungry. Colic is usually a result of fat indigestion; it is less frequent with the longer interval. Over-rich milk is a common cause, and this may be corrected often by diet and exercise, or by giving water before nursing. Over-feeding is also a cause. Even when persistent,

it is not an excuse for weaning if the baby is thriving. Variations in quantity and quality of milk are common. Quantity should be ascertained by weighing before and after feeding. There is no absolute standard of quality, and the best guides are the behavior of the child and the character of the stools. Mixed feeding is indicated by failing supply. The old method of replacing one or more nursings by the bottle is not so good as to supplement each nursing by a small bottle feeding. The supply of breast milk can be maintained longer in this way. Weaning for insufficient reason is altogether too common. Before the sixth month it should be done only on account of failure of the breast milk, serious persistent digestive disturbance, or failure of the child to gain under careful intelligent handling. The normal weaning at nine or ten months is best managed through a course of mixed feeding.

DISCUSSION

DR. H. McLAREN GALE, Bay City: First the essayist emphasized the regular and liberal feeding of the mother with plain food, and then insisted on feeding of the child at three to four-hour intervals in place of the two-hour interval. It is unnatural and cannot but be injurious. For colic in children care in the diet is the main thing, as the cause of colic is too frequent feeding.

DR. HERBERT M. RICH, Detroit: On one point I am sure Dr. Cooley will agree with me, and that is the use of wet nursing in substitute feeding. It can hardly be denied that if a very young child can be given mother's milk, it is the thing to do. In this country this method has not been employed to any extent as it is abroad, but we should encourage the practice of wet nursing.

DR. E. E. CURTIS, Saginaw: In regard to wet nursing, I would like to offer some suggestions that I have found of considerable value, and that is procuring for the baby two or three wet nursings a day. I have found that when bottle-fed babies a month or two old were failing if they could have one or two nursings a day some lives have been saved.

DR. JOHN H. CROSBY, Otsego: There are very few contraindications to breast feeding. Certain women have no milk at all, and they must be ruled out, but in most cases of so-called contraindications it is simply mismanagement of the feeding. If in these cases we pay attention to the management of the proper interval and the proper length of time of nursing much will be accomplished in saving the breast to the child, and every day that the baby takes breast milk its chances are so much the better for life. I had an opportunity not long ago to observe the methods of feeding in some of the clinics in Berlin, and I found that in the hospitals four-hour intervals are followed in every case for the first six weeks. The baby was fed six times in twenty-four hours, and after six weeks were up, the normal child was fed five times from 6 o'clock in the morning until 10 o'clock in the evening, and nothing from then until 6 o'clock. The results were uniformly good.

DR. M. L. HOLM, Lansing: From a laboratory standpoint, we find that if the milk is sufficient in quantity, and the child is not doing well, the majority of physicians think first of having the milk analyzed. I find that about two-thirds of the milk sent in for analysis is the first portion of the milk, and those who send it in are surprised to find that the fat contents will amount to 1.5 or 2 per cent. Invariably when milk is taken for analysis the entire amount should be taken. If less milk is collected it will be high in fat. As a general thing, I think the fat contents is a good indication of the quality of the milk. The entire milk of one breast should be collected, and even the whole, or a portion of it presented for analysis.

DR. T. B. COOLEY, Detroit: In my experience protein indigestion is very rare in a child at the breast except in case of overfeeding. If a child is overfed all around, and there is too much milk, there will be general indigestion; but otherwise protein indigestion with breast milk is a rare experience. Wet nursing is not so common as it ought to be in this country. It is one of the greatest helps in managing babies, and the general practitioner appears to be too confident of the success of bottle feeding.

Tuberculosis in Children

DR. HERBERT M. RICH, Detroit: The last word has not yet been said in regard to tuberculin tests. Von Pirquet himself does not claim that the tuberculin test is especially suitable for infancy, and I have used it up to the age of 2 years. If the Pirquet reaction is positive under the age of 2 years there is probably a tuberculous process which has not yet been quiescent very long. I have seen two cases of severe conjunctivitis at the children's hospital from the use of the Calmette tests, and the fact that tuberculous chorioiditis is not unusual in small children is an argument for care in its use. I have used the Moro test very little. I have tried it a few times, but have found the v. Pirquet easy to use and satisfactory. The points to be emphasized are that nearly everyone is affected with tuberculosis in childhood, and if physicians are to combat it successfully we must realize that. A number of cases of malnutrition, marasmus and some others which I have seen at autopsy showed broken-down glands, and this has led me to believe that the disease is much more common than we suspect. If we are going to make a great advance in the treatment of tuberculosis we must do it in children. The way in which we will finally conquer tuberculosis, if we do conquer it, will be to teach the children in school and to eliminate school children as the source of infection.

DISCUSSION

DR. VAUGHAN, Detroit: I was glad to hear Dr. Rich say that pulmonary tuberculosis is more common in children than is generally supposed. I was led to think that I could find tuberculosis where it did not exist. In connection with my work on the board of health in Detroit I have had occasion to examine many children of poor families, and have found them infected with tuberculosis to an appalling extent. Whereas the results of physical examinations are somewhat doubtful and dubious owing to the characteristics of the breast sounds in children, still certain of those do show signs not only of consolidation, but also of cavities which were apparent on very superficial examination. I have taken as a rule children of tuberculous parents, having subjected them to the tuberculin test. If they reacted positively they were transferred to the hospital for a period of observation, and without exception these small children have shown clinical evidence of active tuberculosis, as indicated by a rise of temperature to 100 F., and by rapidity of the pulse, both being combined at some stage during the day. My experience has been that these children do remarkably well.

DR. JOHANN FLINTERMAN, Detroit: We do not know where to seek the cause always, but if we investigate these cases and at the time the diagnosis is made take in the whole clinical picture, we would never fail to see that it is tuberculosis.

DR. THOMAS M. KOON, Grand Rapids: In the last two or three years I have used the v. Pirquet test extensively. I have now in the state sanitarium six patients whom I sent there, and in every one of whom I used the v. Pirquet test. The symptoms, the early history, and the findings in each case pointed to the individuals having tuberculosis. On top of that I gave the v. Pirquet test; they reacted, and I felt safe in concluding that I was dealing with cases of active tuberculosis. The Calmette test is considered dangerous by a great many workers, and there is a wide difference of opinion about it.

DR. JOHN H. CROSBY, Otsego: The v. Pirquet test is of value up to 6 months of age, and if a positive reaction is obtained up to that time one can say that the child has active tuberculosis. After that one can simply say that the child has or may have had active tuberculosis. The only positive contraindication for breast feeding in children is tuberculosis in the mother.

DR. FRANK SMITHIES, Ann Arbor: From personal observation of between 600 and 700 instillations of tuberculin into the eye, I may say that only in five cases have there been any serious results, and I may add, at the same time, that if careful examination of the eye had been made previous to the instillation, or if the patient had been kept under close observation it is extremely doubtful as to whether there would have been any deleterious effect whatever.

A Business-Man's Cold

DR. J. VERNON WHITE, Detroit, spoke of vocation and habits as etiologic factors in a common cold; how to prevent a cold; how best, and to what extent a physician can formulate a system of treatment by which a man can continue with his business without jeopardizing his health.

(To be continued)

MEDICAL ASSOCIATION OF THE SOUTHWEST

Fifth Annual Meeting, held at Wichita, Kan., Oct. 11-12, 1910

The President, DR. G. H. MOONY, San Antonio, Texas, in the Chair

Addresses of welcome were delivered by Hon. C. L. Davidson, mayor of Wichita, Dr. O. P. Davis, president of the Kansas State Medical Society, and Dr. E. J. Oldham, of Wichita, Kansas, and were responded to by Dr. J. Beeton, Greenville, Texas.

Colica Mucosa

DR. E. H. THRAILKILL, Kansas City, Mo.: I have chosen the designation colica mucosa from the long list of names that have been proposed for non-infectious diseases of the mucous membrane of the colon. It is most appropriate for it designates the passage of mucus and the attacks of colic. Formerly, this subject was considered a constitutional disease, owing to the lack of scientific knowledge of the etiology and pathology, but in recent years various views and opinions have arisen and have been published. I have adopted the following classification:

1. Those cases due to a motor and sensory neurosis I designate as simple colica mucosa.
2. Those due to extracolonic conditions, causing interference with the movement of the fecal discharges, I designate as colica mucosa reflexa.
3. Those due to an extension of the inflammatory process from the rectum or appendix, or when due to the retention of hardened fecal masses, foreign bodies, or to the prolonged use of cathartics, causing an inflammatory condition, I designate as mucosa colitis.

Each class requires a different treatment surgically and medically.

In chronic cases, or in those due to a mechanical interference or an inflammatory process, the mucus is thick, tenacious and attended with considerable pain, due to the strong peristalsis of the bowel in its effort to dislodge and expel it. The majority of these patients give a history of disturbed digestion or constipation, preceding the onset of this affection. I have had patients give a history of diarrhea preceding or accompanying this trouble. As a rule, the diarrhea was caused by a diet composed of a concentrated food and the lodgment of fecal crumbs throughout the bowels.

DISCUSSION

DR. ARTHUR E. HERTZLER, Kansas City, Mo.: The classification given is very sensible. The difficulty that has arisen in our conception of this disease has been due to confusing the various classes of cases. In some cases the condition is neurotic; in others it is not. We have not used so much care as we should have done in separating the different cases. A patient may present a history of some neurotic condition, and the natural inference is that the trouble is the result of nervous disease, and yet the disturbance may be secondary to some abdominal lesion which is obscured by the existence of the organic trouble. Unfortunately, we are not in possession of enough knowledge of the abdominal conditions which develop in these nervous states. Most of the cases of colica mucosa I have seen have been in neurotic subjects, who have responded to treatment by the neurologist. There are a number of cases attended by stomach disturbance, and in others by diverticular formations, and yet there is no definite pathologic lesion or defined symptomatology.

DR. G. W. ROBINSON, Kansas City, Mo.: My experience with colica mucosa has been confined chiefly to cases among the insane. This condition is more frequent among them than in any other class of patients. Constipation is common among insane patients, and we find that there is a disturbance of the

function of the cells of the central nervous system, and I believe this condition is chiefly a perversion of the secretory nerves as well as the motor nerves of the intestine.

Postoperative Care and Treatment of Suprapubic Prostatectomy

DR. D. W. BASHAM, Wichita, Kan.: Suprapubic prostatectomy offers a marked exception to the expectant plan of post-operative treatment. The after-treatment is fully as important as the operation itself. Many patients either would die or would recover without full functioning power of the bladder unless they had suitable treatment during convalescence from the operation. Suprapubic prostatectomy should not be performed outside of a hospital, unless an experienced male nurse can be left with the patient to attend to the details of after-treatment. Most of these patients are in an enfeebled condition, brought about by years of catheter life with infection of the bladder accompanied with pain and vesical tenesmus. Frequent attacks of urinary stasis may have resulted in an ascending pyelitis. These conditions may all be aggravated by prolonged and crude efforts to pass the catheter. It is possible for pyelitis to be provoked after operation, provided the drainage is not absolutely unobstructed. Drainage is indispensable in most cases of suprapubic prostatectomy. There are a few cases in which the bladder may be closed and urethral drainage depended on, but they are not numerous. The rubber tube having a diameter of not less than half an inch, fenestrated toward the end and having the edges pared to a feathery thinness, constitutes the best method of drainage. If the tube be even larger in caliber, it is still better. Hemorrhage may be controlled and treated through a large tube. The method of placing the drainage tube is important. Neither the drainage tube nor the bladder should be stitched to the abdominal parietes. It is better for these patients to get out of bed early. This facilitates both drainage and the early passage of the urine through the urethra.

DISCUSSION

DR. JABEZ N. JACKSON, Kansas City, Mo.: I am a strong advocate of the perineal route in removing the hypertrophied prostate rather than the suprapubic. In my early practice I resorted to the suprapubic method, but abandoned it subsequently for the perineal, as one of the great difficulties attending the former is the establishment of proper drainage through the suprapubic wound. If I were going to do a suprapubic prostatectomy as a routine measure, I should be inclined to employ the method of Senn, namely, do the operation in two stages, the first stage consisting of making an incision down to and exposing the bladder wall, followed by packing until the cellular space about the bladder is closed by granulations, then making an opening through the bladder. In this way, we do away sometimes with disagreeable infection which takes place in the freshly exposed cellular tissues and which ultimately interferes with the healing of the wound.

DR. BRANSFORD LEWIS, St. Louis: I have always advocated catholiticity in connection with this subject and freedom from being restricted to any one operation, still my preference is for the perineal operation in selected cases. I have never been converted to the use of a large tube, such as is used by Freyer and others, because I have not been able to see the advantage of it, particularly when drainage can be accomplished just as effectually and satisfactorily by a smaller tube which will entail a shorter time for convalescence and granulation than a very large tube. The formation of clots can be prevented by the siphonage apparatus of Bremerman, of Chicago.

DR. E. G. MARK, Kansas City, Mo.: While I favor the perineal route in most cases, yet there are instances in which the suprapubic is unquestionably the one of choice. The main thing after suprapubic prostatectomy is drainage, and patients with hypertrophied prostate requiring prostatectomy practically always have cystitis. To obviate the occurrence of hemorrhage, to secure efficient drainage, and to do away so far as possible with the formation of clots following cystotomy, nothing in my hands has proved so valuable as continuous irrigation for 24 or 48 hours.

DR. J. D. GRIFFITH, Kansas City, Mo.: I have done more suprapubic operations than perineal. While I admit the advantages of the perineal route, I think with Freyer that there are many cases in which a suprapubic cystostomy is demanded, and that efficient drainage is the thing *par excellence*. I believe in irrigating the bladder and in siphonage, and I believe in protecting the space of Retzius with gauze.

DR. HOWARD HILL, Kansas City, Mo.: I favor the use of a large tube through the incision after suprapubic prostatectomy, as I believe it is more advantageous than a small one. After the operation, continuous irrigation with hot water, with the patient propped up well and on the side, will control the hemorrhage. Hemorrhage is one of the serious objections to suprapubic prostatectomy, because it occurs from the time the operation is begun, and hemorrhage marks the first stage in the after-treatment of the patient. In regard to suturing around the tube to prevent leakage, one can secure the skin and bladder together.

DR. G. B. NORBERG, Kansas City, Mo.: My experience has been confined largely to operating on these hypertrophied prostates by the perineal route, and I prefer it to the suprapubic operation.

DR. D. W. BASHAM, Wichita, Kans.: It is evident that the last word on prostatectomy has not been said. Each speaker has voiced his own convictions in the matter, and that spirit is to be admired because it is in that way we advance our knowledge. This is an important operation and it behooves us to master all the details connected with it in order that we may increase its safety.

New Method of Cure for Pelvic Infections in Women

DR. J. F. KUHN, Oklahoma City: Peritoneal infections of the pelvis are easily controlled, because with the Fowler position the infectious material is confined to the pelvic cavity, where toxins are more slowly absorbed than in the upper peritoneal regions, and in consequence the system produces antibodies rapidly enough to counteract their effects. I wish to lay special stress on the treatment through the rectum with normal saline solution. By the method I suggest, the rectum is distended at six hourly periods with from one to four pints of the solution at 105 F., the quantity being gradually increased as tolerance for a larger amount is established. Intermittent periods of hyperemia are produced, thus hastening the destruction of the infecting organisms, inducing more rapid absorption of the resultant plastic lymph, and preventing the formation of dense adhesions so commonly seen in the neglected cases. It has all the other advantages of normal saline solution, stimulating and aiding the emunctories in ridding the system of the products of infection; fortifying the system during its struggle to produce antibodies and finally, by the action of heat locally, relieving the patient of the distressing pain which is the chief complaint. One patient suffering with streptococcus puerperal sepsis was delivered March 10, 1910, and 5 days later had a chill with high fever and great tenderness throughout the whole pelvis. She was placed on this treatment until March 31, when the saline was withdrawn for a few days, to be continued thereafter at twelve hourly intervals. She made a complete and uninterrupted recovery.

DISCUSSION

DR. A. E. HERTZLER, Kansas City, Mo.: In the first stage of gynecologic gonorrhea, the women are put to bed, their bowels are moved, and practically nothing more is done. The result of this line of treatment runs something like this: About two-thirds of the patients recover their health; about one-quarter of these two-thirds will conceive. The remaining third will come to operation. At the end of the first few days there will be a leukocyte count of from 15,000 to 25,000, which will drop down to normal in two or three weeks; this drop is preceded by a drop of the temperature to normal. The temperature falls to normal usually ten days before the leukocyte count does. I have obtained excellent results from the use of autogenous serum in chronic cases of gonorrhea; but experience with the stock serum has not been satisfactory.

DR. J. A. WALKER, Shawnee, Okla.: I have not tried the method outlined by Dr. Kuhn. Usually within a reasonable

time inflammation of the Fallopian tubes will subside and incarcerate itself by the adhesions of the fimbriae and, ordinarily, by occlusion of the uterine end of the tube. The pus cavity will thus be isolated from the general peritoneal cavity, though not sufficiently to prevent the formation of strong adhesions to the surrounding tissues. So long as adhesions are present the patients are going to have trouble. If the inflammation is of a streptococcus nature, the adhesions are more liable to be dense than if they are from the Neisser coccus; and when the adhesions are so strong and dense, I do not believe it is wise to be too conservative and wait too long before breaking them up and removing the foreign body, which an old collapsed occluded tube is bound to be. My practice has been to wait a reasonable time for the inflammation to subside and, perchance, for the pus after having become sterile to be reabsorbed. If I think such a thing has not occurred, I remove the tube, leaving all ovarian tissue possible.

DR. J. D. GRIFFITH, Kansas City, Mo.: We know how dangerous infection is from the Neisser coccus and how frequently we meet it. I have used the serum in these cases, and I have used the knife. I have resected the tubes and tried to save organs that I thought would functionate, but the treatment Dr. Kuhn has outlined in the acute stage of filling up the rectum with normal salt solution, with the patient in the Fowler position, I have never tried, but in the next case which presents itself, I am going to do so.

DR. J. F. KUHN, Oklahoma City: If in a community not larger than Oklahoma City I can treat a series of twenty-eight cases with the treatment I have outlined without a failure, Dr. Griffith and others can certainly achieve the same results in the larger communities in which they practice. I hope they will try the method.

(To be continued)

PHILADELPHIA COUNTY MEDICAL SOCIETY

Regular Meeting, held Sept. 28, 1910

The President, DR. HENRY LEFFMANN, in the Chair

Ehrlich's "606" in Syphilis

DR. HENRY W. CATTELL: I shall simply speak to-night on the technic used in Wechselsmann's wards of the Virchow Hospital in Berlin for the treatment of syphilis with Ehrlich's "606," and make no attempt to review the rapidly increasing literature on this subject. Toward the end of July, I saw five injections given and had the opportunity of examining about 100 patients in all so treated. Our knowledge in regard to syphilis has been increased by: (1) the discovery of the active agent, by Schaudinn and Hoffmann; (2) the diagnosis of the poison by means of the Wassermann reaction, or one of its various modifications; (3) the inoculation of apes, rabbits and guinea-pigs with syphilis. The capsule containing the yellowish compound, dioxidiamidoarsenobenzol, is broken and collected in a sterile mortar, and dissolved in from 1 to 2 c.c. of concentrated sodium hydrate. Methyl alcohol is no longer employed. After solution has taken place, the preparation is again precipitated by the addition of glacial acetic acid. From 15 to 20 cm. of sterile water are added, and the whole centrifugated, the supernatant water poured off, more water added, and the whole brought to neutral by the addition of either a decinormal solution of sodium hydrate or of a 1 per cent. solution of acetic acid. The dose used at the time I was in Berlin was from 0.5 to 0.6 gm. for an adult and 0.025 gm. for an infant. The preparation is injected in a large syringe beneath the scapula, in an area which has first been painted with iodine. One of the strong reasons for choosing the subscapular region is that, in case of arsenicalism, the location is easy of access surgically. A lump is formed which requires some time to disappear. The injections are sometimes followed by pain, fever or malaise, immediately afterward, or coming on after several days. The oldest case of inoculation is now between 11 and 12 months, and Ehrlich must have now nearly 8,000 records, with 7 deaths. It is

marvelous to see a patient come into the wards with pronounced evidences of the disease, and to observe the immediate improvement after treatment. The spirochetes begin to disappear the first day, and in from 48 to 72 hours they are no longer to be found. The Wassermann reaction may, however, remain positive for several weeks. A test similar to that employed in the Calmette or von Pirquet reaction must always be made to determine whether or not the patient has been treated before by arsenic or is peculiarly susceptible to the drug. Ehrlich insists that everybody, before being inoculated, should have the eyes examined and that the physician should ascertain that there are no complications, like grave heart or kidney disease present. This mode of treatment has been carried out by the best observers that Europe affords, and has been undertaken under control conditions, such as have never existed before. The results so far have been astonishing, though I saw three patients in Wechselmann's hands who had returned for a second treatment. The reason given for this was that theirs were some of the earlier cases, in which too small a dose had been administered.

DISCUSSION

DR. L. JAY HAMMOND: Is the preparation used in cases of definite lesions of syphilitic origin, especially in lesions of the central nervous system? My impression has been that Ehrlich advised against its use when such lesions were present, even though there was other evidence of syphilitic conditions.

DR. CATTELL: The users of this remedy are so enthusiastic that they advise it in practically every case. In one of the wards there were no less than ten syphilitic babies suffering from every manifestation of inherited syphilis.

SYMPOSIUM ON HOME TREATMENT AND MANAGEMENT OF TUBERCULOSIS

Home Treatment of Tuberculosis

DR. H. R. M. LANDIS: The necessity of home treatment becomes apparent when we realize that fully 95 per cent. of tuberculous patients must be treated in their homes at least some time during the course of the disease. Home treatment cannot be applied in every case. Simple as the requirements are, we must at least be sure of these if the treatment is to be successful: First, the patient must be willing to obey instructions faithfully; second, he must be able to obtain sufficient aid to get proper food and to be at rest, and third, the home itself should be hygienic. The advantage of home treatment lies in the fact that an individual who has recovered in the locality, and under the conditions in which he will continue to live, is more apt to remain well. The underlying principles in the treatment of tuberculosis are the same, no matter whether applied at the sanatorium, in a health resort or in the home. If there is any difference, it is in the strict attention to details which are so necessary in the home treatment of tuberculosis. Here nothing can be left to chance. What the patient learns he learns from the physician and the visiting nurse, not from the routine practice of the sanatorium. In addition to medical treatment, the problem is a hygienic, a social and an economic one, and all these factors should receive attention.

Rest, Exercise and Food in Tuberculosis

DR. A. P. FRANCINE: In the management of this disease nothing is more important than the proper adaptation of rest and exercise to the individual case. The importance of rest is generally understood; it is the strong arm of the treatment, and is the best agent in combating symptoms. In all moderately advanced cases in which there are fever, rapid pulse, cough, etc., the patient should be confined to bed until these symptoms are relieved. Most patients are better off for a preliminary rest cure, and in the beginning of treatment, even in incipient cases, the individuals should take as little exercise as possible. In poor patients, the necessity of earning a livelihood is an almost insurmountable obstacle to the rest cure, and for this reason such patients should be sent to a sanatorium or infirmary. In chronic cases in which the patients

have no fever or increased pulse rate, but suffer every morning with a coughing spell which may cause vomiting, it is advisable for them to stay in bed till after this attack is over. They should then eat breakfast in bed and after that rest for an hour or two before getting up. Properly regulated exercise is valuable during convalescence, and this point should be emphasized, as there is a tendency to overdo the rest cure. Neglect of exercise is especially liable to occur in sanatorium treatment; it is true that there is a growing tendency to make patients take graduated exercise, but in most instances it is incomplete or ineffectual. There is too general a fear of producing attacks of auto-intoxication, and too great a desire to maintain the patient's weight at the highest point possible. Increase in weight is apt to be looked on as the index of improvement; in a measure this is true, but the individual's strength and endurance must also be developed. The final object of treatment must not be lost sight of; that is, not to make the patient stay well under ideal conditions, but to fit him to lead a life of reasonable activity and usefulness. If this treatment is properly carried out, the patient should be able, if necessary, to go back to the old environment and employment and remain well. The system of graduated labor carried out at the Brompton Hospital Sanatorium is to be highly commended. The patients are nearly all doing outdoor work in the fields and gardens. The work is harder than anything most of them had ever done before, but they all look and feel well. If a patient has a reaction he is put to bed at once and is compelled to remain absolutely still; as soon as he is able to be up again, he is put back at the same work.

In the matter of food, the home treatment of tuberculosis resolves itself into a matter of domestic economies. Strictly speaking, it is a social and economic rather than a medical problem. With the average type of poor consumptive, the food question is a very serious one; it may be considered under the following phases: (1) The cost of food; how can we feed a family properly on five or six dollars a week for food? (2) The choice and selection of foods among the poor and ignorant. (3) The preparation of the food. No class of people lives so extravagantly as the very poor. Their means make it impossible for them to buy in quantity, and their ignorance renders them unable to buy intelligently. While in the aggregate they spend what would be enough money to heat their houses well and cook their food properly, yet two-thirds is wasted. Food is selected which will require the least cooking or which may be easily cooked, as, for example, by frying. They never bake, but buy baker's bread. Vegetables are little used on account of the trouble of cooking, and this applies also to cereals. Pickles and jellies are much used, often at every meal. Tea and coffee are frightfully abused, children often being sent to school without any other breakfast. All these problems could be solved if there existed in connection with philanthropic agencies, and particularly in connection with tuberculosis dispensaries and diet kitchens, where patients could be sent to learn how to economize in the choice and selection of food; where they could learn the simpler rules of cooking, and could be instructed in the use of the fireless cooker, and where the supervision of the physician could be supplemented by easily learned facts in regard to habits of eating.

Ultimate Results in the Treatment of Pulmonary Tuberculosis with Mercury Succinimid

This article, by Dr. H. J. Hartz, appeared in full in THE JOURNAL, Sept. 10, 1910.

Discussion on Tuberculosis

DR. LAWRENCE F. FLICK: The home treatment of tuberculosis contains really almost all of the essential features of the sanatorium treatment of tuberculosis—complete control of the patient; the greatest amount of comfort of life; the best and largest amount of food and the greatest freedom from worry. It is my experience that these essential features can be accomplished better in the home than under what is called climatic treatment. We should bear in mind also that

something can be done by medication. Too much stress has been laid on hygiene, rest and climate, without any regard to medication. Fresh air is good, but we may go to extremes in insisting that the patient must sleep out of doors. That is ideal, but for practical purposes, a room with windows on two sides, with the bed near the open window, is sufficient, if everything else is right. The most important one factor in the treatment of tuberculosis is a proper food supply, of the kind which is adapted to the individual. I believe that we should select carefully the diet of each patient, adapt that diet to the capacity of the individual to digest the food, and watch closely whether we have the right diet by the weight. There does not need to be a fabulous increase in weight, but there must not be much decrease below the normal. As a general proposition, I would lay down the rule of one solid meal, three quarts of milk and six eggs a day, as the place to start from. This diet can be varied one way or the other. The prevention of reinfection is an important element in treatment too often forgotten. It should be remembered that, as a rule, there is no complete immunity against tuberculosis. Exercise, though a valuable asset, is sometimes a dangerous one. When in doubt as to its value, it is safe to maintain complete rest. Exercise can be used profitably provided it is graduated. Graduated exercise, I may say in this connection, did not originate at the Brompton Hospital at Frimley, but at White Haven. Severe coughing is frequently due to an overloaded stomach and indigestion, and these attacks may often be avoided by regulation of the diet.

DR. WILLIAM G. TURNELL: Public education has reached such a point that there is little difficulty in dealing with tuberculosis among the wealthy classes. In the treatment among the poor it is important that we adapt ourselves to their circumstances rather than try to reach ideal conditions. Only by understanding the home life of these people, as Dr. Landis and Dr. Francine pointed out, can we hope to help them. We must find out what a patient can do, learn for ourselves the prices of articles of diet, their food values, and how they should be cooked. If then we give this information intelligently our patients will follow directions.

DR. MYER SOLIS COHEN: If a small portion of the many acres of Fairmount Park could be set apart for a public tuberculosis camp, much of the difficulty in the home treatment of tuberculosis could be overcome. There would be practically no expense to the city; the camp could be placed on the line of the park trolley; the Red Cross Society or other agency would probably furnish reclining chairs, etc. The Board of Health, of course, should have charge of such a camp.

DR. A. B. IIRSH: In connection with the outdoor treatment of tuberculosis, two facts stand out in regard to the building of houses: In the Latin countries we find verandas on the second and third floor, and the part of a house which faces the prevailing winds stands back 10 or 15 feet from the first floor. In Philadelphia, much good could be done through the newspapers by urging builders to change their architecture and follow to some extent this method. Builders should be told that the streets between the main streets along which they put their double rows of two-story houses should run east and west, so that the prevailing winds should be of use to the families. Another advantage noticed in the buildings in Europe is the French window, which not only gives fresh air but adds to the esthetic appearance of the room.

DR. JOHN H. MUGGETT: In addition to hygienic treatment of tuberculosis, I use tuberculin, and I have had very good results.

DR. ALBERT P. FRANCINE: I consider Dr. Hartz's results important, because they have the effect of checking the use of mercury as a therapeutic agent in tuberculosis. Personally, I have felt that there was just enough plausibility in Dr. Wright's theories to be likely to deceive, and I have further felt that the probability of syphilitic infection in his cases was one of the probable sources of error in regard to his own views on the efficacy of mercury. I would not say that in so far as syphilis may be a factor in a given case mercury may not do good. However, I have had a number of tuber-

culous patients who gave a markedly positive Wassermann reaction, but who were without tangible syphilitic symptoms, and whom I have treated with mercury without any apparent benefit. I wish that Dr. Wright might be here to speak for himself, because there seems to be an element of unfairness in criticising a man's work in his absence. I think, however, that Dr. Hartz has made a strong case, and in so far as it should combat what might prove to be a serious fallacy in the treatment of tuberculosis, I endorse every word of it and congratulate him heartily on his careful work.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

October 15

- 1 *Management of Poliomyelitis and Its Sequelæ. H. L. Taylor, New York.
- 2 *Bacterial Vaccines in Treatment of Diseases Among the Aged. H. A. Craig, New Brighton, S. I., N. Y.
- 3 Complement-Fixation Tests in Thromboangiitis Obliterans. L. Buerger and D. J. Kaliski, New York.
- 4 Relative Value of Symptoms, Physical Signs, Tuberculin, and the Roentgen Ray in the Diagnosis of Tuberculosis. H. F. Stoll, Hartford, Conn.
- 5 Ehrlich-Hata "606." A. L. Wolbarst, New York.
- 6 Three Cases Treated with Antigonococcus Serum. M. Zigler, New York.
- 7 *Fracture of the Pubic Bone. T. Abbe, Washington, D. C.

I. Management of Poliomyelitis.—Taylor thinks that time is wasted in treating anterior poliomyelitis with massage and electricity. The prevention of deformities and their correction is of the utmost importance. After deformity has taken place it is important to correct it by apparatus and operations. Improvement may be obtained even in cases of long standing by these measures, and a fair amount of motion obtained by careful balancing of the muscles.

2. Treatment of Diseases Among the Aged.—Craig reports 19 cases of various kinds in persons from 60 to 85 years of age in whom reactions were obtained to vaccines, chiefly of the streptococcus and staphylococcus. The mortality in spite of vaccines was 13 per cent.; 13 per cent. of deaths were from cancer.

7. Fracture of the Pubic Bone.—In the case reported by Abbe, a fracture of the pubic bone on the left side was caused by a fall on the hip. The diagnosis was confirmed by Roentgen-ray examination. The symptoms were inability to turn over in bed, or to move the left leg fully from the hip, with tenderness over the ramus of the pubes on the left. Pressing together the great trochanters or the iliac crests caused pain in the pubes. Strapping the pelvis with an encircling band gave comfort and enabled the patient to turn in bed and to move the leg better. The patient recovered with good gait.

Boston Medical and Surgical Journal

October 13

- 8 *Acute Thoracic Empyema. Avoidance of Chronic Empyema. Rib Trephining for Suction Drainage. S. Robinson, Boston.
- 9 Scolliosis. E. H. Bradford and R. Soutter, Boston.
- 10 Absorption of Fat and Protein in Pulmonary Tuberculosis. A. E. Austin, M. Ordway and R. Montague, Boston.
- 11 *Test for Diarrhea Caused by Gas Bacillus. A. I. Kendall and R. M. Smith, Boston.
- 12 Two Cases of Common Speech and Voice Defect and Their Treatment. A. Myerson, Boston.

8. Acute Thoracic Empyema.—Cases of purulent pleurisy are divided into three classes by Robinson: Acute, subacute and chronic. Suction or siphon drainage aids in the reexpansion of the lung in all cases of the first group; in most of the second, probably in none of the third. Suction even though inefficient is better than no suction, provided suction is constantly applied. Prevention of leakage requires above all things an air-tight thoracotomy wound. This is best obtained by the rib-trephining method with the application of a threaded metal tube. The particular form of suction device applied to the air-tight wound will depend on the means at hand.

The importance of maintaining air-tight suction leads Robinson to advocate a method of rib-trephining, which he has employed in cases belonging to the first and second groups with greater success than with any of the other methods. He advocates local anesthesia, except in nervous patients, to whom it is not suitable. When first employing this treatment, after trephining the rib, he inserted a rubber tube selected to fit as tightly as possible, holding it in position by adhesive plaster and safety-pin or with a stitch through the skin. This prevented leakage for a number of days and was a great improvement on all other methods employed. Even this leaked too early, and to prolong the period of air-tight closure Robinson substituted a metal tube with a thread cut on one end and corrugated for the attachment of rubber tubing on the other. These tubes are made in different sizes and of different lengths to suit the individual case, depending on the size of the rib and the depth of the chest wall tissues to be traversed. The less the tube projects beyond the skin, the better, as it receives better support by the soft tissues and the skin. It is not necessary to allow the corrugated portion to project beyond the skin sufficiently to support the end of the rubber tubing, for this may be applied to a depth within the soft tissues before the latter are sutured around it.

The skin is anesthetized, incised for two inches over the selected rib, dissection is then carried on under further local anesthesia. With gentle retraction of the edges of the wound an anesthetic compress is applied to the periosteum with pressure for at least 30 seconds; this membrane can then be scraped away for a length of 2 cm. without causing pain. A cranial trephine of the exact outside diameter of the tube to be inserted is then applied directly over the center of the rib. Care should be taken to leave a bridge of rib at least 3 mm. in width above and below the trephine opening. When it is evident that the posterior periosteum is reached at any point in the trephine's circle, the needle should be inserted in the crack and the periosteum and over-sensitive pleura anesthetized, even if the solution is allowed to leak into the pleural cavity. Traction on the pleura caused by removal of the button is thus rendered painless, as is also exploratory puncture. After removing the button with mouse-tooth forceps, a Cabot trocar should be inserted into the pleural cavity to verify the selected point of drainage. This should be done with caution so that only a drop or two of pus escapes and does not come in contact with the superficial tissues. One of the metal tubes is then screwed with the fingers into the trephine opening. The muscles and skin, which should have been spared infection, are now sutured. A collodion dressing with a circular opening is then applied, and with the wound thus protected the complete opening of the pleura is indicated. This can best be done by the use of a pointed or blunt bistoury or a long-bladed scalpel, which is passed through the metal tube to the pleura. Great care should be taken to do more than merely incise the pleura, the knife being used for the purpose of excising a section of pleura the size of the tube. During this process, pus, of course, escapes freely, but runs directly into a basin and need not come in contact either with the skin or sterile sheet or even drench the floor. A rubber tube about 6 inches in length with a clamp at its outer end is then slipped over the corrugated portion of the metal tube and tied. No outside dressing or swathe is needed, and after sufficient removal of the pus contents at the time of operation the clamp is reapplied to the rubber tube and the patient sent to the ward.

11. **Test for Diarrhea Caused by Gas Bacillus.**—In order to throw light on the distribution of the gas bacillus in the stools of children with diarrheal diseases, Kendall and Smith have utilized the abundant material in the Boston Floating Hospital. The method employed in detecting the gas bacillus is simple, rapid and certain. It consists essentially in inoculating sterile tubes of whole milk with a small portion of the suspected stool, thoroughly emulsified in it, and immersed in a water bath to above the level of the top of the milk and heated to 80 C. for 20 minutes, incubating at body temperature for from 18 to 24 hours. As an alternative procedure, the infected milk tube may gradually be brought to the boiling point of water in a water bath, kept there for 3 minutes,

then incubated as above. By so doing, all bacteria not in the spore state are killed, and the development of the spores into vegetative cells is unrestricted by the presence of non-spore-forming organisms. Those cultures containing gas bacilli present at the end of the period of incubation three prominent features: (a) The casein is largely dissolved (usually at least 80 per cent.); (b) the residual casein is slightly pink in color and filled with holes, the result of the stormy fermentation; (c) the culture smells strongly of rancid butter, due to the formation by the gas bacillus of butyric acid. Gram-stained preparations made from such growths show rather thick, short bacilli with slightly rounded ends. Controls suitably studied culturally have shown that cultures presenting this complex are in reality gas bacilli.

The authors have examined by this method the stools from 231 infants presenting a variety of intestinal disturbances and a few other diseased conditions. It was possible to isolate the gas bacillus from 22 cases. Six of these infants had apparently normal stools; 2 had thin watery stools with a few curds and a little mucus; the remaining 14 showed blood and mucus and many of them pus in the stools. The clinical diagnosis in these 14 cases was uncertain, but suggested bacillary dysentery. It was not possible in any case in which the gas bacillus was recovered from the stools to isolate simultaneously the dysentery bacillus. The diagnosis of diarrhea due to an infection with the gas bacillus can be made by the means described within 24 hours, at the end of which time it is possible to begin treatment with a definite idea as to the etiology of the condition. The management of all acute diarrheas during this period of 24 hours while the cultures are developing and while the diagnosis is being made, is practically the same, namely, purging and starvation. So far, the application of the method as outlined and the subsequent treatment with buttermilk has been limited to relatively few cases, but the results obtained have been uniformly satisfactory and would seem to justify the belief that the gas bacillus is the etiologic factor in a small group of the acute diarrheas in infants.

New York Medical Journal

October 15

- 13 The Mechanobiologic Standpoint in Medical Problems. J. Wright, New York.
- 14 *Nervous Affections in Relation to the Adjustments of the Eyes. G. T. Stevens, New York.
- 15 *Comparative Value of Different Methods of Cancer Treatment. J. W. Vaughn, Detroit, Mich.
- 16 Autogenous Vaccine Therapy in Acute and Chronic Otitis Media. S. J. Kopetsky, New York.
- 17 Phenol Poisoning. C. B. Burke, Atlantic, Iowa.
- 18 Fifteen Cases of *Hymenolepis Vana*. C. C. Bass and J. M. Gage, New Orleans.
- 19 Intimate Relations Which Hospitals Bear to Public Health. H. W. Anstin, Stapleton, N. Y.
- 20 Hypopituitarism. E. S. Cross, Savannah, Ga.
- 21 Hyperchlorhydria Apparently Relieved by Use of Prisms. C. J. Astle, New York.

14. **Nervous Affections in Relation to Adjustments of Eyes.**—Stevens presents a short series of studies of nervous affections in their relations to the adjustments of the eyes, the studies being based each on a single case of sufficient importance, observed with reasonable care, and sufficiently well defined in its character to afford opportunity for observing not only the phenomena, but the course of treatment and the results of such treatment. Such a series of studies would appear to be of more value than conclusions derived from a number of isolated and, perhaps, not fully correlated facts and surely of more value than attempts to theorize from principles which might or might not apply to the cases. The first study was made on a case of chronic progressive chorea. The boy was 16 years of age, was of about the usual height for his age, but was quite thin and pale. He was 3 years old before he walked, but when he was only 2 years of age he began to manifest the twitchings of chorea to a moderate extent. At the age of 6 the convulsive movements were very bad and his head tipped from side to side. As he grew older and somewhat stronger there were times when he was sufficiently quiet to attend school for a week or for 2 or 3 weeks at a time. He was an apt pupil and seemed to keep well along, though what he learned seemed to be more by the

ear than by the eye. At the age of 9, by the advice of physicians, he was removed from school and since that age he had never attended any school.

The nervous condition was manifested by a stamping of the heels against the floor, the clapping of the hands, the striking the head in its bobbing between the knees and up again, of the ejaculatory sounds. As he walked he stopped once in a few steps and gave a jerk of the shoulders backward and of the abdomen forward, making at the same time one of his characteristic sounds. His face was in perpetual motion and his body was never still. Occasionally as he walked he stopped for a general convulsive attack of a much more violent character than that just mentioned. Vision of each eye 6/6, right without glass, left with cyl. +1.25 axis 90°. Hyperphoria=0; esophoria=16°, deviation in exclusion corresponding to the esophoria shown by the phorometer. Rotations were all free and normal, but the rotation upward of 42° was in excess of the most favorable rotation in that direction. Declinations, right+1°, left+6°. The boy could see single, but images were confused when both eyes were open and the interposition of a faintly colored glass before either eye induced diplopia.

The correction of the declinations was the aim of all the efforts to correct the adjustments. No treatment was instituted directly against the esophoria, for in case the declinations could be corrected there was no reasonable doubt that the esophoria would correct itself. The treatment was surgical, consisting of operations to which Stevens has given the somewhat contradictory designation of "extendocontraction" of a tendon.

The time of observation of this case was rather more than a year, during which there was, at first, a rapid and then a steadily progressive improvement. While during the early weeks of treatment, moderate nervous attacks occurred from time to time, as the months progressed these days of restlessness became progressively less frequent until during the last few months no return of the malady was observed. A year later he was well, and later than that he was well and at work.

15. Treatment of Cancer.—Vaughn has made daily differential counts in 25 patients with various forms of cancer who were receiving injections of cancer residue. Within from 24 to 48 hours following a residue injection the percentage of polymorphonuclear elements falls from 5 to 40 per cent., while there is a corresponding increase in the percentage of mononuclear cells. These observations, when compared with the blood changes found in connection with the administration of cancer residue, are of particular interest, since the type of mononuclear cell which is found to take part in the most decided increase is the myelocyte, with a fairly dark staining nucleus surrounded by a larger amount of protoplasm than is found in the small mononuclear cell. Also the protoplasm of these cells seems to contain, in most instances, a greatly increased number of azure granules. The temporary conclusion that must be drawn from the blood changes noted is that the specific ferment which destroys the cancer cell is in all probability formed through a chemical reaction with the cells of the mononuclear variety.

Lancet-Clinic, Cincinnati

October 8

- 22 Physical Forces in Tuberculosis. C. Pope, Louisville, Ky.
23 Simulation of Hysteria. T. A. Williams, Washington, D. C.
24 Water the Main Factor in the Prevention of Disease. J. C. Minor, Hot Springs, Ark.

Journal of Medical Research, Boston

October

- 25 *Reaction Curve of Human and Bovine Type of Tubercle Bacillus. T. Smith, Boston.
26 *Relative Importance of the Bovine and Human Types of Tubercle Bacilli in the Different Forms of Human Tuberculosis. W. H. Park and C. Krumwiede, New York.
27 *Phenol as a Clearing Agent. L. M. DeWitt, Ann Arbor, Mich.
28 *The Viscosimeter as an Aid in the Detection of Liquefying Bacteria. J. C. Torrey, New York.

25. Reaction Curve of Human and Bovine Type of Tubercle Bacillus. In several earlier publications Smith described a culture method for distinguishing the bovine from the human

type of bacillus, which consists in determining from time to time, over a period of from three to four months, the reaction of glycerin bouillon in which tubercle bacilli are growing. The curve resulting from such determinations can be plotted and it presents certain characters which under like conditions remain fairly constant for each culture. Several other investigators have applied this method in their studies of tubercle bacilli from human and animal sources. Their results impressed on Smith the desirability of going over the method again and determining more precisely the conditions which make uniform results possible. He therefore collated the new data obtained during the past two years and used these as a basis for further investigation.

He says that experience has taught him the need of applying certain uniform methods in following the reaction curve. In the first place, the depth of the bouillon and the size of the flask should be the same for all comparative tests. The amount of glycerin used also tends to modify the result. To make conditions uniform the glycerin should be entirely consumed or else a certain amount should remain unused. The initial reaction of the bouillon probably does not greatly influence the curve if the acidity be maintained within 1 to 2 per cent. of a normal acid. Great care must be exercised not to use figures obtained by titrating fluids from contaminated flasks. The faintest cloudiness of the fluid is suspicious. The question toward which nearly all the data tend is whether the process indicated by the reaction curves of the two types of bacilli are qualitatively identical or not.

In a former communication Smith endeavored to explain the differences in the reaction curves by assuming that the bovine bacillus utilized the glycerin without splitting it into acids, whereas the human type first split into acids. This explanation was not accepted by Griffith nor by Siebert, who regard the behavior of both types toward glycerin as the same. That the behavior is not identical is evident from the data Smith presents, but whether it is variable, inconstant and the resultant of essentially the same functional activities of the two types cannot be determined until much more work has been done. When cultures have been recently isolated, the difference in behavior of the two types is striking. With the continued artificial cultivation the bovine strains grow more abundantly and the reaction after two or three months becomes acid. Within this period the difference between the bovine and the human type is marked even in old cultures. After three months the culture fluid of many bovine strains is from 0.5 to 1.5 per cent. acid. It still remains to be determined whether this acidity coming on so late is not wholly to be ascribed to disintegrative changes. Smith says that the original distinction made by him will stand until overthrown by more thorough, analytic studies than have been made up to the present.

The reaction curve of tubercle bacilli in glycerin bouillon has proved of great value to Smith in studies of tubercle bacilli. Among the criteria for distinguishing the bovine and human type of bacilli, such as slow or rapid growth, high or low virulence for rabbits, Smith regards the difference in the reaction curve as the most interesting and at the same time the most puzzling phenomenon. It is closely bound up with vital processes of this species of which we know as yet very little. All claims of transformation by passages of the human into the bovine type, or *vice versa*, must, in Smith's estimation, pass the test of the reaction curve as well as others before such transformations can be accepted as accomplished facts.

26. Bovine and Human Types of Tubercle Bacilli.—This article covers 160 pages, and is based on a large amount of personal observation and experimentation, the data in each instance being carefully recorded and fully discussed. It is impossible to abstract the paper, valuable though it is.

27. Phenol as a Clearing Agent. DeWitt says that monophenol which fades the stains commonly used in histologic work, can be corrected by redistilling, stopping the distillation as soon as the temperature begins to rise above the constant boiling point of the phenol. The substances passing over at a lower point are not injurious to the stains. If

redistillation is not convenient, the carbol-xylo which fades the stains can be corrected by supersaturating it with a mixture of sodium bicarbonate, one part, and sodium-potassium tartrate, two parts. Often the sodium bicarbonate alone will correct it. It may also be partially corrected by the addition of from 0.5 to 1 per cent. of pyridin.

28. **The Viscosimeter.** It seems probable, according to Torrey, that with the aid of the Oswald viscosimeter the test for the liquefaction of gelatin on the part of bacteria may be reduced from 14 days, as at present, to 4 or 5 days. If this statement proves valid, a definite report on the presence of *K. Coli* in a sample of water may be given within a week instead of after two weeks as at present. Cultures which liquefy very slowly and at the same time produce a viscid substance may be unsuited for the test. As an aid in the biometric study of bacterial liquefaction this apparatus should prove of value.

Medical Review, St. Louis

September

- 29 Eradicative Treatment of Syphilis. J. Dardel, Aux-Lesbain, Savoie, France.
- 30 Myofibroma of the Bladder Simulating a Uterine Myofibroma. A. H. Levins, Milwaukee, Wis.
- 31 Cystoscope and Urethral Catheter. A. W. Abbott, Minneapolis.
- 32 Closure and Drainage Following Supra-Pubic Cystotomy. C. S. Venable, San Antonio, Texas.
- 33 Pseudohypertrophic Paralysis. F. L. Christian, Elmira, N. Y.
- 34 Extraperitoneal Rupture of the Bladder. J. E. Cannaday, Hansford, W. Va.
- 35 Curative Treatment of Carcinoma, Especially as It Affects the Cervix Uteri. G. G. Hopkins, Brooklyn, N. Y.
- 36 Pruritus Vulvae—Its Treatment. T. H. Allen, New York.
- 37 Glycerin as a Dressing for Prevention of Suppuration. H. Lilienthal, New York.

Long Island Medical Journal, Brooklyn

October

- 38 An Historical Outline of the Life of Charles Jewett. W. Schroeder, Brooklyn, N. Y.
- 39 The Brooklyn Hospital. W. H. Cary, Brooklyn, N. Y.
- 40 Dairy Inspection. H. Moak, Brooklyn, N. Y.
- 41 Effect of Influenza on the Heart. E. E. Cornwall, Brooklyn, N. Y.
- 42 *Treatment of Pneumonia in Children. W. D. Ludlum, Brooklyn, N. Y.
- 43 Id. J. D. Sullivan, Brooklyn, N. Y.
- 44 Unresolved Pneumonia in a Child Treated by Mixed Vaccines. L. C. Ager, Brooklyn, N. Y.

42. **Treatment of Pneumonia in Children.**—Ludlum emphasizes the importance of fresh air, rest in bed, sufficient clothing to be comfortable, reduced diet. He says that a tepid bath should be given daily to maintain the proper function of the skin. In the early stage counter-irritation may be of value, the best form being the homemade mustard paste. Poultices and clay pastes are positively harmful to the infant and, to say the best of them, of very doubtful value in the older child. They should not be used. Similarly the formerly much-used pneumonia jacket is condemned as useless and harmful. Aside from its use as antipyretic and sedative mentioned below, the local application of cold is at times very valuable; when cyanosis is marked and respiration shallow nothing aids deeper respiration and clears up the cyanosis so well as a cold chest compress. If the fever is giving trouble, hydrotherapeutic measures should be employed. The simplest and, at the same time least effective, is cold sponging. If simple sponging is not adequate, the best way to secure more positive action is by the cold pack, with the greatest emphasis on the fact that coal-tar products are very rarely to be given, though Ludlum says that there is an occasional case in which a small dose of phenacetin works admirably to control fever and restlessness.

At the beginning of an attack, in addition to a cathartic, a refrigerant, such as potassium citrate, in dose of 1 grain to each year of the child's age up to 4, or liquor ammonia acetatis, 15 drops at 1 year up to 1 dram at 4, with tincture of aconite from ¼ drop at 6 months to 1 drop at 3 or 4 years, greatly adds to the child's comfort and has some value in reduction of fever. This is usually kept up for one or two days. An average case will frequently require no other medicinal treatment. Stimulants are usually not necessary, and should never be given till the occasion arises. If there is threatened failure of the heart, particularly at the crisis, the best drug is usually strophanthus, given in the form of

the tincture, 1 drop for a child of from 6 months to 1 year, 2 drops for a child from 3 to 5 years. Strychnin is occasionally called for in a heart weak and irregular and not very fast. For right heart failure nitroglycerin is indicated. Alcohol, if needed at all, must be used in good-sized doses, in the form of whisky or brandy.

In bronchopneumonia, Ludlum says, poultices, pneumonia jackets and their like are to be condemned, only more strongly than in lobar-pneumonia; for this is typically an asthenic disease and their damage is even greater. On the other hand, counter-irritation in the early stages is of decided value, because its influence is left on the accompanying bronchitis. The mustard-paste is a very satisfactory mode of application. The cold compress to the chest is useful under the same conditions as in lobar-pneumonia, but the child's condition must be watched with even more care; shock must be watched for and the extremities kept carefully warm; its value in selected cases and given with extreme care is very great. Inhalations are of great value while the secretion is still scanty; plain water, lime water or, best, water containing from 10 to 20 drops of creosote or 1 teaspoonful of compound tincture of benzoïn to the pint. The inhalation cannot be given with full satisfaction except under a tent, but there is some value in the free escape of medicated steam in the room. After free secretion has been established the inhalations are of no further use. A full sponge bath may be given daily for cleanliness and to keep the skin active. Hydrotherapy should be carried out just as in the lobar type, tepid or cold sponging or the cold pack; watch carefully for shock or cold extremities. Laxatives should be employed as needed, but the initial cathartic is not a routine measure as in the lobar form.

Expectorant drugs, so called, are of value because of the bronchial irritation. Ludlum most commonly employs ipecac in doses of 2 drops of the syrup for a 1-year-old child, from 3 to 5 drops for a 5-year-old or upward; with ½ grain of ammonium chlorid for the younger age, 1 grain for the elder; in these doses the stomach is rarely deranged. If cough is very distressing and unproductive, he uses codein 1/30 grain, or Dover's powder ¼ grain for a child of 1 year. After secretion is well established, if an ammonium salt is still needed to aid in its expulsion, the carbonate is the best and should be given in similar small doses or in the form of the aromatic spirits, from 3 to 5 drops at the age of 1 year, 10 drops at 5 years. Creosote in the form of the carbonate is useful in some cases in the later stages, but Ludlum rarely uses it in children under 4 or 5 years; at this age the dose is 2 or 3 drops. Stimulants are needed much oftener than in the lobar type, but by no means should they be used too early. Strychnin is the best if the pulse is weak and irregular and not particularly fast. If the pulse is rapid, i. e., 150 or more when the child is asleep, strophanthus is indicated, 1 drop at 1 year, 2 drops at 5. Alcohol should be left until late when, if needed at all, the dose required is large, 20 or even 30 drops of whiskey or brandy well diluted at the age of 1 year. In cyanosis, glonoin in dose of 1/200 grain to a 1-year-old child may be of value, and in extremely shallow breathing atropin 1/400 grain for the same age.

Journal of the Kansas Medical Society, Kansas City

September

- 45 Mediastinal Tumor. J. J. Trebar, Hudson.
- 46 The Physician's Connection with Pharmaceutical Houses. B. R. Riley, Benedict.
- 47 Effect of Disturbances of Glands Having Internal Secretions. F. H. Slayton, Wichita.
- 48 Is Insanity on the Increase? J. N. Hill, Osawatomic.

October

- 49 *Radical Cure of Inguinal Hernia. G. M. Gray, Kansas City, Kan.
- 50 Review of Recent Literature on the Relations Between Diabetes Mellitus and Pregnancy. W. C. Harkey, Kansas City, Mo.
- 51 Acute Nephritis, a Sequela of Tonsillitis. R. C. Harner, Green.

49. **Radical Cure of Inguinal Hernia.**—Gray believes that with the uniformly good results that are now obtained by operative procedure, that we should advise operation in all cases between 2 and 60 years of age, unless for some very good reason; for example, if the person be suffering from some

chronic ailment, such as diabetes, chronic interstitial nephritis or valvular disease of the heart, when operation, as a rule, should not be considered. All others, as a rule, should be promptly submitted to operation. Even individuals who fear a general anesthetic can be operated on under cocaine or other local anesthetic. Further, in view of the uniformly good results and the very small percentage of mortality attending these operations, it would seem utterly absurd at the present time, he thinks, for any physician to advise the young adult or middle-aged man or woman, or even one in youth or old age, to wear a truss, rather than submit to an operation.

Alabama Medical Journal, Birmingham

September

- 52 Foramitti's "Tubulization" Method of Nerve Suture. G. Torrance, Birmingham.
- 53 Progressive Therapeutics. J. G. Wilkinson, Ragland.
- 54 Report of 128 Surgical Cases. W. T. Berry, Birmingham.
- 55 The Owen Bill and Its Opponents. S. A. Knopf, New York.
- 56 An Epidemic of Fever Prevailing in Lawrence County (Ala.). What Is It? J. W. Fennell, Landersville.

Journal of Cutaneous Diseases, New York

September

- 57 *Syringoma. O. S. Ormsby, Chicago.
- 58 Determination of Impetigo Contagiosa to the Mucous Membranes. D. W. Montgomery, San Francisco.
- 59 Elements in the Prognosis of Acquired Syphilis. E. L. Keyes, Boston.
- 60 Dermatitis Exfoliativa Treated with Quinin. W. H. Mook, St. Louis.

57. **Syringoma.**—The lesions in Ormsby's case were very extensive. They were situated in greatest abundance over the breasts, arms, forearms, face, eyelids, thighs and legs. On the limbs the extensor surfaces were more considerably involved. The lesions were very numerous over the breasts and over the extensor surfaces of all the limbs. There were, however, many on the flexor surfaces and a few on the back, especially over the buttocks and on the upper part of the trunk around the shoulders. The palms, soles and scalp were free. Some lesions were fairly superficial and flat; others were deeper and not flat; while many were quite deep. Large numbers occurred as discrete nodules; others coalesced and formed lobulated plaques. On the arms the nodules were flattish, yellowish-brown, appearing much like xanthomatous lesions. Similar growths occurred on the forearms, but here many were smaller, having only the normal hue of the skin. On the lower limbs where they were numerous, the color varied; some were bluish-red, brownish-red or yellowish-red. In general, much more color was exhibited here than elsewhere. Over the breasts the color was pinkish and darker red. Over the neck and face large numbers were colorless. On the eyelids much deformity was produced by the protuberance of the nodules. Here some appeared translucent and some resembled fibromata.

Radiotherapy moderately applied caused appreciable diminution in the size of the lesions. Several of the latter, treated with a ten-second exposure to carbon-dioxid snow, completely disappeared. Apparently, they were especially susceptible to each of these forms of treatment. The wounds made by biopsies healed readily by primary intention. The lesions were much more extensive than in any previously recorded case, though the individual lesions are similar in many respects to those described in connection with cases of syringocystoma group. Histologically, the sections show the most marked pathologic changes at all times in the region of the sweat ducts, and strong presumptive evidence is obtained from the sections that the new growth is a proliferation-product of the cells of these ducts. A connection between the cells of the hair follicles or of those of the epidermis with those of the new growth could not be demonstrated, nor was it suggested.

Virginia Medical Semi-Monthly, Richmond

October 7

- 61 Acute Cerebral Compression. Report of Cases. H. S. Maclean, Richmond.
- 62 *Social Aspect of Gonococcus Infection of the Innocent. W. A. S. Dorland, Chicago.
- 63 Gonococcus Infections in Women. H. O. Marcy, Boston.
- 64 Intubation for Relief of Stenosis in Laryngeal Diphtheria. P. D. Upson, Richmond.

62. Abstracted in THE JOURNAL, July 16, 1910, p. 244.

Denver Medical Times and Utah Medical Journal

October

- 65 Ehrlich's New Remedy, "606," for Syphilis. Z. von Dworzak, Denver.
- 66 Id. A. J. Markley, Denver.
- 67 *Amputation of the Epiglottis in Laryngeal Tuberculosis. L. B. Lockard, Denver.
- 68 Is Syphilis a Contagious Disease? F. Clift, Salt Lake City, Utah.

67. **Amputation of the Epiglottis.**—Extensive studies on the living and dead have shown that approximately one-third of all consumptives have, in greater or lesser degree, coincident involvement of the throat, and statistics prove that in over 20 per cent. of the laryngeal cases the epiglottis is involved. Lockard has had 961 cases of laryngeal tuberculosis, in 136 of which there were lesions of the epiglottis. Of 1,671 patients with lesion of the larynx, 127 had lesions of the epiglottis. In 4 cases, the laryngeal disease was limited to the epiglottis. Epiglottidean tuberculosis is practically always associated with advanced disease of other segments of the larynx and of the lungs, and to this fact, in large measure, Lockard says, can be accredited its appalling mortality, for even if the epiglottidean disease were capable of arrest or cure, the patient would usually succumb to these concurrent processes. Even when the pulmonary and other laryngeal foci are incipient or quiescent, their advancement is rapid after breaking down of the epiglottis, for the severe dysphagia and resultant cachexia soon destroy what little vitality the tissues have retained, and these conditions have generally supervened by the time the case comes under observation.

From such statistics as are available, it would seem that the general mortality of these cases, including both the incipient and the advanced, is in the neighborhood of 90 per cent. If one took into account the advanced cases only, those associated with severe dysphagia, it would be found that not more than 1 or 2 per cent. result in local healing. In addition to the failure to cure or even temporarily to arrest the process, little is achieved in the way of relief. Any method of treatment, therefore, that offers some hope of local cure in favorable cases, and promise of euthanasia in the incurable deserves serious consideration, and such a method Lockard thinks we possess in complete amputation. Of the 27 patients operated on by the author, 26 were completely relieved of pain; in 8 the larynx was cured, and in 5 the pulmonary process eventually became quiescent; 3 patients are still under treatment. In one case the palate was also involved, but even in this instance deglutition was greatly facilitated. Of the cured patients one has endured 5 years and 6 months, and one 4 years and 8 months.

Journal of the Delaware State Medical Society, Wilmington

October

- 69 Puerperal Insanity. T. H. Davies, Farnhurst.
- 70 Mysticism in Medicine. W. H. Kraemer, Wilmington.

Southern Medical Journal, Nashville, Tenn.

September

- 71 *Diagnosis of Surgical Lesions of the Kidney. L. Frank, Louisville, Ky.
- 72 Post-Rectal Dermoids. T. L. Driscoll, Cartersville, Ga.
- 73 Acute Anterior Poliomyelitis. A. W. Harris, Nashville.
- 74 *Penetrating Wound of the Right Ventricle. W. M. McCabe, Nashville.
- 75 Hay Fever. V. Gibbs, Chattanooga.
- 76 Recent Consideration of the Duodenal Floor. A. W. Calloway, Asheville, N. C.
- 77 *Hemorrhagic Form of Appendicitis. G. Torrance, Birmingham, Ala.
- 78 Physical Signs in Incipient Pulmonary Tuberculosis. W. A. Oughterson, Nashville.
- 79 Syphilitic Gummata of the Bladder. W. Lenchau, Nashville.
- 80 Bismuth Poisoning. G. B. Lawson, Roanoke, Va.

71. Abstracted in THE JOURNAL, Oct. 1, 1910, p. 1220, and published in the *Lancet-Clinic*, Sept. 24, 1910.

74. **Wound of the Right Ventricle.**—The patient, a negro, aged 18, received a knife wound which entered one inch to the left of the sternal margin, and traveling beneath the skin, partly severed the costal cartilages of the fourth and fifth ribs, about half an inch to the left of the sternal edge. Entering the pericardial sac between the fourth and fifth cartilages, it penetrated the right ventricle near its center. The wound in the pericardium was just large enough to permit the tip of the index finger to enter, but did not allow

it to penetrate into the pericardial sac. The patient entered the hospital fifteen minutes after the injury, profoundly shocked, pulseless, and with a temperature of 97 F. The external wound was dry, and no perceptible hemorrhage was present. Percussion was performed with difficulty, because of the pain and restlessness of the patient, but it was thought that pericardial dulness was increased. The heart sounds could not be heard, nor could the apex beat be seen. She was placed in bed, surrounded with hot-water bags, and given morphin. Soon a faint pulse could be detected, and at 7:30 p. m., with a pulse of 160, and of fair volume, operation was advised and accepted. The original wound was enlarged and the fourth cartilage completely severed in the original knife wound and fractured distally. Blood was then spurting from the pericardial opening at each systole. The opening was quickly enlarged and the index finger of the left hand thrust into the opening to the right ventricle. A catgut suture was placed at the side of the finger and traction on this controlled the hemorrhage to some extent. In this manner the triangular stab in the ventricle was closed. Clots were removed from the pericardial sac by sponging and with the hand. A tube was placed in the sac and the opening sutured with a continuous catgut suture.

On the day following the operation a pneumothorax was detected and aspirated. The lung descended, but contained moist râles. On the fourth day the opposite lung became involved and moist râles appeared. The patient continued in this condition, with pulse ranging from 100 to 120 per minute and temperature registering from 99 to 101 F., until the night of July 21, seven days after the operation, when she died.

77. Hemorrhagic Form of Appendicitis.—In the cases cited by Torrance, the only abnormal condition found in the appendix was blood with organized clots, some of which were attached to macerated points of the mucous membrane of the proximal end of the appendix.

Albany Medical Annals

October

- 81 Experimental Pathology of the Stomach. O. Cohnheim, Germany.
- 82 Limitations of Laboratory Diagnosis. T. Ordway, Albany, N. Y.
- 83 Serodiagnosis of Syphilis. H. S. Bernstein, Boston.

Journal of the Minnesota State Medical Association and the Northwestern Lancet

October 1

- 84 *An Unworked Field of Preventive Medicine. A. W. Jones, Red Wing.
- 85 Gall-Bladder Disease. E. S. Muir, Winona.
- 86 *Open Treatment of Fractures. M. S. Henderson, Rochester.

84. An Unworked Field of Preventive Medicine.—Jones discusses the application of preventive medicine to tuberculosis.

86. Open Treatment of Fractures.—Henderson has used the metal bone-splint of Lane in 27 cases, and has obtained reports from 6 of them. In only 2 of the cases has it been necessary to remove the splint. Both of these patients were operated on for old compound non-united fracture.

Kansas City Medical Index-Lancet

October

- 87 Disposal of City Sewage and Refuse. G. Halley, Kansas City, Mo.
- 88 The Owen Bill and Its Opponents. S. A. Knopf, New York.
- 89 Atrophy of Disuse. E. H. Skinner, Kansas City, Mo.
- 90 More Work and Recreation for the Chronic Insane. G. A. Zeller, Peoria, Ill.
- 91 Medicine and Medical Men in Bible Times. R. N. Wilson, Philadelphia.
- 92 Procreation Laws. G. H. Bogart, Brookville, Ind.
- 93 So-Called Reflex Neurotic Symptoms and the Psychic Factor. T. A. Williams, Washington, D. C.

Interstate Medical Journal, St. Louis

October

- 94 *Treatment of Cancer by Radium. L. Wickham, Paris.
- 95 Experiences with the Ehrlich-Hata Remedy, "606," in Syphilis. W. Wechselmann, Berlin.
- 96 Pellagra. G. A. Zeller, Peoria, Ill.
- 97 Duodenal Alimentation. M. Elnhorn, New York.
- 98 Functional Disorders of the Genito-Urinary System. E. O. Smith, Cincinnati.
- 99 *Auscultation in Diagnosis of Fractured Ribs. S. T. Lipsitz, St. Louis.

94. Treatment of Cancer.—Wickham says that if a surgical extirpation cannot be made on account of untoward conditions, radium applied before the operation lessens the destructive process in the parts involved, and renders operable tumors which were not so before. Finally, there are a number of cases of extreme gravity in which surgery cannot intervene, but in which radium, without producing a particularly beneficial result, can at least relieve patients during long and tedious periods of pain (analgesic action of radium) and lessen hemorrhages and secretions. The special organ for radium therapy is the uterus. In fact, in cancer of the uterus, when it is employed before surgical intervention or simply to relieve the patient, radium plays a most useful rôle. The same result obtains in advanced cancer of the breast. Radium therapy must not be regarded as a means destined to cure patients afflicted with serious cancers, but may be employed by itself or in combination with other means to relieve the sick and prolong life during a period long enough to compel the thought that, at least, an apparent cure has been effected. Even when cures are absolute—results which Wickham says he has obtained relatively often—a relapse in the shape of a meta-stasis may take place.

Of all the malignant tumors, the giant-celled sarcomata are the most favorable to treatment because they are local. Moreover, in these cases the word "cured" is every now and then permissible. On the other hand, the lymphosarcomata, though they rapidly recede under the action of radium, are unfortunately only too often followed by a metastasis. Of all the lobular and tubular forms of epithelioma, those that are found in the mouth are the least tractable to radium.

99. Fractured Ribs.—Auscultation, in Lipsitz's opinion, will reveal fracture of a rib quicker than palpation will. He says that the sound obtained over a fractured rib is characteristic, is unlike the sounds of pleural rûles, air crepitation or râles and is therefore pathognomonic. Direct auscultation is not as satisfactory as the indirect method with the aid of the stethoscope. Have the patient inspire as deeply as possible. The sound is usually best elicited at the height of the inspiration or during the beginning of expiration. On listening in this way, it is with rare exception that any fracture of a rib can escape the examiner's notice. In two cases of the series there were multiple fractures. The exact site of each lesion was located without difficulty. In three cases the diagnoses were made by auscultation alone, palpation and manipulation giving negative results. This was explained by the knowledge that the severe pain produced by manipulation lessened the efficiency of this procedure, and that mere palpation was not sufficiently delicate. In all the other cases in which manual methods gave positive results auscultation was correspondingly successful. In a number of cases of suspected fracture not included in the series, careful auscultation was unsuccessful and invariably the results of palpation and manipulation were also negative. Other diagnoses were made. One may listen over almost any part of the affected side and elicit the peculiar hard, grating, breaking sound or the "click" which emanates from the site of the fracture. Once this sound is discovered over any portion of the chest, it can be followed in the direction of its increasing intensity, until, where it is most pronounced, the site of the fracture is located. As a rule, with practice, if more than one fracture is present all the lesions can be found in this way. This sign is so reliable that it is seldom necessary to send a patient away with a doubtful diagnosis.

Medical Herald, St. Joseph, Mo.

October

- 100 Modern Conception and Treatment of Fractures of the Femur. N. W. Sharpe, St. Louis.
- 101 Increased Mortality in the United States from Disease of the Kidneys and Circulatory System. W. F. Milroy, Omaha, Neb.
- 102 The Black Man and the Black Plague. G. H. Bogart, Brookville, Ind.

Bulletin of the Manila Medical Society

August

- 103 Acute Yellow Atrophy of the Liver. E. R. Stitt, Canacao, P. I.
- 104 Philippine Contact-Poisonous Plants. C. B. Robinson, Manila.
- 105 *Foods Available for Infant Feeding in the Philippine Islands. H. D. Kneeder, Manila.

- 106 Determination of Food Requirements for Infants. H. Aron, Manila.
 107 *Supplying Proper Food to the Poorer Classes. F. Calderon, Manila.
 108 *The Preservation of Vaccine Virus. E. H. Ruediger, Manila.
 109 Malaria in Infants and Children. H. D. Kneeder, Manila.

105. **Foods Available for Infant Feeding.**—In the Philippines physicians are limited in regard to the variety of foods for the artificially raised child. The tinned milks and modified foods for sale on the market are perhaps the safest to use. The only raw milk available in any quantity is goat's milk. Caraboa milk has been used, but, owing to the scarcity of this animal, this source of supply has been cut off. Outside of the Government farm the cow is as yet almost an unknown quantity. Rice is perhaps the most common cereal used. The Igorrotes feed their artificially-raised babies almost entirely on sweet potatoes. Kneeder's experience with goat's milk has been rather satisfactory. One of the important advantages of the goat as a raw milk producer is that it is refractory to tuberculosis. It is not difficult to secure in Manila a fresh healthy animal for from four to ten pesos, which if properly cared for will give enough milk for one baby. This milk is especially recommended for infants because of its similarity in composition to mother's milk. Apart from its medicinal qualities goat's milk is far superior to the dairy milk ordinarily supplied. The taste is not disagreeable nor the odor bad, provided the animal is properly selected and kept. Each milking should be immediately prepared. A baby six months old should be given equal parts of raw milk and rice water with a little sugar added, and the nine months old child may take the milk unmodified.

107. **Food for the Poorer Classes.**—Calderson describes the methods pursued by the "Gota de Leche" (milk stations), an association instituted through the efforts of the late Dr. David Dougherty of Chicago. Its work is practically the same as that of the various milk commissions established in this country.

108. **Preservation of Vaccine Virus.**—During the past year some tests were made in the Bureau of Science comparing the relative value of the dry point; the emulsion in 3 parts of glycerin and 1 part of distilled water; the emulsion in 3 parts of glycerin and 1 of heated horse-serum; lanolinized vaccine and the dry powder. The preparations were kept at room temperature in a dark place, and at intervals of 7 days their efficacy was tested by the vaccination of monkeys. Dry points and dry powder gave good results after 3 weeks; the emulsion in glycerin and water retained its potency for 5 weeks; diluted with glycerin and heated horse-serum, the virus remained active for 8 weeks and the lanolinized vaccine was inactive after 7 weeks.

Illinois Medical Journal, Springfield

October

- 110 Hereditary Transmission of Syphilis. J. Zeisler, Chicago.
 111 *Infections in Specific Urethritis. B. C. Corbus, Chicago.
 112 *Wassermann Reaction in Diagnosis and Treatment of Syphilis. W. T. Mefford, Chicago.
 113 Wassermann Reaction in Nervous and Cardio-Vascular Diseases. F. G. Harris, Chicago.
 114 *Urinary Acidity. H. B. Harrower, Chicago.
 115 Physiology of Digestion in Health and Disease. C. H. Lovewell, Chicago.
 116 Diffuse Suppurative Peritonitis. O. M. Steffenson, Chicago.
 117 Apparatus for Improved Ether Anesthesia. E. Pynchon, Chicago.
 118 The Next United States Pharmacopeia. W. A. Puckner, Chicago.
 119 Dysmenorrhea. J. E. D. Silcox, Rio.
 120 The Compensation Feature of the Employer's Liability Commission. W. A. Allport, Chicago.

111 and 114. Abstracted in THE JOURNAL, June 4, 1910, pp. 1892 and 1893.

112. Abstracted in THE JOURNAL, May 28, 1910, p. 1808.

Texas State Journal of Medicine, Fort Worth

October

- 121 Necessity for Ophthalmic Organization in Texas. J. H. Burleson, San Antonio.
 122 Sterilization of Women Under Certain Conditions. M. Duggan, San Antonio.
 123 *Treatment of Floating Kidney. R. R. White, Temple.
 124 Proctoclysis as a Means of Combating Acute Infections. J. S. Hixson, San Angelo.
 125 *Does Pterygium Cause Astigmatism? G. P. Hall, Houston.
 126 Three Cases of *Tania Nana*. M. A. Wood, Houston

123. **Floating Kidney.**—In White's method the capsule of the kidney is incised longitudinally and to either side in the direction of the kidney pelvis, thus giving four triangular flaps from the fibrous capsule. Through each of the four flaps of the fibrous capsule, forty-day chromic catgut is passed at several points, folding the capsule on itself to give a firm hold for the sutures. The excess of fatty capsule is cut away on either side and from the upper kidney pole, leaving intact that portion of the fatty capsule attached to the lower pole of the kidney. This, with the peritoneum, is used as an anchor from below to hold the kidney up into the fixed position, it having been gathered up and sutured to the lower angle of the muscular wound. The ligatures in the fibrous flap are threaded into a curved needle, and passed high through the muscular structures on each side of the wound. With care the upper ones may be placed above the eleventh rib. The sutures from below are also directed upward, tending at all times to make upward traction on the kidney. The after-treatment of these patients is important. They should be kept in bed for three weeks, and in a dorsal position. White has performed this operation twenty-four times.

125. **Does Pterygium Cause Astigmatism.**—Hall reports one case which he believes demonstrates that a pterygium can and does produce astigmatism.

Mississippi Medical Monthly, Vicksburg

October

- 127 Diagnosis and Treatment of Puerperal Infection. S. A. Eggleston, Lexington.
 128 Early Diagnosis of Tuberculosis. C. L. Simmoas, McBride.
 129 Surgical Aspect of Fracture of Patella. M. O. Shivers, Greenville.
 130 Treatment of Fracture of the Long Bones. W. T. Black, Memphis, Tenn.
 131 Pellagra in a Child Two Years and Two Months of Age. R. E. Jones, Crystal Springs.

California State Journal of Medicine, San Francisco

October

- 132 *Treatment of Chronic Gastric Ulcer. G. E. Ebright, San Francisco.
 133 Case of Twitching of the Orbicularis Palpebrarum Successfully Treated with Calcium Chlorid. T. C. Barnett, Berkeley.
 134 Indications and Contraindications for the Use of Spinal Anesthesia. A. W. Collins, San Francisco.
 135 Necessary Reforms Governing Medical Expert Testimony. T. J. Orbison, Los Angeles.
 136 Medical Expert Testimony. A. S. Lobingier, Los Angeles.
 137 Bovine Tuberculin in the Treatment of Pulmonary Tuberculosis. W. C. Voorsanger, San Francisco.

132. **Chronic Gastric Ulcer.**—The satisfactory treatment of simple, chronic ulcer of the stomach, according to Ebright, is a diet consisting for a few days entirely of from one to two quarts of milk with, as soon as possible, from two to twelve raw eggs. The patient may be allowed to follow his customary routine of living. Large doses of bismuth are of value in controlling pain. The patient must at all times be on such diet as will improve, first of all his general state of nutrition, in other words forced feeding within the capacity limits of the stomach. Inasmuch as rectal feeding, which has been advised that the stomach may be put at rest, does not cause complete arrest of peristalsis and since it is known retrograde peristalsis may be set up by it, and the food given by rectum actually found in the stomach, and since, at the best, rectal feeding is starvation diet, it would certainly appear that starvation and rectal alimentation are illogical procedures in the treatment of chronic gastric ulcer.

Western Medical Review, Omaha, Neb.

October

- 138 Hematuria in Surgical Conditions of the Urinary Tract. A. P. Congdon, Omaha.
 139 Diagnosis of General Paralysis. T. C. Little, Omaha.
 140 Neurasthenia Among Surgical Patients. D. C. Hilton, Lincoln.
 141 Diagnosis of Cerebral Tumors. G. A. Young, Omaha.
 142 Health: A National Asset. J. H. Mackay, Norfolk.
 143 Paroxysmal Tachycardia. R. W. Bliss, Omaha.

American Journal of Orthopedic Surgery, Philadelphia

August

- 144 *Our Relations with the Community, and Especially with Medical Men. A. Thorndike, Boston.
 145 *Orthopedic Treatment of Spinal Paralysis. F. Lange, Munich, Germany.
 146 *Operative Treatment of Paralysis of the Shoulder Following Anterior Poliomyelitis. E. H. Bradford, Boston.

- 147 *The Chemical and Mechanical Stimulation of Bone with Reference to the Epiphyseal and Diaphyseal Lines. R. O. Meisenbach, Buffalo, N. Y.
- 148 *Muscle Group Isolation and Nerve Anastomosis in the Treatment of the Paralysis of the Extremities. N. Allison and S. I. Schwab, St. Louis.
- 149 *Coxa Vara. W. Blanchard, Chicago.
- 150 *Problems in Treatment of Club-Foot. W. G. Stern, Cleveland, Ohio.
- 151 Operative Treatment of Paralytic Talipes of the Calcaneus Type. R. Whitman, New York.
- 152 *A Case of Unusual Deformity of the Fingers. D. Cotterill, Edinburgh, Scotland.

144 and 145. Abstracted in THE JOURNAL, June 11, 1910, p. 995.

146. Abstracted in THE JOURNAL, July 2, 1910, p. 51.

147. **Chemical and Mechanical Stimulation of Bone.**—The object of Meisenbach's work was to study the effects on bone growth by influencing the cellular structures of the epiphyseal cartilage, and to note the effects on ossification. His papers are based on the results of experiments on forty-two rabbits extending over a period of five months. Various substances were injected near the epiphyseal line, and as the animals grew in size the bony changes were noted and studied from a radiographic, anatomic, and microscopic standpoint. Four rabbits were injected with sterile water. They showed no pathologic changes in the injected limb either microscopically or radiographically. Five rabbits received sterile graphite pegs. None of the five rabbits showed any changes radiographically, the epiphyseal line being clear. Three rabbits received the injection of staphylococcus vaccine. Seven rabbits received sterile graphite pegs together with the staphylococcus vaccine. Six showed microscopic change, that is, increased proliferation of the endochondral and perichondral bone in the diaphyseal region. No special changes were noted in the epiphyseal lines. This seems to suggest that a toxin together with mechanical stimulation will produce active formation of the endochondral and perichondral varieties.

Eight rabbits received injection of pure tincture of iodine. None of the surviving rabbits showed any radiographic or microscopic changes in the injected limb. Pure carbolic acid was injected in two rabbits. They showed a slight change radiographically, and microscopically an increased vascularity only. One rabbit received 95 per cent. alcohol and lived eleven days, after which no pathologic condition was noted. Six rabbits received injections of pure formalin. All the rabbits, except one, showed radiographic changes in various degrees, thickening of the cortex, irregular epiphyseal line, exuberant growth of a portion of the diaphysis, and a general widening and thickening of the epiphysis and the diaphysis. All the rabbits showed definite microscopic changes in the injected region except one. In all of the pure formalin specimens the injected tibiae were enlarged at the diaphysis but somewhat shorter in the total length. The cortex in the region of the diaphysis was materially thickened and the entire diaphysis increased in circumference. The epiphyseal line was irregular and not as pronounced as the cortex. The entire length of the injected tibia was somewhat shorter. The diaphyseal line or the zone of provision calcification was widened in almost every instance, and the zone of calcified matrix increased. In one rabbit, portions of the epiphyseal line were replaced by new bone and ossification hastened. In another, ossification was hastened to such a degree that half of the epiphysis became united with the diaphysis, so that the epiphyseal line was entirely absent.

Six rabbits were injected with 2 per cent. formalin. The radiographic and microscopic changes were similar to those found with the pure formalin but were not so extensive. The radiographic changes were chiefly noted in the thickening of the cortex and the diaphysis with an early ossification. The microscopic changes were an increased amount of endothelial, endochondral, and perichondral bone with a corresponding increased zone of calcified matrix and a swollen and proliferating epiphyseal line, the latter being sometimes replaced by new bone. It is hoped that these experiments will act as a stepping stone to a new method of treatment in many bone cases which have heretofore seemed hopeless as regards helping the patient, such as congenital shortening of the limb, arrest of bone growth following infantile paralysis,

tuberculosis of the bone, osteomyelitis, obstinate non-union of fractures, and similar cases.

148, 149 and 150. Abstracted in THE JOURNAL, July 2, 1910, pp. 48, 50 and 51.

152. **Unusual Deformity of the Fingers.**—Four years ago, the patient, a miner, aged 56, met with an accident when a heavy piece of stone fell on the back of the fingers of the left hand. All the fingers were badly bruised, but the middle finger was so badly damaged that it had to be amputated. As soon as the patient began to use his hand again after this injury, he noticed that when he extended the proximal interphalangeal joints of his "ring" and "little" fingers there was a sudden "click," as he expressed it, and this also occurred when the movement of flexion from the fully extended position was begun. The "click" was felt on either side of the palmar surfaces of the proximal interphalangeal joints of the affected fingers. This clicking sensation was always associated with a movement of these joints in some respects similar to that seen in "trigger finger"—that is to say, the last part of the movement of extension and the first part of the movement of flexion took place with a snap or jerk and could not be performed slowly. The condition was considerably more aggravated in the "ring" than in the "little" finger, but in neither case did the joints jerk into apposition of more than normal full extension. This snapping movement, though slightly uncomfortable when it took place, apparently affected the usefulness of the fingers but little.

Cotterill says that so far as one can guess, the sequence of events in the case were as follows: At the original accident the fingers were probably forcibly hyperextended, causing tearing of the palmar portion of the capsular ligament of the proximal interphalangeal joint, while the tendon of the flexor sublimis was split in its long axis into two halves both above and below the point at which the tendon normally divides for the passage through it of the flexor profundus. This having occurred and the vaginal ligaments and tendon sheaths also having been stretched, it would allow of partial lateral displacement of the two portions of the flexor sublimis, giving rise to the condition seen in the little finger. At the operation a year ago on the ring finger, the vaginal ligaments and tendon sheaths were almost certainly divided in their long axis, and the already too mobile tendon slips were then practically unrestrained. This being the case, as the joint was extended the two halves of the tendon slipped gradually outward, finally making the "click" as they jerked from their normal groove to lie on the lateral aspects of the joint. In this position the tendon slips may possibly have come to act as extensors, much in the same way as the lumbrical muscles, but they certainly lost all their power as flexors with the result that the movement of extension, at the proximal interphalangeal joint, was practically unopposed, for the profundus tendon is merely a secondary flexor of this joint. Added to the condition of the tendon slips there must have been some weakness of the palmar part of the capsular ligament of the joint to permit of the amount of hyperextension produced and this was no doubt caused by the initial injury. The flexion of the metacarpophalangeal and distal interphalangeal joints was due, it is thought, to the tension of the flexor profundus over the hyperextended joint. The maneuver described, when the patient wished to flex the affected joint, was obviously performed in order to slacken the displaced tendon slips and to aid their return to the normal position. At the operation the diagnosis was confirmed.

Bulletin of the Medical and Chirurgical Faculty of Maryland

October

- 153 The General Practitioner—Then and Now. F. B. Smith, Frederick.

St. Paul Medical Journal

October

- 154 Influence of Mohammedism on Medicine. G. I. Kheiralla, Lake Preston, S. Dak.
- 155 Influence of Bacterial Invasion. J. T. Christison, St. Paul.
- 156 Transperitoneal Cystotomy. A. MacLaren and H. P. Ritchie, St. Paul.
- 157 Tuberculosis County Hospital Laws. C. Easton, St. Paul.
- 158 Exudative Diathesis in Its Relation to Infants. W. R. Ramsey, St. Paul.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

October 1

- 1 Ancient Humorism and Modern Humorism. C. Richet.
- 2 *Absence of the Fallopian Tubes and of Menstruation. W. G. Spencer.
- 3 The Quickening Spirit. L. Williams.
- 4 Surgical Treatment of Exophthalmic Goiter. T. Kocher.
- 5 Colotomy Openings and Permanent Ureteral Fistulae. C. J. Bond.
- 6 *Abdomino-Perineal Operation for Rectal Cancer. W. E. Miles.
- 7 Secondary Suture of the Circumflex Nerve. R. Kennedy.
- 8 Immediate Results of Surgical Operations. G. W. Crile.
- 9 Operative Treatment of Chronic Mucous and Ulcerative Colitis. P. L. Mummery.
- 10 Conditions Liable to be Mistaken for Gastric Cancer. A. Thomson.
- 11 Conditions Simulating Gastric Cancer. F. D. Bird.
- 12 Early Diagnosis and Treatment of Gastric Cancer. H. J. Paterson.
- 13 Gastro-Enterostomy. C. M. Moullin.
- 14 Excision of Gastric Ulcers. E. Deanesly.
- 15 Hydatid Disease of the Liver. C. MacLaurin.
- 16 Rupture of Hepatic Abscesses into the Lungs. J. Cantlie.
- 17 Sandfly Fever (Phlebotomus Fever or *Pappatacifeber*) in Cairo. L. Phillips.
- 18 Dysentery. G. H. Fink.
- 19 Bilharziosis in Egypt. F. C. Madden.
- 20 Typhoid and Paratyphoid in Egypt. L. Phillips.
- 21 Human Botryomycosis. R. G. Archibald.
- 22 Effect of a Mosquito Net on the Air Within It. G. D. Whyte.

2. **Absence of Fallopian Tubes.**—No case similar to Spencer's is said to be recorded in the literature. A single woman, aged 28, complained of attacks of pain in the right iliac region. She had never menstruated; she had never had a show of any kind. At about the age of 18 she first felt sharp pains in the abdomen around the umbilicus, and such pains have recurred with fair regularity every month, usually lasting three or four days. Gradually the attacks of pain became more severe. They began by a strange feeling in the right iliac region; then, as the pain increased around the umbilicus, she felt faint, trembled, sweated and had nausea. A very severe attack occurred in September, 1908, and another in the following November. Recently the umbilical pain had tended to spread round to the back and downward behind the left hip, the latter pain persisting between the attacks.

She was a well-grown woman with normal breasts, external genitals and hair. There was a well-defined normal hymen. By rectum a normal movable uterus with cervix was felt. To the right side there was felt bimannually an oval swelling in the ileocecal region resting on the psoas muscle. It was thought to be an enlarged appendix adherent to an ovary, separated from the uterus by a normal broad ligament. On the left side there was a smaller swelling, which was taken to be a tender ovary, while the left broad ligament seemed free. No further abnormality was discovered. The uterus was quite normal; in the place of each cornu was a pea-like knob. There was no sign of the main portion of the Fallopian tube on either side, but the round ligament was well-defined, and there was nothing else abnormal about the inner part of the broad ligament. Each ovary was enclosed in a pouch formed by peritoneal adhesions; the opening of the pouch into the general peritoneal cavity was directed backward; the peritoneal surface of the ovaries projected into the interior of the pouches. This surface of the ovary appeared normal, and on pricking one of the follicles fluid spurted out; but Spencer did not observe any sign of a corpus luteum of menstruation, nor any remains of blood clot or pigment whatever. In the wall of the sac where it was continuous with the broad ligament there appeared to be traces of the fimbriae of the Fallopian tube.

Spencer then went on to search for the Fallopian tubes. A uterine sound was passed quite easily, and to the normal distance. He then laid open the uterine cavity by cutting transversely on the point of the sound, and tried to pass a fine probe outward through the cornua. But the lumen of the uterus did not extend into the pea-like knobs previously noted. On the left side the knob contained a small dermoid cyst enclosing sebaceous material but no hairs. On the right the knob was a mass of fibrous tissue. Spencer next slit outward the upper free edge of the broad ligaments, and split the layers without finding any trace of a Fallopian tube, except

what appeared to be the fimbriated extremity fused in the wall of the ovarian pouches. The patient is now in very good health, has had no further attacks nor abdominal disturbance of any kind nor has she had any noticeable vaginal discharge.

6. **Rectal Cancer.**—Miles has been able to determine that a cancerous growth in the rectum spreads in three directions, and invades the tissues either in the nature of a direct permeation, or as separate metastases; at any rate so far as naked-eye appearances show. The directions of spread, he says, are downward, laterally, and upward, and take place in the zones of tissue traversed by the lymph vessels. The tissues in the zone of downward spread consist of the wall of the bowel below the growth, the external sphincter muscle, the perianal skin, and the fat contained in the ischio-rectal fossa. The zone of lateral spread comprises the levatores ani muscles, the fascia propria of the rectum, the presacral connective tissue, and its contained lymphatic glands. In the male, the capsule of the prostate gland, the vesiculae seminales, and the base of the bladder; and in the female the posterior wall of the vagina, the cervix uteri, and the base of the broad ligament with Poirer's gland. The zone of upward spread consists of the bowel above the growth, the pelvic peritoneum, the pelvic mesocolon, particularly the border attached to the pelvic parietes with the adjacent peritoneum and the lymph nodes situated at the bifurcation of the left common iliac artery.

Miles has found that:

A growth in the rectum, wherever situated, may lead to recurrence in the tissues comprising the zone of downward spread.

A growth in the rectum, wherever situated, may similarly lead to recurrence in the tissues comprising the zone of lateral spread.

A growth in the terminal portion of the pelvic colon may lead to recurrence in both the zones of downward and lateral spread.

Free extirpation of the tissues comprising the downward and lateral zones of spread generally prevents recurrence in the field of operation.

However free the extirpation of the tissues comprising the downward and lateral zones of spread may have been, recurrence will in all probability take place among the tissues of the zone of the upward spread.

The most extensive and complete perineal operation possible is, with few exceptions, quite inadequate for preventing a recurrence of the disease.

Up to the end of 1906, Miles had performed 59 perineal excisions, with 1 death, results which, from the point of view of mortality were quite satisfactory; but, of the 58 patients who recovered, 54 are known to have suffered from recurrence. Of the remaining 4, 1 died 7 years after the operation from some intercurrent disease and 3 remain well and are free from recurrence. Such an experience as the above decided Miles to abandon perineal methods of excision and to rely solely on an abdomino-perineal procedure. He therefore designed an operation which would enable him to extirpate the whole of the tissues comprising the zone of upward as well as those forming the zones of lateral and downward spread, for in this way only could one hope to check the tendency to recurrence. He has now performed this radical operation 26 times. Ten of the patients died within periods varying from 24 hours to 12 days after the operation, 1 is still in the hospital, 1 left too recently to make any statement about him, 1 died 13 months after operation without sign of recurrence, and 1 has not been since seen. This accounts for 14 out of the 26 patients. The remaining 12 are all still well and show no sign of recurrence after periods varying from a few months to over three and a third years. In 8 cases the period is over 18 months and in 4 is over 3 years.

Lancet, London

October 1

- 23 *Malignant Disease of the Nasal Passages. W. Stuart-Low.
- 24 *Essential Cause of Gastric and Duodenal Ulcer. C. M. Moullin.
- 25 *Physique of the Phthisical. H. de C. Woodcock.
- 26 *Ruptured Abdominal Hydatid. J. E. Barling and D. A. Welsh.
- 27 *Clinical Surgery in Japan. Y. Takaki.
- 28 Hæmoch's Purpura with Intestinal Intussusception. H. B. Robinson.
- 29 *Relief of Symptoms of Prostatic Obstruction. J. S. Bolton.
- 30 A Reminiscence of the Battle of Omdurman. J. B. Christopherson.
- 31 Etiology and Diagnosis of German Measles (Rubeola). C. Beards and W. L. Goldie.
- 32 Stovaln. G. Thom.
- 33 Ownership of Medical Preparations. H. W. Gadd.

23. **Disease of the Nasal Passages.**—Stuart-Low reports seven cases to illustrate the rather frequent occurrence of sarcoma and carcinoma in these localities. He says that pain

is not to be relied on as an indication of malignant disease in the nose. Increasing and persistent stuffiness, especially if unilateral, is an important point as regards diagnosis. Recurring and increasingly severe hemorrhage, especially if unilateral, is always a suspicious symptom. A combination of hemorrhage and increasing stuffiness is often a serious indication of the existence of a new growth. The making of an early diagnosis is of great importance. It is imperative to make a thorough and systematic examination in all obscure cases of nasal disease, and to remove early a piece of any obstruction in the nasal passages for a pathologic report. It is of great importance when there is malignant disease to operate as soon as possible after a diagnosis has been made to secure a successful removal. It is advisable to adopt the canine-fossa route in operating for the extirpation of intranasal tumors. Innocent and malignant polypi are likely to coexist.

24. Gastric and Duodenal Ulcer. Moullin says that acid of much greater strength than is ever secreted by the gastric mucous membrane may be swallowed with impunity and without causing pain, even when an ulcer is present; and while in many cases of ulcer hydrochloric acid appears to be in excess, this is certainly not so in all; there are many instances in which there is a decided deficiency. As a matter of fact, the excess of free hydrochloric acid, the so-called hyperchlorhydria, to which so much importance has been attached, is a secondary consequence of spasmodic contraction of the pylorus, or of hypersecretion of gastric juice, or of both together; and these are the result of the morbid condition of the mucous membrane induced by such causes as chronic septic poisoning or irritation spreading from an ulcer. The excess is due to accumulation in the stomach. There is nothing whatever to show that the strength of hydrochloric acid in gastric juice as secreted is ever raised in any way, though it may be lowered. So long as the epithelial lining of the stomach remains intact and uninjured, hydrochloric acid in any strength that can be secreted has no effect. But if from any cause, whether it is the cause that gave rise to the pylorospasm and hypersecretion or any other, the protecting epithelial layer of the stomach is injured or the deeper tissues exposed, the acid at once comes into play; the injured tissues are injured still further; inflammation sets in; the debris is digested, and an ulcer left. Ulceration does not occur except when hydrochloric acid is present, for digestion does not; but hydrochloric acid, whether it has accumulated so as to be in excess or whether it has not, cannot cause an ulcer unless there is some other agent at work to initiate the lesion. Given this other agent the effect of the acid, as Bolton has shown, is in proportion to its strength.

25. Physique of the Phthisical.—Several tables constructed by Woodcock are in part the result of study in morbidity rather than in mortality among phthisical subjects. No notice has been taken in them of the ordinary and universally recognized physical signs of phthisis, but an attempt has been made to call attention to certain other appearances coincident with phthisis, though not generally recognized. First, and most important of all, is the peculiar appearance of the soft palate, which Woodcock begins to look for with certainty in almost all cases of marked phthisis. The phthisical soft palate is of a pearly bluish-white tint, and is covered with a somewhat mucoid moisture. Woodcock places it as a sign of sinister import equal to the rapid phthisical pulse, or the temperature, pulse and respiration reaction to fatigue. The hand ratio is found by comparison of the length of the hand, from the ridge of the ulna in an oblique line to the end of the longest finger, with the breadth across the hand at the knuckles. Hyperextension of the fingers on the metacarpals or of the terminal on the penultimate phalanx is a sign commonly found in the cases of people in advanced or rapidly advancing phthisis. Clubbing as a means of diagnosis has, in his opinion, lost some of its value. Philip's glands, i. e., the enlarged deep glands just above the clavicle—are always found in phthisical children; but their presence does not necessarily indicate phthisis, since they are so frequently encountered in apparently normal children. In the same way, enlargement of the other glands of the neck is so generally found in all

classes of patients who consult the doctor for any and every illness that even if one found them in every phthisical patient the diagnostic value would not be great.

With regard to skin conditions of phthisicals, Woodcock recalls only one case of lupus in ten years among the patients under his care at Armley and Gateforth for pulmonary tuberculosis. Tinea versicolor is especially common at Armley Hospital, which harbors advanced cases, and not common at Gateforth, where only early cases are received. Marked acne is not common; indeed, it is hardly ever found among advanced phthisicals. Dilatation of the stomach is of common occurrence among tuberculous patients.

26. Ruptured Abdominal Hydatid.—The facts presented by Barling and Welsh have reference to a series of six cases of hydatid disease complicated by rupture or leakage of the cyst into the peritoneal cavity. In five cases the cyst was situated in the liver, in the remaining one in the spleen. The cases all occurred within a period of eighteen months. The symptom-complex to which they draw attention includes (1) eosinophilia, (2) peritonitis with effusion, and (3) urticaria.

29. Relief of Symptoms of Prostatic Obstruction.—The method of treatment employed by Bolton is to pass an electrode into the rectum and administer high-frequency currents. The electrode is so placed that it lies against the posterior surface of the prostate. The current is taken from the top of the resonator. Bolton's most successful cases have been those in which congestion and irritation rather than size of prostate have been the prominent features. While it is not possible to cure every patient, Bolton says that relief is experienced by such a large proportion as to make the treatment worthy of the trial in all uncomplicated cases. The results of the treatment may be summed up in a few words. Congestion in the blood-vessels and stasis in the tissues are relieved. The nerves are soothed. The intense irritability of the bladder which is such a marked feature of the disease passes away. The tone of the bladder muscles is improved, and as a consequence the size of the stream is increased and also the force of propulsion. The bladder becomes able to empty itself, and the urine returns to normal. The restoration of the confidence of the patient is no small help in lessening the frequency of micturition.

Clinical Journal, London

September 28

- 34 Acute Bulbar Paralysis. L. G. Guthrie.
- 35 Innocent Tumors of the Rectum. C. G. Watson.

Bristol Medico-Chirurgical Journal

September

- 36 Postgraduate Study. J. M. Rattray.
- 37 *Leukemia Treated by Roentgen Rays. J. M. Clarke.
- 38 Splenectomy with a Case of Simple Hypertrophy of the Spleen Treated by Operation. J. Swain.
- 39 Radiographic Estimation of Simple Enlargement. W. Cotton.
- 40 Anomalous Cutaneous Eruption. W. K. Wills.

37. Leukemia Treated by the Roentgen Rays.—Clarke reports four cases which he believes confirm the experience of other observers, that although Roentgen-ray treatment does not result in cure in leukemia, it gives a greater measure of relief in most cases than is derived from any other form of treatment, and prolongs life. If ordinary precautions are taken, and a careful watch kept on the state of the blood as regards the red cells and hemoglobin, and on the condition of the urine throughout the period of treatment, it seems to be devoid of danger. The presence of a slight albuminuria in one case and of marked glycosuria in another seemed to form no contra-indication to Roentgen-ray treatment, as they gave no trouble. The Roentgen rays should be applied over the long bones and vertebrae as well as over the spleen.

Practitioner, London

October

- 41 Common Ailments. D. Duckworth.
- 42 Treatment of Gonorrhoea in Men. L. Wickham.
- 43 Non-Specific Sores. C. F. Marshall.
- 44 Leukorrhoea. H. Jellett.
- 45 *Treatment of Varicose Veins of the Leg. A. E. Barker.
- 46 Pleurisy. F. deH. Hall.
- 47 Idem. G. Rankin.
- 48 Insomnia. D. W. C. Hood.
- 49 Chronic Hoarseness. H. Tilley.
- 50 Tonsillitis. C. A. Parker.
- 51 Asthma. P. W. Williams.

- 52 Nose Bleeding. E. W. Roughton.
53 Warts and Chilblains. E. G. Little.
54 *Treatment of Ringworm. P. S. Abraham.
55 Stammering and Its Treatment. H. G. Langwill.
56 Treatment of Nevi. J. L. Bunch.
57 Treatment of Certain Sprains. F. Romer.

45. **Varicose Veins of Leg.**—Barker says that many patients with congenital weakness of their vein walls could stave off operation indefinitely if they would or could adopt the proper measures to prevent the engorgement of the veins which leads to the changes described. These consist in active exercise and avoidance of prolonged standing, keeping the bowels open, and cold douching of the legs. Among these, active exercise, which unloads the vessels by the free play of the muscles and increased tone in all the tissues, is the most important. It is to those who, unfortunately, are unable to take active exercise, and who are condemned to stand long and are obliged to neglect their general health, that operation offers relief.

54. **Ringworm.**—For inveterate and extensive cases Abraham recommends the Roentgen rays. Other old as well as recent cases have done well with an ointment of pyrogallic acid, of from 5 to 10 per cent, or a phenol and salicylic acid ointment, of each \mathfrak{ss} . to the ounce; others, again, do well with cupric oleate. A composition that he has used much is:

R	Gm. or c.c.	
Cupri oleati	15]	\mathfrak{ss}
Acidi carbolicli liq.	4]	\mathfrak{ss}
Acidi salicylicli	4]	or \mathfrak{ss}
Paraffini mollis	15-30]	\mathfrak{ss} - \mathfrak{ss}

For very small patches he uses biniodid and other mercurial ointments. The alkaline and alkaline earthy sulphids, which have a depilatory effect, are also useful either in ointments or strong solutions, and Abraham believes that the solution of ammonium sulphid would be used far more frequently than it is to produce a temporary alopecia were it not for its evil odor. Abraham recommends that in addition to keeping the whole head shaved, or with the hair cut very close and, so far as possible, always covered with some germicide ointment, that the cheapest caps and hats be procured and burnt after a comparatively short use. In his opinion, a thorough washing with an antiseptic soap once a week, while under treatment with ointments, is quite enough—the ointment to be rubbed in all over directly the scalp is dry. Cataphoresis and the use of formalin he found too painful to the patient and even harmful, hence he has discarded these methods of treatment.

Presse Médicale, Paris

September 17, XVIII, No. 75, pp. 697-704

- 58 The Argyll-Robertson Sign Cannot Be the Result of Basal Meningitis. C. Lafon.
59 End-Results of Gastro-Enterostomy. (Valeur de la gastro-entérostomie.) P. Desfosses.
September 21, No. 76, pp. 697-712
60 Tuberculin in Treatment of Tuberculosis of Urinary Apparatus. C. Mantoux.
61 Climate and Meteorology from Standpoint of Pathology. (Ambiance cosmique of milieu organique.) A. Martinet.
62 Systematic Training in Proper Breathing. (Méthode de rééducation respiratoire.) A. Theoris.
September 24, No. 77, pp. 713-720
63 Mydriatic Action of Organ Extracts and Fluids. E. Catapano.

Revue de Chirurgie, Paris

September, XXV, No. 9, pp. 465-728

- 64 *Laceration of Mesentery with Strangulated Hernia. M. Guibé.
65 *Fracture of Scaphoid Bone of the Foot. J. Abadie and Rangé.
66 *Tendency to Dislocation of the Hip-Joint in New-Born Infants. (Hanches subluxables et hanches luxées chez les nouveau-nés.) P. De Lamany and J. Salget.
67 *Postoperative Parathyroopriva Tetany. X. Delore and H. Alamartine.
68 *Technic for Posterior Subcapsular Thyroidectomy. X. Delore and H. Alamartine.
69 *Subphrenic Abscesses. R. Piqué. Commenced in No. 5.

64. **Laceration of the Mesentery with Strangulated Hernia.**—Guibé had his attention called to this subject by a case in his own experience but he was unable to find in the literature more than seven similar cases and these were all reported by French writers. Vigorous taxis had been applied in four cases and moderate taxis in two others; in the seventh case taxis had been applied by the patient and two physicians in turn. The outcome of the case depends on the extent of the tear;

resection of the loop involved is necessary to prevent gangrene if its circulation is much impaired. Two of the patients died in the five cases in which the bowel was resected; another patient recovered after mere suture of the tear as it was comparatively insignificant. Laceration of the mesentery, Guibé remarks, is another evil to be charged to the account of taxis.

65. **Fracture of the Scaphoid Bone of the Foot.**—Besides a personal case reported the details of twenty-eight others from the literature are summarized and the point emphasized that none of the signs permits exact differentiation; this is possible only with the Roentgen-ray examination. If reduction under an anesthetic proves impossible, the region should be exposed and fragments removed and ligaments preventing coaptation pushed out of the way. It seems necessary to wear a plaster cast for a time even after simple reduction, although the cast need not extend more than even half way to the knee. Massage should be done systematically. A flat-foot insole is useful after removal of the cast; with old cases the measures should be those for inveterate flat-foot from the first, with wedge resections striving to restore the normal arch of the foot.

66. **Tendency to Dislocation of the Hip Joint in New-Born Infants.**—The clinical data and theoretical conclusions related compel the conclusion that congenital anthropologie—that is, not teratologie—dislocation of the hip joint never occurs in the uterus but develops after birth. But any malformation in the muscles, the nerve centers presiding over them or malformation of the pelvis is liable to induce congenital luxation. It frequently happens that new-born infants display a tendency to dislocation of the hip joint, "subluxable hip joints," as the authors call them, but this tendency subsides spontaneously in time in almost every case. Girls are more liable to have it than boys. Among the twenty-five illustrations are some showing four cases in which the congenital dislocation was due to dystrophy of the hip muscles. These muscular lesions should be suspected in every case of congenital dislocation of the hip joint in a fetus near term; and other malformations often accompany it. In his four cases there was spina bifida in three and multiple malformations in the other.

67 and 68. **Tetany and Thyroidectomy.**—In these articles Delore and Alamartine describe the best technic for operations on the thyroid in exophthalmic goiter and other conditions to prevent postoperative parathyroopriva tetany. The preferred method is by posterior subcapsular hemithyroidectomy. The details of thirty-two cases of postoperative tetany on record are tabulated, showing the interval after the operation before the tetany developed and the special technics which seem to be more liable to this complication.

69. **Subphrenic Abscesses.**—Piqué reports a number of unpublished cases and discusses those on record, emphasizing the necessity for differentiating the indications for the various types, localization and sources of origin, whether in the stomach, biliary apparatus, appendix, spleen or pancreas, and the pulmonary complications. The prognosis of the abscess left to itself is almost inevitably fatal. He distinguishes between the subphrenic pyopneumothorax and the pyothorax, and insists that the true subphrenic spaces are only those between the diaphragm and liver, between the diaphragm, liver and stomach, and, on the left, around the spleen. As these spaces are bounded by the diaphragm, abscesses in them simulate a thoracic lesion and are particularly liable to spread to the pleura and lung.

Semaine Médicale, Paris

September 28, XXV, No. 39, pp. 457-468

- 70 *Indications for Operative Treatment in Gastric Pathology and Pseudoneuroses. H. Vuillet.

70. **Indications for Operative Treatment with Gastric Symptoms.** Vuillet describes a few cases to emphasize that besides stenosis there are other mechanical causes of defective functioning on the part of the stomach. If they are not recognized and the patients are treated as for stenosis, not much harm is done, but if the trouble is classed as a neurosis the disturbance persists indefinitely. He protests against gastro-enterostomy as a routine measure; the surgeon and internist should study

the case together. The surgeon should be enough of a diagnostician to know what belongs to the internist and what to the surgeon. Among the typical cases he cites from his experience were some in which the pylorus and upper part of the duodenum were bound down by adhesions, the sole relief of some long-healed inflammatory process. The disturbances suggested a merely nervous trouble, but no treatment gave effectual relief until the adhesions were broken up. One patient had been treated for this gastric discomfort for years on the assumption of a neurosis but liberation of the perigastric adhesions relieved all the disturbance. Her little son, 10 years old, already presents gastric discomfort. Another patient had had gastric symptoms for thirty years and had taken all kinds of treatment without avail. There seemed to be nothing abnormal in the motor or secretory functioning of the stomach, but operation revealed an adhesion between the gall-bladder and the intestine; a small cicatrix was found on the liver. Breaking up the adhesions relieved the patient of all the disturbances and she soon increased nearly forty-four pounds in weight. This woman's son, 23 years old, had a callous ulcer of the stomach and required gastro-enterostomy; extensive adhesions were found throughout the region. In another case a woman of 45 had long suffered from the stomach but without distinct signs of an ulcer and the diagnosis of a neurosis had been considered established. The stomach was rather large and exploratory laparotomy revealed the gall-bladder and liver bound down with adhesions, fastening them to the duodenum. Release of the adhesions did not seem to benefit at first but now, two years later, the woman is in perfect health. In another case a year passed after the release of adhesions before the gastric discomfort was entirely banished. The symptoms in this case had suggested cancer but the stomach findings were negative, except for the pains, vomiting of bile and regurgitation, constipation and emaciation. In one case the adhesions formed again after nine months' freedom from symptoms. In two other cases the direct benefit from the operation was slight, but the patients declare that the operation relieved their minds as excluding gross disease.

Berliner klinische Wochenschrift

September 19, XLVII, No. 38, pp. 1733-1772

- 71 Measurement of the Blood Pressure. (Zur Methodik der Blutdruckmessung am Menschen.) J. R. Ewald.
- 72 *Ehrlich's "606" in Syphilis. W. Gennerich.
- 73 *The Wassermann Reaction in Milk. (Bedeutung der positiven Wassermann'schen Reaktion mit Frauenmilch für die Wahl einer Amme.) O. Thomsen.
- 74 *The Urine Findings in Diagnosis of Carcinoma. (Verwertung des Harnbefundes zur Carcinomdiagnose. II.) E. Salzkowski.
- 75 *Intratracheal Insufflation for General Anesthesia. E. Unger.
- 76 *Congenital Coxa Vara. G. Drehmann.
- 77 Subcutaneous Laceration of the Tendon of the Terminal Phalanx. K. Hirsch.
- 78 Intratracheal Insufflation and Peroral Intubation. F. Kuhn, S. J. Meltzer.

72. Ehrlich's "606" in Syphilis.—Gennerich gives the details of thirty cases of syphilis in which "606" was applied, he says, with surprisingly good results. Signs of general disturbance were observed in only one case, although moderate acceleration of the pulse was regularly noted. In one case of complete paresis the patient could stand up and hold out his hand, the day after the injection, and the mind was clear for the first time in two months. In a case of total hemiplegia the arm could be bent to a right angle the next day and the improvement progressed afterward. A similar syphilitic hemiplegia in another case had proved refractory to a long and intensive course of mercurial treatment, while in another case of total paresis, three months of mercury were required to produce the improvement realized in twenty-four hours after the injection of "606."

73. The Wassermann Reaction in Human Milk.—Thomsen has found that the Wassermann test applied to the milk usefully supplements the serum test. There was always a positive reaction with the milk when the serum reacted positively; in fifty cases the reaction was more pronounced in the milk than in the serum. The milk of 200 non-syphilitic women gave the reaction in ninety-six cases, no reaction in ninety-eight and a positive reaction with a very small amount in six

cases. The test is therefore quantitatively specific when applied within the first two days after the child has begun to nurse. The absence of the reaction is important evidence against the assumption of syphilis as the reaction in the milk does not seem to be influenced by preceding mercurial treatment which may abolish the reaction with the serum.

74. The Urine Findings in Diagnosis of Carcinoma.—Salzkowski reports further research on the colloidal substances in the urine which seem to be materially increased in case of cancer. He describes his simplified technic. The findings in the cases tabulated show that the colloidal nitrogen averages 3.5 per cent. of the total nitrogen in normal urine and 7.75 per cent. with cancer.

75. Intratracheal Insufflation for General Anesthesia.—Unger reports two cases in which he applied Meltzer's technic. In the first case all went smoothly, but in the second case, two minutes after removal of the tube the young man seemed to be suffocating, with cyanosis; the respiration was purely abdominal and labored and an extensive cutaneous emphysema developed though the pulse remained strong and regular; the pupils were contracted. This condition lasted for half an hour but then gradually subsided although the emphysema persisted for three days. The introduction of the tube had been difficult in this case on account of chronic laryngitis.

76. Congenital Coxa Vara.—Drehmann explains this condition as the first degree of a congenital defect in the femur, and discusses the treatment.

Deutsche medizinische Wochenschrift, Berlin

September 22, XXVI, No. 38, pp. 1737-1784

- 79 Renal Dropsy. (Nierenwassersucht.) P. F. Riebler.
- 80 Peritonitis from Perforation of Typhoid Ulcers. O. Hermes.
- 81 Isolation of Specific Substance of Koch's Old Tuberculin. (Endotin, die isolierte spezifische Substanz des AT.) Gordon.
- 82 Ehrlich's "606" in Syphilis. M. Gourwitsch and S. Bormann.
- 83 Intoxication from Industrial Inhalation of Nitric Acid. (Nitrosen-Vergiftung durch Inhalation von salpitriger Säure.) A. Savels.
- 84 Roentgen-Ray Diagnosis of Ethmoidal and Sphenoidal Sinusitis. (Diagnostik der Erkrankungen des Siebbeinlabyrinths und der Keilbeinhöhle durch das Röntgenverfahren.) H. M. Rhese.
- 85 Vaginal Cesarean Section in the Home. (Zum vaginalen Kaiserschnitt.) H. Töpfer.
- 86 Durable Specimens of Urine Sediments. A. Skutetzky.

Medizinische Klinik, Berlin

September 25, VI, No. 39, pp. 1519-1558 and Supplement

- 87 *Gastric Hyperacidity. (Die hyperaziden Zustände.) A. Piek.
- 88 *The Spirometer in Diagnosis of Emphysema and Heart Disease. O. Bruns.
- 89 *A Vegetarian Diet in Psoriasis. B. Bloch.
- 90 Tuberculous Glandular Disease Developing in Two Syphilitics. (Zur Symbiose der Syphilis und Tuberkulose.) F. Boring.
- 91 Ehrlich's "606" in Syphilis. (Löstung gebräuchlicher Lösungen von Dioxidamidoarsenobenzol.) H. Citron and P. Mulzer.
- 92 Attack of Gout in the Head of Sternocleidomastoid Muscle. (Zur Lokalisation der Gichtanfälle.) P. J. Flemming.
- 93 Attack of Gout Simulating Acute Follicular Strangitis. P. J. Flemming.
- 94 Perforated Tube for Rectal Drainage. (Darmgaseableiter.) N. A. Sswaljew.
- 95 *Clinical Diagnosis of Typhoid and Paratyphoid. J. Meinertz.

87. Gastric Hyperacidity.—Piek summarizes the present status of knowledge in regard to hyperacid conditions in the stomach. He has encountered a number of cases in which persons whose occupation is particularly wearing on the nervous system, with much worry, experienced a sudden burning pain in the stomach region at certain regular times in the day. Examination revealed that it was due to copious secretion of a very acid gastric juice. In some cases the pain occurred an hour or so after dinner, in others before dinner or after breakfast; and the pain was relieved by taking a little food or alkali. The characteristic feature common to these cases is the fact that the attacks occur only when the patients are attending to business; this is most evident by the absence of the pain on Sundays and holidays. There is generally a tendency to nervousness and hypochondria, and the patients grow weak usually from unwise abstinence from food. In certain other cases, the hyperacid attack comes on when the meal is not taken at the accustomed hour; if the meal is on time there is no disturbance. In treatment of all hyperacid conditions and hypersecretion the diet should be such as to stimulate the gastric secretory glands as little as possible. Piek aims to regulate the diet according to the patient's

customs and what he knows he can bear, never forgetting that the causes of hyperacid conditions are liable to be manifold and that there may be disturbances in the sensory and motor functioning as well as in secretion. It is evident from his compilation the authors vary just as widely in their treatment as in their conception of the nature and development of hyperacid conditions. The hyperacidity is merely a symptom, a functional disturbance, the cause for which may differ in every case.

88. **The Spirometer in Emphysema and Heart Disease.**—Bruns comments on the close connection between the vital capacity and the functional capacity of the lungs. Treatment of emphysema should aim to increase the vital capacity, and he has found the spirometer a valuable aid in diagnosis and in estimating the effect of treatment.

89. **DiETING in Treatment of Psoriasis.**—Bloch reports a case in which a man of 40 had had for seven years typical psoriasis of the nails, hands, scrotum and parts of the body. The psoriasis had resisted all kinds of local treatment and arsenic. Bloch ordered him to drop meat from his diet and the result was surprising even in two weeks, and not a trace of the psoriasis was left by the end of three months. It was interesting to see the normal nail growth pushing off the abnormal parts of the nails. The dieting in such cases avoids the substances in the food which had previously modified the soil, permitting the unknown agent of psoriasis to get in its work. Dropping the meat from the diet seemed to put an end to this sensitization.

95. **Diagnosis of Typhoid and Paratyphoid.**—Minertz found that typhoid bacilli could be found in the blood early in the disease but less frequently thereafter, contrary to the experiences with the agglutination reaction which increases as the disease progresses. In the 167 cases which he reviews, the diazo reaction was positive in 65.2 per cent.; in 113 cases the leukocytes numbered less than 6,000 in 63.6 per cent., up to 10,000 in 32 per cent. and over 10,000 in only 4.4 per cent., including 2 convalescents and an infant. His experience, he says, thus emphasizes the diagnostic importance of the diazo reaction and of hypoleukocytosis. Bacteriologic examination of the blood with Kayser's bile tubes permitted an early diagnosis in 100 per cent. of the 16 cases examined during the first week. He regards paratyphoid as an entirely different disease from typhoid, his experience confirming the fact that infection is derived from meat, especially pork, or external contamination of foodstuffs, while typhoid is derived from human sources. The prevalence of paratyphoid bacteria everywhere, their saprophytic existence in man and animals, and other features resemble in many respects the behavior of streptococci.

Münchener medizinische Wochenschrift

September 20, LVII, No. 38, pp. 1977-2024

- 96 *Oleic Acid as Sign of Gastric Cancer. (Bedeutung der Oelsäure für die Diagnose des Magenkarzinoms.) E. Grafe.
97 Ehrlich's "606" in Syphilis. II. Anscherlik.
98 *Importance of Changes in Drop-Forming Properties of Body Fluids. (Weichardt'sche Epiphanreaktion.) F. Schroen.
99 Drug Eruptions and Hypersusceptibility. (Arzneiexantheme und Ueberempfindlichkeit.) E. Klausner.
100 Acute Septic Meningitis. II. Schottmüller.
101 *Twenty Years of Gall-Stone Operations. (Rückblick auf 1,600 Operationen.) H. Kehr.
102 *Evils of Forcible Dilatation of Anus. (Gefahren der forcierten Dehnung des Sphincter ani.) E. Mehlhor.
103 *Ascariis Intoxication. (Askarisvergiftung.) R. Goldschmidt.
104 *Cox-Wheel Respiration. (Sakkadiertes Atmen.) Schaefer.
105 *Callous Gastric Ulcers. (Kallöse Magengeschwüre.) G. Kelling.
106 *Myoma and Glycosuria. A. Calmann.
107 *The Spirochaeta Pallida* in the Vaccination Pustule with Inherited Syphilis. J. Langer.

96. **Diagnosis of Gastric Cancer from Hemolysis by Stomach Content.**—Grafe says that further research is confirming the importance of the hemolytic test as revealing gastric carcinoma; the findings of the test were constantly negative in 32 healthy persons and 111 patients with various affections but none involving the stomach, while the hemolysis was pronounced in 100 patients with suspected gastric cancer and in 56 an operation or necropsy confirmed the diagnosis. He has found that the presence of minute amounts of oleic acid in the stomach content in the cases of cancer is apparently responsible for the hemolysis. This discovery, he thinks,

much simplifies the test as the ordinary tests for oils can be applied. The patient takes as little fat as possible the evening before the test; the next morning the stomach is rinsed, with care not to aspirate bile into the stomach. Then the Ewald test breakfast is taken and 45 minutes afterward the stomach content is withdrawn and filtered. From 20 to 40 c.c. of the filtrate or even less are then treated by the Hübl iodine-absorption technic and the findings computed for 100, 200 or 300 c.c. of filtrate. The upper limit of normal iodine-absorption value is 9.5 c.c., while with carcinoma the value is from 11 to 20. As extensive ulceration in the stomach gives findings at times approximating those with cancer, the test is most useful for differentiation of cancer from achylia, gastritis, nervous dyspepsia and pernicious anemia. The findings were constantly negative in 9 healthy persons to whom the Hübl technic was applied and in 33 with a stomach affection that had nothing in common with cancer or ulcer and in 33 of 35 patients with gastric ulcer. On the other hand, the findings were positive in 19 out of 20 patients with unmistakable cancer, in 2 with presumptive cancer and in 3 out of 13 suspects. In 3 other cases the clinical data did not harmonize with the positive findings of the hemolytic test but time soon revealed the correctness of the latter, the clinical course soon falling into line. In a man of 40 the iodine absorption value of 11.4 per 100 c.c. of stomach content confirmed the suspicion aroused by discovery of blood in stomach content and stool although there was nothing otherwise to suggest cancer, and a movable tumor was found in the stomach, the microscope showing malignant elements in an old ulcer scar. This is one of the earliest diagnosed cancers on record. In two other cases the positive assumption of cancer was disproved by the negative findings with the test and necropsy later, showing encroachment into the stomach of an aneurysm in the aorta in one case and a callous gastric ulcer in the other. If intestinal juice or bile gets into the stomach the test is not reliable, but blood does not affect it. The hemolytic reaction, he reiterates, is not specific for cancer, but merely indicates the presence in the stomach content of oleic acid which normally is not found there.

98. **Changes in Drop-Forming Properties of Body Fluids.**—Schroen says that Aseoli's meostagmin reaction is practically the same as Weichardt's epiphan reaction with a little different technic—both indicate the presence of specific substances under certain conditions modifying the drop-forming properties of the organic fluids. The modifications observed have differential value in certain conditions; for instance, the curve with typhoid and colon bacilli infections is quite different. The biochemical reaction involved is extremely delicate, sensitive and constant with a large number of substances and body fluids.

101. **Gall-Stone Operations.**—Kerr remarks that since he has given up general surgery his results have been growing constantly better in his special field of gall-stone operations as there is no longer any chance of accidental infection from phlegmons, etc., on other patients. He has banished post-operative pneumonia entirely from his service, possibly by his insistence on having the teeth put in good order before he operates, and by the systematic breathing exercises enforced afterward. It is impossible, he declares, to determine by a single examination whether an operation is necessary, except in cases with vital indications. The patients have to be examined several times and kept under observation in the clinic for a few days. His mortality has not been over 1.4 per cent. in his series of 1,600 cases, restricted almost exclusively to patients with cancer or septic cholangitis.

102. **Evils of Forcible Dilatation of the Anal Sphincter.**—Mehlhor states that re-examination of a number of patients operated on years ago has revealed incontinence in some of the cases in which the sphincter fibers were cut or forcibly stretched. His operations were in eight cases for fissure of the anus, and in twenty-five the anus was stretched during an operation for hemorrhoids. In three of the cases the incontinence is far more disagreeable than the condition for which the operation was done. As the stretching of the sphincter causes no disturbances in the majority of cases,

he is inclined to explain the trouble in these cases as the result of stretching the anus before it was entirely relaxed under the influence of the anesthetic. In one instance the anus was stretched under primary ether anesthesia, which probably is not deep enough for these cases. The trouble is possibly the result of laceration of some of the sphincter fibers with secondary atrophy, although it is possible that the mere stretching alone might injure the fibers enough to lead to consecutive atrophy.

103. **Ascaris Poisoning.**—Goldschmidt relates that he and some of his assistants have attacks resembling hay fever and asthma when they are dissecting and working on ascarides. The peculiar pungent odor of the worms seems to irritate the mucous membrane, even without direct contact with the tissues. The ascaris found in the horse is much more toxic in this respect than the ascaris of man and pigs.

104. **Jerking Inspiration.**—Schaefer denies any pathologic significance to a staccato respiration, believing that it is merely the result of the propagation to the lung tissue of the concussion of the heart beat. It is similar to the vibration of the voice induced by tapping on the larynx during singing and whistling.

105. **Callous Gastric Ulcer.**—Kelling has operated in 51 cases of callous gastric ulcer with an interval since of over three years, and he discusses the diagnosis and treatment. The disturbances are inclined to be chronic, without the remissions observed with simple ulcer, and they continue without much change through months and years. About a third of the ulcers were palpable. The long duration of the lesion is the principal argument against cancer; a hemorrhagic tendency was evident in the majority of the cases, and an open ulcer was suggested by the intense pains especially during digestion. These callous ulcers do not heal under internal measures like simple ulcers, but, excluding the malignant cases, nine-tenths of the patients were cured of all disturbances by a gastro-enterostomy. In about one-third of his cases there was a malignant tendency and others have found it in up to 40 and even 50 per cent. Dietetic after-treatment is necessary when gastro-enterostomy has been done, and during the summer special care should be taken to avoid gastro-intestinal fermentations and to ward off intestinal catarrh. The danger of cancer with callous ulcer is over twice as great as with ordinary ulcer, but the ultimate outcome after removal seems to be more favorable with cancer developing in a callous ulcer than under other conditions. He has examined over 1,300 patients with various diseases to determine the frequency of a hemolytic reaction in the blood, and has found this reaction a useful guide as to the presence of malignant disease.

106. **Myoma and Glycosuria.**—Calmann reports two cases in which uterine myomas were accompanied by slight glycosuria without any other signs of diabetes. In the first patient the glycosuria disappeared entirely after removal of the myomatous uterus, but the glycosuria was not affected by the hysterectomy in the other case. He urges study of the connection between myoma and glycosuria, insisting that the urine should be examined again and again for two years at least after hysterectomy to learn the conditions in respect to elimination of sugar, and whether actual diabetes is influenced by the operation.

Virchows Archiv, Berlin

September, CCI, No. 3, pp. 321-376

- 108 Peculiar Carcinoid of the Kidney. (Eigenartiges Kankroid der Niere.) P. P. Scheel.
109 Mixed Tumors of the Liver. (Zur Kenntnis der Mischgeschwülste der Leber.) B. Hippel.
110 Solitary Liver Cysts. (Zur Kenntnis der solitären Leberzysten.) L. Plenk.
111 Dysplasia of the Liver or Juvenile Cirrhosis? O. Meyer.
112 Changes in the Liver in Eclampsia. (Eklamptische Leberveränderungen.) W. Coelen.
113 Behavior of Elastic Tissue with Aneurysm of the Aorta. (Verhalten des elastischen Gewebes bei Aneurysmen der Aorta.) R. Amenomiya.
114 Action on the Endocardium of Extracts of Cancers. (Wirkung von Extrakten bösartigen Geschwülste auf das Endokard.) L. Panichi and R. Varni.
115 Influence of Bacterial Toxins on Animal Tissue. (Einfluss von Bakterientoxinen auf das tierische Gewebe.) W. Vierbuff.

- 116 Volvulus of the Entire Small and Part of Large Intestine After Removal of Mesenteric Cyst. H. Hühner.
117 Hyperplasia of the Sheaths of the Nerves of Domestic Animals. (Über Hyperplasie der Hüllen an den Nerven der Haustiere.) O. Rossert.
118 Fibrous Atrophy of the Bones. (Die fibröse Atrophie der Knochen.) W. Saurborn.
119 Eighth Case on Record of Hernia of the Lesser Sac of the Peritoneum Through a Hole in the Mesocolon. (Hernia bursa omentalis mesocolica.) F. Stoltzenberg.

Wiener klinische Wochenschrift, Vienna

September 22, XXIII, No. 38, pp. 1335-1366

- 120 Teaching of Physiology in Vienna. S. Exner.
121 *The Continuous Functioning of the Mammary Glands. (Die Kontinuität der Funktion der Milchdrüsen.) M. Schein.
122 *Low Blood-Pressure from Various Causes. (Vaskuläre Hypotonien.) E. Münzer.
123 Coagulation Time of the Blood Not Altered in Eclampsia. (Gerinnung und gerinnungserregende Substanzen bei der Eklampsie.) G. M. Cristea and B. Bienenfeld.
124 Operations on the Esophagus. (Verletzungen und Krankheiten der Speiseröhre.) K. Ewald. Commenced in No. 37.

121. **Continuity of the Functioning of the Mammary Gland.**—Schein thinks that he has demonstrated that the mammary gland has an insensible internal secretion and that there is a continuous functioning of the gland not restricted to the production of a visible secretion.

122. **Pathologic Low Blood-Pressure.**—Münzer reviews the various groups of conditions accompanied by low blood-pressure aside from the acute or chronic infectious conditions. He gives a number of examples of low blood-pressure as the result of arteriosclerosis restricted to the large vessels. The maximal blood-pressure is low while the propelling force of the pulse wave is high—typical signs of changes in the large vessels. When the propelling force declines, this is a bad omen and should attract attention. In one of his cases this sign closely preceded sudden death and in two others it preceded severe cerebral hemorrhage. In another patient this sign was observed during a postinfectious cardiovascular disturbance and subsided under appropriate measures. In another group the low blood-pressure was due to status lymphaticus, and Münzer has found unusually low blood-pressure in his patients with exophthalmic goiter—contrary to statements in the text-books. His third group of cases includes patients with orthostatic albuminuria; in one case the low blood-pressure and low pulse force were observed with severe nephritic albuminuria which assumed the orthostatic form. In a case reported with the detailed findings the tendency to fatigue and apathy, the gastro-intestinal symptoms and the extremely low blood pressure suggested Addison's disease or severe functional disturbance in the chromaffine system. Herz has lately reported some cases of similar hypnotic bradycardia; it is possible that the assumption of defective functioning of the chromaffine system may explain orthostatic albuminuria. Münzer states further that vascular hypertonicity is the rule with nephritis; not until the vessels are injured by the effects of nephritis does the blood-pressure rise. Until the vessels are thus injured, the blood-pressure is normal or below. A case of paroxysmal tachycardia which he reports in detail shows that the pulse rate and blood-pressure are independent of each other. In conclusion he refers to the low blood-pressure in cachectic conditions.

Zentralblatt für Chirurgie, Leipsic

September 24, XXXVII, No. 39, pp. 1281-1304

- 125 Operative Mobilization of the Thorax. R. Klapp and F. W. von Goedel.
126 Circular and Lateral Suture of Veins. (Venennaht.) J. H. Zaaijer.

Zentralblatt für Gynäkologie, Leipsic

September 24, XXXIV, No. 39, pp. 1257-1280

- 127 Management of Sacro-Oc cipital Cephalic Presentation. (Positio occipitalis sacralis.) G. Trapl.
128 Incarceration of the Intestine After Ventrofixation of the Uterus. (Darmeinklemmung nach Ventrofixation.) Guggisberg.

Gazzetta degli Ospedali e delle Cliniche

September 18, XXXI, No. 112, pp. 1177-1192

- 129 Favorable Experiences with Electrotherapy in Chorea. G. Viana.
September 20, No. 113, pp. 1193-1200
130 Organotherapy in Sexual Neurasthenia. C. Ottone.

- September 22, No. 114, pp. 1201-1208*
- 131 The Eosinophils in the Blood and Sputum of Tuberculous Patients. B. Nicola.
- Policlinco, Rome**
- September 18, XVII, No. 38, pp. 1187-1218*
- 132 Suppuration After Injections of Quinin. R. Sabelli.
- September 25, No. 39, pp. 1219-1250*
- 133 Ehrlich's "606" in Syphilis. U. Mantegazza.
- 134 Spinal Anesthesia in the Hospitals of Rome. (La rachianestesia nella regia Clinica chirurgica e negli ospedali di Roma.) F. Caccia and A. Pennisi. Commenced in No. 38.
- Medical Section, September, No. 9, pp. 381-428*
- 135 Research on Heart Functioning. (Studi critici e sperimentali intorno ad alcune questioni controverse di fisiologia.) I. Bocci.
- Surgical Section, September, No. 9, pp. 381-428*
- 136 *Bilateral Sarcoma of the Testicles. P. Sabella.

136. **Sarcoma of the Testicles.**—Sabella's patient was a young man of 23 with a tumor in the left testicle which on removal proved to be a sarcoma. Four months later he returned with an abdominal tumor which proved to be the undescended testicle, and this, likewise, was the seat of a sarcoma. The patient has been in good health during the eight months since. None of the glands seems to be affected. Sabella discusses the peculiar abdominal-lumbar location of the undescended testicle in this case and the occurrence of the sarcoma in both testicles with no apparent communication between them. He also reviews the literature on a constitutional tendency to neoplasms and the predisposition afforded by the undescended testicle.

Riforma Medica, Naples

- September 19, XXV, No. 38, pp. 1037-1064*
- 137 Histologic Study of Cystic Degeneration of the Kidney. R. Secchi and G. Mareschi.
- 138 Ehrlich's "606" in Syphilis. R. Campana.
- 139 Gastric Disease. Historical Review. (Gastropatie dinamiche ed organiche. III.) G. Rummo.

Hospitalstidende, Copenhagen

- August 31, LIII, No. 35, pp. 1009-1032*
- 140 Treatment of Threatening Gastric Hemorrhage. (Behandling af de livsfarlige Maveblødninger.) L. Kraft. Commenced in No. 34.
- September 3, No. 36, pp. 1033-1056*
- 141 The New Public Hospital in Copenhagen. (Rigshospitalet.)

Ugeskrift for Læger, Copenhagen

- September 1, LXXII, No. 35, pp. 1035-1068*
- 142 The New Public Hospital in Copenhagen. (Rigshospitalet.)
- 143 Treatment of Appendicitis. (Om principmaessig tidlig Operation ved akut Appendicitis.) A. Pers.
- September 15, No. 37, pp. 1099-1124*
- 144 Treatment of Subperiosteal Abscess in the Mastoid Region. H. Mygind.
- September 22, No. 38, pp. 1125-1160*
- 145 Ehrlich's "606" in Syphilis. (De første Dioxydiamidoarsenbenzol-Injektioner paa Rudolph Berghs Hospital.) E. Pontoppidan.
- 146 Experimental Study of Gastric Ulcer. F. Rosenbach.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

COMPTE RENDU DES TRAVAUX DU DEUXIEME CONGRES INTERNATIONAL POUR LA REPRESSION DES FRAUDES CONCERNANT LES DENREES ALIMENTAIRES. Les Matières Premières de la Droguerie; les Huiles Essentielles et Matières Aromatiques; les Produits Chimiques; les Sels Minéraux. Octobre 17-24, 1909. Paper. Price, 12 francs. Pp. 1496. Paris: Société Universelle de la Croix-Blanche de Genève, Secrétariat Général, 11, Rue d'Athènes, 1910.

SECOND ANNUAL REPORT OF THE MICHIGAN ASSOCIATION FOR THE PREVENTION AND RELIEF OF TUBERCULOSIS FOR 1909-1910. Containing Statement of Work Accomplished—Report of Convention at Ann Arbor—Report of Local Associations—State Needs—Report of Secretary and Treasurer. A Brief of the Year's Work. Submitted by the Secretary, Aldred Scott Warthin, M.D., Ann Arbor, Mich., Feb. 26, 1910. Paper. Pp. 216, with illustrations.

A TREATISE ON ORTHOPEDIC SURGERY. By Royal Wiltman, M.D., Assistant Professor of Orthopedic Surgery in the College of Physicians and Surgeons of Columbia University, New York. Fourth Edition. Cloth. Price, \$5.50 net. Pp. 908, with 601 illustrations. Philadelphia: Lea & Febiger, 1910.

INNECE SEKTION. Ihre physiologischen Grundlagen und ihre Bedeutung für die Pathologie. Von Dr. Arthur Bleil, Weid. Mit

einem Vorwort von Dr. R. Paltauf, Wien. Cloth. Price, \$5.50. Pp. 538. Berlin: Urban und Schwarzenberg; Rebman Co., New York American Agents, 1910.

A MANUAL OF PHYSIOLOGY. With Practical Exercises. By G. N. Stewart, M.D., Professor of Experimental Medicine in Western Reserve University, Cleveland. Sixth Edition. Cloth. Price, \$5 net. Pp. 1064, with 450 illustrations. New York: William Wood & Co., 1910.

HAY FEVER AND PARONYMIAL SNEEZING (Vasomotor Rhinitis). By Eugene S. Yonge, M.D., Physician to the Manchester Hospital for Consumption and Diseases of the Throat. Cloth. Price, \$2.40. Pp. 150, with 8 illustrations. Edinburgh: William Green & Sons, 1910.

REPORT ON THE MEASURES TAKEN AGAINST MALARIA IN THE LABORE (MIAN MIR) CANTONMENT. By R. Nathan, C.I.R.; H. B. Thornhill, C.I.E., and L. Rogers, M.D. 1909. Paper. Pp. 55. Calcutta: Superintendent Government Printing, India, 1910.

GYNÉCOLOGIE OPÉRATOIRE. Par Henri Hartmann, Professeur de Médecine opératoire à la Faculté de Médecine. Paper. Price, 18 francs. Pp. 498, with 422 illustrations. Paris: G. Steinheil, 2, Rue Casimir-Delavigne 1911.

THE MEDICAL DIRECTORY OF NEW YORK, NEW JERSEY AND CONNECTICUT. Vol. XII. Published by the Medical Society of the State of New York (17 West Forty-Third Street, New York). Cloth. Pp. 867. 1910.

MINUTES OF THE FIFTH ANNUAL MEETING OF THE OHIO ASSOCIATION OF MEDICAL TEACHERS. Columbus, Dec. 26, 1909. Paper. Pp. 70. 1910.

New Patents

Recent patents of interest to physicians:

958848. Purifying and sterilizing water. Albert Baudry, Kief, Russia.
959230. Portable prescription case. Charles F. Kurz, Cleveland, Ohio.
958965. Apparatus for measuring or apportioning materials of a granular or other suitable form. Thomas H. D. May, Bath, England.
958753. Electric cautery. William Meyer, Chicago.
959379. Elastic bed pan. Flora M. Otis, Ann Arbor, Mich.
958939. Massage apparatus. George R. Pyper, Salt Lake City, Utah.
958893. Composition of hydrated sodium carbonate and sodium tannate. William E. Ridenour, Philadelphia.
959389. Surgical appliance. Thomas E. Rodgers, Memphis, Tenn.
960150. Spraying nozzle. Harry D. Binks, Chicago.
959704. Bandage. Samuel Bottomley, Providence, R. I.
959934. Resonance tachometer. Robert Hartmann-Kempf, Frankfurt-on-the-Main, Germany.
959858. Sterilizer. William T. Herndon, Laurinburg, N. C.
959751. Poison bottle. Sylvanus H. Kellogg, Los Angeles.
959881. Joint for artificial legs. David W. Price, Owensboro, Ky.
959605. Stable composition containing hydrogen peroxid. Max A. Quiesser, Hamburg, Germany.
959883. Apparatus for chemical cleaning. Hermann Resch, Lorch, Germany.
959641. Switchboard for dental, medical or surgical purposes. David Stern, Cincinnati.
959970. Sanitary cleaning and indicating device for drinking vessels. Charles W. Thornton, Dalhart, Texas.
960481. Truss pad. George W. Arnold, Girard, Ohio.
960788. Manufacturing carbonic acid. Ernst A. Behrens, Bremen, Germany.
960842. Sanitary bottle-lip protecting device. William B. Degau, New York.
960843. Sanitary bottle-lip protector. William B. Degau, New York.
960523. Inhaler. Henri Edde, Paris, France.
960902. Tablet machine. Anthony M. Hance, Philadelphia.
960903. Multiple plunger case. Anthony M. Hance, Philadelphia.
960322. Hospital bed. Elias M. Henton, Clarksburg, W. Va.
960914. Pills for the treatment of diabetes mellitus. Arthur Heinemann, London, England.
960927. Making formic acid. Henry Howard, Boston.
960984. Disinfecting distributor. Joseph H. Melville, New York.
960689. Maternity skirt. William Padernacht, New York.
960700. Crutch tip. Philip W. Pratt, Boston.
960494. Support for nozzle of fountain syringes. Nicholas L. Rigby, Los Angeles.
960406. Disinfecting and deodorizing apparatus. Edward Roach, Norwood, Ohio.
960721. Pessary. Osborne H. Sheppard, Chicago.
961033. Cup or head for massage devices. Charles M. Slebert, Jr., Columbus, Ohio.
961034. Massage apparatus. L. A. and C. M. Slebert, Jr., Columbus, Ohio.
961479. Massage device. Sylvanus F. Bowser, Fort Wayne, Ind.
961582. Artificial feet. Joseph H. Bradley, Humwick; E. Nichol Croxdale, and T. L. Nichol, Sunderland, England.
961689. Making medicated tampons. James C. Darr, Dausville, N. Y.
961697. X-ray apparatus. Amedee Granger, New Orleans.
961350. Making nitric acid. Friedrich Haussner, Kaiserlautern, Germany.
961721. Apparatus for the preparation of formaldehyd. Edouard Hawart, Lloge, Belgium.
961365. Handle for massage apparatus. T. A. McCall and C. M. Slebert, Jr., Columbus, Ohio.
961165. Artificial limb suspender and back-check. James I. Rowley, Chicago.
961650. Disinfectant. Harry L. Schellenberg, Detroit.
961389. Invalid chair. Charles F. Walker, Stockton, Cal.
961273. Invalid bed. Lloyd W. Ward, Buckingham, W. Va.

The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOL. LV, No. 19

CHICAGO, ILLINOIS

NOVEMBER 5, 1910

THE PROPHYLAXIS OF CANCER *

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Among the great problems which confront the world to-day is that of cancer. The question of tuberculosis has been practically answered. The bacillus is known, as well as its modes of entrance to the body, its varying methods of attack and the causes of death from the disease. Up to a few years ago what the public learned of tuberculosis was through the advertising of interested dealers of patent medicines, promoters of health resorts and the exaggerated statements of irregular practitioners. To-day, with what may be called a world movement, tuberculosis is gradually being controlled and the percentage of deaths is yearly being lessened.

In view of the wonderful progress made in the prevention, care and curability of tuberculosis which has developed in the short time since the public was first taken into the work as assistants, is it not time that we should more generally diffuse what knowledge we have of cancer?

This world-wide disease is not confined to any certain people, but occurs among all races of mankind, and, indeed, is found throughout the vertebrate kingdom. Fish often have goiter, and in certain waters cancer seems to develop from these secondary changes in the thyroid. The disease also occurs in birds. In over a thousand instances primary cancer has been found in mice and thousands of cancers have been grown by inoculation (Bashford). Domesticated animals are somewhat more susceptible to it than animals in the wild state. This fact is explained as due to their longer life, the disease being more common in the relatively aged in both man and animal. While cancer is said to be uncommon in some countries, in Japan, for instance, there are 25,000 deaths a year from the disease in that country. In England it is estimated that, of individuals over 35 years of age, one out of every eight women and one out of every eleven men die of cancer, a greater death-rate for age period than from tuberculosis. We are not far behind in this country, with 80,000 cases constantly in progress and over 40,000 deaths each year from the disease.

It is undoubtedly true that the public is at present looking more anxiously for a specific or cure than for prevention of cancer, but it is in the line of prevention that the medical profession has assumed its present position of importance in the world. Practically all of

the acute diseases with which the population of the earth is afflicted are due to bacterial infection. It follows naturally, therefore, that the medical profession should search diligently for the germ of cancer, that an antagonistic remedy may be developed for its cure.

While it would be extremely interesting and useful to discover the parasitic origin, if such it be, of cancer, it is not vital. It requires but little judgment to decide that to prevent disease is better than to cure it. To prevent a case of diphtheria should be greater cause for elation than greatly to reduce the mortality by the use of antitoxin. The use of antibodies or serums as cures when the disease has been permitted to develop, and their use as vaccines for the prevention of disease, should by no means be discredited. It has been by such prevention and control of disease in children, and the reduction of mortality in adults, that the length of human life has been increased, and more people now than formerly reach a cancerous but not a proportionate old age. This fact, together with better diagnostic facilities and more carefully collected vital statistics, makes it appear that cancer is on the increase. The sooner this subject becomes one of general discussion, as tuberculosis has been in the various scientific meetings and in literature, the sooner may the adult hope to reach old age.

What is cancer? I shall not enter into a special description of cancer and its varieties beyond quoting briefly from Dr. L. S. Pilcher, who described the condition as follows:

It is in the lawless proliferation of preexisting epithelial cells in luxuriant, irregularly arranged masses that invade underlying and surrounding tissues, permeating, destroying them, and finally themselves attaining a mass which can no longer be adequately nourished by an accessible blood supply, and which itself then falls into central decay, while at the periphery the process still goes on, that cancer consists.

We must consider the irritation of groups of epithelial cells as the primary origin, and that such an arrangement occurred as a prenatal inclusion (this is questioned), or postnatally as a result of some mechanical or inflammatory condition. There is then a cell proliferation which becomes cancerous only when there is infiltration of the tissues.

From all the information which has been presented on the subject it is evident that there often exists a precancerous condition. The unproved type, that of prenatal displacement, we are unable to recognize. The postnatal type we recognize at least in the presence of tumors of a temporary, benign character in their more regular and uniform arrangement of structure and cells, such as warts of the skin, papillomata of the bladder and fibromata of the breast, as well as cell inclusions which occur in the scars of inflammations, or burns and the results of long-continued local irritation to tissues. These growths resemble the embryologic development of

* Chairman's Address before the Section on Surgery of the American Medical Association, at the Sixty-first Annual Session, at St. Louis, June, 1910.

cells merely in the power of cell multiplication and in the continuance of type in the metastasis and transplantation of the growth. Youth, because of the vigorous growth of the cells, is less subject to cancer, yet more susceptible to poisons, but the active lymphatics in youth cause rapid dissemination of disease when it occurs.

Bashford shows that, while no race of mankind is exempt from cancer, the predilection for the disease in certain countries is more from local irritation than from the peculiarities of climate, soil and diet. I shall mention only a few well-known sources of irritation as a cause of special cancer. For instance, carcinoma of the mouth is rare in European women but common in men, yet in Ceylon and India women suffer greatly from cancer of the mouth because of the chewing of betel-nuts and holding the plug in the mouth. In this country leukoplakia carcinoma is found mostly among those who use tobacco. Cancer of the skin of the abdomen, a rare condition, is common in natives of Kashmir, who wear abdominal charcoal heaters next to the skin. Lip or pipe cancer is an example of radiant actinic irritation, and there are numerous tumors from chemical and infective sources. Chimney-sweep cancer and innumerable other special forms are seen. It has been shown also that it may occur in a circumscribed area, and that any epithelial lining or covering may become cancerous. Why this is not still more common following chronic irritation or, if due to a special germ or parasite, why it does not occur after acute simple injuries it is impossible to say.

It is generally supposed that carcinomas often develop from severe single injuries, but there is no evidence that single injury does other than call attention for the first time to a preexisting tumor or hasten the growth in early or dormant malignancy. It is an apparent fact that in classifying the causes which may render precancerous conditions active we should include nerve-cell fatigue, such as is seen in the modern business world. The organs of convenience, *e. g.*, stomach, bladder and large bowel, which were added late to primitive life, have poor cell resistance and are prone to cancer degeneration.

Cancer of the stomach, bladder and large bowel undoubtedly often result from chronic local irritation. The tumor may often originate about the base of the appendix and in the wall of the cecum. It has been found by MacCarthy in a study by serial section of over 5,000 appendices which had been removed for so-called chronic subacute appendicitis, that 0.5 per cent. of them were carcinomatous, although the external appearance of these appendices did not always indicate such a condition. The diagnosis was made at operation in only 23 per cent. of the cases. It has been shown that diverticulum of the large bowel is sometimes the cause of cancer, and in such cases it is only in finding comparatively early growths which have not destroyed the diverticulum that the original location of the change can be shown. Therefore, in advising the early removal of chronic, inflamed appendices, we are avoiding the possibility of the development of a few cases of unrecognized cancer, not to mention the possibility of its development in some of the appendices which are removed in a precancerous condition.

Just at this time ulcers of the stomach seem to have taken a leading position as the cause of cancer development. It is not hard to understand how cell groups may become isolated by connective tissue development as a result of erosion or ulceration. This condition is becom-

ing more and more commonly recognized and it is estimated that a large percentage of the cases of cancer of the stomach have developed on ulcer. The trend of popular treatment in gastric surgery is to recognize the cancerous tendency of ulcers and excise them in their precancerous condition, reserving gastrojejunostomy for the cases of obstructed pylorus from closure or probable stenosis following excision of the ulcer. The question presents itself as to whether the supposed repeated medical healing of ulcers relieves the tendency to cancer.

Papillomata of the bladder are often found in the benign stage, yet we know that they develop cancer, and they should, therefore, be thoroughly removed as a precancerous condition.

It has been noted that the prostate gland is very subject to hypertrophy and hyperplasia, yet operation for its removal has been advised only when the distress and necessity become very great. Our present knowledge of the condition shows a high percentage of cancerous changes in the gland, which should be taken into consideration in deciding the advisability of operation before the proliferation of tissue becomes an infiltration, and some relief an absolute necessity. The mortality following operation in this early stage is low in comparison with that resulting from deaths of patients with symptoms who have not been operated on, to say nothing of the suffering which will have been avoided. Operation, however, is not advised merely because there is hypertrophy, which is common, but to avoid the changes incident to chronic irritation when it exists.

Patients with thyroid tumors who require operation, prove that chronic irritation of an adenoma may cause carcinoma in about one in twenty-five or thirty cases. A rapidly growing hard goiter should be looked on as a menace and early operation advised.

In a consideration of the irritative effects of the tumors of the body of the uterus, in which fibroids are common, we find $1\frac{1}{2}$ per cent. to be sarcomatous and 2.5 per cent. carcinomatous; yet the fibroid itself would be capable only of sarcomatous malignant change. In 1,000 hysterectomies for fibroids in women over 50 years of age, Sutton found that 10 per cent. of the tumors were cancerous. The condition will be found fifteen times in the cervix to once in the body of the uterus, yet in the cervix it is associated with fibroids in only $\frac{1}{3}$ per cent. Of the cases of cancer of the body of the uterus 40 per cent. are associated with fibroids, that is, over one hundred times more frequently than in cervical cancer. The first stage in such cases is adenomatous proliferation of the endometrium; the second, lawless cell-growth and invasion, or cancer. Fibroid of the uterus, while a fairly common condition, may often not be realized by the patient. Operation should not be advised in all cases, but in those which are giving symptoms; myomectomy in the young and hysterectomy in the older individual being the methods of choice. Chronic erosions are probably a greater menace than is commonly supposed, and they should receive attention.

A few years ago a tumor of the breast of a woman 35 or more years of age, which was not of infective origin, was considered malignant in proportion of four to one, and it seemed probable that nearly one-half of the tumors which were considered benign at the time of operation eventually became malignant. In the last ten years the increasing knowledge of the public, which has led to earlier operation, has reduced the proportion of probable malignancy at least 10 per cent. Tumors of the breast, not themselves malignant, may create a

change in the adjacent breast tissue by chronic irritation, or they may change within their own structure. Well-collected statistics show that the results following operations for cancer of the breast indicate that 80 per cent. of the patients remaining well three years were operated on within six months of the development of the tumor, and about an equal number, who had no palpable glands in the axilla at the time of operation, remained well. It is obvious that a patient should not be obliged to have the growth of a tumor watched for marked evidences of malignant change, a delay which might reduce the chances from the best average of cure; that is, about 50 per cent. for three years, to a possible 20 per cent. cure, or much less.

Considering that the mammary gland is very prone to cancer, are we justified in hesitating to advise early removal for examination of supposed simple tumors as freely as in those which are considered malignant? Physicians should not assume the responsibility of delay, but should inform patients that in retaining this source of chronic irritation they must do it at their own risk and responsibility. From a careful observation of the operative cure of cancer of the breast it appears quite probable that an early operation, even though incomplete so far as the removal of muscle, axillary lymphatics, fat and fascia is concerned, will still give better results than the most radical operation which is done late. I by no means wish to decry the late radical operation, but would urge, rather, that the radical operation be performed early in order to have the cures approximate 80 per cent.

Are there cures for cancer? At present we recognize none other than that obtained by removal from the body by means of knife, cautery, paste or destructive rays. All methods used to cause a disappearance by absorption within the body by body tissues or fluids are as yet failures as cures, although growths have been checked and even shrunk by such measures.

It must be admitted that there is a wide difference in the malignancy of cancer, in the character of its growth and the tissues involved, yet but little consideration is given to another important point—that there is just as wide a variation in the resistance of the individuals for the same type of cancer. Some patients who have this power of resistance and who remain well for several years after operation are often claimed by the surgeon as examples of the benefits of some particular method of operation or of some unusual cure which has been given them. Such patients do well with oft-repeated secondary operations, while others melt away with the disease or through metastasis.

A promising effort is being made to utilize cytotoxicity by using serums made from patients proved resistant to cancer, and from embryos of the same species, to create a destruction of the cells of embryonic type and character and power of regeneration, as seen in cancer.

Cancer is a disease of adult life. The patient is naturally the one most vitally interested, and he should be informed, in the precancerous stage, of his danger. We lose many opportunities for disseminating life-saving knowledge to the public by a mistaken regard for the sensitive feelings of the patients, until their condition has become practically helpless from an operative standpoint. The layman requires considerable explanation before he can be made to realize that the risk is not in surgery, but in delayed surgery. He considers all operations alike in their danger and severity, while in reality there is a very wide variation. It is a simple operation to remove stones from the gall-bladder. A delayed oper-

ation may require their removal from the cystic or even the common duct, and very often a pancreatitis will have developed. On an average, one in thirty of these cases has developed cancer as a local condition around a gall-stone which has chronically irritated some mucous area of the gall-bladder duct. In nearly all of the cases of primary cancer of the gall-bladder and liver ducts gall-stones have been found.

If surgery for cancer is in disrepute to-day it is partly because too large a proportion of patients are accepted without explanation for operation at a stage when there is no possibility of cure, and when their families, if not themselves, should have been informed of their hopeless condition. If they had been left they would have served as living examples of the results of delay instead of the unsatisfactory results of ill-advised surgery.

We can, however, say this: that we know nearly or quite as much concerning cancer as we do of other medical and surgical diseases. The danger of local irritation of a chronic character has been underestimated. Our present knowledge of the prophylaxis of cancer indicates that all tumors should have a medical examination and the majority of them a surgical consultation in order that we recognize the precancerous condition, and reduce mortality by prevention.

ETIOLOGY OF CANCER OF THE SKIN *

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In the following brief report on cancer of the skin I shall limit myself to a consideration of the epithelial forms of cancer. Even here I shall not be able to go into any detailed discussion and I must ask for indulgence in case I should express my opinions on certain questions without being able to give the data on the basis of which such opinion has been formed.

The etiology of cancer of the skin is, of course, on the whole not different from the etiology of cancer in other parts of the body, and the same principles underlie the formation of cancer in various organs. Cancer of the skin differs from cancer in other parts of the body inasmuch as the pathologic changes taking place in the skin are so much more accessible to direct observation. The clinicians have taken advantage of this circumstance, and to the clinicians we are indebted for some interesting discoveries concerning the causation of cancer of the skin.

EXTERNAL AND INTERNAL FACTORS

In following the origin of cancer of the skin we recognize most clearly the importance of external factors, and to me this is one of the most significant facts. Another conclusion that impressed itself on me in considering the various forms of cancer of the skin is the presence of a second condition which we may designate in a preliminary way as the internal factors.

Now, in the different varieties of cancer of the skin we see these two sets of factors associated in various combinations. If the external factor is very potent the internal factors can be dispensed with, and if the internal factors are very potent the external factors play only a subordinate rôle. There are intermediate

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910

conditions in which a cooperation of the two agencies is of importance. To cite a few examples: In Roentgen ray cancer the external factor alone seems to be sufficient. An internal factor plays apparently a very negligible rôle in this case. It is perhaps similar but not quite as pronounced in the case of the chimney-sweep cancer of the scrotum. On the other hand, in xeroderma pigmentosum the internal factor is very potent and the external factor, although present, is without influence in normal persons of the corresponding age.

It is somewhat similar in persons affected with pigmented moles. The internal factor leading to the production of nevi is of preponderating importance, while in the case of normal people the external factor would be of a very trivial character. In the cancer developing in the skin of the sailors and in old people we are not in a position at the present time to know the relative distribution of the external and internal factors. We lack as yet statistical data sufficiently comprehensive to allow us to state what percentage of persons, in whom the external agency acted with a definite intensity over a certain period of time, became affected. Only on the basis of definite, we might call it, quantitative determinations, could we advance in this direction.

Let us now attempt to analyze those factors somewhat more closely. The external factors¹ of importance are (1) light rays, especially the short-waved and the ultraviolet rays; they play a part in the cancer developing in seamen long exposed to the rays of the sunlight; they determine the lesions in xeroderma pigmentosum, where the lesions are found in those parts that are more or less exposed to the light. They are in all probability also concerned in the causation of cancer which is found in old people on the basis of keratoma senile, or the so-called seborrheic wart. These changes are mainly found on parts of the body exposed to light. The Roentgen rays are of course responsible for the cancer of Roentgen ray operators. Next, certain chemical factors are undoubtedly the cause of a certain number of cancers. Soot, and especially hard coal soot, causes cancer in chimney-sweeps, and certain chemical products induce cancerous growths in paraffin and coal-tar workers. In these cases the irritating substance, the chemical character of which has not yet been ascertained, attacks the skin directly, reaching it from the outside. In persons taking arsenic over long periods of time this substance influences the skin after having previously been absorbed from the intestinal canal. Mechanical factors are also of importance. There is no doubt that mechanical irritation plays its part in transforming pigmented moles into cancer. And if we include the cancerous affections of the tongue and lip it is certain that the friction of imperfect teeth or the mechanical effect of a pipe may cause cancer. In the latter case heat may perhaps play a certain part, while a combination of heat and mechanical irritation, or either alone, acts in the case of Kangri cancer, observed in Tibet. Here a small stove carried near the skin of the abdomen causes a peculiar cancer of the skin. Among the external factors responsible for cancer we may also mention those conditions or organisms that cause affections, such as lupus, psoriasis, and leucoplakia of the tongue, and various chronic ulcerations and scars, as a sequel of which cancer sometimes develops in the skin and in the tongue. Of course, we

must realize that such a sharp differentiation between external and internal conditions does not do full justice to the complexity of nature, and that, *e. g.*, a condition that at one time acted as an external factor may later on become transformed into an internal factor and only after such a transformation has taken place it may act as a cause of cancer. And this is what some pathologists, indeed, assume to take place. A distinction between conditions outside the organism, conditions inside the organism but outside the epithelium and conditions inside the epithelium would be more correct.

In regard to the internal conditions our knowledge is much less definite. We know that melanotic cancer frequently starts from a pigmented mole and that the latter is a condition present at the time of birth or developing in very early life, and probably due to developmental abnormalities which may be hereditary. A certain localized congenital and also hereditary condition is therefore one of the internal factors leading to cancer.

In xeroderma pigmentosum some internal factor making the skin peculiarly susceptible to the action of light and ultraviolet rays is undoubtedly present. In the absence of positive knowledge we may propose the following hypothesis: We know that certain substances, especially fluorescent stains, are able to sensitize living cells as well as ferments to the injurious action of light. We furthermore know that cattle that feed on buckwheat (*Buchweizen*) become very sensitive to the influence of light rays, and skin affections follow if the cattle are exposed to the light. It is possible that in xeroderma pigmentosum a substance is produced internally that sensitizes the skin and certain mucous membranes to the action of light; the last stage of the light action in a sensitized skin is the development of cancer. Whether primary differences in the anatomic structure of the skin and mucous membranes are present in patients affected by xeroderma pigmentosum has to my knowledge never been examined. Nor is anything known, so far as I am aware, in regard to the sensitiveness of the skin in such patients toward the action of other than light and ultraviolet rays. Whatever the ultimate character of this internal factor is, it must in some cases have been indirectly transmitted through the germ cells of the parents, probably in the form of a preparatory substance, inasmuch as it is known to occur in sisters or brothers of the same family. Nothing definite is known concerning the existence of internal factors in the cancers of old age, cancer after use of arsenic, cancer in chimney-sweeps and other similar conditions. We might be inclined to believe in the presence of some predisposing internal factors in such cases inasmuch as we notice that only certain persons are affected by cancer or seem, at least, to become affected much more readily among a much greater number of people exposed to the same injurious influence. We must, however, be well aware of the fact that in such cases we cannot be certain that the same quantity of external injury, if we may thus express it, acted on all the persons exposed.

EMBRYONIC THEORY

There are other internal factors to which a great or, we may say, the almost sole responsibility has been attributed. I refer especially here to the views expressed by Borrmann. This author made extensive microscopic studies of early stages of carcinomata of the skin, and came to the conclusion that cancer of the skin is in almost all cases due to embryonic malformation which leads to complete separation of certain parts of the

1. Interesting observations concerning the action of etiologic agencies have been made in this country, among others, by Hyde (action of light), Harizell, Schamberg (action of arsenic), Wolbach (effect of Roentgen rays) and Councilman and McGrath (xeroderma pigmentosum).

epithelium from the rest of the epidermis and their transposition into the corium. Thus the corium carcinomata are produced which include, for instance, the cases of rodent ulcer. Or certain parts in the epidermis may remain in an undifferentiated condition and give rise later to the prickle-cell, keratinizing carcinomata, according to Borrmann.

It is impossible here to go into a detailed criticism of his observations and deductions. Suffice it to say that the results of histologic examinations of others, among whom I might mention H. H. Janeway, do not uphold his view. The typical carcinoma of the skin originates through a direct downgrowth of the surface epithelium or its appendages, and all the evidence at hand proves that, although perhaps in a few cases, carcinoma may take its origin in misplaced embryonal rests, embryonal displacements are of no or of very slight importance in the etiology of the large majority of the cancers of the skin.

RIBBERT'S THEORY AND THE CANCER CELL

In the last analysis Borrmann's views are based on the hypothetical conceptions of Ribbert, and, inasmuch as the views of this author had a dominating influence, at least for a certain period of time, we must briefly refer to the latter. In the course of time Ribbert changed his views considerably, so that at present little is left of what characterized his original conceptions. But the distinctive feature of his hypothesis was the following:

The carcinoma cell in its last analysis is nothing but an ordinary regenerating epithelial cell, such as is seen in wound healing. The only difference between cancerous and ordinary regenerative growth is to be sought in some secondary conditions which do not permit the epithelial cell to unite with its kin to form again a normal organ. In most cases the presence of the inflamed connective tissue is responsible for the separation of certain parts of the epithelium. This is the principal conception of Ribbert's theory, and the facts do not sustain it. The carcinoma cell is not an ordinary regenerating cell. The latter may be put into whatever environment we choose: it always follows the laws that are valid in the case of regeneration. The carcinoma cells remain carcinoma cells even if on both sides they are surrounded by its kin, the normal epithelium, or wherever they may be implanted. Indeed, the transformation of an epithelial into a carcinoma cell takes place, in many cases at least, at a time when the epithelial cell is still in union with the surrounding epithelial tissue. All the experimental evidence at our disposal admits of but this conclusion. Epithelium may grow in agar or blood-serum in the body or in intimate contact with connective tissue and the blood-vessels; the epithelial cells do not behave like carcinomatous cells; on the other hand, we may transplant carcinomatous cells and they will always grow as carcinomatous cells, if growth can be obtained.

This invariable difference between ordinary epithelial and carcinomatous cells induced some writers to seek for a preformed internal factor in the congenital constitution of the cell, and especially of their chromatin. This view appears to be as little justified as the opinion that as a rule cancers of the skin are due to embryonal misplacements. Nor would I recommend at the present state of our investigations the designation of carcinomatous cells as "new cell races" or the use of the term "anaplasia." I believe that all such terms are unnecessary, and that they frequently tend to obscure the real problems which consist in determining functional relations.

AGE AS A FACTOR

There remains another condition which might be classed among the internal factors, and on which great stress has been laid by various writers, namely, old age.

It is certainly correct to state that carcinoma occurs more frequently in advanced age and that certain cancers of the skin are especially found in the senile skin. If, however, we analyze more searchingly what is called old age in the case of its epidermis we will find that we have to deal with a complexity of factors, among which external injurious influences play directly or indirectly the most prominent rôle. The commonly assumed basis for old age is the conception of a certain deterioration in the machinery of the cell which is necessary to occur in the course of time and which is inherent in its structure. As I pointed out nine years ago, I believe this view to be erroneous, especially as far as the cells of the epidermis are concerned. There are weighty reasons why we should believe in the potential immortality of the epidermal cells rather than in their necessary aging. If the senile changes take place in the epidermis they are according to this view due to a long-continued cumulative action of injurious external agencies, as light, heat, mechanical insults, and so on, which acted either directly on the epithelial cells or on the stroma on which the latter live; injurious influences which made themselves felt continuously and from the effects of which no recovery was therefore possible. As far as the epidermis is concerned, old age is therefore a term designating the effects of long-continued external injurious factors. Instead of explaining various skin lesions as due to a premature senescence of the skin we should, it appears to me, take the opposite position and explain the senile changes of the skin as due to the action of injurious external influences.

MICRO-ORGANISMS

By what mechanisms do the external factors which have been enumerated affect the epidermis and how can they call forth a cancerous proliferation? In the first place we might think of the activity of micro-organisms that have an intracellular existence and are therefore constantly acting on the epithelial cells, stimulating them to active cell division and to invasion into the neighboring tissue, such stimulation being to some extent accompanied by changes in cell metabolism calling forth new enzymatic activities. We know, indeed, that certain micro-organisms as those of variola and vaccine and molluscum contagiosum call forth epithelial cell proliferation, and Borrell designated such a condition under the term epitheliosis in contradistinction to epithelioma. And there exist observations made in the course of the experimental investigation of cancer which could be readily explained by the assumption that micro-organisms have an etiologic significance. On this basis all the changes induced by the various external and internal conditions which we mentioned would only serve as means of introducing a certain micro-organism into the epidermis. Although at the present time we cannot deny, and although we must keep in mind such a possibility, we must confess that the probabilities of such a connection between external agencies and cancer appear exceedingly slight at the present time. No tangible indication of micro-organisms that withstood the test of later investigators could be found.

IRRITANTS

On the other hand, we see before us the prospect of an ultimate understanding of the connection of external irritants with cancer by a more penetrating analysis of

the biology of the various tissues, and especially will it be necessary to inquire into the influence which external agencies have on growth processes. Concerning the action of Roentgen rays and radium, considerable stress has been laid on their necrotizing effect. But especially, recent studies have shown that, independently of their necrotizing action, these radiations have a distinctly stimulating effect on the epithelial cells; we furthermore learned that under the localized influence of certain organic derivatives, especially aromatic amido derivatives a limited infiltrative growth of epithelium into the deeper connective tissue structures may take place. It was mentioned above that a combined action of internal and external factors caused carcinomatous growth in certain, probably in many, cases. Recently some advance has been made in the experimental analysis of formative stimuli which throws some light on such a combination of factors and makes it amenable to a quantitative analysis. It has been found that a substance produced by one organ of the body unites with the connective tissue cells of another organ, and that if such a combination has taken place mechanical stimuli can cause an extraordinary, though temporary, tumor-like tissue proliferation. In this case the chemical activity of an organ of the body represents the internal condition and the mechanical irritation the external agency. Such experimental means and studies will allow us to eliminate many variable factors which complicate the development of natural tumors. Although these experimental products which have just been mentioned differ from tumors, mainly in not being permanent, they nevertheless will throw much light on the conditions on which exuberant growth and infiltration of surrounding tissues depend, and will thus help to clear up the mechanism of cancerous growth.

ANATOMIC CHANGES

To this physiologic point of view of considering phenomena of abnormal growth may be opposed the anatomic point of view which undertakes to explain functional changes, such as variations of growth-energy as represented by tumor growth, on the basis of histologic appearances of tumors.

Thus in many changes in the skin due to long-continued external irritation we find more or less a similar sequence of anatomical changes. These typical anatomic changes have been termed "precancerous conditions." Cancers which are caused by the action of light and ultraviolet rays, and also by Roentgen rays and arsenic, and those found in senile skin, are preceded by hyperemia, pigment formation in the epithelial and pigment deposit in cutis cells; increase in the proliferation of epithelial cells, sometimes combined with the formation of epithelial giant cells; hyperkeratinization, formation of warts, and at last cancer formation. In certain conditions (*e. g.*, xeroderma pigmentosum) the hypertrophic processes in certain parts of the skin may be accompanied by atrophic processes at other places. In the later stages certain parts of the connective tissue show definite changes; they become hyaline while other parts directly underneath the epidermis may show a rarefaction. Many blood-vessels may be obliterated.

Now various writers attributed to these changes as such an etiologic significance in the development of cancer. Thus Unna ascribed to the overproduction of pigment some importance; a very improbable assumption, if we consider that on the whole colored races are less liable to cancer of the skin. The production of melanin in the skin depends in all probability on the activity of

certain oxidative ferments, and it is conceivable that under stimulating conditions, among other changes, a correlated change in certain oxidative processes in the cells may take place. Others held hyperkeratinization, as such, responsible; again a very unlikely assumption. Hyperkeratinization being merely the expression of atypical growth phenomena which are taking place in the skin, cannot be considered as the cause of these growth processes. Others accused the obliteration of blood-vessels; this condition, it was argued, forced the epithelial cells to obtain their food-supply from connective tissue cells; which latter process was said to act in a similar manner as the penetration of a spermatozoon into the ovum, a somewhat fantastic comparison with hardly any foundation of fact. Ribbert believed in the etiologic importance of a subepithelial cell-infiltration. But this is not always present at the commencement of the cancerous growth. Others assume that the chronic connective tissue changes liberate the latent energy of the epidermis. It is, however, difficult to see why very dense connective tissue should, as such, be favorable to epithelial growth. In all probability it would prove to be very resistant to the expansion of the epithelium. In many cases of cancer of the skin, moreover, no such connective tissue changes are present. Unna, for instance, especially noticed their absence in certain cases of sailor's skin cancer. On the whole, it is therefore more probable that epithelial proliferation and connective tissue changes are coordinate and that the latter are not to be considered as primary processes. In a few cases it was noticed, first, it seems, by Roessle and Spude, and recently also by Janeway, that in the early stages of cancer the epithelium grows down in the direction of dilated blood-vessels and in some way or other the presence of such dilated blood-vessels was held responsible for the development of cancer, without, however, any convincing reason being given for the validity of such an explanation. In many cases, moreover, such a relation between dilated vessels and epithelial proliferation is absent. We must realize fully the great difficulty in explaining functional phenomena on the basis of certain histologic appearances, however, frequently the latter may be found. There are many variable factors present in such phenomena and the chances are so great that only indirect connections exist between a certain histologic picture and the functional condition it is called for to explain, that it is not safe to use it as the basis of a more or less elaborate hypothesis.

CONCLUSION

Through experiment alone we can eliminate the variable factors one after another, and slow as the experimental procedure may appear, it will ultimately prove to be the only safe guide in our work. I do not, however, underestimate the value of histologic investigations, which in many other directions have proved to be of inestimable value, and which are also necessary as an adjunct in the etiologic study of cancer, but in the latter only in a subsidiary way. Until further experimental investigations shall enable us to discriminate with greater accuracy between the various factors and their mode of action, one must be content to state that in many cases of cancer long continued external irritation is of the greatest etiologic significance; that long-continued stimulation of the epidermis may lead to the formation of cancer; that it is, however, at the present time not possible to state how much of this stimulation is exerted directly on the epithelial cells through the

external agency, and how much is an indirect effect caused by changes in the organism as a whole or in the underlying connective tissue. But even if these latter changes should prove to be of greater significance, and not to be merely coordinated changes, they must be assumed to stimulate by physicochemical processes the overlying epidermis. Until we know more of the more distant effects which long-continued external stimulation may exert on cells, and which may find expression only after a very protracted period of latency, we must beware of too detailed explanations. We can, however, be certain that as the result of long continued irritation the epithelium changes in its proliferative power and that such changes are transmitted to the following cell generations apparently indefinitely.

TREATMENT OF MALIGNANT GROWTH OF THE SKIN FROM A DERMATOLOGIC STANDPOINT*

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In considering the treatment of malignant diseases of the skin from the dermatologist's standpoint, the topic assigned to me, I shall take up only cutaneous carcinoma. I shall use the term "epithelioma" as synonymous with primary carcinoma of the skin and shall make no distinction in principles of treatment between rodent ulcer and squamous epithelioma confined to the skin.

The successful treatment of carcinoma of the skin, as of other tissues, requires, in the present state of our knowledge, the complete local destruction of the growth. The future holds out possibilities for the relief of carcinoma by systemic treatment, but at present we have no systemic methods that have any definite effect on the course of carcinoma. None of the agents used empirically has proved of value, and the agents which have been assumed to have a rational foundation, as cancerin, the cancer serums, and trypsin, have all proved totally useless.

INTERNAL REMEDIES

The only one of the internal remedies that seems to be entitled to the slightest consideration for its claims even to inhibit the growth of carcinoma, is arsenic. Arsenic, administered in large doses, undoubtedly has a definite effect on the nutrition or growth of the skin, and equally certainly some cases of sarcoma of the skin have been cured by the persistent and usually heroic use of arsenic. Some very careful observers, as Sherwell, and Abraham Jacobi, believe it is of benefit in carcinoma, and I believe when we are taking stock of our remedies for carcinoma, arsenic is entitled to mention as having a possible effect on the course of the disease—an effect not radical, but inhibitory.

We then are compelled to face the fact that the only way we can treat carcinoma successfully is to destroy it locally; and the practical question is, How can this best be done?

Obviously there are many ways in which living diseased tissues can be destroyed, and there are a number of methods of destroying carcinomatous tissue which are available for therapeutic application.

EXCISION

The most popular method and the one of preference among surgeons is excision. Excision is the only method practicable in many carcinomas, as those of the internal structures of the body, and in such situations we must avail ourselves of the one resort we have. But there are broad objections in principle to excision in carcinoma. In a large sense it is the crudest method of treatment. It removes an entire part, in the hope of removing with it diseased tissues which form only a fraction of the whole. It takes no account of the ability of the tissues to assist in the defense against carcinoma. A clean excision, healing practically without inflammatory reaction, must remove every cell of carcinoma to be successful. If it fails in this, no reaction has been excited in the tissues that may destroy remnants of the disease, on the contrary, lymphatic spaces have been opened up, and other opportunities given for the more favorable growth of any part of the carcinoma left. So, if clean excision fail in absolute removal *en masse*, the procedure has shot its one and only bolt, and the disease remains.

These are not the objections of one opposed to operations in carcinoma; they are inherent difficulties in the principle of treatment of carcinoma by aseptic excision which if they could be avoided in all cases, would simplify the problem of successful treatment. Surgery recognizes these difficulties in constantly devising more radical and still more radical operations. It also recognizes the great danger of clean incisions which go into carcinomas, whether through the body of them, or through the peripheral offshoots. Thus Meller¹ in a statistical study of the result of surgical treatment in carcinoma of the head, neck, and face in Hochenegg's clinic in Vienna observes that local recurrence in and about the scar (after operation for cancer of the lip) is very much more frequent than glandular recurrence; which is another way of saying that the greatest difficulty in operative removal is to get all of the local growth. From the study of this series of cases he also calls attention to the often observed fact that operations which are not complete hasten the fatal termination of the disease by favoring extension along the opened channels and in the mutilated tissues. And he concludes: "May these figures be a warning to all those who face this disease without sufficient equipment; the knife of the unpracticed, untrained surgeon does more harm than good."

These facts are, of course, well known, and the statements from Meller are not quoted for themselves, but because of the corollary to them. The corollary is that the dangers that arise from clean excisions in and about carcinomas should be avoided when the complete destruction of the carcinomatous mass is possible without resorting to such procedure.

Again, W. S. Halstead, in writing on the operative treatment of carcinoma of the breast, emphasizes the danger of incisions into carcinoma, even for material for diagnostic examination, as follows:

It was my practice at one time in making the exploration in doubtful cases to excise a portion of the breast tumor with the Paquelin cautery to prevent the wound inoculation which I feared might take place if the knife were used. The excision of a specimen for macroscopic or microscopic examination is never resorted to except just before operation. If the actual cautery for any reason is not used the wound is immediately cauterized with carbolic acid. All incomplete operations for

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Meller: *Ztschr. f. Krebsforsch.*, 1907, p. 64; reviewed editorially in *THE JOURNAL A. M. A.*, Nov. 16, 1907, xlix, 1677.

cancer should, when feasible, be made with the Paquelin or actual cautery.²

These dangers from the use of the knife obtain with equal force in carcinoma of the skin, in which, especially on account of the necessity of sacrificing as little tissue as possible, there is often presented a difficult problem in getting beyond the borders of a growth. To put it in another way, if it is dangerous to cut into a carcinoma, why should excision without canterization be the method of preference in epitheliomas in which one usually is compelled to save as much healthy tissue as possible, and often cannot be sure whether his knife has gone through carcinomatous tissue or not?

OTHER METHODS OF DESTRUCTION

This brings us to the question, Are there any available methods for destroying carcinomas other than excision? As I have already said, for internal carcinomas there are none; for carcinomas of the skin there are several which compel consideration by the open mind.

Let me say at the outset that I would exclude from consideration among non-excision methods all measures which are not vigorously destructive. Superficial caustics, like silver nitrate and phenol, are dangerous. They do not cause deep destruction of tissue themselves, nor do they produce a reaction sufficiently intense to destroy carcinomatous tissue, and, like all other irritants which fall short of destruction, they tend to make the growth more rapid. Equally ineffective for curative purposes are substances like pyoktanin, which promote epidermization and healing of ulcerated surfaces; they are especially dangerous in inexperienced hands, because the deceptive healing of the surfaces which they promote may be regarded as evidence of cure and valuable time thus be lost in making the radical attack.

The attempt to treat cutaneous carcinoma by high-frequency sparks or brush discharges, in the way this treatment is carried out in epithelioma, should also be included among the less vigorous and effective methods; it is not a method of treatment by actinic energy, like radiotherapy, and, when used with sufficient intensity to be effective, is a very awkward and painful way of doing a simple thing. In the same group of ineffective methods I would include simple curettage, no matter how vigorously done, and, except in cases most carefully selected by men of large experience, electrolysis and the new method of refrigeration, either with liquid air or with solid carbon dioxid.

Electrolysis, which is occasionally used for treating minute epitheliomas, does not destroy the tissue in sufficiently large masses to be a desirable method of treatment.

Refrigeration by liquid air or solid carbon dioxid, because of its ease of application and relative painlessness, is useful in very superficial rodent ulcers; but neither liquid air nor solid carbon dioxid is sufficiently destructive to rely on without great care, and they should only be used, if at all, in carefully selected cases; which is another way of saying that they should be used only by one who is thoroughly familiar with what he is doing.

CAUSTICS

There still remains a group of agents which, experience has shown, are vigorously destructive of carcino-

mas. These are the strong chemical caustics, like caustic potash, zinc chlorid, arsenous acid, and the strong mineral acids, the actual cautery and highly actinic forms of radiant energy in the form of Röntgen rays and radium rays.

The advantage which comes from the use of strong caustics, like potassium hydroxid, in treating carcinoma is that one is using an agent which not only promptly destroys the cancer tissue into which it penetrates, but at the same time blocks lymph-channels, and produces a violent inflammatory reaction that extends widely beyond the area actually destroyed—a reaction that offers a good prospect of destroying outlying diseased cells and that builds up a strong barrier of inflammatory connective tissue. A. R. Robinson³ has for years insisted on the usefulness of caustics in cutaneous epithelioma; and it is but fair to quote his description of the reasons why they are advantageous in the treatment of these lesions.

HOW CAUSTICS ACT

For the purpose of simplicity and clearness of description Robinson assumes that an epithelioma may be divided into three zones: a central area, A, which represents the epithelioma visible to the naked eye; around A, a zone, B, in which carcinoma cells exist, but are not macroscopically evident; around this a third zone, C, in which perhaps some carcinoma cells exist, but beyond whose outer border it is highly unlikely that the disease has extended. Then describing the effect on an epithelioma of a caustic such as arsenous acid, he says:

All of the tissue within A has been destroyed, deprived of its vitality, and also some of the tissue beyond A on account of the very intense inflammatory process there, the tissue being much more vulnerable than normal tissue on account of the injury received from the epithelial invasion; hence the completely necrosed tissue always appears to embrace a larger area than the epithelioma seemed to occupy when seen by the naked eye. Beyond this completely necrosed area the inflammatory process becomes less and less intense the less the tissue is invaded by the epithelial cells, but if the caustic has been applied for a long period the inflammation will be sufficiently intense to destroy all pathologic epithelia as far as B, and almost without exception as far as C; that is, the disease is removed as completely as if the incision by the knife had been made at C, although the normal tissue has been destroyed not even as far as B. Of course the favorable action extends in depth as well as outward in all directions from a center. The proof that the outlying epithelial cells are destroyed consists in the fact that the disease rarely reappears after such a condition of necrosis and inflammation has been produced.

The destruction of these outlying cells depends, in my opinion, first, on the existence of the acute inflammatory process destroying the pathologic tissue quicker than it does normal tissue, according to a general law in pathology, and especially so in this instance, as the pathologic epithelia lie in the lymph-spaces and can, therefore, be vigorously acted upon by the inflammatory lymph, thus changing quickly and very greatly the previous condition under which they lived. . . .

To repeat somewhat: from the proper action of this caustic, the same result as regards removal of the disease is obtained as if all the tissue within C had been removed by the knife, although normal tissue has been taken from a less area than that included within B; that is, that the caustic is in suitable cases a much more conservative agent than the knife, and therefore it should be employed in all cases in which it is an efficient one and deformity is to be avoided as much as possible, as in all face cases, for example, especially in cases of nose epithelioma. It must not be forgotten also that this method of treatment enables the surgeon to destroy the sometimes deep-lying cancerous tissue that cannot be excised for some reason or other.

2. "I was greatly pleased to note during a visit to Rochester, Minn., that Drs. William and Charles Mayo make extensive use of the actual cautery in operations on cancers incurable by the knife, and to have them endorse the view, so long maintained by me, that there is relative immunity from local metastasis with the employment of the cautery." W. S. Halsted: *Tr. Am. Surg. Assn.*, 1907, xxv, 61.

3. Robinson: *Med. Rec.*, New York, March 31, 1900, p. 355.

In conclusion he calls attention to the fact that it is not desirable for these wounds to remain aseptic, but that the usual moderate infection from the pus organisms of the skin aids in making the inflammatory process more intense, and of longer duration, and stimulates the growth of the granulations which are of benefit in lessening deformity.

That the theoretical advantages to which Robinson calls attention do actually exist, and are of practical benefit in the treatment of epitheliomas which are amenable to caustic treatment, has, I believe, been shown to those who are familiar with the results obtained with these methods of treatment. The scarring which results in these cases, when the treatment is carried out by experienced hands, is relatively very slight in proportion to the amount of destruction of tissue that may be required, and the results, I am convinced, will bear favorable comparison as regards permanency with the results of the treatment of similar lesions by clean excision. The impression as to the radical character of the results of caustics in carcinomas involving superficial structures, is not confined to dermatologists. Note, for example, the following quotation in regard to the treatment of carcinoma of the breast with caustics:

I am indubitably convinced that the local and regionary recurrences after incomplete operation, which come, as a rule, with amazing rapidity when the knife has been used, are, to say the least, relatively late in making their appearance when chemical or actual cautery has been employed. I have several times had occasion to operate on cancers which had been vigorously and repeatedly treated with caustics, and to note the relatively admirable condition, the freedom from cancer permeation of the surrounding tissues and of the axilla; whereas, after incomplete operation with the knife the local manifestations of recurrence were almost invariably deplorable and the prognosis, of course, invariably hopeless.

This statement of the excellent character of the results of caustics in carcinoma tissue is not from a dermatologist, but from one of the foremost authorities on the operative treatment of carcinoma—Dr. William S. Halsted. The favorable effects of caustics on carcinoma, which he summarizes so admirably, apply with especial force in the treatment of localized carcinoma of the skin. I have had occasion, in a few cases, to observe the results from the use of caustics in the total removal of the breast, in one case, of both breasts, and I can confirm Dr. Halsted's statement as to their character. They fully bear out the claims made by Dr. Robinson, as to the radical effects of caustic treatment, when thoroughly applied in the treatment of carcinoma. I have also had occasion to see surprising radical results in extensive epitheliomas, which had failed of surgical cure, and were apparently beyond check. The man, like myself, who is called on to see the late cases of carcinoma in patients who have sought all sorts of methods of relief, regular and irregular, cannot but be impressed with the value of caustics, sometimes in the hands of irregular practitioners; and to feel the misfortune that surgery, as a rule, has not been able to keep an open mind in judging of treatment by caustics, with the result that their use has been left largely to irregular practitioners, most of whom are ignorant and who do much harm, but who, in spite of this, occasionally produce with caustics amazing results in cases which have been signal surgical failures.

CHOICE OF CAUSTICS

The choice of chemical caustics for the treatment of epitheliomas lies practically between arsenous acid, zinc chlorid, caustic potash and acid nitrate of mercury.

Robinson prefers, as a rule, arsenous acid; Van Harlingen, caustic potash; Sherwell, acid nitrate of mercury. All of these are agents which totally destroy cancer tissue with which they come in contact, and all, except arsenous acid, produce immediate destruction of healthy as well as diseased tissue. Arsenous acid, in proportion of 50 to 75 per cent., with powdered acacia 50 to 25 per cent., mixed with water to form a paste, requires for the destruction of a mass of superficial carcinoma of the skin from six to twenty-four hours. It may be said to possess some selective action in the destruction of carcinomatous tissue. The others progressively destroy all tissues with which they come in contact and require for the destruction of an epithelioma an application of only a few minutes' duration—from five to twenty. The technic of the application of these agents, into which I cannot go fully here, is easily available in the detailed writings of Robinson, Sherwell, Van Harlingen, Gottheil and others. The successful treatment of epitheliomas with caustics requires knowledge of the methods, and one should familiarize himself with these methods before undertaking to use them. In the use of caustics, as in operative procedure, knowledge and judgment are needed. No one method is applicable to all cases and no one technic. In the use of a caustic there is required the exercise of judgment and the adaptation of means to ends, quite as definitely as they are demanded in treatment by excision.

THE RÖNTGEN RAY

No one who is not blind to facts can doubt, if he will take the trouble to investigate, that carcinomatous tissue in the skin can be destroyed with *x*-rays. On the basis of a large experience in primary and secondary carcinomas of the skin, I am willing to maintain that carcinoma tissue in the skin can be destroyed by exposure to *x*-rays as certainly as by any mechanical or chemical method; that the method, therefore, can be used with assurance, and that the results as regards permanency are fully as good as those obtained by any other methods. There are certain theoretical advantages which the use of the *x*-ray offers over other destructive methods.

First.—It is painless and avoids the ordeal of operation. This is an advantage not only of humane consideration, but of practical importance, because it enables one to treat early lesions in cases in which the patient will not at the time accept the gravity of the situation and submit to operation or any other method of gross destruction.

Second.—The method may be so used as to destroy carcinoma cells, but leave in large part the connective tissue stroma intact and in condition to repair itself.

Third.—Accordingly it leaves small scars.

Fourth.—It can be used in cases in which the surrounding healthy tissue cannot be sacrificed. This means that:

Fifth.—It is valuable in certain cases in which ordinary methods are objectionable, because they involve extensive operations and serious subsequent disfigurement, as, for example, about the eye and nose. This means further that:

Sixth.—It has a field of usefulness in some cases in which ordinary methods are impossible, because of the amount of destruction of tissues which complete removal would require; in other words, it may be used to produce a radical result in some inoperable cases and to improve and inhibit the course of other inoperable cases.

These theoretical advantages of the use of *x*-rays are a practically verbatim quotation of a statement of mine published seven years ago, and my subsequent experience confirms me in the belief that their accuracy has been established by practical results.

I have written so much on the use of x -rays in epithelioma that I do not feel that I should impose on your patience by an extensive consideration of this subject on this occasion. In brief, I may say that except in those cases in which I think the only proper treatment is excision and a radical surgical operation, to be considered later, treatment by x -rays is my method of preference in epithelioma. As a rule, but not always, the method is slower in results than the older methods, but this is its one disadvantage. As to the radical character of the results, they may court comparison with any other method of treatment. In a paper read before the Sixth International Dermatological Congress in September, 1907, I gave a detailed report of the results in 111 consecutive cases which had been treated three years or more before. In this list there were 72 per cent. of successful results; of the patients not incurable by other methods, practically 100 per cent. were successfully treated. Without entering into statistical considerations here, I believe I may say fairly that in an experience now numbering hundreds of cases of epithelioma treated with x -rays, I have not had occasion to regret that I had used x -rays; and I say this with, I trust, a fair appreciation of the results obtained in the treatment of epitheliomas by other methods. The disappointments at failure radically to relieve operative epitheliomas by treatment with x -rays have been very few. I have had a very much larger number of disappointments at failure greatly to benefit hopeless cases. Nevertheless, the most valuable use, perhaps, of x -rays in carcinomas of the skin is seen in the palliation and temporary relief of the cases which are hopeless of other benefit.

I trust I may be pardoned for basing my remarks on the use of Röntgen rays in carcinoma solely on my personal experience, on the ground that in a comparatively new field, like the use of Röntgen rays in carcinoma, one can speak with the most assurance from his own experience.

Excellent results in cutaneous carcinomas have been obtained by F. H. Williams, Abbe, Wickham, and others with radium. In a previous paper I have indicated my belief that there is no essential difference in the form of energy concerned in treating epitheliomas with radium and with Röntgen rays. I know of no results obtained with radium which have not been duplicated with Röntgen rays, and in my opinion there is little ground for choice between the two methods. The obstacles to the use of radium lie in the difficulty in obtaining it and the fact that it exists in such small quantities that it is impossible to obtain more than a minute fraction of the quantity of actinic energy which is furnished by the ordinary x -ray apparatus.

COMPARISON OF METHODS

In referring to the comparative advantages of different methods of treatment in cutaneous carcinoma, I would emphasize as strongly as possible the importance of a sharp line of distinction between the cases which are suitable for treatment with caustics or x -rays and those which should be treated by excision. I would make no distinction on their histologic structure—between squamous-cell epitheliomas, which are apt to be deeper, and the superficial lesions of the rodent ulcer type, the so-called basal-cell carcinomas of the skin. I do this fully understanding that there is often a marked difference in the clinical course of rodent ulcers and alveolar epitheliomas, but I am, nevertheless, fully convinced that the treatment of rodent ulcers should be

carried out on exactly the same principles and as vigorously as that of other carcinomas of the skin; that they occasionally have metastases; and that if left untreated or treated badly, while they will likely pursue a slower course, from that very fact they often cause more disfigurement and more suffering than more rapidly growing carcinomas.

For the purpose of treatment, I divide epitheliomas into two classes: First, those in which rational treatment requires only the complete destruction of the growth *in loco*; second, those in which rational treatment requires removal of contiguous glands, or—having in mind in this connection the orbit—the deep removal of underlying tissue.

In the first group of cases—those in which treatment requires only the destruction of the growth in its primary location—I believe that as a rule the x -ray is the best method of treatment; that after that the use either of a caustic or of a mechanical method of procedure, like curettage, always to be followed by a strong caustic, is the second method of preference. This condition, the necessity for the removal of contiguous glands, eliminates from this method of treatment most lesions occurring on the mucocutaneous junctures. It requires that most epitheliomas occurring at the anus, and on the penis and scrotum, and perhaps most epitheliomas occurring on the vulva, should be immediately submitted to radical operations. Perhaps there are some cases of epithelioma about the external genitals which do not require a radical operation, but my experience is so small in all but late epitheliomas of the external genitals that I should want some one of wider experience than myself to decide before I would undertake the treatment of any epithelioma of these parts by its local destruction. This condition also demands a radical surgical operation for most epitheliomas of the lower lip—not of the skin surface of the upper lip—but it is indubitably true that there is a type of superficial epithelioma of the lip which the expert can recognize as such, and whose radical cure does not require the removal of the glands beneath the jaw. These lesions are very superficial epitheliomas, usually occurring in old people and perhaps lasting for years without deep involvement of the lip. They begin in most cases—I am not sure not in all—in patches of hypokeratosis or of leukoplakia of the lip. These, after continuing without manifestations of irritation for years, perhaps finally show an irritated base with some excoriation of the surface, and then there is slow progression along the surface of the lip. I have treated perhaps forty consecutive such patients, most of them referred by surgeons, without a single development of carcinoma in the lymphatic nodes of the neck.

But the selection of the treatment applicable to these cases requires the greatest caution, and their treatment should not be undertaken unless one fully understands what he is doing. Because of the danger of the abuse of any method of treatment of epithelioma of the lip which does not involve the removal of the glands beneath the jaw, I should be glad not to mention the practicability of the treatment of any epithelioma of the lower lip by methods of local destruction, were it not for the fact that there are some cases in which this less radical procedure is highly desirable or the only resort possible. There are other situations in which the decision of the question as to the removal of the contiguous glands requires the exercise of mature judgment; but it is in epitheliomas of the anus, of the external genitals, and of the lower lip that this question

is of most importance. In the treatment of epitheliomas about the eye the question of attacking the orbit surgically arises. In lesions beginning on the upper or lower lids, involvement of the orbital tissue is slow to occur and the x-ray offers the ideal method of treatment. When epithelioma palpably involves the orbital tissues, the radical cleaning out of the orbit is indicated. This danger is greatest with epitheliomas occurring near the inner canthus, and in such cases local destruction should be undertaken with the utmost caution. Lesions occurring on the temples and near the outer canthi do not nearly so frequently call for destruction of the eye by radical operation, and are often amenable to treatment with x-rays.

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THE SURGICAL TREATMENT OF CUTANEOUS MALIGNANT GROWTHS *

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Before any surgical treatment for a cutaneous growth is planned or carried out there must be an accurate diagnosis. I cannot go into the details of such diagnosis for the different lesions, but I wish to emphasize in the beginning of this discussion the importance of a definite diagnosis. In some instances the diagnosis can be made from the clinical appearance of the visible cutaneous lesion. Palpation of the dermal or epidermal tumor should always be combined with careful inspection, and in many cases the recognition of carcinoma is possible by palpation when inspection leaves a doubt in the surgeon's mind.

When the diagnosis is impossible or doubtful from the clinical history, combined with inspection and palpation, a surgeon who has the requisite special training can differentiate the various pathologic processes by making an incision and thus exposing to the naked eye the freshly cut lesion. The operation follows immediately. Such an exploratory incision should be disinfected either with pure phenol or the Paquelin cautery. When the surgeon has not this special training, a small piece can be excised at the exploratory incision for a frozen section, and the diagnosis can be made almost immediately by the pathologist connected with the surgical clinic. It is unfortunate when a piece is excised for diagnosis and some days elapse before the operation is instituted. In the benign, and perhaps in some of the less malignant, skin lesions there is no danger from such a course, but, as far as my investigations have gone, it is distinctly contraindicated in the more malignant lesions, both carcinoma and sarcoma. If circumstances are such that the surgeon is compelled to excise a piece for diagnosis and then wait a few days before carrying out the operation indicated by the pathologic report, he should attempt to cut out the area from the tumor proper, without carrying his incision into the border of uninvolved tissue, and, in addition, the raw surfaces should be immediately treated with pure phenol or the Paquelin cautery. It is my opinion, however, based on a large experience and con-

firmed by the expressions in the literature, that the diagnosis can and should be made immediately. It is the hope that it may be possible to train ourselves to such a degree that even the exploratory incision for gross inspection or frozen section may become less and less frequent.

This positive diagnosis is necessary; because for the different skin lesions the magnitude of the operation varies, even involving considerable mutilation. It is especially in those cases where the extensive operation would be mutilating that the positive and immediate diagnosis becomes more and more essential. When the more extensive operation would be no more mutilating than the restricted local operation, I should advise the extensive operation if there be any doubt.

The extent of the local operation, and whether it should be combined with the removal of neighboring lymphatics, or deeper tissues, muscle and bone, varies not only with the nature of the lesion, but with its site. In general, it may be stated that for sarcoma a local operation is sufficient, while in carcinoma of the squamous or spinal-cell type, the local operation should, in the majority of cases, be combined with the dissection of the neighboring lymphatic glands and surrounding tissues. But to-day, no such general statements are sufficient. Experience has taught us that the nature of the operation must vary not only with the different varieties of tumors, but with the same tumor in different localities and different tissues.

So much to emphasize the importance of a positive diagnosis.

CLASSIFICATION

In the Surgical Pathological Laboratory of the Johns Hopkins Hospital I have developed a scheme of classification which has been found of practical value for teaching purposes and for investigating the question of the proper operation for the different tumors in the same locality.

In this investigation I have borne in mind the question, what operation will give the patient the best assurance of a cure with the least mutilation, and when and where is extensive mutilation justifiable in an attempt to accomplish a permanent cure?

The facts of this paper are based on a study of the following cases which include only lesions of the skin:

Malignant pigmented moles.....	65 cases
Sarcoma of the derma.....	45 cases
Epithelial tumors of the skin and mucous membrane	812 cases

These figures demonstrate that the most common malignant lesion of the skin is of epidermal origin; sarcoma is relatively rare.

MALIGNANT PIGMENTED MOLES

The study of this malignant dermal tumor of congenital origin, and of its benign prototype, brings out better than the study of any other group of neoplasms a conception of what may be called the preventive measures for treatment for malignant tumors. I look on a preventive measure as the recognition of those benign tumors and conditions which have a tendency to later become malignant, and their removal in the benign state.

I was the first, or at least one of the first, to call attention to the importance of the removal of certain forms of benign congenital pigmented moles, some seven years ago.¹ The statements then made, which were

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

¹ Because of the space required this article is abbreviated in THE JOURNAL, but it appears in full in the Transactions of the Section and in the author's reprints

based on a relatively small experience, have been confirmed by the greater experience of the seven succeeding years. I now have careful personal notes of 65 cases of malignant pigmented moles. These cases have been collected from various sources. In every instance the diagnosis has been confirmed by a pathologic examination. Up to the present time there is not a definitely cured case amongst them. Now, it is to be remembered that in every one of these cases there had been a tumor visible to its host for many years. Such tumors can be removed under cocaine or local anesthesia without difficulty. It seems, therefore, worth while, to educate the public, to call the attention of the physician to such apparently innocent tumors, and to educate the physician to recognize when their removal should be urged. Of course, no harm can be done by the removal of any such tumor, although it may be practically impossible to remove all the pigmented areas which are to be found on some individuals.

In my experience with 65 malignant cases, in only three or four were the patients covered with such pigmented areas. In the majority, the individual had but one, or at most but a few, congenital pigmented moles. The mole which had become malignant was never a flat pigmented area, not elevated above the epidermis, but was distinctly a projecting tumor. It is my opinion that all such moles should be removed, especially when they are in localities exposed to trauma. Pigmented spots are entirely different from the definite, projecting, sessile or pedunculated, warty or smooth, pigmented mole. This information should be given publicity. During the same period in which I have collected 65 cases of malignant pigmented moles, I have accumulated in the laboratory 76 benign, the majority of which have been removed by myself, because of my attitude toward such apparently innocent tumors. As to the present result in all these cases, I have a record with but few exceptions, and there have been no local recurrences and no deaths from internal metastases. The largest number of moles removed from any one individual was five. In every case the mole has been removed with the knife, and not an individual finds any fault with the scar.

I emphasize this point, because there are other methods employed to remove different types of benign skin lesions—the x-rays, radium, carbon-dioxid snow, liquid air, the Paquelin cautery, the electric needle, and different caustic pastes. As I have had no experience with these methods of treatment, I am not justified in condemning them, but I am inclined to the view that the more dermatologists familiarize themselves with the simplicity of removing small skin tumors with the knife, under local anesthesia or nitrous oxid gas, the more they will employ this method.

For certain tumors and in certain situations the above methods have a distinct place, but for the benign mole I would urge complete excision with the knife. With the other methods there is not the same certainty that all these congenital residues of cells are destroyed, and when the method is employed incompletely it may act as a stimulant. In a number of my personally studied 65 cases of malignant congenital pigmented moles, one of these methods had been first employed. Of course, it is impossible to say that this tinkering with the mole was the factor which produced its malignant growth. Nevertheless the observation is suggestive.

The excision with the knife may be just as dangerous if the tumor is not given a sufficient berth. I am confident that it is better to leave a mole alone than to ex-

cise it incompletely. When the mole is situated on the face there is a temptation in the hands of an inexperienced surgeon to limit the area excised, but as a matter of fact the scar is no more conspicuous when sufficient margin is given than otherwise.

The public and physicians should be impressed with the importance of the immediate and complete removal of any congenital mole which suddenly shows any growth, superficial ulceration, or scab formation. The sudden appearance in the skin of a tumor resembling a congenital pigmented mole should be looked on as an indication for its immediate removal.

I trust that the subject of the relation of benign or innocent tumors to later malignant transformation will be more often considered in the dermatologic and other sections of the American Medical Association. There is great need for publicity. It is true that the relative number of individuals to be saved is small, but certainly large enough to justify the time and trouble.

The first problem in regard to our attitude towards the apparently benign or innocent mole, I think should be looked on as settled—the tumor should be removed.

The second problem is by no means settled; that is, what should be the extent of the local operation, and should the neighboring lymphatics be included in the dissection when the patient comes with a mole which shows, clinically, definite signs of malignant growth?

In my 65 cases and, as far as I can ascertain, in the literature, surgeons have confined themselves to the local operation when the neighboring lymphatics were not visibly involved. Many of the patients, before there is any evidence of general metastasis, return with enlargement of the neighboring lymphatics, and now the more complete operation is performed. In many cases, if glandular enlargement is evident, the complete local and glandular operation has been carried out in the first instance. But there have been no permanent cures. In view of this evidence it seems to me I am justified in urging that in the future surgeons perform in every instance, whether there be visible glandular enlargement or not, a larger local operation combined with the complete dissection *en bloc* of the neighboring lymphatics, and such an operation should be planned along lines similar to Halsted's complete dissection for carcinoma of the breast. That is, the tumor should be removed with a zone of uninvolved skin and a wider area of subcutaneous fat, and with this should be included at least the fascia, and, in some cases, the muscle itself, then the neighboring lymphatic glands and surrounding tissue. It is my opinion that we are distinctly justified in the future in attempting such an extensive dissection, although at the present time we have no evidence that the results will be any better.

But, as I study critically the 65 cases of which I have records and the available literature, I am impressed with the conclusion that the surgery of moles in their malignant state has been incomplete. There is therefore room for improvement in two directions: The education of the public and the profession in such a way that we may get the mole either in its benign state or very quickly after the first signs of local growth, and, second, in the later malignant state we must give the tumor a wider berth and combine the dissection with the removal of the neighboring fascia and lymphatic glands.

SARCOMA OF THE DERMA

In this group, in which there are 45 cases, there is generally a history of a congenital nevus, an acquired or

congenital fibroma, or the tumor has originated in scar tissue. The type of the tumor, when there has been a history of a nevus, is one that would naturally be expected—angiosarcoma. With a few exceptions the malignant connective-tissue tumor which has its origin in a scar or fibroma is of the type of the fibro-spindle-cell tumor. Among 14 cases of the former type (angiosarcoma) I have observed but one cure, and it is important to note that in this case a more extensive local and glandular operation was performed than in any other. Among 26 tumors of the latter type (fibro-spindle-cell sarcoma) 20 patients have been permanently cured by a local operation only.

Angiosarcoma.—Among 14 cases in which the gross and cellular pathology of the tumor has been practically identical, in 6 cases the malignant neoplasm has arisen in a congenital vascular nevus; in 8 there was no such history.

During the same period I have observed 109 cases of benign hemangiomas. The tendency, therefore, for the congenital nevus to become malignant is distinctly less than in the congenital pigmented mole.

All of the 109 cases of benign hemangioma have not been confined to the skin; for example, there are 7 situated within muscle—the so-called intermuscular angioma. Here the differential diagnosis is not a problem of dermatology.

Granulation-Tissue Tumors.—Here the differential diagnosis is more difficult. I have records of six cases. The age of the patients varied from 9 to 25 years, the duration of the tumor from two weeks to three months. In every instance there was the history of an injury, and the little tumor composed of red, vascular granulation tissue has grown from the scar. On account of the situation of these tumors a correct diagnosis is important, because if they be looked on as sarcoma a complete local operation, in some instances, would result in unnecessary mutilation. In two instances the tumor was situated at the site of the toe-nail; in one of these cases an unnecessary amputation was done. In three instances the tumor occupied the palm of the hand, once the finger and once the skin of the axilla. In these cases, if the surgeon is not able to make a differential diagnosis clinically, a trained pathologist should do so from the frozen section. When complete excision would cause mutilation these areas should be treated with the Paquelin cautery. The difficulties of differentiating sarcoma from granulation tissue is an old problem in the history of pathology, but it can be done and often saves the patient disfigurement.

Hemangioma of Skin.—Among my 87 cases of hemangioma the majority have been dermal tumors, and most of these of congenital origin, although in many cases the tumor was first observed later in life. My figures by no means give an idea of the relative frequency of this tumor, but represent only the type which, on account of local growth, has caused its host to seek surgical aid. During the last twelve years there have been sent to me for examination, from various sources, ten cases with the diagnosis of sarcoma. In all of these cases the dermal tumor in its growth had caused the destruction of the epidermal covering and given rise to a very vascular granulation-tissue mass. When I compare these cases clinically with true sarcoma I find a distinct difference: in sarcoma the compressibility of the tumor beneath and around the granulation area is lost, while in the benign tumor the characteristic feature of angioma—compressibility—is present. The differential diagnosis from a frozen section should not be difficult: in the angioma the

blood-containing vessels are always present and the cellular tissue between these vessels resembles ordinary cellular granulation tissue, while in sarcoma no such picture is observed. The differential diagnosis is important, because the complete excision of the benign lesion would frequently be mutilating, and a cure can be accomplished by partial excision in conjunction with the Paquelin cautery, liquid air or carbon-dioxid snow. In view of the comparative rarity of sarcoma and the frequency of the hemangioma simulating sarcoma one should look on these lesions as benign until they are proved, by microscopic examination, to be malignant.

Sarcoma of the Skin with a History of a Congenital Nevus.—I have six cases in one of which the patient was cured. They are as follows:

In all of these cases the sarcoma was of the prithelial type. The cells were small and round, very much like those of lymphosarcoma. This tumor, wherever I have encountered it, has shown a very high grade of malignancy, and up to the present time I know of no permanent cures.

The two points which I wish to emphasize in regard to congenital tumors of the skin are well brought out in the study of this small group of cases. Any growth in a congenital dermal tumor should be considered as a symptom of an acute disease. A diagnosis should be made at once; if the histology shows that the growth is still of an innocent character a restricted local operation will be sufficient. As has been pointed out, the congenital angioma may show growth of a benign character, and the nature of the local operation will vary with the position of the tumor; if complete local operation would cause mutilation one is justified in using the Paquelin cautery or carbon-dioxid snow for these cases. In other situations I should recommend excision. If the histology shows the picture of sarcoma the local operation should be very extensive, and I am quite confident, if this is done, the number of cures will be increased. When the patient is seen later in the malignant stage of the disease it seems to me it is justifiable to make an attempt at a most radical dissection *en bloc*. The chances of a cure, however, are relatively small for the cellular type of sarcoma.

Angiosarcoma of the Skin with No History of a Nevus.—These 8 cases differ from the previous group only in the absence of a history of a congenital tumor. The age of onset has varied from 4 to 54 years of age; the duration of the tumor from six weeks to twenty years. In five of the cases the duration of the tumor has been over one year. In none of these cases has a cure been accomplished. All of them have been of the most malignant form of sarcoma—small-round-cell, and most of them of the prithelial type. All of the tumors first appeared as subepidermal nodules; in a few ulceration with fungus formation was present at the time of the operation. Three were tumors of the scalp, clinically resembling the ordinary wen, which is an epithelial cyst; two of these were blood-cysts; the third blood-cyst was situated between the mucous membrane and skin of the cheek. All of the important problems of the surgical treatment of tumors are represented in the study of this group. In the first place, the sudden appearance of an epidermal nodule, even if it has all the signs of a benign tumor, should be looked on as an acute disease. In view of the fact that in this earlier period a differentiation between the benign and malignant cannot be made, except at the exploratory incision, the surgeon should be prepared to make the differential diagnosis.

Of the three tumors of the scalp resembling wens, in every one such a clinical diagnosis was made, and the incomplete excision sufficient for the wen was performed for the more malignant tumor. In all there was immediate local recurrence. Subepidermal blood-cysts are not always malignant; I have observed a benign blood-cyst in the cheek and one on the tongue. Both were recognized at the exploratory incision and a cure accomplished without mutilation.

Sarcoma of the Skin in Scar Tissue.—I have personally studied 19 cases, in which 16 patients have remained well. In all of the cured patients the tumor was of the fibro-spindle-cell type. Tumors of this character must be looked on as on the border-line between benign and malignant. One pathologist may call them sarcoma, another a cellular fibroma. The important surgical fact is that these tumors are curable by a local operation, and such an operation need not be extensive.

When such a tumor is observed in a scar it is essential to differentiate, in the gross or in the frozen section, this fibro-spindle-cell tumor from the more malignant round- and spindle-cell sarcoma, and the latter must be differentiated from the carcinoma. I wish to emphasize this, because very frequently the operation which should be performed for the carcinoma, and in some instances for the spindle- and round-cell sarcoma, would be unnecessarily extensive and mutilating for the fibro-spindle-cell tumor. The differentiation can be often made by an experienced surgeon clinically; if this is not possible an exploratory incision or frozen section should settle the question at once.

The relation of scar tissue to various pathologic processes is an important one. The most common, non-ulcerating neoplasm is the keloid. I have studied 42 cases. It is important to differentiate the keloid from the fibro-spindle-cell sarcoma in scar tissue. There are cases in which there is little doubt as to the keloid on one hand and the sarcoma on the other. The keloid confines itself to the scar proper, reaches a certain size and ceases to grow; it rarely ulcerates. The sarcoma quickly infiltrates beyond the area of the scar, grows more deeply, and not infrequently ulcerates. The histologic differentiation from a frozen section in some cases is impossible, in my opinion. If there is any doubt in the diagnosis between a keloid and a sarcoma I should advise that the treatment be planned as for a sarcoma. Among the fibro-spindle-cell sarcomas in scar tissue I note a few cases in which cures have been accomplished after one or more recurrences, and the question naturally arises, Are these tumors sarcomas or keloids? Perhaps later Dr. Mallory, who is making such important and interesting investigations into the cellular and intracellular structures of tumors, may throw light on the differential diagnosis. But at the present time there are many cases in the group of fibro-spindle-cell tumors in which the surgeon should not depend on the frozen section, but should be influenced more by the clinical picture and gross pathology, and when there is any doubt it is best for the patient to treat the lesion as sarcoma, because the necessary local operation is not of sufficient extent to cause mutilation.

I wish to emphasize here again that for this border-line fibro-spindle-cell tumor the local operation need not be very extensive. However, if the lesion is situated in a position in which a more extensive local operation will cause no greater mutilation I would advise its performance.

The granulation-tissue tumor I have already discussed under angioma and angiosarcoma. The more malignant

spindle- and round-cell sarcoma in scar tissue is relatively rare. The three cases which I have studied died of local recurrence and internal metastasis. All of them were, in the modern sense, neglected cases, because the growth in the scar tissue had not been subjected to treatment until a period of from three months to two years had elapsed, and in all of the cases the first operation had been incomplete; two were later subjected to second operations of a more extensive character without avail. The investigation of the cured cases in this group shows in a few instances that the operation has been unnecessarily extensive. For example, in one in which the lesion was situated on the heel, amputation of the foot was performed.

The epithelial tumor which may form in the epidermis of scar tissue will be discussed later.

The study of scar tissue is therefore a very interesting and important problem, both to the dermatologist and to the surgeon. A wound is an irritant and the injured tissues throw out or give rise to a new tissue which is at first very cellular, and is called granulation tissue, and later changes into scar tissue. If there is a defect in the skin or mucous membrane we have, in addition, an ulcer and the process of epidermization of such an ulcer. There is unusual activity, therefore, on the part of both connective tissue and epithelium.

During the early healing of a wound, if the inflammatory reaction is excessive, we have what is called a granulation-tissue tumor. In later periods an excessive scar tissue gives rise to keloids. If the wound is associated with a break in the skin we may have, during the epidermization of the ulcer, atypical down-growths of epithelium, or over-growths giving rise to a papillomatous surface at the ulcer edge. The malignant epithelial tumor—the carcinoma—is observed only after an ulcer has been present many years, but the sarcoma, apparently, may form at a much earlier period.

It is important, therefore, that every attempt be made to encourage the proper and prompt healing of a wound, and nothing should be done unnecessarily to increase the inflammatory activity of the cells.

This is not the place to discuss the relation of wounds and other lesions of the skin which keep up a form of chronic irritation, but if surgery of to-day is not to be the forlorn hope of an operation at the late stage of a disease, it must demand that it be given the opportunity, not only to apply its art in the early stage of neoplastic growth, but even at an earlier period, which might be called the precancerous period. At this period surgery advises the removal of all skin tumors and proper healing of all skin lesions.

Sarcoma and Fibroma of the Derma.—One is confronted with the same difficulty of differential diagnosis between fibroma and sarcoma as between the fibro-spindle-cell sarcoma of scar tissue and keloid.

I have classed 9 cases as sarcoma in tumors which have been present a number of years and which might be called originally benign fibroma. Four patients have remained perfectly cured since the complete local excision of the dermal growth. In every one of these cases the histology of the tumor exhibits the picture of fibro-spindle-cell new growth. In the three patients who were not cured the histology of the tumor was entirely different; they were round-cell sarcomas, and the round or spindle cells were found in alveoli, the mesh-work of which appeared to be the remains of the fibrous tissue of the old fibroma.

It is very important to call attention to the fact that in all of these cases there was a history of an apparently

innocent dermal tumor which had been present from one to eighteen years. The actual duration of the tumors was as follows: one (2 cases), three, four, eight, ten and eighteen years. There was no difference in the local growth in these two types of tumor. In every case there was a quiescent period, then a local growth with superficial ulceration, in many cases associated with trauma. The cause of death in one of the cases was internal metastasis. In this instance the local growth of the tumor was insignificant; in the other two cases which succumbed to the disease there was, first, local recurrence after an incomplete operation, then again local recurrence and internal metastasis after an attempt at complete operation.

As compared with keloids the true fibroma of the skin is a less frequent lesion. I have recorded as true fibroma of the skin 28 cases; many were small nodules with adherent epidermis of from 5 mm. to 2 cm. in diameter, the majority about 8 mm. In many of these there was a history of a trauma, or the hard nodule was secondary to a pimple. That is, in almost every case there was an etiologic factor. So perhaps these tumors should be really classed as keloids. Among the 9 cases classed as sarcoma 3 in their onset were small subepidermal nodules, 4 pedunculated tumors.

It seems to me that this evidence is sufficient to justify the immediate removal of the small subepidermal or pedunculated fibroma during its innocent stage. This should be done by a local operation. If the patient seeks advice after such a tumor has begun to grow the extent of the local excision should be relatively greater. I have already called attention to the fact that in two of the fatal cases of sarcoma the first operation at an apparently fairly early period was followed by local recurrence, due probably to a restricted local operation.

Fibromyxoma of the Derma.—Von Recklinghausen's disease is not very frequent, and the tendency of one or more of the dermal tumors to become malignant is unusual. I have one such a case. It is quite impossible in many of these cases to excise all of the tumors, but if the tumors are few in number, or if one begins to grow, I would urge the immediate removal by a local operation.

I have never observed a fibromyxoma or a pure myxoma occurring as a single tumor to be situated in the derma, nor have I observed a myxosarcoma of the skin.

Connective-Tissue Cysts.—Among 30 cases of this type in only 2, one of the cheek and one of the tongue, were the cysts of dermal origin. Both were blood-cysts, and I have already discussed their differential diagnosis from sarcomatous cysts.

Lymphangioma of the Derma.—These are relatively infrequent lesions. All the cases which I have studied were benign. The diffuse form seen in the lip and tongue (macroglossia and macrocheilia) is not difficult to recognize. I have observed a small subepidermal tumor of the tongue of this type, and here the proper differential diagnosis from early epithelioma saved the patient from a mutilating operation. Another case is very rare: the tumor, 2 cm. in diameter situated in the skin of the thigh, had been present fifteen years in a male aged 47; it was encapsulated and showed a calcification and ossification. In a third case there was a diffuse growth in the groin which, on account of the accompanying papillary overgrowth of the epidermis, might have been mistaken for carcinoma. Gilchrist, who saw this patient first, has reported the lesion as lymphangioma circumscriptum.

Among the rarest benign tumors of the skin I have seen one case of xanthoma.

EPITHELIAL TUMORS OF THE SKIN AND MUCOUS MEMBRANE

Whether Krompecher's³ classification be accepted or not, I am firmly convinced that a classification along the lines established by him is of practical importance.

There is a lesion of the skin which may appear as a wart, a subepidermal nodule, an ulcer or a fungus, and, microscopically, differs from the squamous-cell epithelioma. These tumors practically never give metastases and can be and are permanently cured by a somewhat restricted local operation. The opposite is true of the so-called squamous-cell epithelioma, in which the cells show hornification and pearly-body formation.

As with the benign and malignant connective-tissue tumors of the skin and the benign and malignant pigmented moles just discussed, so with the epithelial tumors, the extent and plan of the surgical operation should be controlled by the character of the tumor. As has been stated before in this paper, the same tumor when situated in different localities sometimes can be treated along different lines. For example, a squamous-cell epithelioma of the lip should always be removed locally, and this local operation should be combined with the complete dissection of the glands of the neck. But for the same tumor situated on the scalp the glandular operation is apparently unnecessary.

In 1904 I contributed my experience⁴ with epithelial tumors as based on 468 cases, and adopted, to a certain extent, the classification of Krompecher. With an increased experience—684 cases—I am still favorable to Krompecher's views.

In the breast, no matter what the variety of the carcinoma may be, there should be no restriction of the complete dissection, but experience has taught us that in the skin and mucous membrane the well-known different types of epithelial tumors, with their differences in local growth and tendency to local infiltration and metastasis, allow us to vary the operation according to the site and character of the tumor. This is important from the standpoint of the patient, because if the principles applied to the breast were found to be necessary for cancer of the skin and mucous membrane, many patients, in order to be cured, would be subjected to mutilation, which experience up to date has demonstrated to be unnecessary. It is fortunate for the patient with cancer of the breast that the most extensive operation is little if at all more mutilating than the restricted operation. In cancer of the breast there is the same variability in the character of the tumor, and, while for some tumors the probability of a cure is 80 per cent., in others only 20 per cent., experience has demonstrated that a restricted operation in the most favorable form of cancer of the breast will reduce its probability of a cure to that of the most malignant form of cancer subjected to the most complete operation. It is this evidence that prohibits any restriction of the operation for cancer of the breast.

In cancer of the skin and mucous membrane we are accumulating experience which forces us to change the plan of the operative technic. In some cases the operation must be considerably extended. For example, in carcinoma spinocellulare (squamous-cell cancer) of the extremities, which rarely occurs except in wounds, ulcers

3. Beitr. z. path. Anat. u. z. allg. Path. (Ziegler's), 1900, xxviii; Der Basalzellenkrebs, Gustav Fischer, Jena, 1903.

4. Progr. Med., December, 1904, p. 134

or warts, it has been the rule in the majority of surgical clinics to confine the dissection to a local removal only. But to-day the majority of authors who have investigated the ultimate results emphatically conclude that the local operation should be combined with glandular dissection. In cancer of the tongue, it is my opinion that to-day the glandular operation is unnecessarily extensive, while the dissection of the floor of the mouth is too restricted.

Table I illustrates the relative frequency of epithelioma of skin and mucous membrane in the different localizations. In the first column appear the figures of carcinoma spinocellulare (squamous-cell epithelioma). In the second column are recorded the cases of carcinoma cubocellulare, which is composed of transitional cells; this variety is relatively unimportant, as the malignancy of this tumor is practically identical with that of the spinal-cell tumor, and the treatment should be the same. In the third column appears the carcinoma basocellulare; in the fourth, the malignant warts, irrespective of their cellular type, and in the fifth column, the benign warts. In the sixth column the number of inoperable cases, or those in which there was no pathologic examination, is noted.

TABLE I.—EPITHELIAL TUMORS ACCORDING TO SITE AND PATHOLOGIC VARIETY

Site.	Pathologic Variety.					No. Note.	Total
	Spino-Cellulare.	Cubo-Cellulare.	Baso-Cellulare.	Malignant Pigmented Wart.	Benign Wart.		
Lower lip	100	2	4	12	1	42	161
Upper lip	4	..	9	..	..	6	21
Face, cheek	1	3	24	5	5	28	74
Chin . . . . .	..	..	2	..	..	2	4
Eyelid	1	1	16	..	..	13	31
Ear	6	1	4	1	2	3	17
Nose	12	..	24	5	4	9	54
Scalp, forehead	3	3	9	..	5	11	31
Mucous membrane of mouth, gum, hard palate	23	3	2	3	2	16	49
Tonsil, pharynx	3	2	1	..	..	7	13
Tongue	37	..	7	4	6	24	78
Skin of neck	1	..	5	1	1	2	10
Branchial cleft	3	9	4	..	..	7	23
Upper extremities	16	..	4	2	3	4	34
Lower extremities	13	3	1	7	10	6	35
Penis	13	..	4	1	7	12	37
Skin of body	2	..	5	1	3	1	12
Total	246	27	125	44	49	193	684

For the basal-cell tumor and the benign wart a local operation is sufficient. There have been many reported cures of basal-cell ulcers and fungi after treatment with the x-ray, radium, caustics and carbon-dioxid snow. I have had no personal experience with these methods. I have operated on a number of cases in which these methods of treatment had failed in the hands of competent dermatologists and roentgenologists. I have never observed a recurrence after proper excision in operable cases. If the small rodent ulcer (basal-cell tumor) is situated in a position where the local excision would produce more or less mutilation, for example, the eyelid, the ala of the nose or the lobe of the ear, my experience teaches me that there is no danger in attempting a cure by the methods just enumerated, provided the patient is carefully watched. The chances of a permanent cure by local excision after a failure from any of these methods are not decreased. When the rodent ulcer has reached a huge size, practically prohibiting its removal with the knife, the other methods should be attempted, and now and then cures have been reported. I wish to emphasize the fact that experience demonstrates that an incomplete excision with the knife is more dangerous than a failure from the other methods, and if on account of the position of the epithelioma the

surgeon feels that it would be less mutilating to give the lesion a somewhat narrow margin the knife should be supplemented by the cautery.

In my own experience, when these tumors have come to me in their early stage, I have no difficulty whatever in accomplishing a cure without mutilation, no matter what their situation, by excision with the knife, and I have followed the ultimate results in my cases most carefully.

For the malignant wart a local operation is sufficient, but when the original wart has practically been destroyed and its position is occupied by an ulcer or fungus it must be treated according to the character of the cells of which it is composed. The great majority of warts are spinal-cell tumors. The basal-cell tumor rarely has its onset in a papillary wart; it appears as a subepidermal nodule, at first covered with brownish epidermis, and then, as it grows, with a scab; beneath the scab an ulcer forms which may remain an ulcer no matter how extensive, or may produce a fungus no matter how small the ulcer. We never observe fungus growth in an ulcer larger than a silver dollar.

STUDY OF EPITHELIOMA ACCORDING TO SITE

Epithelioma of the Lip.—Carcinoma of the lip is the most frequent of the malignant lesions of the skin and mucous membrane.

The public must be educated to the life-saving importance of immediately consulting the physician for any ulcer, induration, wart or scab at the mucocutaneous border of the lower lip. The surgeon, with the rarest exception, must never vary from the rule to remove the glands of the neck as well as the primary tumor of the lower lip. The experience in the study of 161 cases, of which I have notes, demonstrates the appalling neglect on the part of the patient and the profession of lesions of the mucocutaneous border of the lower lip. On the whole, surgery has been much less neglectful in restricting its operation. A lesion at the mucocutaneous border of the lower lip in the majority of instances is a carcinoma spinocellulare. I have observed but one benign wart, twelve malignant warts and four basal-cell carcinomas. In these 17 cases a local operation would have been sufficient; all have been cured.

Among 32 cases of carcinoma spinocellulare of the lower lip in which, for some reason, the tumor only was removed, I can find only two definite cures. In a few cases the patients were apparently well six years and then returned with carcinomatous glands in the neck. When these results are compared with those in which both the local and glandular operations were performed at the same sitting there is a tremendous difference. If we take the cases in which six years have elapsed we find at least 50 per cent. of the patients well, as compared with less than 10 per cent. when the glandular operation was not done. What the results will be when patients seek surgical aid earlier I am not prepared to say, but I think it would be a mistake, with the evidence in hand to-day, not to combine the glandular operation with the local, even when patients present themselves in the early weeks of the lesion. In one of my own patients, who has been cured, the epithelioma was so small that the section can be viewed in its entire extent under the low power of the microscope. Yet this patient had metastatic glands. When the epithelioma of the lip has involved bone I have not a record of an accomplished cure, even after the most extensive dissection.

Upper Lip.—With the exception of four cases the lesion was situated on the skin and was either a basal-

cell epithelioma or a malignant wart. Local excision accomplished a cure. In the spinal-cell tumor the same operation should be performed as when the tumor is situated on the lower lip. The differential diagnosis, therefore, is important.

Face and Cheek.—The majority of lesions here are of the basal-cell type, but the tumor must be differentiated from the less frequent spinal-cell carcinoma, because in the latter, if a larger local operation combined with the glandular dissection is not performed, there will be no hope of a permanent cure.

On the chin, eyelid, ear and nose the problem is the same as on the face and cheek; here also the less malignant basal-cell tumor is more frequent. But if the tumor is of the spinal-cell type the local operation must be more extensive, and, my experience teaches me, also combined with glandular dissection.

Scalp and Forehead.—The local operation is apparently sufficient in early cases for all types of tumor. In the spinal-cell tumor one should also remove the pericranium, and, if this is apparently involved, some bone.

The lesions of the *skin of the neck, body, upper and lower extremities* may be considered together. The problems are apparently identical. As to why carcinoma spinocellulare is so frequently observed at the mucocutaneous border of the lower lip, and in the tongue, we seem to have no definite explanation. It is difficult to bring together cause and effect. In carcinoma of the gum the cause stands out prominently. The frequency of basal-cell epithelioma of the areas just mentioned without the history of a wart, of a wound or ulcer, or of some chronic inflammation of the skin, eczema, psoriasis, x-ray burn, etc. Here carcinoma never begins with the same spontaneity as apparently happens in the lower lip and tongue. There is therefore a distinct precancerous lesion which can and should be eradicated in that stage. When the fully developed tumor presents itself surgeons should not be content with the restricted operation of the past. For carcinoma spinocellulare in its fully developed ulcerous or fungous state the operation should be along the lines employed in the breast; a wide area of skin, a broader area of subcutaneous fat, fascia always in some cases muscle, and always the neighboring lymphatics. Infiltration of bone may be encountered, indicating amputation.

The surgical treatment of carcinoma and sarcoma of the extremities emphasizes the deplorable fact that surgeons have had a wrong notion of the local growth of these two neoplasms; for sarcoma amputation has been the rule, while for carcinoma a less radical operation has been performed. As a matter of fact the reverse should be the rule. But this is not a question for the dermatologist.

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Principles of Treatment of Gonorrhoea.—The fruitful principles on which we base our urethral therapeutics in gonorrhoea are: (1) precise diagnosis of the nature of the lesions; (2) knowledge of their local position; (3) direct interference in the case of superficial lesions; (4) mechanical action to reach even deep lesions; (5) mechanical transport of medicinal particles.—L. Wickham, in the *Practitioner*.

PATHOLOGY OF MALIGNANT DISEASES OF NON-EPITHELIAL FORMATION *

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There are some fourteen different types of simple tumors. Each is due to the proliferation of one variety of cell. The epithelial tumors form the largest group of the simple tumors and their pathology has already been presented to you. The remaining tumors are often called the connective tissue tumors because many of them are of mesenchymal origin. The broader and better term to designate them when placed in contrast with the epithelial tumors is the non-epithelial tumors. It remains for me to present to you as dermatologists certain points of interest concerning the pathology of this large variety of tumors, some of which you see frequently, others rarely or not at all.

CLASSIFICATION AND TYPE OF CELL

A word first in regard to the classification of tumors. Under every recognized variety of tumor should be grouped both the slowly and the rapidly growing tumors built up by the multiplication of the same type-cell. In no other way is it possible fully to understand each variety of tumor and find out its characteristics. The type-cell is the one important element in every tumor. From it the tumor should be named; not from some peculiarity of minor importance, such as method of growth, arrangement of cells, or form of retrograde change. I shall speak briefly of some of the type-cells and of the tumors built up from them, and shall illustrate my remarks with pictures.

The fibroblast, the ordinary connective tissue cell, is in general a flat cell with a flat, oval nucleus. It is characterized by the production of two kinds of fibrils, fibrogia and collagen fibrils, which may be stained differentially and which distinguish it from all other cells. The fibrogia fibrils are in intimate contact with the cytoplasm; the collagen fibrils form a true intercellular substance.

The slowly growing tumors arising from fibroblasts are called fibromata; the rapidly growing ones, fibrosarcomata. These terms represent extremes in rate of growth; all gradations between them exist. No matter how rapidly these tumors grow the cells tend to differentiate as do the normal fibroblasts.

The tumors known as keloids are formed by the proliferation of fibroblasts, but the cells tend to arrange themselves in thin sheets between broad layers of collagen fibrils, so that a striking and characteristic microscopic picture results.

The so-called myxoma and myxosarcoma develop from fibroblasts. They do not differ from the fibroma and fibrosarcoma except in the presence of fluid containing a variable amount of mucin between the collagen fibrils. The same holds true of the cells in the umbilical cord. These tumors do not deserve, therefore, to be regarded as a special type of tumor but should be looked on as a variety of the fibroma and fibrosarcoma.

The so-called giant-cell sarcoma, usually occurring in connection with bone, deserves special mention. At least two types of giant cells occur in tumors. One type is due to multiple mitoses, and occurs in a variety of tumors, for example, glioma, fibrosarcoma, lymphocy-

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

* From the Pathological Laboratory of The Boston City Hospital.

toma. It is a true tumor-cell with the characteristics of the other tumor-cells and signifies usually rapid proliferation under very favorable nutritive conditions. Tumors containing these giant cells are rarely or never called giant-cell sarcomata. That term is reserved for tumors containing giant cells of another type which are not due to multiple mitoses but to fusion of endothelial leukocytes to form foreign-body giant-cells. The leukocytes are attracted into the tumor usually by bone injured in some way by the growth of the tumor. They form foreign-body giant cells (osteoclasts), just as they do around bone requiring removal under normal and pathologic conditions. Their occurrence in tumors signifies usually erosion of bone, rarely the presence of free fat and fat crystals or other substances. They occur most commonly therefore in fibromata and fibrosarcomata involving bone. They occur also in inflammatory processes. Epulis, the term commonly applied to giant-cell formations about the jaws, is probably often only an inflammatory new-formation, not a true tumor. The presence of the giant-cells leads to a wrong diagnosis. This view is favored by the simple treatment needed to get rid of most of these lesions. Giant-cells of this type are therefore not true tumor-cells, and hence should not be mentioned in naming the tumor. That must be diagnosed and named from a study of the rest of the tissue minus the giant-cells.

The smooth muscle cell is a long spindle-cell with a rod-shaped nucleus. It is characterized by having longi-



Fig. 1.—Fat cells of embryonic type.

tudinal striations or fibrils in the cuticle. These fibrils fuse together at each spindle end of the cytoplasm to form a fairly coarse fibril of considerable length. From the smooth muscle cell arise slow and rapidly growing tumors called leiomyomata. These tumors occur occasionally in the skin, both single and multiple. The rapidly growing tumors are rare.

The fat-cell is characterized by the storage of fat within its cytoplasm. It is a cell of mesenchymal origin which produces no intercellular substance and which in the embryo and in young emaciated children resembles to some extent a liver-cell, with finely granular cytoplasm. (Fig. 1). In this early stage the fat when present is usually in small droplets and the nucleus remains centrally located. In the adult type of cell the fat is in one large drop and the nucleus is pushed to the periphery.

The ordinary tumor, the lipoma, resulting from uncontrolled growth of fat-cells, is composed of fat-cells of the adult type and is too well known to require description. Rarely, however, a rapidly growing lipoma may arise in which the cells (Figs. 2 and 3) are all, or for the most part, of the embryonic type with granular

cytoplasm in many of the cells and the fat in small droplets surrounding the nucleus, which is situated in the center.

Neuroglia-cells are characterized by the production of but one kind of fibril, the neuroglia fibril, which is in intimate contact with the cell producing it. Gliomata, the tumors arising from neuroglia cells, occur ordinarily only within the central nervous system, but they may arise rarely in the nasal sinuses and over the coccyx beneath the epidermis; in the latter region from remains of the neural canal. Two cases arising in this situation and carefully studied were distinctly infiltrative in their manner of growth and in one case metastases took place into both groins.

The pigment-cell (chromatophore) occurs in the skin, the eye, and the membranes of the central nervous system. In the skin the cell is of mesenchymal origin. It varies much in shape, that is, it is polymorphous, produces no intercellular substance, and is characterized by the property of producing a brownish pigment. Abnormal collections of pigment-cells in various stages of development, with and without pigment, frequently occur in the skin. They are known as congenital nevi.



Fig. 2.—Lipoma composed of fat cells of embryonic type.

The tumors arising from pigment-cells are generally called melanomata. The cells composing them vary much in shape, from spindle to round, and also in size. The pigment varies greatly in amount. Many cells and clumps of them contain no pigment; others have so much that it is difficult to find the nuclei. The arrangement of the cells varies also; some tumors, composed of bundles of spindle-cells running in different directions, suggest a fibrosarcoma, especially if pigment is slight or absent. In other tumors the cells may show more or less of an alveolar arrangement, but usually little stroma is developed. Frequently by necrosis, dissolution, and absorption of cells at a distance from the blood-vessels, sheaths of tumor-cells are left around the blood-vessels suggesting a perithelial type of growth.

The endothelial cell is poorly characterized except by the lack of distinguishing features other than that of lining vessels and spaces. Three varieties are recognized, those lining blood and lymph vessels, which are nearly related and perhaps identical, and those lining the subdural space. I shall speak here only of blood-vessel endothelium.

The tumors arising from endothelial cells should be called endotheliomata. Most pathologists at present, however, reserve this term for the rapidly growing tumors and speak of the slow growing ones as angiomas. To distinguish this group of endotheliomata from the two other types the term hemangioendothelioma is advisable. Two varieties are recognized, the capillary and the cavernous hemangioendotheliomata.

The capillary form always grows infiltratively, not expansively. It invades fat and muscle-tissue, nerves and blood vessels. In spite of its growing in an infiltrative manner, I know of but one case on record in which metastases took place. These tumors are prone to recur, however, because the surgeon does not remove a sufficiently wide margin of apparently normal skin.

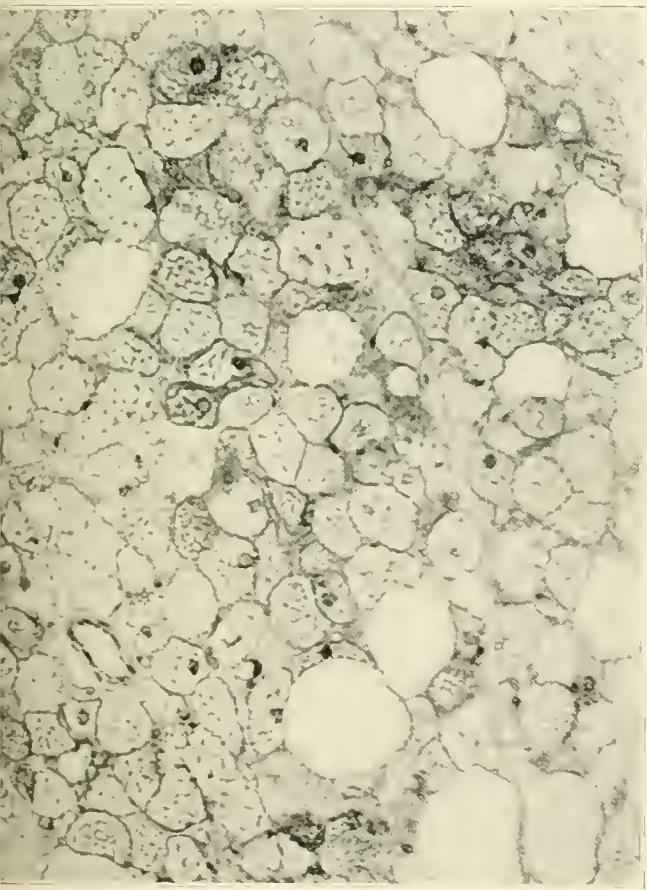


Fig. 3.—Lipoma composed of fat cells of embryonic type.

These tumors may grow slowly or rapidly and may be very destructive locally. Certain peculiarities of structure deserve mention. The endothelial cells may thicken up so as to form several layers around the lumen and mitoses may occur in any of these layers. If the lumen becomes obstructed in any way from hemorrhage or pressure the endothelial cells continue to multiply, forming whorls; less often they form irregular masses suggesting the alveolar arrangement of a carcinoma; lumina are not reformed. The connective tissue cells around the blood vessels of the stroma, in part grow in between the endothelial cells, in part deposit collagen fibrils between them so that the tumor may come to resemble fairly closely a fibrosarcoma; but the whorls of cells and the lack of fibroglia fibrils betray it. Moreover, the tumor in typical form may be found invading the fat tissue outside the tumor nodules.

Rarely all the vessels are surrounded by several layers of endothelial cells so that a perithelial type of tumor is suggested. Still more rarely papillary masses of endothelial cells may project into the lumina of vessels. Direct growth of this tumor itself within blood-vessels is not so rare.

The cavernous type of the hemangioendothelioma is not very common. It consists of large blood-spaces separated by thin partitions of connective tissue lined on each side with endothelial cells. These tumors may spread and give rise to different nodules, which follow in a chronologic sequence and yet seem to have no direct relation to each other. The explanation of the sequence of events is simple. The tumor grows within blood-vessels, extending along them and dilating them. In places it destroys or ruptures them and forms the large nodules so evident macroscopically.

There are many varieties of nerve-cells in the central nervous system. The one common and distinguishing characteristic of them all is the production of nerve-fibrils.

Tumors arising from nerve-cells are called neurocytomata.¹ They are probably not so rare as commonly supposed. They arise most frequently in the adrenal glands and may give rise to multiple metastases within the skin, bone marrow, liver and lymph nodes. The tumors in general suggest a lymphocytoma of the large cell type but they have one distinguishing feature—bundles of delicate fibrils running parallel. The nuclei of the cells are relatively large and the cytoplasm is small in amount and poorly defined. Occasionally, apparently when the fibrils are poorly developed and short, small clumps of fibrils are found with the cells arranged more or less in a circle around them to form a sort of rosette.

CONCLUSIONS

In conclusion I wish to say that it is advisable so far as possible to discard certain loose and indefinite terms frequently used in connection with tumors and strive for definite diagnoses and exact terms. For example, "spindle-cell sarcoma" refers only to a tumor with cells of a certain shape. The commonest tumor which grows rapidly with cells of this shape is the fibrosarcoma, but other tumors which may have cells of this shape are the chondrosarcoma, the osteosarcoma, the hemangioendothelioma, the leiomyoma, the rhabdomyoma, the glioma.

A round-cell sarcoma is most often a lymphocytoma, but other tumors which may have round cells are the osteosarcoma, the leiomyoma, the glioma, the myeloma, and the neurocytoma.

The so-called perithelial angiosarcoma is in my experience most commonly a melanoma, but other tumors which may grow in this form as the result of malnutrition (necrosis, dissolution, and disappearance of cells at a distance from the blood vessels) are fibrosarcoma, glioma, neuroma, and carcinoma (of breast and epidermis).

True tumor giant-cells occur in many tumors, glioma, fibrosarcoma, lymphocytoma. In the so-called giant cell sarcomata, the giant-cells are foreign-body giant-cells due to the fusion of endothelial leukocytes. They are not tumor-cells and should not be named in the diagnosis. The tumor itself is usually a fibroma or a fibrosarcoma. It may be only inflammatory tissue full of giant-cells. Probably the so-called epulis of the jaw is frequently of this nature, and not a tumor.

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¹ For the lantern slides of the neurocytomata shown I am indebted to Dr. J. H. Wright.

THE PATHOLOGY OF MALIGNANT EPITHELIAL GROWTHS OF THE SKIN *

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The presentation of this subject as a lantern exhibition permits the demonstration of a large number of slides showing the usual and unusual features of the two main types of cutaneous epitheliomata and some of the conditions which precede their growth. As it is obviously impossible to reproduce all, either pictorially or graphically, in a paper of this scope, only a few selected ones will be introduced to emphasize certain features, and in the text reference will be made to those of interest which have been published elsewhere.

PATHOLOGY

There is perhaps no field in tumor pathology which offers such facilities for the study of diversity in histologic structure as the growths of the skin, nor one which furnishes the opportunity for investigating such a variety of mediate causes. In the vast majority of cases a tumor when first seen is beyond its first inception, malignancy is already established, and its genesis and initial changes left to speculation. In the skin, however, owing to the ease with which changes can be noted, and the slower rate of growth, it is possible frequently to obtain material which shows early transitional stages. In addition, we have a group of conditions which are so definitely associated with tumor forma-

tion that on a clinical basis alone we do not hesitate to prognosticate their outcome. These affections, classified as precancerous and highly important from a dermatological standpoint, permit us not only to draw deductions as to the etiologic and biologic factors concerned in malignant proliferation, but they confirm the view that a

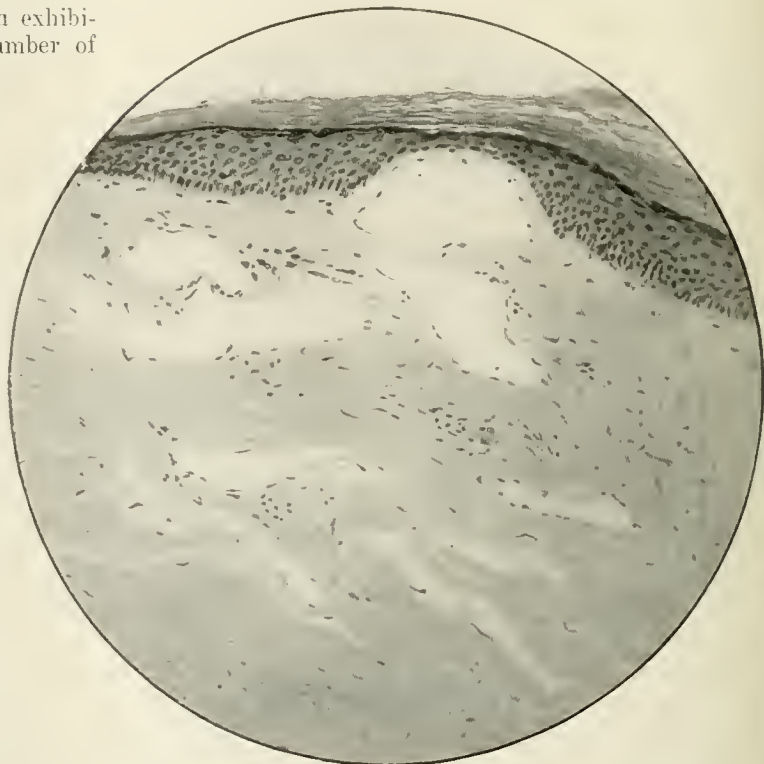


Fig. 5.—X-ray dermatitis (Zeiss 8 mm., C.O.4). Illustrating degenerative change in the corium and tortuous capillary dilatation.

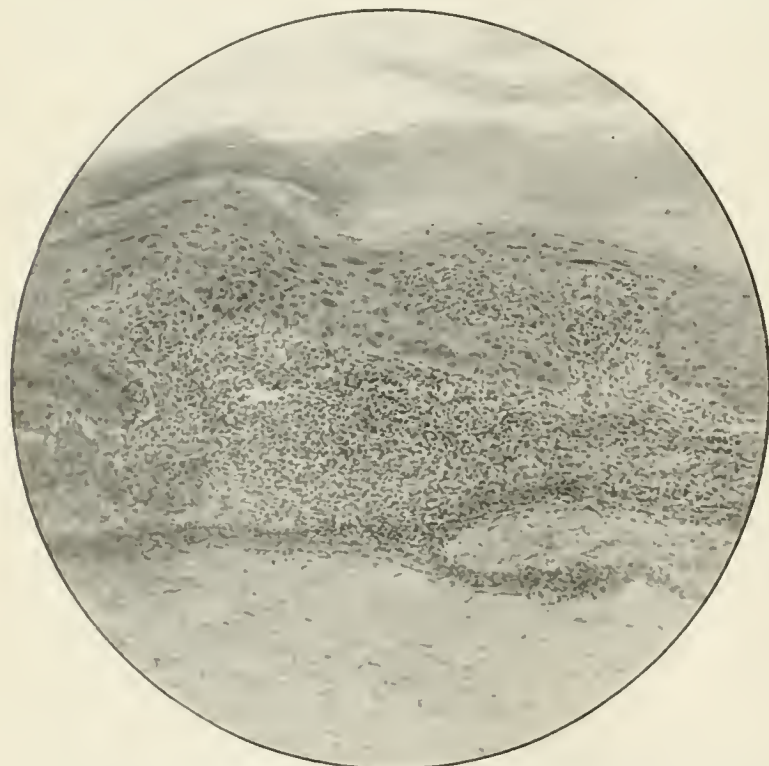


Fig. 3.—Xeroderma pigmentosum (Zeiss 8 mm., C.O.4). Small warty growth, showing hypertrophied horny layer and rete. Many cells of latter show degenerative changes, are vesicular and have large deeply staining nuclei. Corium degenerated and dense infiltration occupies upper layers of cutis in close juxtaposition to epidermis.

plurality of causes is operative in the etiology of cancer. While admitting the contention of Borrmann and other adherents of the Cohnheim theory, that in certain case-tumors have their origin in embryonal cell rests, as in those springing from certain nevi, the weight of evidence in the majority of cutaneous epitheliomata is not in favor of this view. In the examination of early growths, especially the superficial epitheliomata which arise on a seborrheic base, single or multiple foci of proliferation can be seen proceeding directly from the epidermis. These areas are usually sharply delimited from the surrounding surface and appear as swellings bulging toward the corium. The cells are smaller, more closely and less regularly placed than normally and the basal layer has lost its symmetry. They are, furthermore, to be distinguished from the surrounding cells by their larger and deeper staining nuclei. In some of the superficial epitheliomata of the Paget type edema of the affected area is the characteristic early

* Read with lantern exhibition before the Section on Dermatology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

* Because of the space required the article is abbreviated in THE JOURNAL, by the omission of some of the pictures and part of the text, but it appears in full in the Transactions of the Section and in the author's reprints.

change; the cells increase in volume and their pale bodies stand out in sharp contrast with the neighboring normal ones.¹ Findings like these and the evidence offered by the precancerous class of diseases, it seems to me, negative the view which incriminates isolated cell groups, in the skin at least.

production of a slight scar. Not infrequently in the same individual we can see lesions in all stages of development—the telangiectases, brownish or blackish discolorations not appreciably raised above the surface, flat seborrhœic warts and those showing considerable elevation, with the adherent crust above referred to.

ILLUSTRATIVE CASES

Sections from a patch of keratosis from the cheek of a man 60 years old showed a thickened horny layer, with nuclei fairly well preserved; attached to its under layers were cornified plugs, which distended the mouths of the pilosebaceous apparatus. The granular layer was missing. The rete was irregularly thickened and thinned and had areas of degeneration which stained badly and contained vacuoles. On the whole the cells were smaller than normal and the sharp contour of the basal layer was lost. The connective tissue in the upper corium was degenerated, its fibrillary character was lost and it had acquired a homogeneous appearance. The majority of the vessels had very thick walls and small lumina. A mild inflammatory infiltration was present in the superficial part of the cutis. In addition to numerous pigmented, telangiectatic and keratotic lesions on his face and hands, he had three active squamous-celled cancers, one over the bridge of his nose, another under his left eye and the third over the left parotid region.

A senile keratoma, removed from a patient 47 years old, who presented a squamous-celled epithelioma of the index finger, several warty growths on the backs of his hands, as well as telangiectases, atrophic and pigmented lesions, showed, under the low power, a striking resemblance to the warts seen in xeroderma pigmentosum. The higher power showed principally the degenerative changes in the cells. From hyalin

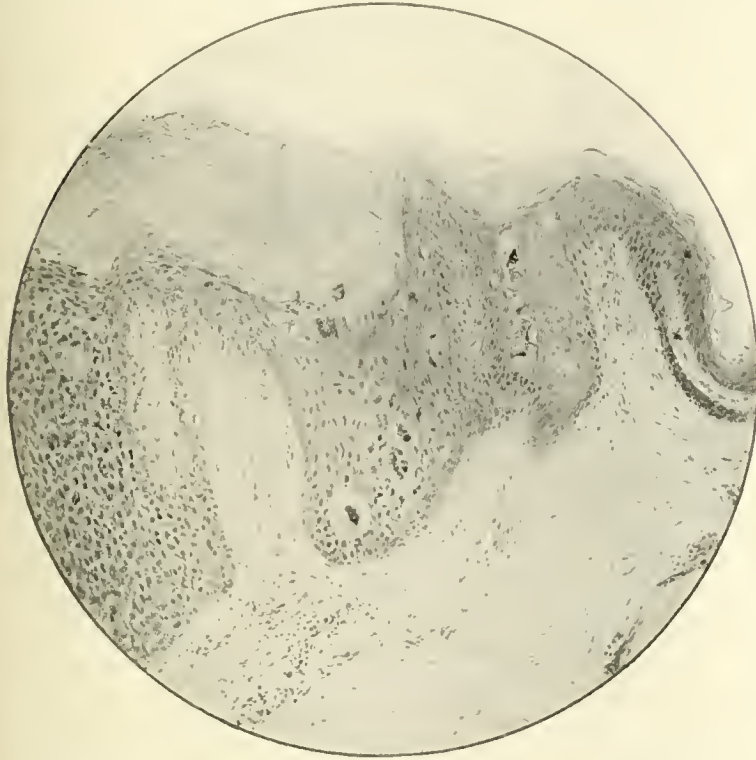


Fig. 6.—Arsenical keratosis (Zeiss S mm., C.O.4). To show degenerative changes in cells and clumping of nuclei probably due to amitosis.

PRECANCEROUS AFFECTIONS

Of the precancerous conditions senile keratosis comes first in order of frequency. Its sites of predilection are the face, neck, and backs of the hands, the parts of the body exposed to the influence of light. It is not infrequently accompanied by seborrhea of the face and scalp, so that it is difficult to know just how much weight to attribute to the infection of the epidermis and how much to the influence of light. The various stages of its development are frequently seen coincidentally. The first noticeable change is the brownish discoloration of the skin. This is followed by a slight thickening of the epithelial cells and practically corresponds to the seborrhœic wart. As the lesion develops it increases in depth, its warty character becomes more pronounced and it is in this stage that we have virtually an epithelioma. These lesions differ from the ordinary verrucae in that they are more pigmented and less elevated, and in their later stages they are covered by a greasy friable crust which is not so adherent as the epidemic layers of the ordinary wart. It can be detached with little effort and then reveals a bleeding papillomatous condition. At this stage the lesion can be readily removed by curettage and caustics and heals with the

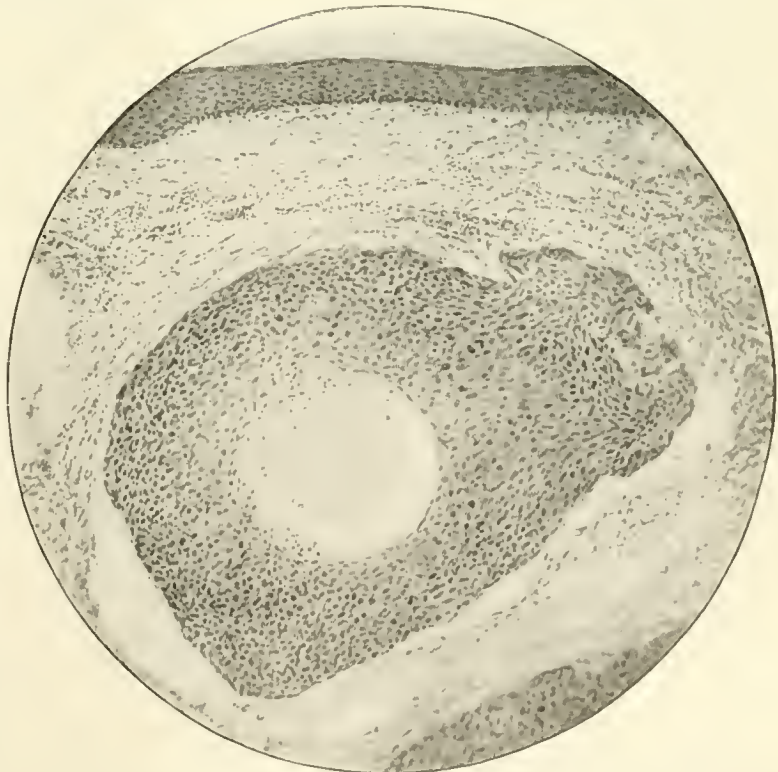


Fig. 7.—Basal-celled epithelioma developing in a lupus scar (Spencer 1 1/2 in., Zeiss Proj. Oc. 2). Tumor consists of irregularly rounded, oval and elongated masses of small cells with central degeneration. There is no connection with the surface epithelium.

1. Paget's Disease of the Gluteal Region, Jour. Cutan. Dis., 1905, xxiii, 193.



Fig. 8.—Squamous-celled epithelioma (Zeiss Planar 20 mm., C.O.4). An epithelioma which developed in the scar following a burn received 40 years previously. The scar broke down and healed several times during this interval. The slow course of the tumor, which was relatively benign, probably finds its explanation in the cicatricial capsule-like connective tissue resisting the epithelial growth.

and hydropic changes they had become voluminous, lost their prickles and assumed a more or less rounded form with a well-defined periphery, as though encapsulated. In the older portions they had become confluent and their outlines were no longer visible. The nuclei in many had entirely disappeared or only shrunken bits of chromatin remained, surrounded by a clear space, or were connected with the cell by radiating protoplasmic threads. In addition free cells were found appearing as spheres of hyalin with a dense nucleus and a vacuole. The connective tissue beneath the wart, and especially on either side of it, was degenerated and rarefied. It is this rarefaction of the subepithelial tissue which Thiersch considered the necessary or determining element in tumor growth. By bringing about a disturbance in tissue tension the restraint to epithelial invasion is removed.

Figure 3 is an example of xeroderma pigmentosum from the tissue of a young man, aged 21, with the typical features of the disease developed on his face, neck, hands and lower portions of the forearms. He also had a well-advanced epithelioma of the lip. The horny layer is markedly thickened, very dense and firmly adherent below. The granular layer is absent. The rete

is very irregular, consisting in places of only two or three layers of stretched cells and in others of irregular processes, whose cells vary in shape and size, but have atrophic bodies and conspicuously large nuclei. The prickles are not distinguishable as the cells are more or less welded together. Hyalin degeneration is a marked feature. The basal layer is in a state of disorganization, with the tissue immediately below it vacuolated. The corium is atrophic and degenerated; the papillary and subpapillary regions are occupied by a dense infiltration of lymphocytes and plasma cells.

Figure 5 illustrates telangiectases. The tissue is from a patch of dilated capillaries which followed an x-ray burn. The horny layer is considerably thickened, the rete flattened and hollowed out by the dilated capillaries. The cells are smaller than normal and many of them contain vacuoles. The papillary bodies have been entirely obliterated and the corium changed by hyalin degeneration. The tortuous ectatic capillaries extend from the middle two-thirds of the cutis to almost beneath the horny layer. Some of the sections contain partial thrombi.

Arsenical keratosis (Fig. 6). This tissue came from a patient kindly referred to me by Dr. Jackson. He had taken Fowler's solution for five years. On his body and hands were numerous scaling, pigmented and warty lesions. The section from one of the keratotic areas shows the thickened horny layer dipping down into the rete, producing a marked undulatory line between the two. In some of the layers the nuclei are well preserved; in others as the result of dyskeratosis there are large ballooned bodies which appear like double-contoured organisms. The granular layer has almost entirely disappeared, the horny layer proceeding directly from the Malpighian layer. In the latter the points of interest are acanthosis and edema, causing a widening of the intercellular spaces. Here and there the cells have disintegrated, their remains lying in cystic spaces or several have fused to produce large, deeply-staining, irregular bodies connected by cytoplasmic threads to the sur-



Fig. 9. Paget's disease. Disease began about nipple two years previously. Condition shows an eroded moist surface, with defined somewhat polycyclic border; nipple retracted. Extending from primary lesion and covering almost entire surface of breast a lymphangitis is present. Over this area were scattered lesions similar to primary one. The mammary gland was the seat of a diffuse carcinoma. Axillary node enlarged.

rounding cells. Nuclear degeneration is as common as cytoplasmic. Some of the cells contain central clumps of chromatin; in others it is dispersed through the cell, and a further sign of degeneration is the presence of clumped nuclei, due probably to amitotic division. The basal layer is disorganized at points where the corium is more or less rarefied. The superficial part of the cutis has a granular appearance and the connective tissues cells stain only faintly. Aside from this a slight lymphocytic infiltration is seen about some of the capillaries.

Leukokeratosis produced by syphilis or tobacco, or occurring independently of either, is probably the most common antecedent change in mucous membrane epitheliomata of the mouth.³

In addition to the foregoing, which represent a group of conditions whose natural history includes a termination in epitheliomatous formation, there is another class of diseases which offer a favorable base for the development of malignancy. They are chronic skin diseases, as syphilis, lupus vulgaris, lupus erythematosus, Darier's disease, psoriasis, scars from various causes, etc.

Cancers secondary to tuberculous lupus are, in the majority of cases, classed as scar cancers or are attributed to the use of x-ray in treatment. However, they also develop on an active lupus and are usually of the squamous-celled variety, in which case both processes appear coincidentally under the microscope.

The case illustrated is of peculiar interest in its departure from the usual type seen in connection with tuberculosis or scars. It was originally reported as an endothelioma,⁴ but a greater familiarity with the basal-celled growths and

their degenerations has led me to include it in the latter group. The tumor, which developed in a lupus scar, occupied the entire corium as large and small cellular masses, irregularly rounded, oval or elongate (Fig. 7). The cells, many of which are spindle-shaped from pressure, have rather large oval

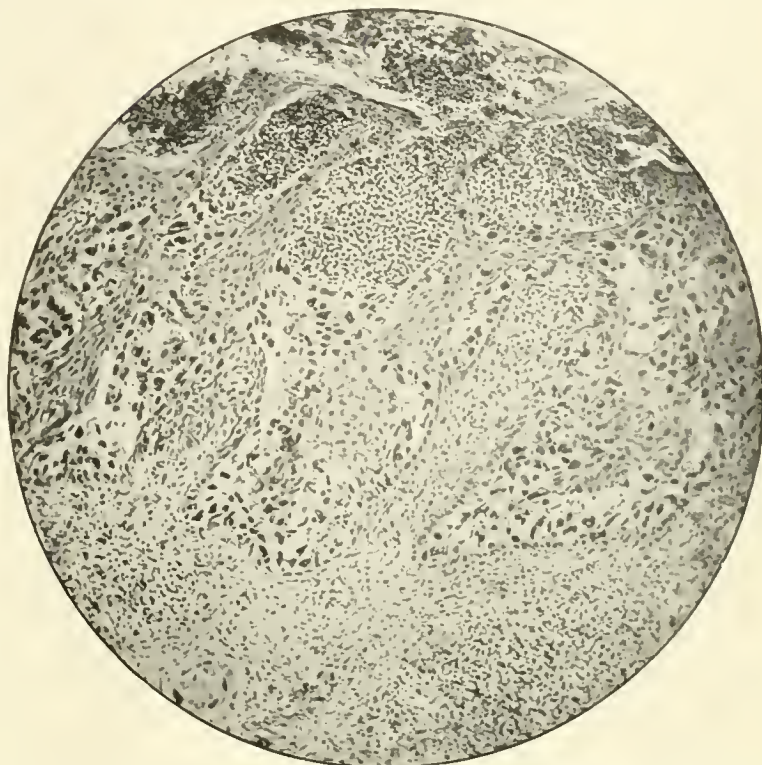


Fig. 10.—Paget's disease of nipple (Zeiss 8 mm., C.O.4). The epidermis shows characteristic change which begins at basal layer and extends to the upper layers, viz., edema, vacuolization and degeneration of protoplasm. At the surface of epidermis is a marked collection of polynuclear leukocytes where erosion has taken place. In the corium cross-section of lymph space showing infarct of tumor cells. Infiltration of lymphocytes, plasma and mast cells in the papillary and subpapillary layers.



Fig. 11.—Lymphangitis in Paget's disease of nipple (Zeiss 8 mm., C.O.4) Section from circumcised area radiating from disease of nipple. Shows lymph space containing an alveolus of cancer cells.

nuclei, rich in chromatin and contain numerous mitotic figures. The central portions of the cell masses from degeneration are cystic and contain detached cells and detritus. There is no connection anywhere with the surface epithelium, and no evidence of the tuberculous process is present.

In a case of epithelioma following a burn, which was previously reported,⁵ the tumor developed on a chronic ulcer of the thigh following a burn received forty years previously. The ulcer healed and broke down several times, eventually passing into neoplastic formation. The slow development probably finds its explanation in the histologic structure (Fig. 8), which shows the sharp limitation of the growth by the underlying sclerotic tissue, which, capsule-like, retarded the epithelial invasion.

The coexistence of epithelioma and psoriatic patches is a rare occurrence, but through the kindness of Dr. George T. Jackson I had an opportunity of seeing such a case several years ago. Multiple tumors of the basal-celled type were present. The patient subsequently developed metastases in the mediastinal glands and internal organs and died of

3. For a description of the character of these lesions the reader is referred to *Affections of the Mucous Membranes and their Relation to Skin Diseases*, Jour. Cutan. Dis., 1904, xxii, 397.

4. *Am. Jour. Med. Sc.*, August, 1900.

5. Some of the More Unusual Forms of Epithelial Growths of the Skin, *THE JOURNAL A. M. A.*, Jan. 8, 1910, p. 91.

carcinosis. The tumors were made up of masses of small, deeply-staining cells with scant stroma and numerous foci of degeneration of a mucinous character in the cellular aggregations.

The slides demonstrating epithelioma and Darier's disease were made from specimens kindly loaned me by

marked acanthosis of the epidermis the line of demarcation between epidermis and corium is preserved, and in a series of cases that I have examined downgrowth did not occur. In these cases there was concomitantly a mammary carcinoma and the corium was infiltrated solely with growth from the lactiferous ducts below.

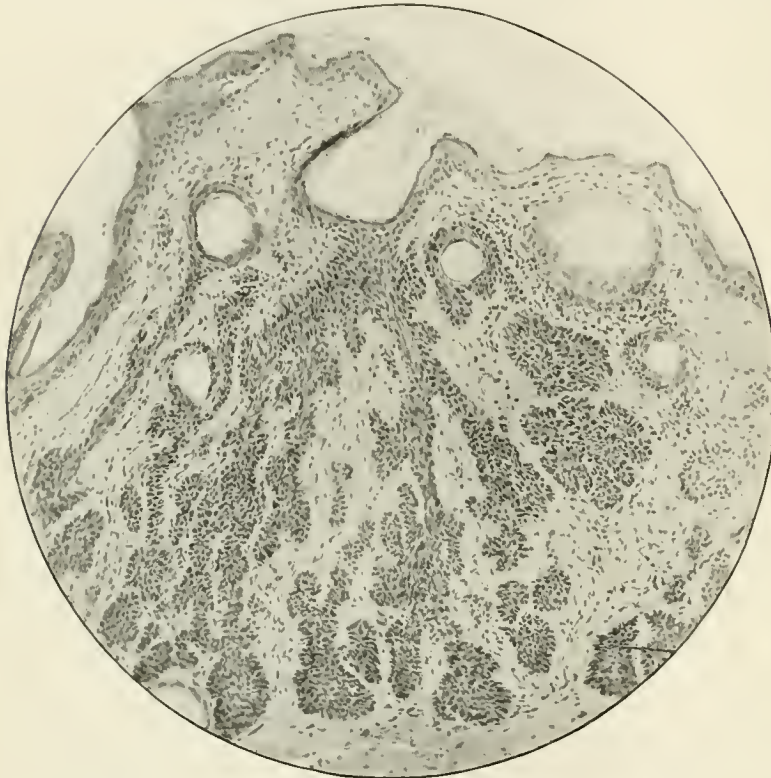


Fig. 14.—Rodent ulcer (Zeiss 8 mm., C.O.4). An early rodent ulcer near ala of nose, taking its origin from the lanugo hair follicles.

Dr. Grover W. Wende from his case of multiple squamous-celled epitheliomata consecutive to Darier's disease. The interesting feature in connection with these growths was the degenerative forms and cell inclusions.

The subject of malignant growths secondary to nevi, with illustrations, has been previously discussed by me.^{5, 6}

Paget's disease of the nipple is regarded by many authors as a superficial epithelioma, and this view is probably justifiable on clinical grounds, since we find in other portions of the body superficial flat epitheliomata having an eroded granular center and a slightly rolled polycyclic margin, strongly resembling the nipple lesion. Histologically, however, some points of difference are to be noted, especially in the older portions of the extra-mammary cases. If the edge of these lesions is examined, the picture in many instances bears a very close resemblance to the mammary disease. The cells are edematous, vacuolated, and show the peculiar degenerative changes of the affection. There is, however, evidence of proliferation, and if the central portion of the area is examined, true epitheliomatous formation of the small basal-celled type will be found.^{1, 5} In the nipple region, while there is a

The photograph (Fig. 9) is from a Russian woman about 55 years of age, referred to me by Dr. Keene. The patient stated that the condition of the left breast had existed about two years. It presented the typical features of Paget's disease, a dark red, granular, exuding surface with sharply defined periphery, with here and there evidence of beginning cicatrization in the center of the lesion. She also presented a group of small secondary ulcerated and encrusted lesions outside of the original patch. These lesions suggested autoinoculation or the breaking down of a lymphangitis, which radiated for a distance of about 3 inches from the periphery of the patch. The entire breast was the seat of a carcinomatous tumor, which was not sharply circumscribed, but seemed to involve the entire gland, probably due to the simultaneous infection of the lactiferous ducts. She also had an enlarged node in the axilla.

Tissue from the nipple region (Fig. 10) shows the epidermis riddled, as it were, by some destructive agent. The process has proceeded to complete autolysis in some areas, or only distorted nuclei and fragments of the cell body remain. The surface of the epidermis is eroded and covered by a crust of polynuclear leukocytes, remains of epidermic cells and fibrin, and below this there are military collections of leukocytes.

The specific degeneration in Paget's disease begins in the deepest layers of the rete and causes the cells to become paler and increase in volume. From swelling the



Fig. 16. Multiple epitheliomata. Woman, aged 60, with multiple superficial flat and fungating epitheliomata.

prickles become indistinct or disappear entirely and vacuoles make their appearance. In this way there may come to be left only a ring of protoplasm separated from the nucleus by a clear space, or the latter may be distorted or pushed aside by one or more vacuoles. Even-

6. Melanomas and Some Types of Sarcoma of the Skin, THE JOURNAL A. M. A., Jan. 8, 1910, p. 91.

tually the cells are separated and lie free in cavities and assume most bizarre forms and appearances. The basal layer, although degenerated, still sharply marginates the epidermis from the corium. In the cutis, with the beginning epidermic changes, an infiltration of mast and plasma cells appears in the papillæ, later becoming more diffuse and extending to the subpapillary layer and the tissue below. In the case under consideration the superficial lymphatics contained cancerous infarcts.

The histologic findings from the area of lymphangitis are shown in Figure 11. The tissue immediately about the cancer embolus is denser than elsewhere, owing to the reactive fibrosis which has taken place. The cells are large, irregular and show pronounced degenerative changes. Their protoplasm is coarsely granular, and in going through the sections seriatim all types of so-called cancer bodies, dependent on cellular and nuclear origin and aberrant mitosis, are to be met with.

These curious changes are, however, not peculiar to malignant growths but are also found in chronic inflammations, and irregular mitotic figures have been produced experimentally in various tissues. Degenerating cells may also divide by amitosis, giving rise to a clumping of nuclei.

Illustrations and report of lymphangitis in cancer *en cuirasse* will be found in my paper already referred to.

CLASSIFICATION

Cutaneous carcinomata in the great majority of cases take their point of origin from the epidermic covering of the sheath of the follicles, the glandular epithelium only exceptionally proliferating primarily. Although there are many classifications based on the microscopic or macroscopic appearances, relative malignancy or genesis, the histologic division of cutaneous epitheliomata into two great groups, according to certain prominent characteristics is the most practical, namely, the prickle-cell group, and the basal-cell group of Krompecher. In the former, the tumors are composed of large cells which have retained their prickles; they are early destructive, metastasize and have a general malignancy. In the basal-celled group the tumors are made up of small cells which possess no prickles and have relatively large nuclei; they do not as a rule metastasize and have usually only a local malignancy. While recognizing the validity of the criticism made by Adami that all cells originate from the basal layer, it is nevertheless a fact that in the one case only one type of cell continues to proliferate while in the other differentiation goes on. As a rule, too, these two types conform more or less with distinct clinical pictures, though occasionally cases are seen in which a positive diagnosis can only be made by the microscope. Patients with multiple epitheliomata sometimes present the two types with not sufficient clinical difference to tell them apart.

Histologically the typical feature of squamous-celled growths is the solid prolongations or downgrowths from the epidermis, which spread out in different directions or on section give rise to masses of alveoli of various shapes and sizes lying in a connective tissue stroma. In the characteristic members of this group the epidermal characters are preserved and result in epithelial pearls.

The alveoli which go to make up the tumor have one or more centers of pearl formation; their periphery corresponds to the basal layer, consisting of small cells with deep-staining nuclei. Within this are several rows of prickle-cells with a concentric arrangement; the majority have lost their prickles and are in various stages of

keratinization, appearing as more or less flattened or rounded plates, anuclear, or with nuclei undergoing disintegration. As a rule the activity of pearl formation is an indication of malignancy. In the corium or supporting stroma is usually found an inflammatory reaction of varying grade. Not infrequently a mucinous degeneration has taken place, or the tissue is porous, or shows other signs of loss of vitality.

In tissue undergoing malignancy certain changes take place which indicate the vegetative activity of the cells. These are a smaller cell with oval or rounded cell body, clear cytoplasm and a relatively large, deeply staining nucleus; the relations of the cells to one another become changed; they become crowded and occupy a much smaller space than under normal conditions. This is especially true of the basal-celled tumor and it is not so difficult to make a diagnosis in these cases of early epithelioma. In the squamous-celled type, however, particularly those which develop on ulcerated surfaces, it is not so simple to say whether one is dealing with tumor formation or only atypical proliferation. In chronic ulcerations there is a marked tendency for the epithelium at the edges of the ulcer to grow irregularly downward and infiltrate the tissue beneath. These processes may become snared off and sometimes develop pearls, when it is practically impossible to determine from the histology the exact pathologic condition.

Of the basal-celled epitheliomas the rodent ulcer may be taken as the type, as it is the form most frequently encountered. These tumors are made up of an undifferentiated type of cell, yet, contrary to the rule, are the least malignant of epithelial tumors. Various degrees of anaplasia are encountered and a more or less spherical, polygonal or even spindle-shaped cell may be encountered. Not only the cellular morphology but the general structure of these basal-celled tumors varies and has led to the recognition of certain well-defined types. It has been suggested by Darier that this varied architecture might be explained as the attempt on the part of the basal layer to functionate, as during embryonic life, in the production of the appendages of the skin.

Descriptions and illustrations of cylindroma and tricho-epithelioma will be found in a paper previously published,⁵ and of benign cystic epithelioma and other forms of growths in papers likewise already published.⁷

The picture of the ordinary rodent ulcer differs a great deal in appearance and may, in one instance, appear as a solid downgrowth from the surface epithelium, with little tendency to branch; in another the larger masses may show central cystic degeneration and peripheral budding, or fine or coarser processes of cells bifurcate throughout the cutis. Figure 14 illustrates a rodent ulcer near the ala of the nose originating from the hair follicles and forming solid tubes or cords of cells which give off lateral processes. Tricho-epithelioma, which also develops from lanugo hair follicles, has a somewhat different structure, which may be due to an attempt on the part of the cells to differentiate. These growths clinically may appear as morphea-like lesions, as already described.⁵

A frequent concomitant of the basal-celled tumor is the hyalin or mucinous degeneration, which affects either the cells or the connective tissue, or both. Degeneration is considered by some authorities, as Adami, to indicate malignancy, but in the skin we find the tumors most

7. Clinical and Pathological Observations on Some Early Forms of Epithelioma of the Skin, *New York Med. Jour.*, June 9 and 23, 1900; and *Cancer of the Skin*, *Jour. Cutan. and G. U. Dis.*, 1902, xx.

prone to degenerate are of a benign type. In mucinous or pseudo-mucinous degeneration the cells appear indistinct and poorly differentiated, in areas breaking down and forming cystic cavities which contain the products of degeneration. Aside from these changes there may occur a central autolysis of cells (Adami) which may be due to lack of nutrition or to metabolic products of the tumor cells themselves. Extractives or diffusible products *in vivo* may have the same effect in producing this autolysis as the introduction of a vaccine from a tumor.

Many multiple epitheliomata in the early stages closely resemble Paget's disease. They present all grades from pale and red scaling patches, the size of a split pea or smaller, to patches as large as the hand. They have sharply defined, scalloped margins showing very slight tendency to elevate or pearly rolled edge. Some of them maintain their red and scaling appearance and others become the sites of fungating growths (Fig. 16). These tumors often develop on patches of seborrheic dermatitis, which suggests some infectious agent. It is possible that the bottle bacillus, in combination with the staphylococcus, stimulates epithelial proliferation. Even in the early stages, before any apparent thickening of the epidermis is present, proliferation of the basal layer can be determined by histologic examination.

CONCLUSIONS

A study of skin cancers suggests to the observer, if it does not demonstrate absolutely, that no one agent is concerned in the malignant proliferation of epithelial tumors and that cutaneous carcinomata have a multiple etiology. The development of epitheliomata following exposure to sunlight, x-rays or other radiant energy is a strong argument against the parasitic nature of the disease. Likewise, the occurrence of epitheliomata in xeroderma pigmentosum and allied conditions of the skin which come on in old age or middle life is an additional argument against this theory. These conditions are preceded by changes identical with those met with in xeroderma pigmentosum, such as a dry atrophic skin, telangiectases, warty growths and, finally, malignant transformation. Furthermore, the action of chemical substances on epithelium, for which they have a special predilection, such as arsenic, tar, scarlet R., tobacco, etc., demonstrate that a variety of agents have the power to stimulate epithelial mitoses which may pass into malignancy. Cancers which develop on scar tissue or antecedent conditions of the skin like lupus, syphilis, etc., suggest that we are dealing with misplaced cells in some cases and in others with degenerative processes which lead to the abolition of the functional activity of the cells, which is followed, as a consequence, by vegetative activity, according to the theory of Oertel, Adami and others. In primary multiple epitheliomata we have several foci in which an infectious agent or some internal sensitizing agent may have acted on the cells and rendered them susceptible to a local factor.

80 West Fortieth Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. LOEB, FORDYCE, MALLORY, BLOODGOOD AND PUSEY, CONSTITUTING A SYMPOSIUM ON CANCER*

DR. E. R. LECOUNT, Chicago: There seems to be a subsidence of belief in the parasitic origin of tumors and a diminution during the last few years of investigations to find such para-

sites. The prevalence of the former belief in a parasitic origin of tumors may be accounted for by the conspicuous place which the infectious diseases occupied in investigative medicine during the last few decades. With the lessening of search for a "cancer parasite," opportunity has been offered for researches in other directions. In general these have been of two sorts, one of them the old and well-worn subject of the histogenesis of tumors, still capable of yielding valuable information; the other, the newer study of transplantable spontaneous tumors of animals. In regard to the last of these, the results have been the development of a new branch of medical literature, new journals and the founding of special institutions by both private and public funds. Some of the articles dealing with phases of tumor transplantation are as difficult for the average physician to comprehend as many of the contributions to the problems of immunity. In both fields of investigation there is a great deal which needs collating for the physician with average equipment. In general the results which have so far occurred from study of these transplantable tumors are: 1. Learning that only a relatively small percentage of the transplantations lead to successful growing grafts. 2. The belief in a continuity of tissue growth—that all the successful grafts represent direct ancestry of the tumor with which the experiments began. 3. The undoubted experimental production of a malignant tumor which has been observed a few times when metamorphosis of a carcinoma into sarcoma has taken place. 4. The altered tactics among these investigators very recently in now attempting to modify, control or prevent processes of tumor growth which they are able to bring about; in other words, to produce an immunity. 5. The gradually growing suspicion, now almost a conviction in the minds of some, that the growth of malignant tumors is largely dependent on processes of metabolism not understood at present, but which may eventually be found analogous to those which are concerned with normal growth.

DR. F. B. MALLORY, Boston: I should like to say a word in connection with the paper of Dr. Fordyce in regard to epidermoid carcinomata. In the ordinary epidermoid carcinoma the cells differentiate like those of the epidermis. The cells of the rete Malpighii are cubical to cylindrical in shape and have considerable cytoplasm. These cells show a slight fibrillation of the cuticle. In the prickle-cell layer the fibril formation is much more marked. The fibrils are numerous and short. Finally the cells undergo a homogeneous transformation with cornification which leads in the tumor to the formation of the so-called epithelial pearls. In the non-cornifying type of carcinoma of the skin, the so-called carcinoma baso-cellulare, the cells vary from cubical to spindle in shape, have little cytoplasm and do not lead to prickle-cell formation. Instead these cells often produce numerous very definite straight and wavy fibrils of considerable length. The only cells in the skin which differentiate in this way are the cells leading to the formation of a hair shaft. These cells are spindle in shape, have little cytoplasm and produce numerous long, wavy fibrils which gradually undergo a homogeneous transformation and form the shaft of the hair. Judging from the cell differentiation they undergo this tumor arises from the hair matrix.

DR. J. W. VAUGHAN, Detroit: It is interesting to note that the results of the treatment with the x-ray in some cases are apparently far superior to the use of purely surgical measures. I will attempt to give a possible explanation for this fact. The late Dr. Hodeppl of New York cured a cancer of the liver by the use of injections of ascitic fluid; the ascitic fluid gave good results in other cases. In addition to that we have the work of the experimenter who injected a suspension of cancerous cells into patients with beneficial results. In my own experiments I split up the cancer cells with a 2 per cent. solution of sodium hydrate in absolute alcohol. The non-toxic residue is insoluble, and I injected this portion with apparently beneficial results. Now, how does this apply to the better results we get with the x-ray, as compared to purely surgical measures? If you take cancer tissue and expose it to the x-ray for fifteen minutes it splits up the cancer tissue the same as the caustic sodium hydrate solution, into its toxic and non-toxic portions. The good results following the use of the x-rays, I believe, are due to the fact that the rays

* Another symposium on cancer appeared in THE JOURNAL last week, the one which took place in the Section on Pathology and Physiology at the St. Louis session.

form an active ferment within the body of the patient, which in itself splits up the cancer cell, and is not due wholly to the destruction of the cancer cell.

DR. WILLY MEYER, New York: In the treatment of skin affections by radium it is necessary, in the first place, to have radium of great strength. The application and treatment is comparatively simple and nothing that I know of can be compared to the results obtained by it. In cases of tumor of the skin, warts, epitheliomas, etc., Dr. Abbe proposes to make these radium applications for a period of half an hour and then send the patient away. I have obtained good results by using it in such cases at close range for five minutes the first day, adding to this time one minute for three successive days, and then on the fifth day allowing the radium rays to exert their effect on the immediate surroundings of the tumor for ten minutes. Then the patient is sent away and is not seen again for three or four weeks. By this method, in three different cases, I have seen the marvellous effects of radium, similar to those described by Dr. Able in his oration on surgery at this session. The patients with what we formerly called epithelioma or rodent ulcer, especially when located about the nose and eyes, where they are unusually disfiguring, come back to us after this method of treatment with a scar which, while it is somewhat below the level of the skin, remains a healthy scar, without showing any evidence of recurrence. In one of my cases two years have now elapsed without a recurrence; in two others the interval is shorter. There is nothing, in my experience, that can be compared with the wonderful effect of this method of treatment, which often acts where the α -ray fails. The only drawback is that radium is very scarce and very expensive. It is to be hoped that pitchblend will soon be found in large quantities in one of the many mines of our country. In that case I am sure dermatologists would be the first to make more frequent use of this apparently wonderful remedy.

DR. WILLIAM T. CORLETT, Cleveland: I believe that the ideal treatment for cancer is not yet known. During the last twenty-five years I have worked with my colleagues, the surgeons, in handling many cases of cancer, and I believe if one acts honestly and studies his cases well he will not adopt any one method of treatment to the entire exclusion of others. The main thing that has been brought out in the discussion thus far in the treatment of cancer is the early eradication of the disease. The method of this eradication, I believe, is of secondary importance, but it is the early recognition and thorough eradication that is followed by the best results. Everybody who sees many of these cases must be impressed with the fact that many patients are allowed to go on for months and years, receiving only dilatory or insufficient treatment, until the case is beyond the scope of operative measures. Every clinician must have observed, too, that there are different degrees of malignancy, as has been pointed out in the histologic presentation. There are cases of cancer of the skin in which the knife is the only means that can be employed, but in many cases the knife is not the best means. When it is, it is advisable in many instances to follow it by a thorough course of α -ray treatment. In regard to the use of caustics, we are familiar with the work of Robinson, and, while I have had little personal experience with caustics, I believe they are effective and in selected cases are good. One objection to them is that they are painful, and personally I believe in most instances there are better methods. The Roentgen ray in some cases is the best and only method, and in others the knife is not only the best but the only method. The Roentgen ray, I believe, is not the most efficient, for after this method of treatment only a certain number will remain free from the disease for a period of years. The method that I have adopted very largely for at least twenty-five years at the Lakeside Hospital is electrolysis. Of late this method has received attention by Brocq of Paris, and some Germans have spoken of it favorably. When I first adopted this procedure I did it at the request of the surgeons in cases in which the use of the knife was not deemed advisable. In these cases and in many others since then the results have frequently surprised me. They have been very favorable, and I hope some time in the near future to present a tabulated report of my results. That

the procedure is indefinite, as stated by Dr. Pusey, I refuse to concede. My method is to introduce both electrodes around the malignant growth, penning it in, and afterward to introduce them into the growth itself. It is advisable, I believe, to go beyond the margin of the growth and produce a decided retraction. Many of these patients, to my personal knowledge, have gone from nine to fifteen years without a recurrence; others have died of old age, but I have no detailed statistics to present at this time. Finally, the method to be selected in the treatment of cancers of the skin should depend on the nature of the case. In some the knife is best, in others the Roentgen ray, while in suitable cases, before metastases have occurred, electrolysis is followed by excellent results. Of course, where glandular involvement has already taken place, it should not be considered; then the knife is imperative.

DR. A. RAVOGLI, Cincinnati: I was very glad to hear Dr. Mallory speak of the possibility of micro-organisms finding an entrance through the opening of the sebaceous glands, and to listen to Dr. Fordyce's remarks regarding the precancerous changes in the skin and the development of epitheliomas on certain dermatoses; that it was possible that a micro-organism might be the cause of this preceding disease of the skin, and then the causation of the cancerous changes. I have always believed in the parasitic origin of cancer, and still incline to that view. The success of the transplantation experiments, I think, point to the correctness of that theory. There must be something which produces the changes and the proliferation of the cells. I find that liquor formaldehydi gives me very good results in superficial epithelioma and carcinoma. My usual procedure is to curette the lesion and then apply a 40 per cent. dilution of liquor formaldehydi. The pain that this method gives rise to can be allayed by a 5 per cent. solution of cocain. After two or three days the surface of the lesion begins to harden into a whitish or yellowish eschar, and when this falls off, a second application is rarely necessary. I have had perhaps 40 or 50 cases in which my results with formaldehyd solution have been very satisfactory. I also wish to mention the use of Coley's fluid, especially in fibrosarcoma. I have seen cases in which the growths were so extensive as to be practically inoperable improve under the injections of the *Streptococcus erysipelatis* and *Bacillus prodigiosus*, as advised by Dr. Coley, and I think this remedy should be borne in mind in extensive cases that are not amenable to other methods of treatment.

DR. J. A. FORDYCE, New York: I was very much interested in what Dr. Mallory said in regard to the infiltrating angioma. This seems to bring it into connection with the angiosarcoma of Kaposi.

DR. WILLIAM A. PUSEY, Chicago: I am glad to see from this discussion that we are not so far apart in our views on this subject. I think the consensus of our views is that the proper treatment of carcinoma is to destroy it. It does not make so much difference how you do it, providing you do it. For this purpose I prefer to use vigorous measures. I do not like formaldehyd solution or pyrogallie acid. As to any antibodies or ferments being produced when you treat carcinoma with the α -ray, I have looked for such an effect as longingly as anybody, and I am compelled to say that I have seen no such effects. I have seen great masses of sarcoma and carcinoma disappear under the α -ray, but as far as my experience goes I have not been able to see a glimmer of hope that by this method of treatment any antibodies were formed that were of any value. We must depend on the destruction of the cells by the α -rays. As to the comparative value of radium and the α -ray, I believe that the results of these two agents are very similar and that in both instances we are using practically the same agent.

Radium in Urology.—We distinguish three kinds of action of radium of which use can be made in urology: (1) bactericidal action; (2) action on the surface of tissues, consisting especially of decongestion and cellular modification; (3) alternative action on deeper tissues and on glandular organs.—L. Wickham, in the *Practitioner*.

PRELIMINARY REPORT ON THE CLINICAL SIGNIFICANCE OF INDICANURIA

BASED ON TEN THOUSAND EXAMINATIONS FOR INDICAN *

G. BAAR, M.D.
PORTLAND, ORE.

In the last four years I have made it a routine practice to examine the urine of every patient for indican. Jaffé's test, carried out as follows, has been employed:

The urine was precipitated with lead acetate (moderate quantity), filtered through a dry filter-paper, and an equal quantity of fuming hydrochloric acid with ferric chlorid (50 c.c. hydrochloric acid, with 8 to 10 drops ferric chlorid) added to the precipitate. This was shaken thoroughly for two minutes, then shaken with 1 c.c. chloroform for the same length of time.

The depth of the blue discoloration of the chloroform was taken as indicating the quantity of indican present; thus designating the quantities as "very excessive," "excessive," "considerable," or "moderate." Traces of discoloration were not taken into consideration. In 10,000 urine examinations I found indicanuria present in about one-third of the cases, mostly, however, temporarily only and I designated these as "accidental indicanurias." The cases, however, in which there appeared constantly excessive indican, which formed the most conspicuous clinical symptom of the case, I called "*indicanuria par excellence*." Cases in which the examination of the whole body, the stomach contents, the feces and blood did not yield any abnormal findings, but in which indican in the urine appeared constantly in excessive quantity I considered "intestinal auto-intoxication," provided the complaints of the patient pointed, even though uncertainly, to the digestive apparatus. I wish to state here in advance that true cases of intestinal auto-intoxication are rare. This statement, I am well aware, places me in direct opposition to the general profession as held to-day. Such patients present clinically the following symptoms: pale complexion, dry skin, cold hands, and feet, dizziness, headaches, insomnia, nervous depression, neuralgias, migraine, rheumatic pains in the extremities, emaciation, fetor ex ore, often acne, seborrhea, furunculosis, and urticaria. The excessive amount of indican in the urine of these patients indicates simply the large increase in the sulpho-ethers and aromatic substances of the urine.

The indoxyl compounds are not toxic in themselves. So far as we know they are not capable of producing any such pathologic symptoms as enumerated above. The true toxic substances are the ptomaines. The "aromatic bodies" (phenols, cresols, indol, skatol), however, develop in parallel degree with the former in intestinal putrefaction. While we do not possess a simple clinical procedure to estimate the ptomaines, we do possess one in the above-mentioned Jaffé's test, which permits a practical estimation of the aromatic bodies and thus gives valuable information as to the metabolism of the body; for it is a proved fact that whenever ptomaines are absorbed from the intestinal tract sulpho-ethers of the aromatic bodies are absorbed simultaneously, and by measuring the quantity of the sulpho-ethers we obtain knowledge of the intensity of the putrefactive processes within the bowel. There are but two exceptions to this rule: (1), individuals taking aromatic

drugs internally, i. e., salol, phenol, naphthol; (2), organic suppurations. In this manner the excessive excretion in the urine of sulpho-ethers and aromatic compounds serves as an indicator of an abnormal formation and absorption of the products of microbial nitrogenous putrefaction. The intestinal anaerobic flora being one of putrefaction, we find it always predominant in cases of intestinal putrefaction.

It is not, however, the quantity of putrid substances formed in the bowel, but the quantity of those putrid substances entering the blood which causes the symptoms of auto-intoxication. This accounts for the fact that, on the one hand, we may find in cases of marked intestinal putrefaction many toxins in the stool but few only in the blood. Diarrhea, for instance, or mucus covering the intestinal mucosa, diminishes their passage into the circulation; and so also will perfect function of the other organic lines of defense, to wit, liver, kidney, pancreas, prevent their absorption. On the other hand, however, even a feeble intestinal putrefaction will cause auto-intoxication if the lines of defense are broken, owing, for instance, to deep ulcerations of the mucosa or insufficient function of the antitoxic organs. Thus we may explain the case of a young girl, who suffered with a bloody purulent diarrhea for eight months, not showing any indican in the urine but frequently excessive amounts in the feces. When an appendicostomy was performed on this patient for the purpose of irrigating the colon, the urine, which never before showed indican, showed excessive amounts of indican on the four days following the operation, together with distinct traces of bile.

These findings prompted me to examine urines of patients to be operated on, before and after operation. The following are some of the conclusions I reached:

1. Ether narcosis has no influence whatever on the excretion of indican.
2. In all gastro-enterostomies, entero-anastomoses, appendectomies—in all operations, in short, in which the intestinal wall was cut, we found excessive indican and distinct traces of bile in the urine for a week or more following the injury.
3. Moderate handling of the intestines during the course of an abdominal operation did not cause any indican to appear in the urine, while prolonged handling of the intestines did cause excessive indican in the urine.

These findings offer the quasi-experimental evidence for my assertion that the trauma to the intestinal wall with the subsequent inflammatory and functional changes of the latter cause the impairment of the absorptive powers of the mucosa, thereby increasing intestinal putrefaction; an indicator for this increased putrefaction is the amount of indican excreted in the urine. The clinical evidence for my claim is given by the fact that the majority of my chronic appendicitis cases showed excessive amounts of indican in the urine, more especially during the recurrent attacks. The same did all mucous colitis cases. The mucous coating of the colon in these cases inhibits the toxicolytic functions of the mucous membrane, favoring, thus, intestinal putrefaction.

The thought that mechanical trauma to the intestinal wall is sufficient to produce indican was instrumental in my diagnosing four cases of pericholecystitis adhesiva, in which the diagnosis was corroborated by the surgeon. One case was that of a man aged 45, who had suffered almost constantly for twenty years with ill-defined pain-

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

ful sensations in the right and upper abdominal region. The examinations of the urine made frequently after such attacks showed always the presence of considerable indican and distinct traces of bile. On further inquiry the patient remembered an icterus he had had about twenty years before. The operator found the suspected adhesions between the right flexure of the colon and the gall-bladder. The severance of these adhesions brought a complete recovery of the patient, who had been considered all his life a neurasthenic only. The very same condition existed in another case, that of a middle-aged woman whose gall-bladder was found completely adherent to the colon. The excision of the gall-bladder effected a cure. Similar pathologic conditions existed in the two remaining cases. In one of them there was also present an adhesive chronic appendicitis. For the explanation of the constant presence of distinct traces of bile during the painful attacks, I merely suggest the kinking of the bile-duct, brought about mechanically by the peristalsis of the colon adherent to the gall-bladder, thus causing a temporary entrance of bile into the circulation.

The same principle of prolonged mechanical trauma to the intestinal wall through coprostasis explains the asthenic condition present in more than 300 cases of enteroptosis I tested repeatedly for indican. While it must be admitted that gastropstosis and enteroptosis are primary conditions, as Glenard and Stiller have proved, it will be easily understood that the "transverse festoons" of the intestines predispose to coprostasis. As long as the latter takes place in the rectum alone—either by its atonic or its spasmodic condition—on account of the dryness of the feces and consequent diminution of the number of bacteria, it will not cause putrefaction. This is proved by the cases of constipation in adults as well as in children, with periods of three to ten days between bowel movements, without the appearance of any of the phenomena of putrefaction, including no indican in their urine. If the coprostasis, however, takes place in the cecum or ascending colon, where there is not yet dryness of feces, but humidity and often alkaline reaction, the most favorable conditions for exaggerated putrefaction are created. The toxins, ammonia compounds and sulphuretted hydrogen, which then enter the portal vein from the intestinal tract, destroy red blood-cells in the portal system. The hemoglobin thus liberated is carried into the liver where it is found deposited in the hepatic cells as blackish granules, containing iron from the blood pigment. Thus we could find in almost all cases of enteroptosis anemias of about 70 per cent. (Sahli) and 4,500,000 red blood corpuscles. By applying a well-fitting abdominal supporter to these patients, rendering better defecation possible and at the same time fattening them, most of these patients became free of indican and attained normal blood again.

Quite conspicuous was the constant finding of indican in those cases of constipation, which were complicated by cardiac insufficiency. This latter must needs produce an insufficiency of digestive juices which can explain the formation of enterotoxins from the undigested residua attacked by bacteria. The same explanation holds true in all the accidental indicanuria cases, including febrile diseases, cachexias, nervous diseases (tabes, cerebral tumors, meningitis).

Schmidt's "intestinal dyspepsia"—a functional disease of the small bowel, in which the carbohydrates are not utilized—is very rare. In many hundreds of stool

examinations I have found only a few instances in which exaggerated fermentation was obtained in the first twenty-four hours in Schmidt's apparatus. In none of these cases was there any indican present in the urine.

Among the chief emunctories for those products of intestinal putrefaction which are circulating in the blood (like indoxyl, skatoxyl, phenol, leukomains, etc.) rank the kidneys. Any renal insufficiency therefore should—according to Combe's opinion—lead to a retention of the above mentioned products, i. e., "auto-intoxication." It is noteworthy that in a few thousand of indican tests made on patients with acute and chronic diffuse nephritis, pyelonephritis, tuberculosis of the kidneys, indican was found relatively rarely, and there were hardly any symptoms of the much-dreaded "auto-intoxication" present. Interesting in this respect was the case of a young woman with pyuria, due to a tuberculous abscess in the left kidney. For many weeks prior to the excision of the left kidney her urine never showed any trace of indican; since the removal of her diseased kidney, however, the urine—though practically free of pus—shows constantly considerable amounts of indican, while the woman herself feels perfectly well in every respect.

The liver is credited with the exercise of a powerful toxicolytic function against the enterotoxins entering the same through the portal vein. Diseases of the liver cells, should favor intestinal putrefaction, thus increasing the aromatic bodies in the urine. About a hundred cases of liver diseases like hypertrophy, cirrhosis, syphilis of liver, cholangitis, and carcinoma hepatis were studied in regard to their relation to indican excretion. I have come to the conclusion that indicanuria exists only in extreme hepatic insufficiency, when the latter is indicated not only by the decrease of urea in the urine—"hypo-azoturia"—but by the simultaneous presence of leucin and tyrosin in the same. While a marked increase in the sulpho-ethers and aromatic bodies always indicates auto-intoxication to a certainty, its hepatogenous origin should be asserted only by considering the amount of urea and leucin in the urine at the same time; for we know that urea is formed in the liver from the amino-acids and ammonia carried into it through the portal vein from the intestines; and uric acid is similarly formed in the liver from the nucleins and xanthic bases. Hepatic insufficiency, therefore, implies decrease in urea and uric acid. If urea was not decreased, we should have to think of some other origin for the auto-intoxication. If, however, in addition to a decrease of urea I found that 150 gm. of glucose produced alimentary glycosuria, my assumption of a general hepatic insufficiency would be strengthened. Thus I could see—though rarely—"auto-intoxication" brought about through hepatic insufficiency in cases of normally functioning intestines.

Normal gastric juice is supposed, under normal conditions, to either destroy or at least diminish the number of bacteria which cause putrefaction. In more than five hundred examinations of the gastric contents I found that hyperacidity quite frequently was coupled with indicanuria. If there was simultaneously present ulcer of the stomach or duodenum, indicanuria was always present. Hyperacidity coupled with indicanuria indicates an extragastric lesion, like chronic cholecystitis or appendicitis, provided ulcer of stomach or duodenum can be excluded. More than twenty laparotomies corroborate thus the value of indicanuria for the differential

diagnosis between gastric and extragastric lesions. Cases of anacidity and hypacidity showed indicanuria only in half their total number. Whenever these conditions were accompanied, however, by carcinoma ventriculi, indicanuria was always present.

The insufficiency of pancreatic juice (the tryptic action of which neutralizes many toxins) with its consecutive increase of intestinal putrefaction was shown in two cases of carcinoma of the pancreas with ever-present excessive indican.

Bile insufficiency is supposed to cause intestinal putrefaction, partially owing to the absence of the antitoxic action of taurocholic acid, partially because it leaves a larger alimentary residua for the bacteria to prey on. About fifty cases of icterus, with complete occlusion of the common duct, caused either by gall-stones or catarrhal icterus, showed indicanuria in but ten cases. Among these fifty cases there were three, in which all the bile was draining through a cholecystostomy wound, with absolutely acholic stools. There was no indican in spite of the much-spoken-of "bile insufficiency."

Conspicuous was the indicanuria in several cases of ozena and caries of the teeth in patients who exhibited no other signs of pathologic condition. Evidently the patients swallowed in their sleep more or less virulent pus which furnished the source of intestinal infection and putrefaction, the stomach being empty and not containing any hydrochloric acid.

I have endeavored to remove this indicanuria, which I have considered for these four years as only an indicator of intestinal putrefaction, by all means advocated heretofore: I have placed my patients on a vegetarian diet, mixed diet, proteid diet, lactofarinaceous diet. There appeared, however, no perceptible change in the excretion of indican in any one of the twenty cases of "intestinal auto-intoxication," I observed. I administered gelatin, lactic acid culture tablets, chologestin, calomel, menthol, ichthoform, ichthalbin, benzonaphthol, ichthyol, hydrochloric acid—without avail. I combined oil injections simultaneously with this internal and dietary treatment, and in another series of cases salicylic acid irrigations of the colon—all with no success whatever. I imported and used in many instances Metchnikoff's lactobacillin, with not the slightest reduction of indican in the urine. I used all makes of lactic tablets with which any manufacturer could supply me—but the "commercially so well-advocated antiputrefactive action exercised by lactic ferments, when applied to the treatment of intestinal disorders" proved a complete failure! Not the slightest influence on the excretion of indican in the urine could be seen from any of these preparations. At last I resorted to high enemas of 1 per cent. ichthyol with the patient in knee-chest position. I think the case in which I first applied the latter noteworthy enough to be reported.

A man aged 72 with pernicious anemia (the blood-picture showing poikilocytes, megalocytes and megaloblasts, the hemoglobin 30 per cent. (Sahli), red blood corpuscles 2,700,000) showed excessive indican for two weeks previous to the treatment. The physical examination of the body, and the examination of the feces, and of the urine revealed nothing further. The patient was put on lactofarinaceous diet, combined with daily high colonic lavage with 1 per cent. ichthyol. The indican disappeared from the urine, and the blood increased in the course of four weeks from 30 to 65 per cent. (Sahli). The megaloblasts disappeared from the blood. The patient is at present much improved.

Startled by the efficiency of ichthyol irrigations, I advised the same treatment for another patient, a middle-aged woman with depressive neurasthenia symptoms, with no other clinical symptom but persistent indicanuria. The indican disappeared, and the patient's whole mental attitude at the same time brightened conspicuously.

While I am aware that two cases are not sufficient to allow of any further general deductions for the therapy of this rare disease "intestinal auto-intoxication" I thought them noteworthy enough—in view of my numerous therapeutic disappointments in the treatment of that disease—to report.

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ABSTRACT OF DISCUSSION

DR. DELANCEY ROCHESTER, Buffalo, N. Y.: I had a case of pernicious anemia in which the injections were used as described by Dr. Baar, with only slight temporary improvement. The patient finally died. Although the injections were used for a long time, indican did not disappear from the urine. I do not agree that these patients with pernicious anemia can be cured, when these large quantities of indican appear in the urine, by washing out the bowels with these ichthyol injections. I think, however, that Dr. Baar's general observations are true. Indican is present in the urine in a large percentage of these cases, but it is not necessarily due to intestinal putrefaction. We certainly do not get relief by the employment of lactic acid bacilli used in any way, as in buttermilk, or lactic acid tablets.

DR. JUDSON DALAND, Philadelphia: As already stated, indican is non-toxic; but inasmuch as materials are manufactured during the process of putrefaction which are toxic, and as indican is an indication of their production, the presence of this substance in the urine may be of some value to us.

So far as pernicious anemia and the type of blood picture referred to is concerned, I also have had an interesting case. This experience was with a child about 12 months of age, who presented a persistent and excessive indicanuria. The colon was irrigated with normal saline solution, and this was followed by a rapid recovery. In this case certain materials remained in the blood and were active until destroyed, and we were able to recover from the urine cadaverin and putrescin. I believe that where there is an indicanuria which will not yield to treatment, often we will find tuberculous ulceration of the intestine, and also that any interference with the integrity of the intestinal canal will bring about indicanuria. Of course, the extent of the intoxication is exceedingly variable. I think the suggestion made as to the treatment of these cases is a valuable one; thorough and complete irrigation of the colon with normal saline solution should prove to be very efficient.

DR. JAY I. DURAND, Atlantic City, N. J.: During the last four years I have examined 5,000 specimens of urine, making the indican test as a routine measure. I have found indican, in definite amounts, in at least two-thirds of the specimens; if we accept the teachings that any trace of indican is pathologic, then at least two-thirds of the cases were pathologic. I agree with Dr. Baar regarding the difficulty in removing the excess of indican in a large number of cases. There are many cases in which I have been unable permanently to reduce the quantity; I have used Metchnikoff's bacilli, in many preparations, and have never been able to convince myself that they had a marked effect on the indicanuria. It seems to me that, if Metchnikoff's theory were to be substantiated, the indican should be profoundly affected by the use of the bacilli.

DR. C. SHATTINGER, St. Louis: I should like to make a report of a case recently under my observation. This case was, and still is, a puzzle to me so far as a correct interpretation of the symptoms is concerned. The patient was a boy of 18 years and he had been ill for 2 years. The symptoms were somewhat vague—mainly abdominal pain and progressive emaciation. He had had an appendectomy, and had made a

good recovery from the operation, but improved slowly. He afterward lapsed back again and the emaciation became extreme. When he came under my observation his weight was 79 pounds and he looked like a candidate for death from tuberculosis. The suspicion of a tuberculous lesion in the intestine was strong. The feces were examined for tubercle bacilli, but none were found. The von Pirquet test was twice negative. The blood was carefully examined. Except for a reduction of about 20 per cent. in hemoglobin the blood was found to be normal. All the organs were examined carefully, and with negative results. Examination of the urine showed it to be normal, except for the presence of indican in what would be called considerable quantities. I took that as a clue and an endeavor was made to remove the indicanuria. I have had a similar experience as Dr. Durand in the use of the different medicinal agents and the bacillary preparations. I used all, but without avail. In the want of better indications I fell back on what seemed to be common sense view of the indications. I wanted to improve the nutritive condition of this patient, and so I fed him to the utmost. I felt that he should derive benefit from the employment of hydro-electric baths, viz., sinusoidal baths, to stimulate metabolism. By using hydrotherapeutic measures, tonics, salines and carefully selecting the diet, I found it was possible after 7 months to bring his weight up to 132 pounds and apparently to make him a strong and healthy individual. But he still has indicanuria.

DR. GUSTAV BAAR, Portland, Ore.: Intestinal toxemia is a very uncommon disease; among 3,000 cases examined there were only about twenty in which I could not find the cause for the constant presence of excessive indican in the urine. Where there was a renal, gastric or liver insufficiency I have not called such cases "intestinal" toxemia. I want to avoid the expression auto-intoxication; this is a term that should be avoided, as should the term malaria. I noticed that those who took part in the discussion agreed that the lactic acid tablets show no influence on the excretions of indican. If we need any such nostrums let us have something that is less expensive than these lactic acid tablets. Here is another point: the excessive secretion of indican in the urine occurs in cases of hyperacidity; this is something of diagnostic value. Cases of hyperacidity point more to the neurotic conditions, or ulcer of the stomach; cases of hyperacidity associated with persistent indicanuria, however, point to extragastric lesions (gall-stones or appendicitis), and they belong to the surgeon.

THE COMPARATIVE EFFICIENCY OF SOME COMMON GERMICIDES

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In the case of an obstinate gonorrhoeal arthritis in a hospital, the advisability of injecting argyrol into the joint arose and the question was asked, What is the germicidal power of this preparation? The literature seemed indefinite and various in its answers and tests were accordingly made. The results were so unexpected and so much at variance with the prevalent opinion that the tests were repeated and extended to protargol, and silver nitrate, and from these to a considerable number of germicides in ordinary use for clinical purposes in a large well-regulated hospital. As a consequence of the evidence produced, many solutions previously in use in that hospital have been discarded and in their place more effective ones substituted. Because of the daily interest of clinicians, as well as the importance of the subject to patients, a summary of these investigations is here presented.

The development of methods for testing the efficiency of germicidal solutions affords us practical knowledge as well as historical interest. From 1750 to 1881 the most extensive experiments were concerned with the value of different substances to hinder putrefaction in such media as infusion of tobacco leaves, meat broth, and vaccine lymph. Robert Koch, in 1881, was the first to compare the germicidal value of various disinfectants on pure cultures of bacteria. He instituted the so-called "thread method" by marking with emulsions of organisms dried on silk threads. The drawbacks of Koch's method are, first, that the organisms are dried, and, second, that a certain amount of the disinfectant is carried with the thread and continues to act on the organisms after being removed from the disinfecting solution. It is in part owing to these drawbacks that various workers reported the high germicidal power of mercuric chlorid, creolin, the cresols and higher phenols.

Krönig and Paul (1897) devised the "garnet method," by which emulsions of organisms were dried on garnets. These garnets were immersed in the solution of the disinfectant, and the disinfectant carried over was gently removed by washing. These workers were the first to emphasize the importance of:

1. Constancy of number and species of bacterium used.
2. Constancy of temperature.
3. Constancy of nutrient media for test cultures.
4. Absence of other organic matter.

In 1903 Rideal and Walker published their "drop method," by which a definite small amount of a broth-culture of constant species and age was added to a constant volume of disinfectant solution. In the opinion of many this method suffers from the disadvantage that whereas, in the majority of cases of practical disinfection, organic matter of some sort is present, there is no attempt to realize this condition during standardization. To overcome this objection modifications of the Rideal-Walker method have been described and may be found well discussed in a comprehensive paper by Chick and Martin.¹

The method by which the following results were obtained may be briefly described:

Half a cubic centimeter of the solution to be tested was placed in a small test-tube. Into this solution was placed one platinum loopful of an emulsion (in culture broth) of a twenty-four-hour culture (on blood-agar slant) of the organism used. After one minute, ten minutes, thirty minutes, and twenty hours, a loopful of contaminated test solution was thoroughly mixed into a tube of blood-agar and plated in the ordinary sterile petri dishes. These were incubated at 37° C. and observed after twenty-four, forty-eight, and seventy-two hours. In the case of large numbers of colonies the figures are approximate, and if the number of colonies was too great to permit of approximate estimation, the sign of infinity (∞) was used. The streptococcus was obtained by blood-culture from a case of puerperal septicemia; the pneumococcus from blood-cultures in a case of typical lobar pneumonia; the gonococcus was isolated from a urethral discharge; the *Bacillus typhosus* was obtained directly from blood-cultures. All of the organisms were grown only on blood-agar after being obtained.

Objections to this method will be raised: first, the emulsions of the various organisms were not standardized to represent a uniform number of bacteria per cubic

1. Chick, H., and Martin, C. J.: Standardization of Disinfectants. Jour. Hyg., London, November, 1908, viii, No. 5.

millimeter; second, by immersing the bacteria directly in the disinfecting solution a condition is obtained which is more favorable to the destruction of bacteria than is found in ordinary clinical conditions; third, errors may arise from accidentally striking the platinum loop on the side of the test-tube, leaving some of the bacteria outside of the solution and later picking them up when inoculating the blood-agar plates; and fourth, the intervals between the different times of exposure may be too long for minute comparison of effects of the various disinfectants. To the first and third of these objections we find the practical answer in the uniformity and consistency of the results in a series of tests necessitating nearly 2,000 different inoculations. To the second objection it is not necessary to say that if the solutions are not effective against bacteria immersed directly into them they are far less likely to be effective against bacteria in the presence of protective substances such as blood, serum, mucus, etc. To the fourth, we wish to say that the chief purpose of these tests was to obtain a broad guide in the choice of disinfectants in those conditions demanding effectiveness in a brief time, such as cleansing wounds, fields of operation, instruments, etc. Attention is also called to the possibility that on account of the thorough mixing of the bacteria in the blood-agar the action of the germicidal solution was promptly checked. At the same time their growth and detection is enhanced. This latter is especially emphasized in the case of the streptococcus with its hemolytic powers, which makes detection of organisms living in the blood-agar plate very easy. The various drugs were obtained as the best in the open market and were such as are used widely by the profession. The accompanying tables show our results:

TABLE 1.—SILVER PREPARATIONS

Solution	Organism	Number of Colonies in one loopful of test solution after:			
		1 min.	10 min.	30 min.	20 hrs.
Argyrol 50 %	Strep.	∞	200	0	∞
	∞	300	0	∞	
Argyrol 50 %	Gon.	3,000	3,000	2,000	0
	∞	1,000	100	∞	
Argyrol 50 %	Pneum.	∞	2,000	200	∞
	8,000	2	0	0	
Argyrol 10 %	B. typh.	0	0	0	0
	∞	200	11	∞	
Argyrol 10 %	∞	500	50	∞	
	2,000	2,000	0	0	
Argyrol 10 %	Gon.	2,000	500	25	∞
	∞	1,000	7	0	
Argyrol 10 %	Pneum.	3,000	200	0	0
	B. typh.	0	0	0	0
Protargol 10 %	Strep.	600	5	0	∞
	0	0	0	∞	
Protargol 10 %	Gon.	200	0	0	∞
	600	60	0	0	
Protargol 10 %	Pneum.	0	0	0	0
	1,000	40	1	∞	
Silver nitrate. 1 %	Strep.	0	0	0	∞
	0	0	0	∞	
Silver nitrate. 1 %	Gon.	0	0	0	∞
	0	0	0	∞	
Silver nitrate. 1 %	Pneum.	0	0	0	∞
	0	0	0	∞	
Silver nitrate. 1 %	B. typh.	0	0	0	0
	0	0	0	∞	
Silver nitrate 1-1000	Strep.	0	0	0	∞
	0	0	0	∞	
Silver nitrate 1-1000	Gon.	0	0	0	∞
	0	0	0	∞	
Silver nitrate 1-1000	Pneum.	0	0	0	∞
	20	0	0	0	
Silver nitrate 1-1000	B. typh.	500	0	0	0
	0	0	0	∞	
Silver nitrate 1-5000	Strep.	1	0	0	∞
	11	0	0	∞	
Silver nitrate 1-5000	Gon.	0	0	0	∞
	0	0	0	∞	
Silver nitrate 1-5000	Pneum.	50	0	0	∞
	1,000	1	0	0	
Silver nitrate 1-5000	B. typh.	∞	1,000	0	0
	0	0	0	∞	
Silver nitrate 1-10,000	Strep.	2,000	1,500	0	0
	100	0	0	0	
Silver nitrate 1-10,000	Gon.	6,000	6,000	800	0
	6,000	6,000	800	0	
Silver nitrate 1-10,000	Pneum.	5,000	10	0	0
	5,000	10	0	0	

Table 1 shows the results which were so unexpected that they led to further tests. We see that 10 per cent. and even 50 per cent. argyrol, and 10 per cent. protargol failed to kill the gonococcus, streptococcus or pneumococcus after they had been exposed directly to the fluid for one-half hour. At the same time it is seen that silver nitrate even in a dilution of 1 to 5,000 was much more effective. These results were not all obtained at one time but represent the compiled results of tests made at different times and with disinfecting solutions made up at different times. The uniformity of results is striking.

In therapeutics, then one should keep in mind that argyrol and protargol are expensive and not so active in concentrated solutions as the ordinary silver nitrate in 1 to 5,000, or even 1 to 10,000 solution, which costs almost nothing. The action on the typhoid bacillus is more favorable for the argyrol and protargol and less favorable for high dilutions of silver nitrates.

TABLE 2.—SOLUTIONS OF MERCURIAL SALTS

Test Solution	Organism	Number of Colonies in one loopful of test solution after:			
		1 min.	10 min.	30 min.	20 hrs.
Chlorid 1 to 500 (From Bernay's tablets)	Strep.	2,000	80	0	0
	Gon.	3,000	20	1	0
	Pneum.	3,000	2,000	0	0
	B. typh.	0	0	0	0
Chlorid 1 to 2,000 (From Bernay's tablets)	Strep.	5,000	2,000	2,000	0
	Gon.	4,000	3,000	200	0
	Pneum.	3,000	3,000	5,000	0
	B. typh.	0	0	0	0
Chlorid 1 to 10,000 (From Bernay's tablets)	Strep.	10,000	200	10	0
	Gon.	4,000	500	25	0
	Pneum.	7,000	3,000	1,500	0
	B. typh.	200	75	0	0
Biniodid of mercury.1	Strep.	10	1	0	0
	Potassium iodid. 1	0	0	0	0
	Sod. bicarb. 20	∞	10,000	4,000	0
	Water 1,000	0	0	0	0
P. D. & Co. ("Germicidal Discs").	Strep.	5	0	0	0
	Potassium iodid. 1	0	0	0	0
	Sod. bicarb. 20	8,000	3,000	10	0
	Water 2,000	25	2	0	0
Biniodid of mercury.1	Strep.	3,000	5,000	3,000	0
	Potassium iodid. 1	∞	∞	∞	0
	Sod. bicarb. 50	∞	∞	∞	0
	Water 5,000	20	50	*	0

* Broken.

The important lesson from the tests with solutions of the mercury salts is that the action is slow, but that it is effective even in high dilutions. The solutions of bichlorid of mercury were made up according to directions from Bernay's tablets, because these are so widely used by the profession. Organisms immersed in a 1 to 500 solution were still living in large numbers at the end of ten minutes and one colony of gonococcus was obtained after thirty minutes. In 1 to 2,000 solution there was almost no apparent effect in thirty minutes, although disinfection was complete after twenty hours. Contrary to a prevalent opinion, then solutions of bichlorid of mercury made up from Bernay's tablets are absolutely ineffective where prompt disinfection is required, as in the disinfection of hands and fields of operation.

The combination of the biniodid of mercury, potassium iodid and sodium bicarbonate are sold by Parke, Davis & Co., under the name of "germicidal discs." The following claims are made for the preparation: A 1-to-5,000 solution is as effective as a 1-to-1,000 solution of bichlorid of mercury. Coagulation of tissues at the site of application is prevented. It causes less irritation and in proper dilutions instruments are not injured by it. The first claim seems to be approximately

confirmed since the 1-to-2,000 solution is as effective as the 1-to-500 bichlorid. It is possible that the increased efficiency of this preparation over bichlorid may be due in part to the increase of iodine in solution. Attention is directed to the efficiency of iodine solutions. In general, however, it is seen that with the biniodid solution too, the time is needed to make sure of complete disinfection; and in the dilution of 1 to 5,000 the effect is not appreciable after thirty minutes, although disinfection is complete after twenty hours. In the case of the mercurial salts, the typhoid bacillus again seems to be more easily destroyed than the streptococcus, gonococcus, or pneumococcus.

TABLE 3.—PHENOLS—(Continued)

Solution.	Organism.	Number of Colonies in one loopful of test solution after exposure :			
		1 min.	10 min.	30 min.	20 hrs.
Trikresol 0.3 %	Strep.	4,000	4,000	4,000	0
	Gon.	2,000	2,000	1,000	50
	Pneum.	10,000	10,000	10,000	0
	B. typh.	2,000	500	500	0
Phenol 5 %	Strep.	0	0	0	0
	Gon.	0	0	0	0
	Pneum.	0	0	0	0
	B. typh.	0	0	0	0
Phenol 1 %	Strep.	∞	∞	500	0
	Gon.	4,000	500	0	0
	Pneum.	8,000	8,000	4,000	0
	B. typh.	6,000	3,000	1,000	2
Phenol 1-1,000	Strep.	∞	∞	5,000	2,000
	Gon.	6,000	6,000	4,000	3,000
	Pneum.	6,000	6,000	6,000	0
	B. typh.	∞	∞	∞	∞
Phenol 50 %	Strep.	0	0	0	0
	Gon.	0	0	0	0
	Pneum.	0	0	0	0
	B. typh.	0	0	0	0
Phenol 5i	Strep.	0	0	0	0
	Zinc sulphate. 5i	0	0	0	0
	Glycerin 5i	0	0	0	0
	Water, q. s. ad. 5viii	0	0	0	0

TABLE 3.—PHENOLS

Solution.	Organism.	Number of Colonies in one loopful of test solution after exposure :			
		1 min.	10 min.	30 min.	20 hrs.
Creolin 100 %	Strep.	0	0	0	0
	Gon.	0	0	0	0
	Pneum.	0	0	0	0
	B. typh.	0	0	0	0
Creolin 1 %	Strep.	0	0	0	0
	Gon.	25	0	0	0
	Pneum.	300	50	0	0
	B. typh.	1	0	0	0
Creolin 75 %	Strep.	0	0	0	0
	Gon.	0	0	0	0
	Pneum.	0	0	0	0
	B. typh.	0	0	0	0
Kresol 100 %	Strep.	0	0	0	0
	Gon.	0	0	0	0
	Pneum.	0	0	0	0
	B. typh.	0	0	0	0
Kresol 5 %	Strep.	0	0	0	0
	Gon.	0	0	0	0
	Pneum.	0	0	0	0
	B. typh.	0	0	0	0
Kresol 1 %	Strep.	0	0	0	0
	Gon.	0	0	0	0
	Pneum.	0	0	0	0
	B. typh.	0	0	0	0
Kresol 1-1000	Strep.	∞	800	200	0
	Gon.	5,000	4,000	2,000	300
	Pneum.	4,000	4,000	2,000	1,000
	B. typh.	∞	∞	∞	∞
Kresol 50 %	Strep.	0	0	0	0
	Gon.	0	0	0	0
	Pneum.	0	0	0	0
	B. typh.	0	0	0	0
Glycerin 50 %	Strep.	∞	∞	∞	∞
	Gon.	∞	500	0	0
	Pneum.	∞	∞	∞	0
	B. typh.	∞	∞	∞	0
Chinosol 25 %	Strep.	∞	∞	∞	∞
	Gon.	2,000	0	0	∞
	Pneum.	∞	∞	∞	0
	B. typh.	4,000	0	0	0
Chinosol 25 %	Strep.	∞	∞	∞	∞
	Gon.	6,000	6,000	4,000	3,000
	Pneum.	10,000	8,000	8,000	3,000
	B. typh.	∞	∞	∞	∞
Chinosol 1-10,000	Strep.	∞	∞	20,000	10,000
	Gon.	5,000	5,000	3,000	3,000
	Pneum.	6,000	5,000	4,000	2,000
	B. typh.	∞	∞	∞	∞
Chinosol 6 %	Strep.	∞	∞	20,000	0
	Gon.	∞	500	60	∞
	Pneum.	2,000	2,000	0	0
	B. typh.	4,000	4,000	3,000	1,000
Lysol 100 %	Strep.	0	0	0	0
	Gon.	0	0	0	0
	Pneum.	0	0	0	0
	B. typh.	0	0	0	0
Lysol 1.5 %	Strep.	0	0	0	∞
	Gon.	0	0	0	∞
	Pneum.	0	0	0	0
	B. typh.	400	300	200	0
Lysol 1-1,000	Strep.	∞	500	12	0
	Gon.	500	1,000	1,000	50
	Pneum.	6,000	4,000	4,000	0
	B. typh.	∞	∞	∞	∞
Trikresol 1 %	Strep.	0	0	0	0
	Gon.	0	0	0	10
	Pneum.	0	0	0	0
	B. typh.	0	0	0	0

TABLE 4.—SOLUTIONS OF IODIN

Solution.	Organism.	Number of Colonies in one loopful of test solution after exposure :			
		1 min.	10 min.	30 min.	20 hrs.
Iodin 1	Strep.	0	0	0	0
	Potassium iodid. 1	0	0	0	0
	Water 100	0	0	0	0
	("Senn's solution")	0	0	0	0
Iodin 1	Strep.	0	0	0	0
	Potassium iodid. 1	0	0	0	0
	Water 400	0	0	0	0
	B. typh.	0	0	0	0
Tincture of iodin.	Strep.	0	0	0	0
	Potassium iodid.	0	0	0	0
	Water 400	0	0	0	0
	B. typh.	0	0	0	0

The solutions of iodine (Table 4) were tested, the first two in the table being those warmly advocated by the late Professor Senn, and called, locally at least, the Senn solutions. Both of these, as well as the tincture of iodine, killed all organisms in less than one minute.

To what extent these may be diluted and still be effective was not determined. The weaker solution is extensively used by some in irrigating wounds, both on account of its germicidal power and its stimulating effect in producing granulations.

TABLE 5.—SOLUTIONS OF LIQUOR FORMALDEHYDI

Solution.	Organism	Number of Colonies in one loopful of test solution after:			
		1 min.	10 min.	30 min.	20 hrs.
Liquor formaldehydi (U. S. P.)	Strep. ...	0	0	0	0
	Gon. ...	0	0	0	0
	Pneum. ...	0	0	0	0
	B. typh. ...	0	0	0	0
Liquor formaldehydi 1%	Strep. ...	10,000	2,000	500	0
	Gon. ...	4,000	2,000	1,000	0
	Pneum. ...	5,000	3,000	200	0
	B. typh. ...	∞	4,000	50	0
Liquor formaldehydi 1 to 1,000	Strep. ...	10,000	10,000	2,000	0
	Gon. ...	6,000	6,000	6,000	0
	Pneum. ...	4,000	4,000	4,000	0
	B. typh. ...	4,000	4,000	3,000	0
Liquor formaldehydi 1 to 10,000	Strep. ...	10,000	10,000	10,000	1,000
	Gon. ...	4,000	4,000	5,000	2,000
	Pneum. ...	5,000	5,000	5,000	2,000
	B. typh. ...	∞	10,000	8,000	2,000
Liquor formaldehydi 2% Glycerin 98%	Strep. ...	∞	∞	10,000	0
	Gon. ...	10,000	10,000	4,000	0
	Pneum. ...	10,000	8,000	6,000	200
	B. typh. ...	10,000	50	0	0

Liquor formaldehydi (Table 5) also afforded unexpected results because of the slowness of its action in a solution as strong as 1 per cent., which did not completely kill in thirty minutes, and because the 2 per cent. formalin in glycerin acted more slowly than 1 per cent. aqueous solution. In the former 200 pneumococci in 1 loopful of test solution were still living after twenty hours. The solution in glycerin is of the strength frequently injected into infected joints.

TABLE 6.—SOLUTIONS OF ALCOHOL

Solution.	Organism	Number of Colonies in one loopful of test solution after:			
		1 min.	10 min.	30 min.	20 hrs.
Alcohol 1 %	Strep. ...	400	300	300	100
	Gon. ...	300	300	300	2,000
	Pneum. ...	∞	∞	∞	∞
	B. typh. ...	6,000	3,000	500	3,000
Alcohol 5 %	Strep. ...	300	300	200	0
	Gon. ...	500	300	10	20
	Pneum. ...	10,000	10,000	10,000	5,000
	B. typh. ...	2,000	2,000	2,000	2,000
Alcohol 10 %	Strep. ...	300	300	400	0
	Gon. ...	200	4	0	0
	Pneum. ...	10,000	10,000	10,000	6,000
	B. typh. ...	8,000	8,000	3,000	3,000
Alcohol 20 %	Strep. ...	300	200	3	0
	Gon. ...	300	0	0	0
	Pneum. ...	8,000	8,000	8,000	4,000
	B. typh. ...	4,000	6,000	2,000	1,000
Alcohol 30 %	Strep. ...	25	0	0	0
	Gon. ...	0	0	0	0
	Pneum. ...	2,000	2,000	1	0
	B. typh. ...	300	0	0	0
Alcohol 50 %	Strep. ...	0	0	0	0
	Gon. ...	0	0	0	0
	Pneum. ...	0	0	0	0
	B. typh. ...	0	0	0	0
Alcohol 70 %	Strep. ...	0	0	0	0
	Gon. ...	0	0	0	0
	Pneum. ...	0	0	0	0
	B. typh. ...	0	0	0	0

Alcohol (Table 6) seemed to kill the gonococcus more readily than the other test organisms; a 20 per cent. solution killed all gonococci in less than ten minutes. With the exception of one single colony of pneumococcus, cultures from 30 per cent. alcohol were entirely negative after thirty minutes. Alcohol in 50 per cent. and 70 per cent. solution killed all organisms in

less than one minute. Many methods of disinfecting hands or fields of operation may owe their good results largely to the use of alcohol at some time in the process.

TABLE 7.—MISCELLANEOUS SOLUTIONS

Solution.	Organism	Number of Colonies in one loopful of test solution after:			
		1 min.	10 min.	30 min.	20 hrs.
Tincture of green soap.	Strep. ...	0	0	0	0
	Gon. ...	0	0	0	0
	Pneum. ...	0	0	0	0
	B. typh. ...	0	0	0	0
Chloroform	Strep. ...	0	0	0	0
	Gon. ...	0	0	0	0
	Pneum. ...	0	0	0	0
	B. typh. ...	0	0	0	0
Ether	Gon. ...	0	0	0	0
	Strep. ...	0	0	0	0
	Pneum. ...	200	0	0	0
	B. typh. ...	0	0	0	0
Hydrogen peroxid	Strep. ...	200	0	0	0
	Gon. ...	1,000	0	0	0
	Pneum. ...	2,000	0	0	0
	B. typh. ...	0	0	0	0
Thiersch's solution	Strep. ...	0	0	0	0
	Gon. ...	0	0	0	0
	Pneum. ...	5,000	10	0	0
	B. typh. ...	10,000	0	0	0
Potassium Permanganate 1 to 1,000	Strep. ...	∞	0	0	0
	Gon. ...	3,000	200	0	0
	Pneum. ...	∞	4,000	2,000	0
	B. typh. ...	2,000	0	0	0
Potassium Permanganate 1 to 4,000	Strep. ...	∞	100	0	0
	Gon. ...	3,000	20	0	0
	Pneum. ...	4,000	1,000	500	0
	B. typh. ...	4,000	0	0	0
Cupric sulphate .1 %	Strep. ...	∞	10,000	3,000	0
	Gon. ...	4,000	3,000	2,000	0
	Pneum. ...	6,000	6,000	4,000	0
	B. typh. ...	3,000	1,000	1,000	0
Zinc sulphate 1 to 500	Strep. ...	100	200	200	0
	Gon. ...	500	400	*	0
	Pneum. ...	∞	∞	∞	10,000
	B. typh. ...	3,000	2,000	500	0
Boric acid (saturated sol.)	Strep. ...	∞	10,000	2,000	*
	Gon. ...	3,000	2,000	2,000	0
	Pneum. ...	10,000	10,000	5,000	400
	B. typh. ...	∞	∞	∞	10,000
Potassium chlorate (saturated sol.)	Strep. ...	∞	10,000	5,000	300
	Gon. ...	3,000	2,000	2,000	0
	Pneum. ...	10,000	10,000	5,000	400
	B. typh. ...	∞	∞	∞	10,000
Glycerin	Strep. ...	2,000	1,000	1,000	*
	Gon. ...	6,000	6,000	4,000	1,500
	Pneum. ...	∞	∞	∞	∞
	B. typh. ...	∞	∞	∞	5,000
Distilled water	Strep. ...	10,000	10,000	10,000	2,000
	Gon. ...	4,000	2,000	2,000	2,000
	Pneum. ...	10,000	10,000	10,000	10,000
	B. typh. ...	∞	∞	∞	∞

* Broken.

Table 7 includes the results with a miscellaneous lot of solutions which were tested for various reasons. The tincture of green soap showed a very high germicidal power, killing all organisms in less than one minute. This may also be an important factor in various methods for disinfecting hands, etc., and certainly is to be recommended especially when used in conjunction with alcohol. Whether the effectiveness of the tincture of green soap is due to the alcohol in it was not determined.

The hydrogen peroxid (10 per cent. Mallinckrodt) is said to contain 4 parts in 10,000 of acetanilid. This

killed all typhoid bacilli in less than one minute and the other organisms in less than ten minutes.

Thiersch's solution (salicylic acid 2 drams, boric acid 12 drams, and water 1 gallon) was formerly much used in irrigating wounds. The results show it to be a fairly good germicide.

Potassium permanganate was only mildly active in the dilutions used, but even a 1-to 4,000 solution killed the organisms fully as rapidly as a 50 per cent. argyrol solution. Its wide use as an irrigating disinfectant seems, then, to be justified.

Cupric sulphate shows a slight, although distinct effect after thirty minutes and kills entirely in less than twenty hours, in a dilution of 1 to 1,000. This was tested largely because of its use in the dressing of lesions in blastomycosis and actinomycosis.

Boric acid in saturated solution (1 to 18) was only slightly germicidal after twenty hours.

Potassium chlorate in saturated solution (6.6 per cent.) has but little germicidal action, many living organisms still being found in one loopful of it after twenty hours. If, then, it has any special value as a gargle or mouth wash, for which it is so much used in weak solution, it must depend on some other property than its germicidal power.

Glycerin was tested by this method because the question was frequently asked whether other solutions containing glycerin did not owe their activity to the glycerin. The results indicated almost no germicidal power. The same was true with distilled water under like conditions.

TABLE 8.—IMMEDIATE COMPARISON OF RESISTANCE OF STREPTOCOCCUS GROWN ON BLOOD AGAR WITH THAT OF STREPTOCOCCUS GROWN ON PLAIN AGAR FOR FOUR GENERATIONS

Solution.	Media on which culture was grown	Number of Colonies in one loopful of test solution after:			
		1 min.	10 min.	30 min.	20 hrs.
Silver nitrate 1-5,000	|| Blood agar	200	50	0	0
	|| Plain agar	0	0	0	0
Silver nitrate 1-10,000	|| Blood agar	4,000	40	0	0
	|| Plain agar	2,000	3	0	0
Liq. formaldehydi 1-1,000	|| Blood agar	8,000	5,000	3,000	0
	|| Plain agar	6,000	4,000	2,000	0
Liq. formaldehydi 1-10,000	|| Blood agar	10,000	6,000	5,000	0
	|| Plain agar	8,000	3,000	2,000	0

It occurred to us that the apparent slowness of action of some of the reputed germicides might be due to the unusual resistance of the test organisms employed. Consequently the same strains of streptococci and *B. typhosus* were transplanted from their media containing blood, and grown for four generations on plain agar slants. Both organisms were then used in testing fifty-two of the solutions mentioned in the tables. The results were compared with those already given and indicated a moderate lessening of resistance of the organism when grown on plain media and consequently an apparent increase of germicidal power of the various solutions. In order to demonstrate this more conclusively tests were made at the same time, with equal portions of the same test solution and with the same strain of streptococci except that in one case it was grown on blood-agar and in the other on plain agar. The results are shown in Table 8 and indicate a lower resistance on the part of those streptococci grown on plain agar. This factor should be considered in establishing any standard method of testing the efficiency of germicides.

The results establish under these conditions the following points:

1. The reliability of the prompt action of a few simple germicides such as tincture of green soap, alcohol in solutions above 50 per cent., silver nitrate solutions as dilute as 1 to 1,000, the iodine solutions either as the tincture or in aqueous solutions with potassium iodid, phenol in 5 per cent. solution.

2. The unreliability of many agents prevalently supposed to be effective germicides.

3. The slow action of solutions of mercuric chlorid, although when given hours to act it is effective in high dilution.

4. The economic importance in the choice of germicides. This is of special interest to the managers of hospitals since there is great difference in expense between furnishing the much-advertised high-priced (yet less effective) articles in concentrated solutions, and the simple cheaper (yet more efficient) articles in higher dilutions. In one hospital alone, where advantage has been taken of this difference the saving has been several hundreds of dollars a year, and efficiency has been increased at the same time.

We take this opportunity to express the urgent need of a standard method of testing the comparative values of disinfectants. We hope this will be established in the near future by some recognized, suitable authority such as the laboratory of the Marine-Hospital Service at Washington, D. C., or by a committee of the American Medical Association. It will be then less common to find the wide usage of so-called germicides based on advertising literature and other unreliable data. The benefits will be appreciated throughout the profession.

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THE PRINCIPLES OF HYDROTHERAPY *

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It must be confessed that the discussion of the principles of any subject is apt to smack of the didactic and requires some resolution both on the part of the reader and the writer. We are all apt to look askance at principles and to carry the mental attitude, which characterized many of us as students, of preferring "pointers" to "principles." "The Principles and Practice of Medicine" is the title which adorns many text-books; we all grant the importance of the principles, but show more interest in the practice.

Hydrotherapy has suffered from a curious lack of appreciation from the days of Naaman the Syrian down to the present. Perhaps its simplicity and the fact that the remedy lies easily to hand has had something to do with this and many of us need to have the question asked of us: "My father, if the prophet had bid thee do some great thing, wouldst thou not have done it?" The reasons for this neglect are various, one important one being undoubtedly that instruction in hydrotherapy has not received its proper place in medical teaching, a reproach which, however, is rapidly being removed, for which those who have earnestly striven in this matter deserve our thanks. I remember well being impressed

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910

by the remark made some years ago by an examiner regarding the answers he had received to a question in the paper on treatment, in an examination for the license to practice, which asked for the uses of water as a therapeutic agent. He commented on the almost absolute ignorance of the students on this question. Certainly the majority of us are better informed regarding the principles of digitalis therapy than on the principles of hydrotherapy. Yet we might with advantage use hydrotherapy much more frequently than any special drug therapy. Another reason for the neglect may be that the advantages which are claimed for hydrotherapy sound too good to be true. How many men—without having learned by actual experience—would believe the statement that cold compresses to the chest and throat are the best means of treating acute bronchitis? How many men would believe if they received a special note of advice to that effect printed in an attractive form? Yet a great many are ready to believe any similar bulletin as to the effect of some new drug preparation. The unknown and the new have an attraction for us; the use of water is an old story.

It is not the intention in this article to classify the effects of water or to discuss all its uses, but rather to try and place emphasis on some of the reasons why hydrotherapy is useful. The special effect of certain springs and their particular virtues are not considered, as they hardly belong here. The principles of hydrotherapy may be discussed under three headings which exemplify to a considerable degree the main uses. These are (1) internal hydrotherapy, (2) local hydrotherapy and (3) general hydrotherapy.

INTERNAL HYDROTHERAPY

In this connection the use of water is considered apart from any question of mineral constituents. That is a wider question and we cannot always administer some special water, while *water* itself is always available. It should not be necessary to draw attention to the necessity of being certain that the water which a patient drinks is pure. To have a patient drink contaminated water and so contract typhoid fever would be a serious misfortune. The purposes which may be fulfilled by the internal administration of water are too numerous to go over in detail and certain examples are chosen. When we remember what amount of the body weight is composed of water, the need of it in the daily economy of the body is evident. It is an important agent, both in absorption and in assimilation.

In disease perhaps one of the most marked examples of the benefit of its use is furnished by the acute infections. In these the greatest danger to life lies in toxemia. As a general rule it may be considered that the kidneys are the great eliminating channels of toxins and to cause a large excretion of water by the kidneys is our chief way of aiding this elimination. We are all aware of the importance of the amount of urine as an aid in prognosis in such diseases as typhoid fever and pneumonia. To some extent the greater the amount of urine the less the toxemia. Some would have it that in thus flushing the kidneys we run the risk of injuring them, but this view is held largely on theoretical grounds and lacks proof. Certainly as a clinical question, there is no doubt as to the general opinion. In a disease such as scarlet fever it is the toxins which are responsible for damage to the renal cells and not the fluids. When acute nephritis exists, it is very true that an excessive amount of water may do harm, but the kidney then is unable to excrete water or anything else. In many

lesser infections—or so generally regarded—as tonsillitis, for example, the effect of active internal hydrotherapy is marked. Then, again, in another group of cases, the chronic forms of arthritis, which in many cases are apparently of toxic origin of some kind, the influence of the drinking of large amounts of water is usually evident. It is easy to extend the list as, for instance, many of the cases of functional nervous disturbance or of mental disease of certain kinds are greatly helped by large amounts of water. That this principle is well recognized is shown by the increasing frequency with which saline infusions are given in many diseases characterized by more or less toxemia. In some cases water is so given because it is not possible to persuade the patients to take a sufficient quantity by mouth but in many others it is used to increase the quantity taken in. The frequency with which water is given by the bowel is another proof of the value of the internal use of water. Much of this is so evident as to require no mention.

Notice should be taken of one mistake which seems so evident that one would suppose its absurdity would be apparent did not experience show that it is made too often. This is the giving of diuretic drugs to increase the amount of urine when water is not being administered in even ordinary amounts. This seems an absurd mistake, but the fact that water must be given internally before it can be excreted is often forgotten. To give diuretic drugs without administering water and to expect large amounts of urine to be passed is like trying to make bricks not only without straw but without clay.

When we consider the amount of water which enters into the composition of the body and how great is the constant interchange in the constituents of every tissue of the body, the importance of the passage of considerable amounts of water is evident. This is true of health, but much more of acute infections in which so many of the cells of the body may be injured. The amount of water which should be given in any particular case of infectious disease must depend on many factors and the state of the circulation and kidneys should be kept in view. Still as a general rule it may be said that these systems are more likely to be injured by toxins than by internal hydrotherapy. In typhoid fever, for example, the effort should be made to have the patients pass each day at least 3,000 c.c., and better 5,000 c.c. of urine. In pneumonia such amounts can rarely be reached and perhaps 2,000 c.c. of urine is as much as can be hoped for in the ordinary case. In septicemia again we may hope to obtain the larger amounts. A certain amount in these cases is excreted by the skin and must be kept in mind in estimating the total output of water. The benefit of these large amounts of water in infection has not been generally utilized, even if recognized. We fail to carry into practice the knowledge that in the treatment of typhoid fever nothing which can be given to the patient in the way of food or drugs can be at all compared with water. It is altogether likely that to-day throughout the country there is nothing for which typhoid fever patients are suffering more than for water. The direction so often given, "Let him have all the water he wishes," does not do enough; he may not want any, but in almost every case water should be forced and the amount be specified just as we would in the case of a drug.

Some hospitals have found that when they had to care for a large number of typhoid fever patients, it was great economy in the amount of nursing required for these patients if one nurse in a ward did nothing else

but give water to the patients. To the doubters one can only suggest that they give internal hydrotherapy a trial. But some are like Naaman and ask, "Are not our antipyretics and intestinal antiseptics better than all the hydrotherapy?" One observation on this question was furnished by an orderly who had been working with typhoid fever patients. He had noticed that the patients who drank large amounts of water and voided corresponding amounts of urine did much better than those who did not take much water. He had been impressed by the fact that they required fewer tub baths and had shorter courses of fever as a rule. Taken ill himself with typhoid fever he carried his water-drinking rather to excess, for in twenty-four hours he voided the enormous amount of 26,000 c.c. This was not kept up, of course, but his confidence in water-drinking was fortunately supported by a short and satisfactory course.

In certain diseases, such as gout, arteriosclerosis or chronic arthritis, we advise the ingestion of considerable amounts of water as a routine measure, regard being always had to the state of the circulation. In these diseases there are several factors; metabolism is probably helped and also the excretion of toxins is aided. Then, too, the influence on the digestive tract must be kept in mind. Here again, as in the circulation, attention must be paid to the local condition of the gastrointestinal canal, especially the stomach, for the condition of an atonic stomach might be made worse by too much water. In hepatic cirrhosis large amounts of water are beneficial, perhaps largely through the effect on the digestive tract.

The general effects of internal hydrotherapy may be summed up as especially shown in toxic states of all kinds, whether due to acute infection, some disturbance of metabolism or the more elusive nervous states; in conditions in which a diuretic action is demanded; in local conditions of the digestive tract and its associated organs; and the best performance of the ordinary bodily functions is brought about by the ingestion of considerable quantities of water.

LOCAL HYDROTHERAPY

In discussing the principles of this we have to do with processes which are closely allied to those which operate in counter-irritation and the local use of heat and cold. There are two systems involved in the action of local hydrotherapy, the circulatory, using the term in its widest sense, and the nervous. In many cases, especially those in which the process is superficial, it seems probable that the effect on the circulation is the more important; in other cases it seems that both systems must be influenced. It is often difficult to decide which plays the more important part.

In the use of water locally, as is well exemplified by the application of compresses, there are several factors at work. One of the most important of these is the effect on the blood flow through the vessels in and near the affected area. The rate at which fluid flows through a tube is markedly influenced by the temperature, and with increase of this the rate of flow is made slower. Hence a reduction in the temperature results in a much-increased blood flow through the vessels. With this, of course, other influences are associated, especially the effect on the vasomotor system, which varies with cold or hot applications. Another factor is the effect of the application on the osmotic pressure of the tissues and fluids. This is markedly altered in tissues which show inflammatory changes, and in its restoration to normal local hydrotherapy has an important influence.

Again in some cases applications to the surface may have an important effect on deeper structures. We are all familiar with this in the case of counter-irritants and accept it as a matter of course, yet in many cases the influence of local hydrotherapy is quite as marked. A familiar example is the use of cold compresses to the thorax in cases of bronchitis. No form of treatment can equal this in the certainty and promptness of its action. When we remember that acute bronchitis is due to an infection in the great majority of cases it seems reasonable to suppose that the circulation is definitely affected, as otherwise it is difficult to understand the effect produced. Applications to the thorax in pneumonia probably have both a local and general effect. The influence of compresses to the abdomen is seen in their employment in the meteorism of acute infections and also in various nervous disturbances such as mucous colitis.

The effect on the local nervous influences is well seen in the relief of pain by the use of cold or hot compresses. The use of cold to a degree which produces anesthesia is not carried out by hydrotherapeutic measures, but the principle is the same. Certain associations—call them reflex if you will—may also be markedly affected, as for instance in the use of cold compresses to the abdomen in meteorism. In this case probably several things occur. The cold causes contraction of the abdominal walls which, as has often been pointed out, has a marked effect on the abdominal contents and probably influences the circulation as well as the muscular contractions. The circulation in the viscera is probably influenced also as is seen in the effect of hot application to the loins on the renal secretion in acute nephritis. Then, too, it may be that the sympathetic system is affected by external applications. So that altogether the mechanism at work is a complicated one.

GENERAL HYDROTHERAPY

As essential examples of the use of this form of hydrotherapy we may take the employment of tub baths and wet packs. They are particularly useful in two great groups of disease, infections both acute and chronic and various nervous disorders. Perhaps it is in cases of infectious diseases with toxemia and marked mental features that we find the best examples of the favorable results which can be obtained from general hydrotherapy. In these again the coincident use of internal hydrotherapy adds greatly to the effect.

Of its value in infectious disease we find no better example than in typhoid fever. The discussion of the reasons for the giving of tub baths in this disease is such an old one that to go over it again seems like playing an old tune too often, but the need of repeating it constantly was emphasized while this was being written by reading an article presented at a society meeting which criticized the use of tub baths in typhoid fever because they did not keep the temperature down. It is one of the principles of hydrotherapy in this connection that it is not employed to keep the temperature down. When employed in typhoid fever it may reduce the temperature, but whether it does or not is not necessarily of special importance. The mere reduction of temperature, except in cases of hyperpyrexia, is of no special advantage in the course of an infection. The explanation of the value of tub baths in typhoid fever is a complex matter and many points have to be considered. Its great result is in the reduction of mortality and this comes largely from saving patients who otherwise would have died

from toxemia and it is to the influence on this that we must turn. The effect of the baths comes largely through two systems, the circulatory and the nervous, by which the whole body is influenced. Increased excretion of toxins there must be; otherwise the influence on toxemia is hard to explain. Yet apart from this there must be some direct effect also on the nervous system as is shown by the marked beneficial effect on delirium and other nervous symptoms which sometimes is evident for an hour or so after a bath. This is perhaps due to the effect on the circulation. The influence on the circulation is especially seen in the effect on the vasomotor tone and secondary to this on the heart itself. Given a better circulation and the nervous system is better supplied with blood, while the kidneys can work to more advantage in the excretion of toxins. This in turn means less toxic effect on all body cells, especially those of the nervous system and the centers are better able to carry on their work. The vasomotor paresis is diminished and so we have a beneficial circle of events, each part helping the other and all intimately connected. Then, again, respiration is greatly improved and this results in better aeration of the blood and a better oxygen supply to the tissues. As a result of the deep breathing during each bath the lungs are thoroughly expanded—a condition which in a toxic patient it may be impossible to bring about in any other way—and as a consequence hypostatic pneumonia is almost unknown in typhoid fever patients who are being given the bath treatment. With the improved circulation the digestive tract is better nourished and less disturbance results, perhaps in no particular better seen than in the lessened occurrence of meteorism. It is evident that the effect on the circulation influences everything, the state of the nervous system, the excretion of toxins, digestion, and metabolism generally.

In the functional nervous states, especially when there is insomnia, one of the best therapeutic measures is the use of wet packs. What is the explanation of the effect of this on the central nervous system? It must be through both the circulation and peripheral nervous systems. Doubtless the early shock—if the pack be cold, as is usually best—with the following reaction causes a marked influence on the whole circulation, usually affected in these patients, and this doubtless influences the nervous system. But there is probably more than this. In the various functional nervous disorders, as in the severe attacks of acute infections, there is usually disturbance of the peripheral vasomotor system and probably of the central vasomotor system as well. The effect of general hydrotherapy is to lessen this and make the control more normal. This probably is partly brought about through giving the whole vasomotor system proper exercise. Given a normal vasomotor response it seems reasonable to suppose that for a time the working of the vasomotor system will be improved. It is a training in the normal performance of a function for which it is necessary, however, that a proper response be obtained, as too much vasoconstriction of the surface vessels without any reaction is harmful. Therefore comes the importance of friction, especially in the administration of tub baths. Constant active surface friction is a very essential part of the bath, a point which is sometimes lost sight of, especially by critics. In the use of wet packs friction may also be advisable but is not so important, as the reaction is more easily brought about. This exercise of the vasomotor system is one of the great helps we get from hydrotherapy.

Again the influence through the surface circulation on that in the deeper structures plays an important part. We use this frequently in certain methods of counter-irritation to influence the circulation in a particular area. By general hydrotherapy we can do this for the body as a whole. It is probable that an affected circulation means more to the function of various organs in acute infections than we usually realize. Witness the disturbances which follow in the train of a loss of compensation of the heart. Consider the rapidity of the improvement under digitalis therapy in many cases: cough and dyspnea lessen, vomiting ceases, and the kidney resumes activity. Hydrotherapy may influence the circulation in the viscera to an almost equal degree, perhaps if not with an equal rapidity.

Of the influence of general hydrotherapy in individuals who are not ill we have abundant personal proof. How much the cold morning tub adds to the working ability of the world is hard to estimate. It is difficult to know how many patients, whose nervous systems are only just about equal to the daily demands, are kept up to the mark by it. Of its effect in the prevention of "catching cold" we are all aware, perhaps forgetting sometimes that this is through its effect on the vasomotor system. Of these two great results from external hydrotherapy in health—the general brace to the nervous system and the decrease in the liability to various infections—most of us take daily advantage. It sometimes causes wonder why many men are not willing to give to their patients who stand in need of it the opportunity of obtaining the same results in disease and of being helped by one of our most useful therapeutic aids—hydrotherapy.

935 St. Paul Street.

ABSTRACT OF DISCUSSION

DR. DAVID PAULSON, Hinsdale, Ill.: The painstaking experiments that have been made by Winternitz and other workers have served to put hydrotherapy on a much more scientific basis than even electrotherapy. Winternitz showed that for several hours following a general cold application, there was an increase of 10 to 20 per cent. of red and white blood cells in the circulation, as well as a marked increase in hemoglobin. We are only beginning to appreciate the possibilities in hydrotherapy. It was a great day for physiologic medicine when Dr. Baruch was invited to give instruction in hydrotherapy in the College of Physicians and Surgeons in New York. Only recently a department of hydrotherapy has been added in the Chicago Postgraduate Medical School. All this shows that we are making progress. As you all know, hydrotherapy has completely revolutionized the treatment of typhoid fever. It is important to appreciate that it is equally valuable in other acute infections, and for that matter in all the chronic diseases.

Early Sign of Pott's Disease.—Angelescu has noticed that caries of the spine generally begins in the anterior segment, and consequently that traction on the anterior longitudinal ligaments is painful in these cases even when there is nothing else to suggest the vertebral process. He has the patient lie on the back and arch the body, resting only on the back of the head and the heels. This position induces pain in the diseased area or the pain is so severe that the patient is unable to assume this attitude. According to the *Deutsche med. Wochenschrift*, another Roumanian writer, N. Athanesescu, has recently reported positive findings with this sign and thus early differentiation of the disease before there was any local tenderness on pressure, stiffness of the spine or prominence on the part of any of the vertebrae.

TEACHING THE STUDENT THE OPERATION
OF PARACENTESIS OF THE DRUM-HEAD

HARRY FRIEDENWALD, M.D.
BALTIMORE

As a teacher of otology, I have long experienced the difficulty of all teachers of this branch to properly train the medical student to perform the operation of paracentesis of the drum-head, an operation which I think it is agreed that every general practitioner should be able to perform. I have solved this difficulty by a little device which I have put to use for several years in my classes at the College of Physicians and Surgeons of Baltimore. It consists of an addition to the

TETANUS SUCCESSFULLY TREATED WITH
LARGE QUANTITIES OF ANTITOXIN

A. J. CAFFREY, M.D.
MILWAUKEE

History.—G. S., a young man 18 years old, was running a foot-race barefooted at one of the lakes near Milwaukee and ran a splinter about an inch long in the big toe of his left foot. The splinter buried itself under the phalanges and acted as a splint, preventing motion of the toe and causing the toe to swell. Not knowing of its presence, he thought the toe was sprained and applied poultices. The accident occurred August 24, and the splinter was not discovered until September 4, on which date it was removed.

Treatment and Course of Disease.—On Tuesday morning following its removal, the patient came to my office complaining of "ear-ache" and pains in his chest. I immediately injected 1,500 units of tetanus antitoxin; the symptoms continued getting worse, and the next morning I injected 3,000 units, but there was no abatement of the symptoms, and that evening he went into tetanic convulsions. I could procure no more antitoxin until Thursday morning. Then I started giving him injections into the body of 3,000 units of tetanus antitoxin every three hours. The disease continued without any abatement until Friday evening about six o'clock, when I could see a slight improvement in the patient's condition. At nine o'clock the injection seemed to have a soporific effect on him and his muscles relaxed. Subsequently he would be relieved for a half hour or so following each injection, after which the convulsions would come back with sudden snap, causing him to bite the edges of the tongue and assume the opisthotonos position. The condition was so painful that I had to resort to chloroform. The patient would relax and fall asleep, but only for five minutes, when again the contractions would return. At this time, Friday night he had taken about 45,000 units of the serum, and while the chloroform would only relax his muscles for from five to ten minutes, he would show a relaxation for from one-half to three-quarters of an hour following the injection of the serum. This gave me confidence that the serum was beginning to show its effect on the toxins, and I pushed it every two hours during Saturday for about fourteen hours, every dose giving the patient rest.

After using the chloroform at intervals to control the exacerbations, I resorted to a rectal injection of chloral hydrate, 20 grains. This also had a quieting effect, but I was afraid to repeat it on account of the depression of the patient, although the result was good and he fell into a deep sleep.

On account of the retention of urine on Friday, I was afraid of uremic coma. He woke up after three hours with the spasms, but they did not seem so severe. I resorted to diuretics, including sweet spirits of niter and digitalis, with good results. He began to pass a sufficient quantity of urine, but trouble began with his bowels. Under the influence of large doses of castor oil, the contents of the descending colon when they reached the sphincter would throw it into tetanic contraction and would not pass. Then regurgitation would take place, and when the contents reached the transverse colon it would again throw him into a violent spasm. This condition kept up for about twenty hours. I injected olive oil and glycerin, but he would retain it. I had the same result with soap and water enemas. This kept up until Sunday morning, when he finally had an evacuation. By this time, Sunday morning, the pains were not so severe in the chest, but were frightfully bad in the abdominal muscles, during the spasms the patient crying out that he was ruptured, which was not the case. I continued the serum all through Sunday at intervals of three and four hours, until Tuesday, September 13, when he had taken in all 112,500 units. I might state that the trismus and the pains in the chest subsided partially during Sunday, but on and after Tuesday, September 13, the exacerbations disappeared gradually and the patient made a complete but gradual recovery. His urine showed on analysis a condition similar to acute nephritis.

The temperature never ran higher than 103 F. A rash, not unlike that of scarlatina, with an intense pruritus appeared,

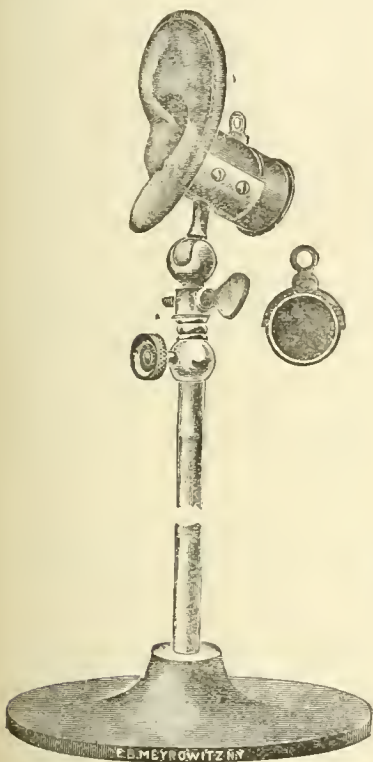


Fig. 1.



Fig. 2.

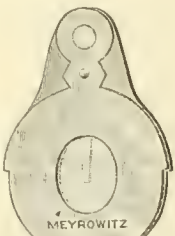


Fig. 3.

Fig. 1.—The schematic ear model of Bacon for teaching manipulation of the speculum and head mirrors.

Fig. 2.—Diagrammatic representation of drum-head showing handle of malleus.

Fig. 3.—Same as Fig. 2, with paraffin paper stretched over it to represent drum membrane, for teaching method of paracentesis.

well-known schematic ear model of Bacon (Fig. 1). This model is supplied with a large number of brass plates into which colored pictures of the normal and diseased drum-heads are placed for the purpose of "teaching manipulation of the speculum and head mirrors." I have had made double brass plates of a general form similar to those made to hold the pictures, but provided with an opening of the size and shape of a drum-head, one of the plates having a little stem to represent the handle of the hammer (Fig. 2). The two plates are held together by a screw which allows one to separate them and place between them a piece of thin paraffin paper, such as is used by florists, and which well represents the drum membrane (Fig. 3). This device is then inserted in the model and the student, supplied with a head-mirror, speculum and paracentesis knife, is allowed to practice the operation many times. I may add that this device has been of the greatest help to teacher and student.

Morphin was resorted to with good effect, but to me it appeared that it was the antitoxin that effected the cure, and without it I believe that the patient would have died on Friday, September 9, as on that day the dyspnea was intense, and the patient became cyanosed, but after each dose he regained his color and got the needed rest.

It is my opinion that great quantities of the antitoxin must be used in these cases; if the toxins in the blood are to be destroyed the blood must be saturated.

I saw no ill effects from it outside of the rash. It seemed to support the heart by raising the blood-pressure. I do not doubt that in a case in which there is arteriosclerosis there may be danger of apoplexy, but in this case the patient was a young man with resilient vessels.

600 Grand Avenue.

THE MUFFLED ROOM IN THE TREATMENT OF ACUTE INSANITY

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By the muffled room I mean an apartment constructed in such a way that any noise made by the occupants may not be heard without it, and conversely, any noise made from without may not disturb those within. It should be large enough so that by employing forced ventilation the air may be kept pure in it at all seasons of the year. Its principal purpose is to facilitate individualization in the treatment of acute insanity.

By "individualization" in this connection I wish to imply that the physician in the treatment or management of a given case may be relieved from any obligation or necessity of making concessions to other cases. One of the most perplexing features a physician has to reckon with in the institutional treatment of acute insanity is to prevent the various manifestations of excitement incident to the disease from injuriously interacting on patients whose quarters are adjacent to each other and unless muffled rooms be available, on the principle of the greatest good to the greatest number, he is often compelled both by night and by day to prescribe "quieting" medicines for, or to employ other methods of sedation on, a patient who would be better off without them, especially when they have to be carried far enough to produce and maintain quietude over a considerable period of time.

As acute insanity is a disease for which no specific is known, and which under the most favorable circumstances usually runs a course of several months, measures calculated to promote and conserve the patient's bodily health are of cardinal importance in its treatment, for it is by maintaining the bodily forces in the most perfect condition that the chances for the brain to resume its normal functions are most favorable. Hence it seems peculiarly unfortunate for the physician to feel under the necessity of resorting to measures which he believes are in any way prejudicial to the best interests of his patient.

In a patient of delicate constitution, the prolonged excitement incident to the disease may bring about a critical situation in which only by the most judicious care and management can the patient survive, and the desirability in such cases of not having to reckon with the interests of others seems very obvious. It not infrequently happens that this tendency to noisy excitement continues more or less constantly through a period of

many weeks and the artificial maintenance of a sufficient degree of sedation to insure quietude over so long a period, by reducing the strength and causing disorder of the secretions, might bring about a very deplorable condition of bodily health, which, it is not difficult to conceive, might result either in a fatal issue or an incurable condition, when under more favorable circumstances recovery might have ensued.

When one has the opportunity of studying the natural history of these cases, as he may do when he has muffled rooms at his disposal, he learns that the patient's condition may be in every respect very much better at the end of a given period of a week or two, for instance, when medicinal sedation is not employed at all than if a patient be kept in a state of quietude by its use. My purpose, however, on the present occasion is not to discuss the value of different kinds of remedies in the treatment and management of acute insanity, but to draw attention to what I regard as the very great advantage to be gained when, in treating a patient in an institution, the physician has a free hand to employ such measures as he feels will best promote the comfort and recovery of a patient without in any way doing prejudice to the interests or comfort of others.

Lest I be misunderstood, having spoken of the benefits which I believe sometimes result from withholding chemical sedation in a case of acute insanity altogether, I wish to say that I think I fully recognize the value of the various remedies and do not hesitate to use them when I think they would be of benefit. I am maintaining, however, that they should be prescribed only for the sole benefit of the patient to whom they are administered.

Though perhaps this principle has not been stated quite so definitely as the term "the muffled room" might imply, it has been recognized for many years in the construction of public hospitals for the insane. So far as my observation has gone, however, even in them it has been very imperfectly carried out and in many of the smaller private establishments it has been entirely disregarded. In public hospitals, wards for excited patients are usually placed as far as possible from the apartments of those who are not disorderly, and in some there are a few rooms which are separated by a hall or corridor with the view of confining the noise; but in my opinion the principle has not been recognized and carried out at all as it deserves.

In some private establishments a separate building for excited patients is provided, but there are usually few if any special provisions made in it for preventing the dissemination of noise, and hence it not infrequently happens that conditions in this building are, to say the least, not such as might be desired; and it is not good practice, on the particular days or hours when the excitement for the time being has subsided, to transfer a patient to the building where the quiet patients are kept, only to send him back when he again loses self-control.

It will not be disputed, I think, that these rooms are well-nigh indispensable to insure the best treatment of acute insanity, no matter what attitude one takes in regard to chemical, mechanical or personal restraint, hydrotherapy, occupation or what not. I have had a number of them at my disposal now for a period of about five years and find them eminently satisfactory.

In the erection of a fireproof building, its equipment with well-muffled rooms throughout in the manner here proposed, might add 25 per cent. to the cost. The requirements of the situation would, however, in my opinion, be fairly well met in an establishment devoted

mainly to the treatment of acute cases if one-quarter of the rooms were muffled. The question of satisfactory muffling depends on the treatment of the doors, windows, floors, ceilings and partitions, and is a problem for the practical architect and the engineer to solve. So far it has not been satisfactorily worked out. This is probably owing to the fact that such construction has not been urgently demanded. In the institution in which I have gained my experience with the method, when the building was being erected, since it was not fireproof, I simply had several layers of Cabot's sheeting quilt placed in the partitions in the floors and ceilings, and had double doors and windows put in, and then placed a fan in the outlet flue (each room in the house has an independent inlet and outlet flue for ventilation) to provide for forced ventilation, and this later provision has been entirely satisfactory. I found, however, that while by this device the manner and the degree of muffling was considerable, it was far from what one would desire in certain instances. I have further thickened the walls in some of the rooms in various ways; that which has proved most satisfactory has been to line the walls and ceilings with tiling such as is used in partitions for fire-proof building. The matter of muffling could certainly be very well worked out by practical experiment. Indeed, this may already have been done, but if it has, I am ignorant of the methods employed.

100 State Street.

Therapeutics

DIPHTHERIA

(Concluded from page 1557)

TREATMENT AFTER DIAGNOSIS OF DIPHTHERIA HAS BEEN MADE

1. If the diagnosis seems positive, do not wait for culture proof, but inject antitoxin immediately.
2. If there is doubt and the culture proves positive, then immediately inject antitoxin.
3. If possible, seek the source of infection.
4. Report the case to the board of health.
5. Use the gargles as recommended.
6. Nutrition becomes of much greater importance, as diphtheria is depressant, and the disease must last at the best a week and perhaps two weeks, and the average time that the bacillus has been found in the throat cultures is three weeks. The diet should be a well-chosen, mixed diet that is easy of digestion. The character of the food should depend on the temperature and the behavior of the stomach. A diet should consist of oatmeal gruel or other cereal, a small amount of milk, toasted bread, one or two eggs a day, meat juice, mutton broth, sufficient salt, ice cream, gelatin, orange juice, lemonade, and plenty of water. The proper diet for the individual patient can be readily selected from the above. The manner of administration and the amount must depend on the condition of the patient, but some positive nourishment should be administered every single day. The frequency of the nourishment should generally be about every three hours in the daytime, and some little nourishment in the middle of the night. The nourishment should be given about five or ten minutes after the gargling, never just before it, as the gargling may nauseate the patient. Also, after the gargling there will be less possibility of swallowing germs into the stomach. While it has been shown that the gastric juice ordinarily

kills the Klebs-Loeffler bacillus, and it is perhaps never found in the intestines, still, it would be possible for this infection to do harm in the stomach, if the stomach wall had been injured or if the gastric secretion were insufficient. It has also been shown that after the use of antitoxin the gastric juice is even more active in killing the germ.

7. Diphtheria seems to interfere with the red blood-corpuseles, and the patient becomes readily anemic from the intensity of the disease or if the depression is prolonged. Therefore, from the beginning, whether the patient apparently needs it or not, iron should be given, and iron in its best and strongest form, viz., the tincture of the chlorid of iron. It is well to give it in 5 drop doses once in six hours, and is well administered in fresh lemonade, or it may be given as follows:

R	Gm. or c.c.	
Tincture ferri chloridi	5	fl.ʒiiss
Glycerini	10	or fl.ʒiij
Syrupi acidi citrici	25	fl.ʒi
Aquæ	ad 100	ad fl.ʒiv

M. et sig.: A teaspoonful, in water, every six hours.

The solution of iron may be taken through a glass tube or a straw or the mouth may, after its administration, be cleansed with water.

8. The heart and character of the circulation should always be watched in every case of diphtheria. As patients formerly frequently died, and now not infrequently die, of sudden heart failure in this disease, the physician should be emphatic that the patient with this disease should remain in bed, even if he is an adult and apparently not very ill. When he rises to gargle or for movements of the bowels he should rise slowly and carefully and should not exert himself any more than is absolutely necessary. A child must be watched constantly lest he exercise too much in attempting to play about the bed. As soon as the pulse feels too soft or becomes rapid, or before it gets to this point, small doses of strychnin should be administered, either 0.002 gram (1/30 of a grain) from once in eight to once in six hours, or 0.001 gram (1/60 of a grain) once in three or four hours. If the patient feels suddenly faint, the nurse may administer a proper dose of brandy or whiskey, or some aromatic ammonia. If there is an attack of heart failure, a hypodermatic injection of strychnin (1/30 grain) and atropin (1/150 grain) will generally be sufficient. Occasionally if the patient is not receiving sufficient nutrition, a small amount (not sufficient to flush the patient or cause the odor to remain on the breath) of whiskey or brandy may be administered regularly as fuel. It should not be considered that the alcohol is a cardiac tonic, as it is not. If a patient is at any time weak and collapsed, hot water bags and other methods of applying dry heat should not be forgotten.

9. The urine should be frequently tested for albumin. Not that a slight albuminuria would ordinarily need any special treatment, but that the physician should know the condition of the kidneys, as with an albuminuria the physician should take meat out of the diet, and perhaps modify the medication. Antitoxin is not a cause of albuminuria. Diphtheria can cause albuminuria, and may consequently cause it after antitoxin has been administered.

10. The convalescence after diphtheria should be prolonged. The gargles should be gradually used less frequently, first omitting the night gargling. The feedings

should be less frequently administered and more in amount. The patient should gradually sit up and as gradually get about. The first gargle to be stopped should be the peroxid, as it becomes an irritant and may keep the throat red and even swollen. The boric acid should be persisted in, and the potassium chlorate is one of the most soothing of gargles. For the liquid iron preparation the above capsule suggested for follicular tonsillitis convalescence may be substituted. Often the glycerophosphates of lime and soda are the best of tonics. If the patient does not rapidly recover strength, massage should be given, fresh air, drives, and all the other adjuncts to hasten or complete a convalescence. Severe exercise should not be attempted for some time if the patient has been seriously ill with diphtheria, as the heart is unable to stand much strain for some time.

11. Paralysis of the palate is much less frequent than formerly on account of antitoxin so rapidly inhibiting the disease. However, it is largely due to the absorption of toxins from the local inflammation, and consequently the greater the cleanliness of the throat, the less likelihood of this paralysis. This neuritis of the nerves of the palate may occur in the latter part of the disease, but often does not occur until during convalescence. A multiple neuritis rarely occurs from diphtheria. For paralysis of the palate there is no special treatment other than a prolonged use of strychnin, country or seashore fresh air, and a more prolonged convalescence. For multiple neuritis the treatment is the same with the exception that electrical treatment of the paralyzed muscles is added.

12. After the patient has apparently recovered, the throat should be swabbed, several hours after the last gargling, and another culture made to ascertain if the Klebs-Loeffler bacillus is absent. Until this germ has disappeared, the patient should remain isolated.

13. As soon as the culture is reported negative, the board of health is notified, and the patient's hair is washed, he is properly bathed, clean clothes are put on in an adjoining warm room, and the infected room or infected part of the house should be fumigated.

LARYNGEAL DIPHTHERIA

Whenever a child, especially a young child, is taken ill, the physical examination is never complete until the throat has been examined. If there are any symptoms pointing toward the nasopharynx or toward the larynx, even though the pharynx and tonsils are clean, the possibility of diphtheria infection in these regions should never be forgotten. A swab specimen from these regions should be sent to a bacteriologic laboratory. If by means of the laryngoscope a suspicious epiglottitis or larynx is seen, antitoxin should be immediately given without waiting for the bacteriologic report. It should be remembered that laryngeal diphtheria (membranous croup) can occur without fever and can cause occlusion of the larynx in from twenty-four to thirty-six hours; consequently, antitoxin must be used immediately.

A tent should be made over the crib or bed, and the child should frequently inhale steam-laden vapor. This will keep the larynx moist and allow the membrane to be coughed or raised.

The throat of a young child may be sprayed, but it is practically impossible to spray the larynx in young children, especially when they are readily strangled by it. The sprayed solution should be diluted and non-irritant.

A physician who has in charge a laryngeal diphtheria patient should be in touch with the physician or surgeon in his immediate locality who is able to do intubation. An intubated child should have a nurse always instantly at hand to remove the tube if it is coughed up if the child is strangling, and to send for the physician immediately in order that the tube may be quickly replaced or that tracheotomy be done.

The general care of laryngeal diphtheria and of the convalescence is the same as for tonsillar and pharyngeal diphtheria.

ANTITOXIN

It is not necessary to discuss the value of the antitoxin treatment of diphtheria. Its value has been proved clinically daily and statistically yearly. It should be administered immediately if the diagnosis is clinically positive without waiting for the culture report. It should be administered in doubtful cases as soon as the report is positive, unless the disease is already found aborted by the time the report is returned. In this instance the isolation should persist as usual. The prognosis in every case of diphtheria is so much better and the duration is so much shorter when the antitoxin is early administered than when later administered that there can be no longer any discussion on this point.

It should always be remembered that antitoxin combats nothing but the toxins of the Klebs-Loeffler bacillus and does not combat the toxins of secondary infection. Therefore, when secondary infection is present the antitoxin must not be relied on to save the patient, but every means at our command must be used to remove the secondary infection, to reduce the toxemia, and to support the patient.

The diphtheria antitoxin has apparently no direct bactericidal effect. Whether it chemically neutralizes the toxin, or whether it stimulates the cells to tolerance of the toxin, or stimulates the production of opsonins, it does generally arrest the spread of the local infection, apparently inhibits the growth of the bacillus, and hastens the loosening of the membrane.

Apparently the only contraindication to the use of antitoxin is in a patient who is an asthmatic or a hay-fever subject who is especially susceptible to the odor of horses or the emanations from stables. Such patients have been found to be particularly susceptible to this serum prepared from horses, and deaths have occurred after its administration, largely due to swelling of the bronchial mucous membrane, similar to asthma and urticaria, and death is caused by suffocation and oppression. These patients should not receive antitoxin. Patients who are not so afflicted and who acquire diphtheria should receive the antitoxin.

The only unpleasant symptoms that can occur are a slight increase in temperature, slight skin eruption possibly, either urticaria or erythema, and some local swelling, heat and burning over the region of the injection. Such symptoms rarely last twenty-four hours and generally do not occur at all, except possibly a slight local reaction. Albuminuria attributed to the injection is probably generally an albuminuria caused by the disease. That a lung congestion can be caused by the antitoxin is exceedingly doubtful, and in the rare instances in which such congestion has occurred it was probably due to the severity of the disease.

The dose of antitoxin has been gradually increased in size. Perhaps the best immunizing dose for a child under 5 years is 500 units. For over 5 years the immunizing dose should be 1,000 units. Under 5 years of age

the first dose for treatment should be from 2,000 to 3,000 units; over 5 years from 3,000 to 5,000 units, depending on the severity of the infection. If there is no improvement in the condition in from 12 to 15 hours, a second dose should be administered, generally one-half the size of the first dose, and this repeated again in 12 hours if needed. Rarely will more than 3 doses be required, and generally but the one. If, however, on successive days the disease does not abate, the patient's immunity to the diphtheria toxin is not established, and the antitoxin may be repeated for several days. It has not been shown that antitoxin, except in the instance of idiosyncrasy to horse serum above described, has produced death. However, it should be emphasized that it is better judgment to give the first dose of sufficient size to combat the severity of the infection rather than to give small doses more frequently repeated which will make the sum total of units required for such divided treatment larger than a properly estimated initial dose.

Antitoxin is now furnished in aseptic containers ready for subcutaneous administration.

PREPARATION OF ANTITOXIN

The substance itself, antitoxin, is at present derived from horses which have been rendered immune to the action of the diphtheria toxins through repeated injections. The toxins are the products of the Klebs-Loeffler bacillus and are set free in connection with its growth. Their action on the living cell is a coagulation necrosis, as evidenced in the so-called diphtheritic patches seen in the throat, the necrotic foci in the internal organs, and general systemic poisoning and prostration.

The first step in the manufacture of antitoxin is the production of toxins in various strengths. These are gotten in the following way. From a diphtheritic throat is obtained a culture of the Klebs-Loeffler bacillus, which, after freeing from contamination is planted in bouillon and allowed to grow in the dark in 37° C. for some time. As the bacilli multiply, their products ultimately inhibit their own growth, and there remains a solution, in the bouillon, of these toxins with a few germs only. This product is now filtered through glazed porcelain, and to it is added a small amount of an antiseptic. Then the toxicity is ascertained by injecting it into guinea-pigs, weighing 250 grams, until the minimum fatal dose has been ascertained. This marks the toxic strength of this particular product. A small amount of toxin prepared as above is injected subcutaneously into a horse, and for this purpose the horses are absolutely healthy and in fine physical condition. As a result there is a rise in temperature, some loss of appetite and of weight, but in a few days these effects all pass away. When the effects have passed away the horse receives another dose of toxin slightly larger and when the effects of this wear off, another, still larger, and so on until the animal becomes tolerant to a large dose of the toxin. At this time it may be assumed that the blood of this particular horse contains a considerable amount of antitoxin, and the next step in the process is to determine just how much. This is done by withdrawing a small amount of his blood, preparing the serum from it, and measuring this against a toxin of known strength by means of the guinea-pig. If it does not show sufficient antitoxic strength, further amounts of toxin are introduced into the horse to cause a better antitoxin to be produced, and the serum is again tested.

When repeated tests have demonstrated the required strength, the horse is bled from the external jugular vein, every possible aseptic precaution being observed.

The next step in the operation is the preparation of the serum from the drawn blood. This is done under the most elaborate system of asepsis. Small samples are taken to ascertain its toxic strength and its freedom from bacterial contamination. These are verified, the product is put up in containers and stored for a length of time under suitable conditions. They are then re-examined prior to being put on the market.

As for the horse, he soon recovers, as the amount of blood withdrawn is not enough to harm him, and he is ready to be used over again, which process can be kept up for a long, long time.

As regards the standard of strength, the first fact to remember is: the standard of diphtheria toxin sufficient to kill the standard guinea-pig is 0.1 of a cubic centimeter.

A normal serum is one possessing such potency that 0.1 c.c. will completely counteract the effect of 0.1 c.c. of toxin. In other words, 0.1 c.c. of normal serum will save ten guinea-pigs from the fatal dose of toxin. 1 c.c. of normal serum will counteract 100 fatal doses, or 10 c.c. of toxin, and this constitutes a normal unit. Or, to repeat, the antitoxin unit is that strength of serum, independent of its bulk, which will counteract the effect of 100 times the fatal dose of toxin for the standard guinea-pig.

The various preparations of antitoxin that have been on the market have differed considerably in the bulk requisite for a given strength, but at the present time they are practically uniform, and while necessarily varying slightly, have been much reduced in bulk. Antitoxin is now offered in all strengths from 500 units to 10,000 units.

ADMINISTRATION OF ANTITOXIN

The injection of antitoxin should be made only after the skin has been cleansed. The part selected should be first washed with soap and water, then thoroughly cleansed with alcohol, and a piece of cotton or gauze soaked in alcohol laid over the part while the syringe is being prepared. Previous to this the hands of the physician should be thoroughly cleansed, and the syringe and its various parts placed on a clean towel on a table near at hand. When the syringe is ready for use and the needle cleansed with alcohol, the skin should be dried with sterile cotton and the injection made into the subcutaneous loose fascia. The injection should be given slowly, and when finished the needle should be rapidly withdrawn and a piece of absorbent cotton wet with alcohol placed over the point of injection and an adhesive strap placed over it.

There are various suitable parts of the body for injection, but preferably one selects that where the skin is less firmly attached to the fascia and muscles; in other words, a part where the distention from the fluid will cause the least pain. This is in the wall of the abdomen. Often the injection is made into the back, between the scapulae.

Venous injection of antitoxin, while it has been done, is probably not necessary, and there is always some danger attached to it.

Tablets made of antitoxin to be administered by the mouth are said to have been used successfully, but this method of administration is not to be recommended.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 DEARBORN AVENUE . . . CHICAGO, ILL.

Cable Address "Medic. Chicago"

Subscription price Five dollars per annum in advance

[For other information see second page following reading matter]

SATURDAY, NOVEMBER 5, 1910

THE PERSISTENCY OF CELL FUNCTION AND ITS BEARING ON PATHOLOGY

Under the foregoing title Professor Leube¹ of Würzburg emphasizes certain properties of the cells which seem to have important relations to various morbid conditions and to recovery therefrom. The underlying principle is that there is a well-defined tendency for each kind of cell to continue its work along certain characteristic lines which are determined for it during its organization and development. This is shown, for example, by the fact that many different kinds of stimuli acting on a cell will all cause the same effect; thus the mucous-gland cells secrete mucus when stimulated by heat, cold, toxins, chemical or mechanical irritants, while a muscle cell responds to these same stimuli by contracting. The difference in the effects produced by the several stimuli is quantitative rather than qualitative, for qualitative changes in cell function rarely occur; therefore injurious influences cause disease chiefly by producing quantitative alterations in cell action. If this quantitative change persists long enough the altered power of function eventually is acquired as a permanent character of the cells, and a persistent condition of disease results. Usually any persistent change in the direction or degree of cell activity is harmful; seldom is it useful except in the phenomena of immunity, and here study of the persistence of acquired characteristics of cells becomes of much practical importance.

Stimulation of cells, particularly those of the blood-forming tissues, by bacterial products causes a reaction which results in the formation of various antibodies. Thanks to the tendency toward persistency of cell functions, after each dose of bacterial products the cells react more quickly and more energetically; thus an animal which has been immunized to typhoid bacilli so long previously that most of the antibodies have disappeared from its blood will be found to react to a single minute dose of typhoid bacilli, too small to cause any appreciable reaction in a normal animal, with the production of large amounts of antibodies. It is probably this acquired character of reacting strongly to small stimuli which explains many instances of immunity in

men and animals whose blood contains no demonstrable protective substances, as is especially exhibited by persons who have had typhoid. The so-called accelerated reaction to foreign serums, which is exhibited as one of the forms of serum intoxication, would seem to be another instance of the development of a persistent tendency to a certain line of reaction by the cells.

That the reactive capacity of the cells which have acquired an increased power of forming antibodies is a real example of persistency or tenacity of function, is shown best by the fact that this increased capacity is exhibited in response to all sorts of stimuli, which may be entirely unrelated to the natural specific stimulus which originally was the only thing that could cause this particular reaction. For example, if a person has typhoid, the power to form typhoid agglutinins is so increased that the blood contains greatly augmented quantities of this specific antibody, but after a time the excessive agglutinins disappear from the blood until its agglutinating power may be little or no greater than that of a normal person. In such an individual, however, many quite indifferent stimuli, such as hot baths, stasis hyperemia, or even merely a hearty meal, will commonly cause the cells to react by secreting into the blood the specific typhoid agglutinins which they have acquired a persistent habit of forming in large amounts. That raising the body temperature by means of hot baths is a most effective method of arousing this reaction, is an interesting bit of corroborative evidence in favor of the doctrine that fever is of itself a helpful influence in increasing the reaction against infection.

Presumably this "tenacity of cell activity" plays a part not only in immunity reactions but also in the diseases of metabolic nature. For example, adiposity may be looked on as a condition, sometimes congenital and sometimes acquired, in which certain cells have an unusually developed capacity for storing fat, so that they persistently react in this way to influences which have no such effect in normal persons. In gout we find that in spite of long-continued purin-free diet the blood always contains free uric acid, which is never present in the blood of normal persons who are on a similar diet; here a certain persistent tendency of cell metabolism may be brought out by such varied stimuli as alcohol, lead, overeating, exposure to cold, certain articles of diet, and the countless other things that can stimulate gouty attacks in those whose cells react in this particular way by abnormal metabolism of purins. Pathologists, after much discussion of the underlying principle of cancer etiology, at least in many instances, have come to ascribe the unlimited growth capacity of cancer cells to the acquirement of a specific character as the result of long-continued stimulation to multiplication. The cells which generation after generation have their reproductive capacity stimulated without corresponding stimulation of their other functions, eventually lose these other functions in large measure and in place have an over-developed power of multiplication; hence to any and all

1. Leube, W. von: *Ztschr. f. klin. Med.*, 1910, lxx, 359.

stimuli they react by cell division. Von Hanseemann calls such cells "anaplastic," while Adami would say that they have acquired the "habit of growth"; at any rate we have here another striking illustration of Leube's doctrine of tenacity of cell activity, in which any sort of stimulus causes the dominant function of the cell to be performed, in the case of the cancer cell the dominant function being that of reproduction.

UNTOWARD EFFECTS OF THERAPEUTIC SERUMS

From time to time there appear reports of sudden death following the injection of therapeutic serums. The usual sequence of events is that within a few minutes after the injection of the serum the patient has difficulty in breathing, the respiration being similar to that of a person suffering with an acute attack of asthma. Along with the respiratory involvement there is an anxious expression, sometimes itching and burning of the skin, and frequently acute edema of the mucous membrane of the pharynx and upper larynx. In fatal cases, the patient usually dies in convulsions. The heart as a rule continues to beat some time after respiration has ceased.

These cases, which fortunately are extremely rare, almost invariably follow a first injection of serum, only a very few instances being reported in which a second injection has caused death. Second injections after an interval of from fourteen days to four months are sometimes followed by the so-called immediate reaction of von Pirquet and Schick, in which the symptoms of the syndrome described and named by von Pirquet the "serum disease" appear within twenty-four hours. The symptoms of the serum disease, while sometimes very distressing to the patient, are, as a rule, not of an alarming character, owing to the non-involvement of the respiratory system. When a second injection is given after an interval of four months, then the reaction appears within from four to six days instead of after the normal incubation period of from eight to thirteen days. When individuals are given repeated injections of serum extending over a considerable time at intervals of two or three days, alarming symptoms may occur, sometimes during treatment. In some instances death has been reported when the serum was used in this manner. From this it would seem that the reaction of man to injections of serum is more analogous to the reaction of the rabbit than of the guinea-pig.

A significant fact has been noted, attention to which was first drawn by Rosenau and Anderson,¹ that the majority of the cases of sudden death following the first injection of serum in man were in asthmatics or in persons who experienced discomfort when in the neighborhood of horses. A number of serums used in such cases were studied by Rosenau and Anderson, who found them to be no more toxic for sensitive guinea-pigs than other

serums which had caused no untoward symptoms in man. These authors suggested the possibility of a relation between asthma in man and hypersusceptibility to an injection of serum; and a recent paper by Meltzer² on "Bronchial Asthma as a Phenomenon of Anaphylaxis" brings forward considerable evidence in support of this possibility.

It would seem that the unfortunate accidents that sometimes occur following a first injection of serum in man depend on an inherent susceptibility of the individual and not on the toxicity of the serum injected. How this susceptibility is acquired we do not know, though it is hoped that the studies on anaphylaxis and asthma may throw light on this point.

It is greatly to be deplored that there seems a tendency in the minds of some physicians to hesitate to use therapeutic serums, particularly diphtheria antitoxin, on account of the possibility of untoward results following the administration of the serum. While this fear has been augmented by recent studies on anaphylaxis, it would not seem to be well-grounded. The knowledge of the fact that, in asthmatics or persons who have an idiosyncrasy to horses, the injection of horse serum may be attended with danger, should cause no hesitancy in the administration of therapeutic serum in others when the indication arises. However, when serum is administered it should be explained to the patient or to the family that the administration may sometimes cause unpleasant or alarming results, and the physician should remain with the patient for a little time following the injection.

The percentage of fatalities following the injection of serum is very small; for, in spite of the thousands of persons to whom serum is administered, only a small fraction of one per cent. suffer from serious ill effects, this percentage being less than that of fatalities following the use of anesthetics.

GLUTEN FLOURS AND DIABETIC FOODS

Two common misconceptions exist regarding gluten flour and various proprietary gluten foods on the market. One is that gluten flour is practically a starch-free flour; the other, a corollary of the first, is that any gluten flour or gluten food is a safe food for a diabetic patient. As regards the first proposition nothing could be much farther from the truth—at least so far as the great majority of American gluten products is concerned; and this fact in itself makes plain the fallacy of the second. It is probable that, proprietary medicines excepted, in the exploitation of no other products prescribed by physicians has there been so much misrepresentation and downright humbug as that indulged in by the manufacturers of gluten flours and foods.

The federal standard for gluten flour prescribes that it shall contain at least 35 per cent. protein (5.6 N X

1 Bull. Hyg. Lab., No. 50.

2. THE JOURNAL, Sept. 7, 1910, p. 1021.

6.25). Nothing is said about the starch-content and yet from the standpoint of public health the percentage of starch—or more broadly, of carbohydrates (starch, dextrin, sugar)—is of more importance than the proportion of protein.

As the Food and Drugs Act is now interpreted, an anomalous state of affairs exists. A firm that puts on the market a so-called gluten flour containing 20 per cent. of protein is permitted to label—or, at least, does label—its product “gluten $\frac{4}{7}$ standard” because, forsooth, twenty is four-sevenths of thirty-five and 35 per cent. protein is the standard set for gluten flour. The absurdity of this proposition appears when it is remembered that ordinary flour contains from 10 to 11 per cent. of protein and that, on the same grounds it could be legally labeled “gluten $\frac{1}{3}$ standard.” The fallacy of giving such an interpretation to a law, the primary object of whose enactment was the protection of the public health, is evident.

The important and essential fact is that in ninety-nine cases out of a hundred a gluten flour or a gluten food is prescribed for a diabetic patient, to whom the ingestion of carbohydrates is fraught with danger. Gluten products are prescribed by physicians, not because they are richer in nitrogen (protein) than other foods, but because they are believed to be poorer in, if not actually free from, carbohydrates (starch). Most of the manufacturers of gluten flours and foods in this country carefully avoid stating in their advertising matter or on the labels, what percentage of starch their preparations contain. The reason for the omission is that their products contain dangerously high percentages of carbohydrates. Yet the physician is misled by the term “gluten” into prescribing these worse than worthless preparations for his diabetic patient.

THE RISE AND FALL OF THE SEPTIC TANK

Starting with the famous Exeter experiments of 1895, the treatment of sewage by the septic tank method enjoyed for a period wide popularity among sanitarians. Recently signs have multiplied that the vogue of the septic tank is well-nigh over. Roughly speaking, the principle of the septic tank consists in holding the sewage in bulk under such conditions that anaerobic decomposition occurs and the amount of suspended organic matter is considerably reduced, partly by sedimentation, partly by digestion. For a time it seemed as if this treatment possessed not only the great advantage that the amount of solid matter in the sewage was diminished, but also the advantage that the organic matter was brought into such a state that it could be more readily oxidized. In a word, it was believed that “septic sewage” could be more easily purified by contact beds or by intermittent filtration than crude sewage.

The event has not justified this belief. Some experimenters, finding results at variance with the opinion

commonly held, drew the cautious conclusion that it was not necessary to use the septic tank as a preliminary to the purification of sewage by trickling beds or intermittent filtration. Others more frankly confessed to finding the septic tank effluents distinctly harder to treat than crude sewage. Evidence is now at hand which strongly supports the latter contention. It is becoming more and more the practice of the engineers in charge of sewage purification works to shorten the period of holding the sewage in septic tanks until little more than a slight settling out of suspended particles actually occurs. Indeed, the avoidance of septic action has now become an object of serious endeavor, whereas a few years ago it was the aim to further in every way the process of anaerobic putrefaction.

One cause of the now recognized injurious outcome of septic action appears to be that the gases arising from the sludge in the septic tanks dislodge masses of solid matter, both from the bottom and from the surface scum, which pass off into the oxidizing beds, where they produce clogging of the beds and interfere with the oxidizing action. A second disadvantage is the fact, apparently now demonstrated, that the organic matter which has been acted on anaerobically is in even less favorable condition for further destruction than it was in the crude sewage.

All this means that foul sewage cannot be as easily and effectively treated as fresh sewage. It has also been found that septic sewage requires much more chlorine to disinfect it than crude sewage, so that with the hypochlorite treatment the expense of handling the effluent from septic tanks would be notably greater. Altogether the decline of the septic tank as a method utilizable on a large scale seems likely to be as rapid as its rise.

Current Comment

INVESTIGATION OF NORMAL OR AVERAGE HUMAN BEINGS

A recent writer,¹ in connection with the bill to establish a federal laboratory for the study of criminals, remarks that, while the anthropometric study of criminals is desirable, “more important still is the anthropometric study of all sorts and conditions of men. . . . Crime conceived of as a social phenomenon should be studied in connection with the social group, and not merely the individual criminal.” Conclusions on this subject, therefore, can be profitably drawn only after consideration of data “derived from large series of observations in connection with the facts of sociology, history and ethnology.” This seems like a sane and reasonable suggestion. The exact and scientific study of the criminal at present, while we lack an exact standard of measurement derived from the normal, seems about as promising as would be the study of the path-

1. Lindsey, Edward: Bill to Establish a Criminological Laboratory at Washington, *Jour. Am. Inst. Crim. Law and Criminology*, May, 1910, p. 103.

ology of any organ concerning whose normal condition only vague and unorganized ideas were available. What is a normal human being? How close an approximation to this ideal type is to be found in the average or ordinary member of society? What deviations from the normal or from the average may an individual present and still be a functioning member of ordinary society? What is the percentage of deviations among the mass of members of ordinary society? When we have reasonably precise answers to a few questions such as these, founded on reasonably extensive and exact observations of unselected material, we shall perhaps be in a better position than at present to judge of the value of the elaborate theories of the nature of the criminal which are offered to us to-day. We shall then have a standard by which to judge of the nature, the degree and the comparative number of the deviations presented by those individuals whom society rejects as detrimental to its structure.

TOMATO CATSUP AND SODIUM BENZOATE

In discussing the use of benzoate of soda as a food preservative the question has almost universally been limited to the manufacture of one product—tomato catsup. This has been due to the fact that probably no other industry offers so wide a field as does catsup-making for the sophistication of foodstuffs by the employment of this preservative. Those who are opposed to the use of this chemical in food have urged that one of the chief objections to it is the fact that it permits the manufacturer to use an inferior grade of material and also to have less regard for cleanliness in making the catsup. The proponents of sodium benzoate, on the other hand, have not only strenuously denied that the use of the chemical would permit such frauds but they have gone still further: they have insisted that the only method by which low-grade tomatoes could be made into presentable-appearing catsup was by the use of the vinegar and spice method of preserving. This seemed to put the matter on debatable ground, but light has been thrown on the point in an eminently practical way. The United States Government has brought suit and obtained judgment in five cases against firms which make a business of using the waste material of canning factories—tomato pulp screened from peelings and cores of tomatoes—for making tomato catsup. In every case the catsup put up by these concerns was labeled as containing benzoate of soda! It is reasonable to suppose that if the only way to make a presentable catsup out of tomato refuse was by means of the vinegar-spice method these concerns would not have used the sodium benzoate method: especially, too, as the term "benzoate of soda" has become more or less of a reproach.

PUBLIC OPINION AND THE PUBLIC DRINKING-CUP

The abolition of the public drinking-cup is a sanitary measure of real importance that has been adopted rather widely within a short time. At least eight states have by statute prohibited the use of the public cup; the boards of health of forty states have recommended its abandonment, and, in addition, numerous city govern-

ments have banished the cup from the public schools and parks. This removes from a considerable proportion of the population an undoubted prolific source of danger to public health. But gratifying and important as this fact is, it is not the only source of gratification in this connection. Another feature worthy of comment is the practically unanimous manner in which this measure has been supported and advocated by the public press, and the intelligent manner in which it has been presented to and received by the people. In a large number of press comments, from many states and sections, only one was found which was in any way adverse, and that was only mildly so. This paper said: "The use of public cups or glasses is a practice not wholly nice, and most persons deplore it, still the practice is a matter of one's own personal like or dislike, it would seem." With a little more reflection, this lone objector would see that it is not at all "a matter of one's own personal like or dislike," but distinctly and eminently a matter for public regulation. The hearty support, advocacy and adoption of this measure by health, municipal and school authorities, and by the press and the people, are the best evidence that the importance of sanitary measures is recognized, and that, where reasonable and when properly presented, they will receive the sanction and support of the people, whose best welfare, of course, forms their sole reason for existence.

STATE SOCIETY BUILDS A HOME

After years of homeless wandering, the Rhode Island Medical Society, one of the oldest of our state associations, is about to erect a permanent home and library building, thus realizing the dreams of many of the older members. At the last meeting of the state society, the house of delegates authorized the building committee to purchase, in Providence, a tract of land containing 8,000 square feet. The plot is admirably located, facing the extensive grounds around the state capitol building and bounded on one side by the state normal school grounds. It is near to the union railroad station and is conveniently situated for the members of the state society. Plans are now being made for securing the necessary money for a building. As has been frequently pointed out, either the man or the organization that is homeless is hampered and is prevented from doing the best work possible. The tendency on the part of our state associations and some of the larger local societies to establish permanent homes and to secure buildings of their own is most commendable. Too often, in the past, in our efforts to be of public service, our own interests have been overlooked. It is a cardinal duty of every man, whenever possible, to provide a home for himself and for his posterity. This duty is also incumbent on medical organizations. In no way can the stability of our medical organizations in future years be so well assured as by acquiring real property and erecting permanent homes. This may not be possible or practicable for all state associations, nor even for all of the larger local organizations, but it is a splendid achievement whenever it can be accomplished and greatly strengthens the organization.

Medical News

COLORADO

Personal.—Dr. Charles F. Shollenberger, Denver, has returned from a trip around the world.

State Society Meeting.—The annual meeting of the Colorado State Medical Society was held in Colorado Springs, October 11-13, under the presidency of Dr. Leonard Freeman, Denver. The following officers were elected: president, Dr. Will Howard Swan, Colorado Springs; vice-presidents, Drs. Thomas E. Carmody, Denver; Madison J. Keeney, Pueblo; J. H. Cole, Yampa, and Samuel French, Meeker; secretary, Dr. Melville Black, Denver (reelected), and councilors, Drs. Edgar Hadley, Telluride; Jacob C. Chipman, Sterling; Charles F. Gardiner, Colorado Springs, and Edward A. Whitmore, Leadville, and delegate to the American Medical Association, Dr. Edward Jackson, Denver, and alternate Dr. Howell T. Pershing, Denver. The next meeting of the society will be held in Steamboat Springs.

ILLINOIS

Personal.—Dr. S. S. Wilcox, Charleston, was seriously injured by falling from his carriage recently.—Dr. Alexander F. Stewart, Oneida, has resumed practice after undergoing an operation at Augustana Hospital, Chicago.

Changes at Hospital.—At the annual election of officers of the Graham Hospital, Canton, Dr. Paul S. Scholes was elected president; Dr. Harrison C. Putnam, vice-president, and Dr. Charles N. Allison, secretary. The retiring members were Drs. Willis T. Zeigler, James E. Coleman, and Leroy Chapin. According to the annual report the hospital has had a successful year.

Medical Practice Act Upheld.—The State Board of Health won a victory October 28 when the Supreme Court, in the case of Board of Health vs. Wilson, sustained the validity of the medical practice act, and upheld the contention made by the board that an itinerant vender who sold a medicine accompanied by a circular exploiting the virtues of the remedy, and giving directions for its use, "professed to the public to cure or treat disease," even though he remained mute. The court also held that the State Board of Health is clothed with broad discretionary powers, and that the medical practice act is not subject to the objection that it confers legislative or judicial powers on the State Board of Health. Further the court emphasized its previous rulings that the regulation of the practice of medicine is clearly within the police power of the state.

Conference of Charities and Corrections.—At the meeting of the Illinois State Conference of Charities and Corrections at Galesburg, October 25, that body recommended, among other things, that the two state penitentiaries and the reformatory be placed under the supervision of the state board of administration; that political qualifications be eliminated in appointments and that civil service be established in the several institutions; also that short terms and small salaries be abolished; that the legislature enact an adult probation law, increase the number of parole agents, transform Cook County Hospital for the Insane to a state hospital, establish a true psychopathic hospital in Chicago, and a state inebriate institute, appoint a commission to take the census of the blind in Illinois, furnish more experienced care for the education of the feeble minded, and furnish two state schools for delinquent boys and girls; that infant mortality be studied in Illinois through a committee; that a state board of children's guardians be provided for by law.

Chicago

Fenger-Senn Memorial Lecture.—The council of the Chicago Medical Society, October 8, paid a high tribute to the names of Fenger and Senn, by instituting the "Fenger-Senn Memorial Lecture," to be given annually under the auspices of the society. The sum of \$200 was set aside as a fund.

To Study the Insane.—A meeting of physicians of the state was held at the University Club, October 27, and an organization perfected for the study of the diseases of the insane. Meetings will be held from time to time in different cities. Representatives of the medical staffs of the state hospitals attended the meeting.

Urges Teaching of Anatomy and Physiology in Schools.—The Federated Woman's Clubs of Chicago, at a meeting October 27, was addressed by Dr. Rose D. Howe on "The

Moral Problems of Education," and passed resolutions advocating a scientific course of anatomy and physiology in the public schools under the instruction of regularly licensed physicians.

Surgical Society Meeting.—At the meeting of the Chicago Surgical Society at the University Club, October 25, which was the occasion of the annual dinner, the following officers were installed: Dr. Jacob Frank, president, succeeding Dr. Arthur Dean Bevan; vice-president, Dr. P. Charles Davison; secretary, Dr. Frederiek A. Besley; treasurer, Dr. Dean D. Lewis; and members of the council, Drs. Albert J. Oschner and A. E. Halsted. The first scientific meeting of the year will be held November 10.

To Abolish Midwives.—At the meeting of the Conference of Jewish Women's Organizations, October 27, Dr. Alice Hamilton advocated the abolishment of midwives because they are not properly trained. She said that out of 500 licensed midwives in Chicago, scarcely 30 per cent. are capable and efficient, and one-third are willing to take criminal cases. In this country the license issued to a midwife means nothing. The practice is scarcely controlled at all. We give them the stamp of approval which only deceives those who do not understand.

Two Weeks of Clinics.—During the two weeks from November 7 to 19 a large number of physicians and surgeons of the city will hold clinics in the various medical schools and hospitals for the benefit of visiting physicians. A regular schedule of daily clinics has been prepared. A number of social affairs will also be provided for the entertainment of physicians during this time. An information bureau will be maintained at the LaSalle Hotel; full details may be obtained by calling there or by writing to Dr. Franklin H. Martin, 103 State street, Chicago.

Medical Health Officers Organize.—The Chicago Medical Health Officers' Association, composed of ninety-five graduate physicians employed in the City Health Department, was organized October 28. The following officers were elected: president, Dr. John A. Riley; vice-president, Dr. F. S. Windell; secretary, Dr. A. H. Jones, and treasurer, Dr. W. H. Falkenstein. The meeting deplored the small salaries paid city health officers, whom they assert are the poorest paid employees under the civil service. They also pledged hearty support to Health Commissioner Evans in his fight against contagious diseases.

INDIANA

Memorial Hospital.—The Gilbert Memorial Hospital of Evansville will be ready for occupancy Feb. 11, 1921. It will be four stories in height, built of reinforced concrete, and cost \$50,000. Dr. W. H. Gilbert will be the surgeon in charge.

Drug and Liquor Legislation.—The State Board of Pharmacy of Indiana, at its annual meeting at Indianapolis, October 23, selected a committee to devise more stringent laws to regulate the sale by druggists of intoxicating liquors and deleterious drugs.

Diphtheria.—An epidemic of diphtheria has closed the schools at Loogootee, and the State Board of Health has put Dr. W. E. Shimer in charge of the situation. Out of 194 throat cultures, eighty patients were found to have the germ of diphtheria present.

District Society Election.—At the semi-annual meeting of the Thirteenth District Medical Society, held in Rochester, October 18 and 19, Dr. Irvin J. Becknell, Goshen, was elected president; Dr. William H. Thompson, Winamac, vice-president, and Dr. C. Norman Howard, Warsaw, secretary (reelected). The next meeting will be held at Elkhart.

Deaths from Diarrheal Diseases.—The City Board of Health of Indianapolis has prepared a statement for the four summer months of 1910 of the deaths of infants due to digestive diseases. Of a total of 156 deaths, a personal investigation was made of 135. Of this number only thirteen were fed on mother's milk, while 122 had been given baby food, bottled milk, canned corn, etc. The statements emphasize again that the bottle-fed baby is less resistant to disease than the breast fed.

Arrest of Medicine Venders.—Dr. George D. Colburn of Toledo, Ohio, was arrested at Logansport on the charge of peddling medicine without a license. He was fined \$50 and permitted to leave the city on a suspended sentence. A Dr. William Hope of Indianapolis was also arrested at Logansport on October 8 for peddling medicine without a license. The local medical society has asked a change of venue, as Mr.

C. H. Stewart, the special judge, is an Eddyite, which is prejudicial to justice when the science of medicine is involved.

Preventing Ophthalmia Neonatorum.—A committee of the Indiana State Medical Society, in a meeting at the State House October 20, of which Dr. George Keiper of Lafayette was chairman, has advised the passing of a law making it compulsory on the part of attending physicians to use the Credé treatment on each infant at birth. The penalty for failure to comply will be revocation of license. It has been estimated that one-third of the total number of blind persons in the state of Indiana have lost their sight on account of the failure of the obstetrician to use this method of treatment.

Personal.—Dr. J. E. Talbot of Ruth, Nev., has moved to Indianapolis to practice.—Dr. J. I. Rinne has moved from Indianapolis to Lapell.—Dr. Urbana Spink, Indianapolis, sailed for Europe October 15 for study.—Dr. Lewis R. Thompson, Jr., of Lafayette, has been appointed an assistant surgeon in the United States Public Health and Marine-Hospital Service.—Dr. Charles C. Haskell, Indianapolis, who has been in New York for 3 months studying diseases of infants, has returned.—Dr. Edward A. Willis, Indianapolis, has been appointed guardian for Dr. Henry B. Fitts, U. S. Navy, retired.—The State Board of Medical Registration and Examination decided on October 18 that the charges made by Dr. Eli L. Schlatterback, health officer of Ligonier against Dr. Max C. Van De Venter and wife did not contain sufficient facts on which to base action.—At the same session the charges against William M. Thompson, Ligonier, were summarily dismissed by the board, and a license to practice was issued Dr. Thompson.

IOWA

Personal.—Dr. Joseph W. Armstrong, Des Moines, was seriously injured while on a hunting trip in northern Minnesota, October 18.—Dr. William W. Hunter, Monticello, who has been seriously ill, is now convalescent.

Epileptic Colony Needed.—The State Board of Control has sent out circular letters asking that concise statements be sent to the board giving the number of cases of epilepsy in the various localities in the state. The superintendent of the Mount Pleasant State Hospital believes there are 4,000 epileptics in Iowa, that 10 per cent. of these become insane, and that 3 per cent. commit crimes. The board urges that an epileptic colony be established in Iowa similar to the Craig Colony at Sonyea, N. Y.

KANSAS

Students to be Vaccinated Against Typhoid.—Dr. Mervin T. Suddler, head of the Medical Department of the University of Kansas, announces that all students who so desire may be vaccinated against typhoid fever free of charge.

Infected with Rabies.—Dr. William K. Trimble, bacteriologist of the University of Kansas, Medical Department, Rosedale, was infected with rabies, October 20, while making an examination of the brain of a dog sent to the laboratory for diagnosis.

Medical Department to be Moved.—The regents of the University of Kansas are reported to be seriously considering the removal of the medical department now located in Rosedale to some other city, possibly Kansas City, Kan., which has more abundant hospital facilities.

KENTUCKY

Personal.—Dr. John Todd has been elected health officer of Newport.—The residence of Dr. William D. Howe, Carlisle, was destroyed by fire, October 13, with a loss of about \$10,000 partially covered by insurance.

Visiting Staff Organized.—The visiting staff of the City Hospital, Louisville, met October 18, to form a permanent organization. Dr. Joseph B. Marvin was chosen chairman of the meeting and Dr. Henry Enos Tuley, secretary. Dr. J. W. Fowler, superintendent of the hospital, delivered an address, explaining the object of the meeting.

Testimonial to Dr. Bodine.—In appreciation of the devotion and services to the interests of the Medical Department of the Louisville University of Dr. James Morrison Bodine, its dean and president of the faculty for 45 years, his many friends and pupils have arranged for a testimonial dinner to Dr. Bodine at the hotel Seelbach, Louisville, December 16. Dr. Bodine is now in his 80th year and is still active in the cause of medical education. Dr. Lewis S. McMurtry is chairman of the committee on arrangements.

LOUISIANA

Charity Bed Endowed.—The first charity bed in the Presbyterian Hospital, New Orleans, has been endowed by the widow and children of Mr. Charles Weiss, in his memory.

Refuse New Trial.—It was announced October 18 that the supreme court had refused a new trial to Dr. Emmett C. McKowen, Jackson, charged with the murder of E. K. Judson, a patient in the State Asylum for the Insane, Jackson.

Sanitarium Transferred.—The formal transfer of the New Orleans Sanitarium property to the Presbyterian Hospital was made October 5. The new management intends to install a free clinic at once, and a little later free wards will be opened.

Noted German Physician in New Orleans.—Prof Dr. E. Grawitz, Berlin, who has been visiting in New Orleans, lectured, October 14, before Tulane Medical Department on "Pernicious Anemia, Its Definition and Treatment," and on the following evening before the Orleans Parish Medical Society on "The Causes of Leukocythemia."

Personal.—Dr. James M. Adams, St. Joseph, president of the Tensas Parish Board of Health, has resigned and has been succeeded by Dr. Louis A. Murdock.—Dr. Frederick J. Mayer, New Orleans, formerly special medical inspector of the State Board of Health of Louisiana, sailed for Liverpool from Galveston, October 5. He is making the trip in the interest of the State Board of Health of Texas.

MARYLAND

Personal.—Dr. Edson M. Glidden, assistant superintendent of the Maryland Tuberculosis Sanatorium, has resigned that office to become superintendent of the new Georgia State Tuberculosis Sanatorium.

Hagerstown Hospital.—The plans and specifications for the new hospital building, to be erected in Hagerstown, under the supervision of Dr. Henry M. Hurd, superintendent of Johns Hopkins Hospital, have been completed. It is for the Washington County Hospital Association, and the cost of construction will be about \$75,000. It will be two and three stories high, of brick, stone and stucco and will be fireproof.

Washington County Health Report.—Dr. J. E. Pitsnogle, health officer of Washington County, reports expenses of the year \$2,320. There were 795 deaths and 1,062 births (males 546, females 516). Many school buildings are said to be improperly ventilated and overcrowded. The teachers are complying with the vaccination law. Child labor permits were issued in 300 cases and 40 refused on account of educational or physical defects. He urges a compulsory education law, appointment of a food and meat inspector, a health officer in every election district, and that the county health office be taken out of politics. Hagerstown is in this county.

Baltimore

Address to Medical Students.—Dr. Charles P. Emerson, superintendent of the Clifton Springs Sanatorium, New York, and formerly resident physician of the Johns Hopkins Hospital, addressed the students of Johns Hopkins Medical School, October 28, on the good medical students can do by working in conjunction with charity organizations. Dr. Emerson organized the Social Service Department of the Johns Hopkins Medical School.

University Graduate Assassinated.—News has been received at the University of Maryland of the assassination of Dr. Taoufik T. Rassey, of Singa, Soudan, a surgeon in the Egyptian army, who graduated at the institution in 1902. A native ran a sword through his back, penetrating his right kidney and intestines and lodging against the ileum. There was no other medical man at the post to render assistance, and he lived but a few hours. He did not know his assailant or any reason for the assault. Dr. Rassey distinguished himself while a student here and stood high in his native country.

MASSACHUSETTS

Personal.—Dr. Allen G. Rice has been elected school inspector of Springfield.—Dr. Eliza J. Dadmun, Boston, has returned from Vienna.

State Society Proceedings.—At the regular meeting of the Council of the Massachusetts Medical Society, October 5, Dr. Orland J. Brown, North Adams, was elected delegate to the Vermont Medical Society, and Drs. Daniel E. Keefe, Springfield, and Elliot P. Joslin, Boston, were elected delegates to the Medical Society of the State of New York. Dr. Charles H.

Cook, Natick, gave a report of the meeting of the National Legislative Council of the American Medical Association with particular reference to the value of a national department of health. Dr. Walter P. Bowers, Clinton, was elected to succeed Dr. George W. Gay, Boston, as a member of the committee on state and national legislation. It was voted to revise the list of medical colleges and schools whose diplomas should be accepted by the Massachusetts Medical Society. Attention was called to the power of the Massachusetts Medical Society to regulate medical expert testimony as provided by its present by-laws. Dr. Horace D. Arnold, Boston, made a report of the last meeting of the House of Delegates of the American Medical Association at St. Louis, and dwelt on its great value to the constituent state societies.

MICHIGAN

Personal.—Dr. James A. Ashbaugh has been reelected president of the medical staff of the Hotel Dieu, Detroit.—Dr. Silas B. Frankhauser, Hillsdale, has been reelected physician of Hillsdale County.

Leper's Children May Attend School.—The State Board of Health has decided that the four children of Maurelius Jensen, a Calumet resident afflicted with leprosy, may attend the public schools without being a menace to public health. They will be kept away from their parents during the school term.

New Society Officers.—The Detroit Oto-Laryngological Society, at its meeting held October 18, elected Dr. Ernest L. Shurly, president, and Dr. Emil Amberg, secretary-treasurer. Dr. Shurly, in his address, urged a broader conception of specialism.—At the annual meeting of the Huron County Medical Society, held in Bad Axe, October 10, Dr. Frank E. Luton, Kilmanagh, was elected president; Dr. Alford E. W. Yale, Pigeon, vice-president; Dr. Daniel Conboy, Bad Axe, secretary-treasurer; Dr. Bernhard Friedlander, Sebawaing, delegate to the state medical society, and Dr. Dugald D. Munro, Kinde, alternate.—Tuscola County Medical Society, at its annual meeting, held in Caro, October 12, elected Dr. James H. Hays, Cass City, president; Dr. Albert J. Howell, Deford, vice-president, and Dr. Wynne C. Garvin, Millington, secretary-treasurer.

MISSOURI

Honor Old Member.—The Ralls County Medical Society held its meeting in Center, October 20, in honor of Dr. Nathan A. Foster, who has been practicing in that place for 50 years.

Hospital for Negroes.—The colored population of Springfield have decided to build and maintain a hospital for negroes, to be known as the Dunbar Hospital. An association has been organized to collect the necessary means.

Open Clinics to All.—A resolution has been adopted by the common council of Kansas City directing the hospital and health board to admit representatives of all schools of medicine and surgery to the clinics at the Kansas City General Hospital.

License Restored.—Dr. W. Earl Williams, Higbee, whose license was revoked by the State Board of Health on account of failure to comply with the regulations regarding the prescribing of liquor, is said to have had his license restored by that body.

Board of Charities to Meet.—The State Board of Charities and Correction will hold a meeting in Chillicothe, November 11 and 12. On the evening of November 11 the subject for discussion will be tuberculosis in the state. The St. Louis Commission on Tuberculosis will send its exhibit to this meeting.

Jefferson Alumni in Missouri.—Missouri graduates of Jefferson Medical College have organized the Jefferson Alumni Association of Missouri, with provision for corresponding members in Illinois, and invite the alumni of Jefferson in these states to become members. Dr. William Porter, St. Louis, is president and Dr. A. T. Muench, St. Louis, secretary.

Personal.—Dr. Guy L. Noyes has been made medical inspector of the public schools of Columbia.—Dr. Carlos C. English, Kansas City, has been appointed first assistant physician at the State Sanatorium for Tuberculosis, Mount Vernon, vice Dr. George W. Orrick, resigned.—Dr. and Mrs. Francis R. Anthony, Maryville, have located for the winter in Vienna, Austria.

St. Louis

Tuberculosis Research Society Organized.—A research society devoted to the investigation of tuberculosis and its complications has been organized in St. Louis with the object of investigating and reporting on the different phases of the

disease. Clinics and hospitals will be searched for material suitable for research work.

Personal.—Dr. Llewellyn P. Williamson has reentered the medical corps of the army and is stationed at Fort D. A. Russell, Wyo.—Dr. Leo Loeb has entered on his duties as director of the research department of the Barnard Free Skin and Cancer Hospital. He is aided by his two former assistants, Drs. Mayer L. Fleisher and O. Ishii.—Dr. Walter C. G. Kirchner has returned from Europe.

Hospital Staff Appointed.—The hospital board has selected the visiting staff for the public hospitals. The fitness of the applicants was based entirely on professional attainments and standing, political influence being absolutely ignored. No one could be considered who had been in practice less than five years. The appointments follow:

Medicine.—O. H. Brown, H. J. Cummings, George Dock, William P. Elmer, William Engelbach, L. S. Luton, George Richter, John Salter.

Surgery.—E. A. Babler, Willard Bartlett, Vilray P. Blair, Ernst Jonas, W. E. Leighton, Max W. Myer, Louis Rassieur, Francis Reeder.

Gynecology and Obstetrics.—H. S. Crossen, A. N. Curtis, Hugo Ehrenfest, George Gellhorn, Percy Swahlen, Fred J. Taussig.

Ear, Nose and Throat.—William D. Black, H. W. Loeb, C. F. Pängsten, Roy T. Scholz.

Eye.—John Green, Jr., J. Ellis Jennings, Clarence Loeb, Ernst Saxl, Nathaniel M. Semple.

Oral Surgeons.—J. P. Harper, D.D.S., Virgil Loeb.

Children's Diseases.—J. R. Clemens, Aaron Levy, Gustav Lippmann.

Genito-Urinary.—C. E. Burford, J. W. Marchildon, William M. Robertson, Henry J. Scherck.

Deformities (Orthopedics).—Nathaniel Allison.

Neurology.—M. A. Bliss, C. G. Chaddock, W. W. Graves, M. W. Hoge, Sidney I. Schwab.

Skin.—M. F. Engman, J. J. Houwink, W. H. Mook.

X-Ray.—R. D. Carman, Fred B. Hall.

In addition to the above appointments, the following members of the temporary staff will fill out their terms:

Medicine.—Elsworth S. Smith, Jr., Carl J. Luyties, G. C. Crandall.
Surgery.—M. G. Seelig, Willis Young.

NEBRASKA

Alumni Week.—The first celebration of alumni week of the College of Medicine of Nebraska University was held during the past week. An interesting program of medical papers and clinics at the hospitals and the college was carried out and the social features were not forgotten.

NEW YORK

Health Officers' Conference.—The conference of Sanitary Officers of the State of New York will be held at Buffalo, November 16-18.

Personal.—Dr. Robert T. Irvine, health physician of Ossining and physician to Sing Sing prison, was very seriously injured in an automobile accident, October 25.

Poliomyelitis.—According to the recent report of the State Department of Health, there have been 146 cases of infantile paralysis in this state since May 1. Thirty-one of these resulted fatally. During September ninety-two cases, with sixteen deaths were reported.

Typhoid Below the Average.—The report of typhoid conditions in New York state, which Governor White requested, has been submitted by Dr. Porter and shows that the mortality for the year 1910 is about 10 per cent, less than the previous normal rates. Yonkers and Niagara Falls have had an unusual number of cases.

The First District Branch Meets.—The fourth annual meeting of the First District Branch of the Medical Society of the State of New York was held in Newburgh, Thursday, October 27. The following officers were elected: president, Dr. W. Stanton Gleason, Newburgh; vice-president, Dr. H. D. Hardenbergh, Middletown; secretary, Dr. Charles Ellery Denison, New York City; treasurer, Dr. James E. Sadlier, Poughkeepsie. The 1911 meeting will be held at Tuxedo Park.

New York City

Harvey Society Lecture.—The second lecture of the Harvey Society course, delivered by Prof. W. E. Castle, Harvard University, November 5, is on the subject "Unit Characters in Heredity."

Another Case of Cholera.—The Italian liner Taormina from Genoa, which arrived at quarantine, October 21, was held over for several days because of a death during the voyage which the ship's doctor believed to be due to cholera.

Trains Must Not Pollute Water Supply.—The New York Central Railroad has been informed by the water pollution committee of the Merchant's Association that trains may be efficient carriers of typhoid and asks that the railroads close the toilets while trains are within the Croton Watershed.

To Enlarge Hospital.—The Manhattan Eye, Ear and Throat Hospital has secured a plot of ground at the southeast corner of Third Avenue and Sixty-Fourth Street where it is proposed to build an addition to the hospital.—Two extensions to the three-story hospital and school on Randall's Island are to be erected at a cost of \$40,000. These extensions are to be used as playrooms.

To Aid Health Department.—Health Commissioner Lederle has secured the assistance of three physicians and two college professors to act as an advisory board of statisticians to the Health Department. Their services are to be gratuitous. These assistants are Dr. Roger C. Tracey, formerly a registrar of the Health Department; Dr. William S. Guilfoyle, the present registrar; Dr. Cressy L. Wilbur, Professor C. E. A. Winslow, formerly of the Massachusetts Institute of Technology, and Professor Walter L. Wilcox, professor of economics at Cornell. This board plans for better computation of health and mortality statistics.

Buffalo

Personal.—Dr. James P. Barr was injured recently in a collision between his automobile and a trolley car.—Dr. Harvey R. Gaylord has returned from Europe.

Health Department to Supervise Insane.—Hereafter the Department of Health will have supervision of the detention of the insane instead of the police department. This means that the unfortunate insane will not be detained in police stations or regarded as criminals or indigents, but more humane and scientific treatment will be given them at first hand.

NORTH CAROLINA

Contributing Editors to Bulletin.—The Secretary of the North Carolina State Board of Health announces the following list of contributing editors to the *Bulletin*: Governor W. W. Kitchin, Raleigh; Hon. A. H. Eller, Winston-Salem; Hon. E. W. Sikes, Wake Forest; Hon. W. C. Dowd, Charlotte; Mr. Clarence Poe, Raleigh; Mr. Archibald Johnson, Thomasville; Rev. George W. Lay, Raleigh; Dr. Henry L. Smith, Davidson; Dr. Francis P. Venable, Chapel Hill; Dr. W. P. Few, Durham; Dr. William L. Potteat, Wake Forest; Prof. F. L. Stevens, Raleigh; Dr. Cyrus Thompson, Jacksonville; Dr. Charles O. H. Laughinghouse, Greenville; Dr. Lewis B. McBrayer, Asheville; Dr. Benjamin K. Hays, Oxford; Dr. Edward J. Wood, Wilmington; Dr. William DeB. MacNider, Chapel Hill; Dr. Hubert A. Royster, Raleigh, and Dr. James L. Nicholson, Richlands. The condition imposed is that the acceptance of the position of contributing editor shall be understood to mean that each individual so honored shall furnish at least one thousand words annually to the pages of the *Bulletin*.

PENNSYLVANIA

Money Collected for Tuberculosis Society.—The receipts of the house-to-house collection in Reading for the Berks County Tuberculosis Society aggregated \$9,524.

Infantile Paralysis in the State.—Since the first of July 1,018 cases of infantile paralysis have been reported to the authorities. However, there has been a marked decrease in the number of cases since the advent of cooler weather.

Sanatorium Burns.—The Inwood Sanatorium just outside the borough of West Conshohocken, in lower Merion, was destroyed by fire October 23. The loss will probably reach \$60,000. The seventy-five women under treatment in the institution escaped injury.

Philadelphia

Age of Dr. Shoemaker.—The age of the late Dr. John Veitch Shoemaker, noted in THE JOURNAL, October 22, page 1485, was 58 instead of 52.

Gift to Hospital.—The Frederick Douglas Memorial Hospital and Training School for Nurses, announced October 24, a gift of \$1,000 from Henry Phipps.

New State Laboratory.—The Department of Health of Pennsylvania has leased the entire building at 2000 Arch Street for use as a biologic laboratory.

Cholera Suspects Captured Elsewhere.—Cholera suspects, who landed in Philadelphia on the steamship Taormina, from Italian ports, and who escaped detention here, are held in Cincinnati, Youngstown, O., and Schenectady, N. Y.

Milk Commission Named.—Mayor Reyburn October 24 appointed the following commission to investigate the milk supply of the city: Dr. Charles Lincoln Furbush, chairman; Drs. Charles B. Penrose, Henry Leffman, Randle C. Rosenberger, Clarence J. Marshall, and Samuel M. Hamill.

Orthopedic Club Visits University.—The Inter-Urban Orthopedic Club of the United States visited the University of Pennsylvania on Saturday, November 5, as the guests of Dr. James K. Young. After the inspection of the orthopedic department, the x-ray laboratory and the new laboratory buildings of the medical school, they were taken by their host to the Widener Memorial Home, where they were entertained at luncheon by Dr. George D. Widener.

University Adds Course in Sanitary Engineering.—The new course in public health, which has been inaugurated at the University of Pennsylvania under the auspices of the engineering department and the laboratory of hygiene, is being developed rapidly. This course was begun as the result of the demand for the services of trained men as public health officers. It embraces sanitary engineering; public water supplies; the designing of hydraulic works; proper disposal of waste and sewage; the inspection of meat, milk and other animal products; personal and general hygiene, and lectures on sanitary legislation.

Exhibit on Infant Life.—Director Neff is having an exhibit on infant mortality and infantile paralysis prepared for display at the American Association for the Study and Prevention of Infantile Paralysis, to be held in Baltimore, November 9-11. A part of the exhibit will also be displayed at the conference of city officials on charities and corrections to be held in Altoona, November 16, and subsequently the whole display is to be exhibited in this city in a building which is to be loaned for the purpose by Felix Isman. The exhibit includes innumerable charts showing the bearing that humidity, temperature, housing conditions, congestion and numerous other phases of physical welfare may have in relation to infant growth and life.

Personal.—Dr. Ralph Butler has been appointed chief of the laryngologic and aural department of the German Hospital, succeeding the late Dr. Barton H. Potts.—Dr. James A. Babbitt has been appointed to the position in the dispensary left vacant by the promotion of Dr. Butler.—Dr. Alexander C. Abbott, professor of hygiene and bacteriology in the University of Pennsylvania, and director of the laboratory of hygiene, will deliver lectures at the University of Maryland, November 9 and 10.—Dr. Charles Hunsinger is seriously ill in Jefferson Hospital.—Dr. John A. McGinn has been elected clinical professor of obstetrics in the Medico-Chirurgical College.—Dr. Charles M. Burk was operated on in the German Hospital, October 26, for intestinal trouble and is in a serious condition.—Drs. James G. Mumford, of Boston, and Edward N. Brush, of Towson, Md., read papers at the stated meeting of the College of Physicians, November 2.

VERMONT

Physician Elected Governor.—Lieutenant-Governor John A. Mead, Rutland, a retired physician, was elected governor of the state on the republican ticket by a plurality of about 17,000.

Medical Club Elects.—At the annual meeting of the Rutland Medical and Surgical Reporting Club, September 20, Dr. Mark R. Crain was elected president; Dr. William W. Townsend, vice-president, and Dr. Ray E. Smith, secretary.

State Society Meeting.—The Vermont State Medical Society held its ninety-seventh annual meeting in St. Albans, October 13 and 14, and elected the following officers: president, Dr. Henry C. Tinkman, Burlington; vice-president, Dr. Stephen W. Paige, St. Albans; secretary, Dr. Clarence H. Beecher, Burlington (reelected); treasurer, Dr. Bingham H. Stone, Burlington (reelected); auditor, Dr. Anson M. Norton, Bristol (reelected); anniversary chairman, Dr. Schuyler W. Hammond, Rutland; and delegates to medical societies: American Medical Association, Dr. James N. Jenne, Burlington; to Connecticut River Valley Medical Association, Dr. William N. Bryant, Ludlow; to White Mountain Medical Association, Dr. Clinton J. Rumrill, Randolph; to White River Valley Medical Association, Dr. William Lindsay, Montpelier; to Maine State Medical Society, Dr. Mark P. Stanley, White River Junction; to New Hampshire Medical Society, Dr. Fred T. Kidder, Woodstock; to Massachusetts Medical Society, Dr. Edward M. Crane, Hardwick; to Connecticut Medical Society, Dr. Patrick E. McSweeney, Burlington; to Rhode Island Medical Society, Dr. Clayton W. Bartlett, Bennington;

to Medical Society of the State of New York, Dr. William W. Townsend, Rutland. The House of Delegates elected the following officers: president, Dr. John P. Gifford, Randolph; vice-presidents, Drs. William W. Townsend, Rutland, and T. Frank Gartland, White River Junction, and secretary, Dr. Lyman Allen, Burlington. The treasurer reported a gift of \$1,500, the income of which shall be paid annually in October to the treasurer of the society for the purpose of establishing a lectureship, and providing for a speaker to be appointed by the president, for each general meeting on either sanitary science or general medicine.

VIRGINIA

County Societies May Unite.—At the regular quarterly meeting of the Northampton County Medical Society, held in Cape Charles, October 6, the question of the merger of the Northampton and Accomac County societies was favorably considered, and Dr. John H. Ayers, Accomac, was elected temporary chairman of the organizing committee.

Personal.—Dr. C. C. Hudson, Richmond, has been elected medical examiner of the health department, vice Dr. W. Brownley Foster, resigned, to become chief health officer of Roanoke.—Dr. Roy K. Flanagan, Charlottesville, has been appointed director of inspection for the state health department.—Dr. Powhattan S. Schenck has been appointed health commissioner of Norfolk, vice Dr. Henry R. Dupuy.—Dr. Charles J. Andrews has been made assistant health commissioner in charge of the bacteriologic work of the department, vice Dr. Edward C. S. Taliaferro.—Dr. John A. Johnston, chief surgeon at the National Soldiers' Home, has resigned.—Dr. Elisha Barksdale, city physician of Lynchburg, underwent operation at the German Hospital, Philadelphia, recently for infected glands of the neck.

WISCONSIN

Gift to Hospital.—Miss Moyca Newell, New York City, has donated \$10,000 to the endowment fund of the Kenosha Hospital as a memorial to her parents, the late Mr. and Mrs. Frederick Newell, pioneer residents of Kenosha.

Personal.—Dr. Frederick A. Kraft, formerly a member of the fire and police court, has succeeded Dr. William Colby Rucker as health commissioner of Milwaukee.—Dr. Ben C. Britt, Green Bay, has been appointed surgeon at the Veteran's Home, Waupaca, vice Dr. Bartholomew Bantley, resigned.—Dr. William Lorenz, formerly of Kankakee (Ill.) State Hospital, has been appointed assistant superintendent of the Wisconsin State Hospital, Mendota.

GENERAL NEWS

Alumni Association to Meet.—The annual meeting of the Alumni Association of the Lying-in Hospital of the City of New York will be held November 9, at the Harvard Club. Dr. J. Whitridge Williams, Baltimore, will read a paper entitled "My Experience in Labor Complicated by Contracted Pelvis."

Army Examination.—Seventy-six physicians are wanted for the U. S. Army. Applicants must be citizens, between 22 and 30 years of age, graduates of reputable medical schools, and must have had one year's hospital training or its equivalent, in practice subsequent to graduation. Examinations will be held Jan. 15, 1911, at various points throughout the country, and full particulars may be obtained from the Surgeon General of the Army, Washington, D. C.

Meeting of Military Surgeons.—At the annual session of the American Association of Military Surgeons, which met in Richmond, Va., this week, the following officers were elected: president, Surgeon-General George H. Torney, of the Army; vice-presidents, Surgeon Charles P. Wertenbaker of the Marine Hospital Service, Surgeon William C. Braisted of the Navy, and Colonel Charles Adams, Chicago, Surgeon General of Illinois; treasurer, Major Herbert A. Arnold, N. G. Pa., Ardmore, reelected.

FOREIGN NEWS

The Recent International Gynecologic Congress.—The fifth international congress of obstetrics and gynecology convened at St. Petersburg, September 22, with 800 registered members. It was the first international special congress that has been held on Russian soil, and twice it had to be postponed on account of war, political unrest or epidemics. The German gynecologists took the leading part in the transactions, Martin Bumm, Döderlein, Winter and Sellheim reading addresses

and a number of others taking part in various ways. Italy was represented by Pestalozza, editor of *Ginecologia*, and Mangiagalli, Mexico by Barreiro and France by Jayle, Le Filliatre and Abadie, Great Britain by Simpson and others, with Fontoyant from Madagascar, van de Velde from Holland and the representatives from the United States. Austria was not officially represented, owing to the five-day quarantine now enforced on account of cholera. An interesting sketch of the meeting by W. Beckmann in the *St. Petersburg med. Wochenschrift* just received comments on the proceedings that they brought out nothing materially new, although they demonstrated much industry and research on the part of the participants. When the subject of "Cesarean Section" was placed on the order of the day it was still open to discussion, but experience has demonstrated that the newer extraperitoneal technics have not proved adapted for infected cases, as was hoped at first, and consequently they have become merely a modification of the technic of the classic section. The unanimity on this point was so complete as to be touching, he declares, and extremely monotonous. The discussion of "Non-Operative Treatment of Cancer of the Uterus" showed that no definite progress had been realized by the tentative work done on all sides, and that certain forms of serotherapy had done direct harm. The general impression from the discussion was an encouragement to try various measures, cauterization and excoelation more energetically, without giving up the hope of more radical measures if conditions can be improved to permit. Fulguration and electrocongelation received only tepid endorsement from the speakers. The third subject on the program, the "Vaginal Route in Accouchement and Gynecology," gave the president of the congress, Professor von Ott, an opportunity to display his brilliant mastery of the vaginal technic, as shown in his own work and that of his pupils who have compiled, analyzed and sifted his entire material. The demonstrations on patients and the long records of successes will certainly, Beckmann is convinced, tend to increase the interest in the vaginal route, which seems to have declined somewhat during the last few years. No one appeared at the congress to discuss the subject, "Influence of the Nervous System in the Origin and Control of Uterine Hemorrhage," which had been placed on the order of the day at the request of the British committee. The question of "Treatment of Displacements of the Uterus" elicited a lively discussion, as Sellheim and von Knorre deprecated operative measures, while Dützmann and others reported excellent results from them. Fränkel's communication on the functions of the corpus luteum, based on over 400 experiments, aroused much interest, as also Abadie's report of the successful formation of a vagina out of a loop of small intestine. Spinal anesthesia found an ardent advocate in Le Filliatre, who performs operations even on the jaws with this technic and does not use inhalation anesthesia at all any more. But Abadie denounced the spinal technic so savagely that it almost made his hearers resolve to refrain from this technic henceforth. The program listed seventy-one communications and twenty demonstrations, and the organization of the congress was acknowledged to be flawless, thanks to the efforts of Professor von Ott and the secretary, Professor Sadovski, to whom the rest of the committee of organization seem to have left all the work. Russian hospitality to invited guests is proverbial, and its reputation was sustained on this occasion. The special features of the congress were mentioned in these columns July 23, 1910, page 324.

Ehrlich's Arseno-Benzol (606) in Syphilis.—An entire session of the recent German Naturforscher Congress was devoted to this new remedy; Ehrlich's own report was summarized in the Berlin Letter on page 1483. Neisser said that the destructive action of the drug on the spirochetes not only shortened the treatment of syphilis but would certainly aid in restricting the spread of syphilis by promptly reducing the danger of contagion from the infected, although, he added, reinfections would be observed probably more frequently. He advised not to abandon the tried method of chronic treatment of the infection although presumably it will not be necessary to keep up the old technic of seven or eight courses in the 3 to 5 years after infection. The serologic test may reveal those who do not need continued treatment, but this is not always reliable as experience has shown that after numerous negative responses the reaction may become positive and symptoms may recur. Expectant waiting in these cases would lose the ground already won. The question now is whether the continued treatment, if deemed necessary, should be intermittent or continuous. The system may become accustomed to the drug and the spirochetes may become drug-proof.

while, on the other hand, with continuous treatment the special properties of the drug may display their best action. Early and energetic treatment with "606" in every case of syphilis he regards as a duty now, and he does not rely on a single injection but repeats the 0.6 gm. dose after 3 or 6 weeks, sometimes interposing mercurial treatment. Alt expressed the hope that the symposium would be followed by a period of silent and extremely careful study of the new remedy to prevent any possible bad harvest that might throw discredit on Ehrlich's precious seed. He said that 75 per cent. of the mishaps reported to date might have been avoided by more scrupulous heeding of the directions as to doses, solution and administration. He stated that the drug not only kills all the accessible, fully developed spirochetes but it loosens up and induces hyperemia, local leukocytosis and a kind of inflammation in the syphilitic tissues and accumulations. When this process occurs in an enclosed space, as in the skull, the changes may entail transient symptoms of irritation or even paralysis. With syphilitic and parasymphilitic brain affections, slight sensory and motor symptoms may thus occur but they generally prove transient. When paresis is so well developed that the untrained eye can recognize it, the affection has progressed beyond relief from any drug; benefit can be anticipated only during the "heat lightning symptoms" stage. Especially in incipient taboparalysis the prospects are good for treatment with "606." Cerebral syphilis, he continued, is a very convincing and grateful field for the new drug but large doses should be avoided and the patient should be treated with as much caution as an epileptic with impending status epilepticus. The early forms of tabes have been much benefited in his experience; some of his tabetic patients treated last February and March have been freed to date (September) from their former attacks of pains. The effect of mere suggestion would probably have worn off long ere this. One of his patients with pronounced ataxia last March took part in the recent parade of veterans, marching with the best of them. He warns that tabetics are often in the habit of taking sedatives of various kinds and these must be reckoned with or untoward complications may result which might erroneously be attributed to the "606." Wechselmann denounced the statement recently made that the "606" is equivalent to two doses of calomel, and reported a case in which the former apparently cured completely malignant syphilis which had resisted for 4 years numerous calomel and other mercurial and arsenical courses. The ulcerations on the penis had healed over only once and for a few days during the entire 4 years. After three injections of the "606" in the course of 4 months (0.25, 0.45 and 0.45 gm.) every process has healed and the patient's earning capacity has been entirely restored. He excludes from the treatment persons with flabby, weak myocardium, such as is often encountered in tabetics; fever and an eruption are liable to follow the injection of the new drug when the heart is weak from any cause, although this reaction always subsided harmlessly in 2 or 3 days in his cases. No injury of the optic nerve from the new drug has been observed to date, he stated. Local necrosis has developed more frequently in his later series of cases; it appeared after 2 or 3 weeks and proved extremely indolent. Some of the tissues are still capable of recuperating so that active measures are contraindicated in treatment. Ehrlich called attention to the local necrosis observed after injection of the remedy in the breast of fowls; certain tissues seem more susceptible. In conclusion Wechselmann declared that the efficacy of the new drug has been proved by the experiences to date while its dangers have proved less than had been anticipated at first. Orth reported similar experiences with local necrosis in the buttocks after injection of "606." In the first case death followed the 10th day after the injection but the tissues were bacteriologically sterile and there was no suppuration. In the second case the patient died from cancer in the throat 6 weeks after the injection; the necrotic patch still showed the yellow field around a hemorrhagic center characteristic of this necrosis. Mielley observed transient arsenic melanosis in an infant with inherited syphilis, but otherwise had no by-effects of consequence to relate from his 157 cases. Margulies reported extensive research with the new drug which has confirmed the fact that the principle of complete sterilization by a single large dose can be successfully applied in all the trypanosome affections studied. Further, the spirilla do not become accustomed to the drug so that equally effectual action may be anticipated with fractioned dosage in spirilla affections. The animals

did not show any increased sensitiveness to the drug under repeated doses. Stern discussed the cases refractory to "606," having encountered eight among his eighty patients thus treated. The patients would have responded equally well to ordinary mercurial treatment and two of them probably even better. Scholtz suggested that possibly the blood serum of syphilitics just treated with "606" might have a curative action, and reported encouraging experiences in this line. In two cases injection of the serum was followed by subsidence of the manifestations of syphilis as under mild mercurial treatment; in three other cases the benefit was less pronounced. Grünfeld obtained the best results from the "606" in tertiary and inherited syphilis and found it harmless. He added that armed with this new remedy flying squadrons might be organized and sent throughout the country to combat syphilis as effectually as the flying squadrons now handle eye diseases in Russia. Hitherto the tediousness of the treatment of syphilis has prevented the organization of flying syphilis squadrons. Dohi, of Tokio, presented photographs of two syphilitics whose specific lesions, he said, had vanished under the "606" like snowflakes in the sunshine. Grouven reported infiltration and painfulness at the site of the first injection after a second injection elsewhere, demonstrating irregular absorption of the drug, but otherwise had no special by-effects even with four repetitions of the injections—no signs of anaphylaxis or diminution of efficiency. He also reported the curative action on an infected rabbit of the blood serum from a patient treated with "606." Glück stated that he had observed no by-effects in 417 cases although he had injected up to 0.8 gm. in some cases. Friedländer advocated an injection of the new drug in every case of chancre without waiting for a certain diagnosis. He advises continuing treatment with "606" only when new symptoms develop. One great advantage of the new remedy, he remarks, will be that thousands will be saved by it from the clutches of unscrupulous quacks. Salmon reported from Paris that a prophylactic small dose of "606" had proved effectual in warding off infection in monkeys. He regards tuberculosis and lupus as contraindications, having observed hemoptysis after injection in one case and ulceration of a tuberculous skin lesion in another. Schindler remarked that in the rejoicing over "606" we must not forget to rejoice over our possession of mercury too. Nagelschmidt reported extensive experiences with "606" in cases of incipient tabes and advocated his technic which has given excellent results. He gives first a very small dose; this is often followed by exacerbation of symptoms, and he waits for this reaction to subside entirely, sometimes for one or several weeks, before he repeats the same or a little larger dose, continuing in this cautious way with suitable intervals until he has given up to 1.5 or 2 gm. of the "606." Piek commented on the varying intensity of the reaction in different persons, the hysterical, neurasthenic and those with lively reflex action displaying the severest reactions.

MANILA LETTER

(From Our Regular Correspondent)

MANILA, Sept. 20, 1910.

Opening of the New General Hospital

The new Philippine General Hospital has at last been opened to government employees and to the public. The Bureau of Health gave a reception to the public on the opening of the institution at which the U. S. Secretary of War, the Hon. Jacob M. Dickinson, Governor-General Forbes and other prominent government officials were present. There had been considerable delay in opening the new hospital, for which it seemed dillicult to place the blame, and it was only after an executive order setting the date for the opening of the institution that it began to appear that there was any hope of getting into the new quarters before Christmas. The civil hospital, the old institution for government employees, has been taken over by the Philippine General Hospital and constitutes at present the greatest function of the latter institution. Few charity patients have as yet been admitted, owing to lack of accommodation. The city wards of St. Paul's Hospital have not yet been transferred and few private patients have entered the new hospital. Work on equipment and arrangement is rapidly going forward, however. When everything is completed Manila promises to have the most complete and modern hospital in the entire Orient. The Philippine Medical School, located on the same campus as the hospital, also entered its new quarters last week, but with very little display. As has been previously noted, both

institutions are of the latest type of reinforced concrete structure, have an abundance of light and ventilation and are well suited to a tropical country.

Culture of the Leprosy Bacillus

Considerable interest attached to the recent work of M. T. Clegg of the Bureau of Science in the successful growth on artificial media of the leprosy bacillus. For several years attempts have been made at the Bureau of Science to grow this organism, but without definite success, until the recently successful efforts of Mr. Clegg. The value of the present work lies in the fact that it paves the way not only for further investigation into the nature of leprosy, its portals of entry into the system and its agents of transmission, but also for experiments of a therapeutic nature. Already the possibility of a specific serum therapy has suggested itself and some few preliminary steps have been taken in that direction. The following is the technic employed in the growth of the *Bacillus leproi*:

The organism in several cases was obtained from the spleen, taken out under aseptic conditions, of patients recently dead of leprosy. It was grown in symbiosis with the ameba and the cholera vibrio. "Ten tubes, each containing a 24-hour growth of the ameba and the cholera vibrio, were inoculated with the splenic pulp, as were also ten control tubes containing sterile agar. All the tubes were placed in the incubator and kept at a temperature of 37 C. for 7 days. At the end of this period smears from the tubes containing the mixed culture of ameba and cholera vibrio showed, when stained by the Ziehl-Neelson method, a change in the morphology and a multiplication of the leprosy bacilli, while smears made from the control tubes stained in a similar manner showed no evidence of a multiplication of the bacilli inoculated and no noticeable changes in morphology. Transplants of the mixed cultures of amebas and cholera vibrio and leprosy bacilli were made to fresh agar tubes and incubated at the same temperature. Smears from these tubes made 3 days later and stained as before showed a great increase in the number of the acid-fast bacilli and also a change in their morphology from the long, slender bacilli found in smears from leprosy lesions to short plump rods and occasionally coccus forms. This deviation in morphology is not constant, however, on continued cultivation: some cultures have resumed a more typical morphology. Transplants of the mixed cultures were then made once a week for 3 months. After having been on the artificial medium for this length of time, the cultures were placed at a temperature of 60 C. for 30 minutes. This temperature was sufficient to kill the amebas and the cholera vibrios, but not the acid-fast bacilli. Transplantations were made from the heated cultures to fresh tubes containing amebas and cholera vibrios and also to tubes containing plain, sterile agar. After 3 days' incubation, smears from the tubes containing the amebas and cholera vibrios showed a development of the acid-fast bacilli, and at the end of 6 days, small, brownish colonies with regular margins appeared on the surface of the tubes containing plain agar only. Smear preparations made from these colonies and stained by the Ziehl-Neelson method showed microscopically an acid-fast bacillus."

After being once isolated in pure culture the leprosy bacillus has been found to be easy of cultivation on artificial media, resembling somewhat the tubercle bacillus in this respect. It has not been found possible so far to produce the disease in monkeys with the pure culture of the bacillus. In guinea-pigs, however, after several weeks some lesions were produced which closely resemble macroscopically and microscopically those found in the human being, from which the acid-fast organism was again recovered. In none of the experimental animals did any tuberculous lesions develop. Thus the likelihood that the acid-fast organism is the tubercle bacillus is rendered very slight.

Leprosy in the Philippines

While leprosy is not a rare disease in the Philippines, one seldom has occasion to see a case except at the leper hospitals. Legal restrictions are very close and the Bureau of Health has always been very active in its campaign of segregation. Every health officer throughout the islands is required to keep a keen eye open for all new cases and escaped lepers, and to report them to the Director of Health. Arrangement is speedily made for the immediate transfer of all such patients either to the leper department of San Lazaro Hospital in Manila or to the Culion Leper Colony. In suspected cases the Bureau of Science is called upon to aid in the diagnosis by laboratory examinations.

The Culion Leper Colony is an interesting institution, not only from its medical aspects, but also from the civil standpoint. It is located on the small island of Culion, south of Luzon, and is the great detention camp for the lepers of the Philippine Islands. It has its own civil government, under the direction of the central government of course, elects its own administrative officials and perhaps resembles a small agricultural community as much as it does a large state charity hospital institution. The members of the colony are encouraged, and in a measure required, to engage in some agricultural or industrial activity. The former is preferable, as its environments are more healthful and the great majority of the Filipinos are better adapted to agriculture.

The occurrence of leprosy in the Philippine Islands may be judged from the *Quarterly Report of the Bureau of Health for the Philippine Islands* for the second quarter of 1910: In the Culion Colony there were remaining April 1, 1910, 1,579 cases; admitted since that date, 180; born, 3; discharged, 0; escaped, 3; died, 78; remaining, 1,681. At the San Lazaro Hospital: remaining April 1, 1910, 133; admitted, 55; discharged, 5; discharged, not leprosy, 5; escaped, 4; died, 6; remaining, 166. To these must be added 220 lepers in the Moro (Mohammedan) Province. In addition also the Bureau of Health estimates that there are 205 lepers not yet transferred to Culion. This makes the total 2,272 for the entire Philippine Islands with a population of 8,000,000. Of the total number of lepers 1,681 are Filipinos, 3 Europeans, 1 American and 1 Chinese.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Oct. 22, 1910.

Discovery of Radium in Cornwall

A discovery of radium has been made in Cornwall which must help the progress of radium therapy. The element is obtained from pitchblende. The amount actually produced to date is 5,500 milligrams of 10 per cent. radium, or 550 grams of pure radium. In addition, 8 tons of pitchblende concentrates have been stored which, according to Sir William Ramsay, will provide 550 grams more. Sir William Ramsay states that there are not more than 5,500 milligrams, apart from this supply, in the whole world. It is impossible to say what proportion of the radium in use at present is pure, but much of it does not exceed the 10 per cent. standard. Polonium also exists in the pitchblende concentrates which have been obtained from the Cornish mines, but to what extent is not yet known. The process of purification of the pitchblende ore is carried on in a factory in London. The ore is crushed by the ordinary processes and delivered in London in a concentrated form. The uranium and iron are first dissolved out, and the radium is then precipitated out of the clear liquid. The precipitate is converted into the bromid, which by rapid crystallization is separated in a state of purity. This is a new process which occupies only a couple of months, while the process employed on the continent of Europe has occupied 2 years and the latest process a year. From each ton of pitchblende 530 milligrams of radium are produced. The Cornish supply appears to be much richer than the Austrian, which has hitherto been supposed to be the best. At present, the medical demand for radium is very great, much greater than the supply. The price is from \$90 to \$100 per milligram. The greatest precautions are taken for the safety of the first stock of British radium: it is kept in a specially constructed safe lined with lead, the only metal through which the emanations do not escape.

Plague in London

In a recent letter I reported the occurrence of a case of plague in a native member of the crew of a vessel which had arrived at Bombay. Another case has been discovered on the river at Thames. The patient was a native steward of the *S. S. Himalaya*, which has also come from Bombay. He applied for treatment at the Branch Seamen's Hospital, saying that he had been ailing for some days. He was admitted and died suddenly on the following day. The necropsy showed appearances suggestive of plague and material was sent to the government bacteriologist, who confirmed the diagnosis.

British Medical Education

The problem of medical education in Great Britain is a difficult and very complex one. Though many and rapid changes in the methods have taken place they have not kept pace with the still more rapid advance of medicine and its ancillary sciences. The present system has roots some centuries old among people whose temperament is very conservative and who

adopt reforms only under compulsion. British medical education is conducted by a large number of very diverse bodies—17 universities, 7 royal corporations and 2 other diploma-granting bodies. These bodies are controlled by a coordinating authority, the General Council of Medical Education and Registration, which works under and is responsible to the government. This council is made up in the following way: Each educational body sends a representative, the government nominates 5 members and the physicians elect 6 from among themselves. The council regulates the standard of education to which the various bodies must conform and appoints visitors to report on the examinations conducted by these bodies. It insists on a certain minimum of training and the passing of specified examinations by medical students before they can become physicians. The scheme of medical education occupies a minimum of 5 years and more usually extends to 6 or 7 years. On entrance the student must pass an examination of a general educational character. He then devotes one year to elementary science—chemistry, botany, biology and physics; 2 years to scientific work of direct professional reference, that is, to anatomy and physiology; and 2 years to clinical work. At the end of each of these periods examinations have to be passed. Anatomy and physiology must be thoroughly mastered and many rejections occur and the students do not reach the last stage of their education until their fifth year. The enormous progress of medical science has rendered the last stage difficult and the 2 years allotted to it often prove insufficient. Six or 12 months above the allotted period may be spent in learning the practice of medicine, surgery and obstetrics, and in acquiring a familiarity which is no longer allowed to be slight, with ophthalmology and the administration of anesthetics, to mention only two special subjects. On the whole, the medical students are well-educated before they are permitted to practice, and although the standard of examination varies a good deal among the different educational bodies there is none which is not respectable or which is comparable with those bodies in the United States and Canada which have been censured in Mr. Flexner's recent report.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Oct. 21, 1910.

The Eleventh French Congress of Internal Medicine

The eleventh Congrès français de médecine interne met October 15 at Paris under the presidency of Professor Landouzy, dean of the Paris medical college. Among those attending were several foreign professors, especially Maragliano of Genoa, Henrijean of Liège, and Mayor of Geneva.

The general strike on the railroads, which had just been declared, hindered the success of the meeting very much; and besides the congress felt the disadvantage of those defects of organization which, unfortunately, are becoming too frequent in this kind of meetings. The papers were distributed to the members only at the session, which impeded the discussion very much. Moreover, for some time it has been the custom to appoint several essayists on each subject. This practice has some advantages, it is true, when the essayists divide the subject so that each undertakes the discussion of one side of the question, so that their work is mutually complementary. Otherwise the number of the papers leads to tiresome repetitions; and this was the case in this meeting. For example, the subject of bradycardias was treated in two papers, one by Drs. Vaquez and Esmein of Paris, and the other by Dr. Gallavardin of Lyons, each of whom covered the entire subject. An attempt was made to remedy the state of affairs by forming an association open to physicians of French-speaking countries, who, through a permanent commission, on which the various nationalities should be represented, would undertake the work of organizing the congress. Professor Bard of Geneva was commissioned to make a report on this subject at the next meeting, which will take place at Lyons, in 1911, under the presidency of Dr. J. Teissier, professor of the medical clinic at the Lyons college of medicine. It was otherwise in the case of the two questions of present-day importance, namely, the treatment of syphilis by Ehrlich's method and the value of tuberculin therapy; these aroused the most interesting discussions.

Treatment of Syphilis by "606"

Dr. Milian, physician of the hospitals of Paris, has treated 139 patients by "606." He recognizes that Ehrlich's preparation has the toxicity and may have the bad results peculiar to all arsenical derivatives, but, according to his own experience, accidents are very rare and he has never observed the least

visual trouble in any case. The only general trouble which has been observed has been occasional fever, which never exceeds 38 C. (100 F.). Local accidents, except pain, may be avoided in great measure if care is taken to make the injection into the muscular and not in the subcutaneous cellular tissues and to select the lumbar in preference to the gluteal region. The drug is of remarkable power, especially on the secondary manifestations of syphilis. Dr. Jeanselme, physician of the hospitals of Paris, and *agrégé* of the Paris medical college, in collaboration with Drs. Laignel-Lavastine and Touraine, has treated fifty syphilitics by "606" without ever having seen phenomena of intoxication or serious accidents. The injection into the gluteal region is accompanied by sharp pains which often radiate into the whole leg. For several days the buttock is tense and doughy, and walking is difficult. Morbilliform or urticarial erythemas are observed sometimes at the site of the injection, sometimes at a distance, and the temperature remains high for three or four days. The next day after the injection a turgescence of the chancre and the neighboring tissues and a papillous appearance of the roseola are observed at the same time, but these phenomena are ephemeral and soon regression of the syphilitis begins, the hypertrophied mucous plaques become effaced, dry up and in a few days epidermis forms over them. Papillous or acneiform syphilitis which resist mercury become absorbed in about 2 weeks. Headache disappears in from 1 to 4 days. Dr. Sieard and Dr. Netter, *agrégés* at the Paris medical college, likewise reported the success which they obtained with Ehrlich's preparation. The communication made by Dr. L. Jacquet, physician of the hospitals of Paris, was less favorable. Dr. Jacquet treated three patients in his service. The first had a sclerogummatus syphilitic of the tongue which rendered the movements of mastication and deglutition painful. Under the influence of "606," the pains diminished and the tongue became more mobile, but there was no objective modification of the lesion of the tongue. The second patient had a lingual ulceration with tertiary labial lesion. The latter improved rapidly, but the ulcer of the tongue persisted without change. It is probable, however, that it was a tuberculous ulceration. The history of the third patient is particularly interesting. He was a man of 53, with an ulcerated gumma of the right thigh and had already had several vomitings without blood, with painful gastric crises. An injection of 0.5 gm. of arsenobenzol was made. Seven days later when it appeared that the gumma was drying up and was manifestly undergoing epidermatization, abundant blackish vomiting occurred and the twelfth day after the injection the patient died. At the necropsy, a calloused ulcer of the stomach was found with gastric dilatation. Was "606" responsible for this death? Dr. Jacquet was compelled to believe it was. The patient had never before had hematemesis. He had entered the hospital not cachectic, in a fairly good general condition. He was kept quiet and on a milk diet and thus in the best possible condition to support the treatment. The violent vasodilating action exerted by arsenical compounds and the various hemorrhages which they provoke are well known. Therefore, Jacquet thinks that ulceration of the digestive tube should be added to the contra-indications mentioned by Ehrlich.

The Discussion on "606" in the Academy of Medicine

Aroused by Dr. Hallopeau's communication at a recent session of the Académie de médecine, which I mentioned in a previous letter (THE JOURNAL, October 8, p. 1483), Dr. Ehrlich has written a letter to Dr. Netter which the latter laid before the academy, at the session of October 11. Ehrlich declares that he knows of no case of amaurosis or of any ocular lesion due to "606." As for the known cases of death, which number no more than twelve, Ehrlich remarks that in the syphilitic services where he has made the greatest number of injections, and where at least 8,000 patients have been treated, there has been only one death, and that due to the injection having been made under unfavorable conditions. The other deaths were in insane asylums or in clinics of internal medicine. He says that injections in subjects of severe diseases of the nervous system have been made absolutely contrary to his unvariable instructions. The cases of death are to be explained: (1) by a local reaction of syphilitic infiltrates into nerves whose functions are essential to existence; (2) by a general hypersensitiveness of the organism to the toxic agent (for a long time similar sensitiveness of general paralytics toward mercury has been known); (3) by a defective technic (insufficient asepsis, abscess). One death by rupture of an aneurism has been recorded. Dr. Ehrlich has particularly discouraged injections in subjects of vascular lesions.

Surgeons and Physicians

The address of Dr. Delagenière, president of the twenty-third Congrès français de chirurgie, which I mentioned in a previous letter (October 7, p. 1483), which blamed physicians for sending the patients to surgeons too late, has called forth an editorial response. The *Semaine Médicale* remarks that, so far as the surgical treatment of exophthalmic goiter, for instance, is concerned, the essayists of the surgical association are not quite up to date, since, according to the recent studies of M. Stern, there is a symptom-complex called "basedowoid" which is entirely different from real Basedow's disease. While surgery of the thyroid gland and its vessels often benefits true exophthalmic goiter it is injurious to basedowoid.

According to M. Delagenière, surgery holds the "first scientific place among medical sciences." This is an exaggerated pretension, which cannot fail to hinder surgical progress. In a recent article in the *Revue Scientifique*, Dr. Forgue, professor of the surgical clinic at the Montpellier college of medicine, declares that while at present surgery has increased its therapeutic domain by invading the province of medicine, it is impossible to foresee what will happen next. Already in some points surgeons have beat a retreat. "If to-morrow, medicine should discover a serum treatment for tuberculosis and cancer, we should be thereby expelled from our greatest operative domain."

Compulsory Physical Education

The Congrès de la Ligue de l'enseignement has on the motion of Dr. Lachaud, deputy, unanimously adopted a resolution asking that the government make physical education compulsory.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Oct. 13, 1910.

Personal

Professor Sauerbruch, assistant of Professor Friedrich at Marburg and formerly for many years an assistant of Mikulicz, has been called to Zurich as director of the surgical clinic to succeed von Krönlein.

Imperial Scientific Society

On the occasion of his address delivered at the centennial of the Berlin university, the Kaiser announced the foundation, under his patronage, of a scientific society, the functions of which shall be the erection and maintenance of institutions for research. These institutions will differ from the universities, which serve not only for research but for instruction, in being devoted solely to study and will be modeled on the institutions established in America by millionaires. In Germany we have had for medical purposes only one example of this kind of institution, namely, the George Speyer House in Frankfurt a. M. at which Ehrlich has carried on for some years his chemical investigations which resulted in the epochal discovery of his remedy for syphilis. Up to the present about \$2,500,000 (10,000,000 marks) are available for the new imperial scientific society.

Coffee Substitutes Rejected

A manufacturer of cereal and malt coffee has proposed to the minister of justice to furnish his preparation as a substitute for coffee in the prisons. At the request of the minister of education the scientific deputation for medical affairs made the following report through Professors Rubner and Kraus: Coffee cannot be replaced by corn or malt. Such a substance at most serves no other purpose than the preparation of a dark coffee-like liquid or a slight addition of nutriment to the diet which could be accomplished quite as well and at less expense by a little bread. There is no equivalent for genuine coffee because in substitutes its stimulating action is lacking. For this reason comparisons of price are not to be considered. As the diet of prisoners affords very little condiments or invigorating elements, coffee should be retained. The substitutes are, to be sure, cheaper than coffee, but considering the cost of material and of preparation they are sold at an excessively high price. Consequently the refusal of the proposal is recommended.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Oct. 18, 1910.

Jubilee of Professors von Reuss and Urbantschitsch

A few days ago the twenty-fifth anniversary of their appointment as professors was celebrated by Dr. von Reuss, the well-known ophthalmologist, and Dr. Urbantschitsch, head

of the ear clinic in Vienna, the successor of Politzer. The two men are united by close friendship, and both can be regarded as typical representatives of the Vienna school. They have, during the quarter of a century, seen many pupils from all parts of the world. The ear department especially is still the Mecca of all surgeons who wish to become experts in this modern branch of medicine. The celebration of the day was witnessed by representatives of the French, English, American, Italian and Japanese doctors now studying in this city.

Unveiling of Commemorative Tablets for Nothnagel and Gussenbauer

In commemoration of two famous professors of the university who have put their mark on the progress of medicine, funds were collected for a few months among the friends of the deceased, with the result that a short time ago there was unveiled a monument, in bas-relief, of Professor Gussenbauer, the pupil and successor of Billroth, who has continued the world-famed methods of his teacher and friend. In accordance with the curt, positive ways of the scientist, the inscription says nothing but "Karl Gussenbauer, the Surgeon." The other monument is in honor of the beloved teacher and famous physician, Nothnagel. The life-sized tablet, on which is a speaking portrait, a speaking likeness, bears the motto of the professor, to which he always adhered: "Only a kind man can be a good physician." Naturally, the ceremony of unveiling was witnessed by a select group of personal friends and followers of the two men, besides official representatives of medical corporations.

Medical Men Successful with Sick Benefit Clubs

In various districts of the country the increased demands on living expenditures resulted in increased demands by the doctors on the managing board with sick clubs, with consequent conflicts. In all these instances the doctors carried their point, and have now a right to demand a fee of 4 kronen (about \$1) per head of the members of the club, minor surgery, midwifery and night work being paid for extra. This means an increase of about 40 to 50 per cent. on the present payment. Thus the value of organization was demonstrated to those outside of it, with the result that nearly all practitioners are members of the organization now.

Marriages

WALTER G. HARDER, M.D., to Miss Clara Campe, both of San Francisco, October 15.

ARTHUR W. THOMAS, M.D., to Miss Edith Jones, both of Springfield, Mo., October 19.

RICHARD A. ROACH, M.D., to Miss Anna Katherin Merle, both of Chicago, October 26.

GEORGE H. LAMLEY, M.D., to Miss Bertine Robinson, both of Blissfield, Mich., October 20.

EUGAR NELSON ZINN, M.D., to Miss Lizzie Hanson, both of Thompson, Iowa, October 12.

FREDERICK TIGHE, M.D., to Miss Amelia Hennessy, both of Newburyport, Mass., recently.

JOSÉ M. FERRER, M.D., to Miss Teresa R. O'Donohue, both of New York City, October 18.

HERMAN THEODORE RADIN, M.D., to Miss Pauline Loewy, both of New York City, October 27.

JAMES HARTZELL LANGSTAFFE, M.D., to Miss Aldine Merit, both of Fairbury, Ill., October 22.

FRANK H. REIHAN, M.D., Smith Center, Kan., to Miss Elizabeth Kieme of Seattle, October 8.

FRANK SHERWOOD MEADE, M.D., Madison, Wis., to Miss Lucy Wood of Bloomington, Ill., October 25.

HOBGLAND COOK DAVIS, M.D., Baltimore, to Mrs. Katharine Carroll Dowell, at Baltimore, October 19.

D. EMORY SHY, M.D., Knobnoster, Mo., to Miss Esther Rothwell of Rocky Ford, Colo., October 11.

HENRY GOLDFWART, M.D., to Miss Amanda Moore, both of Mobile, Ala., at New York City, October 22.

DARWIN WALTON HALL, M.D., Kansas City, Mo., to Miss Katherine Motter of St. Joseph, Mo., October 5.

HORACE G. MERRILL, M.D., Provo, Utah, to Miss Merl Miller of Murray, Utah, at Salt Lake City, October 20.

JOHN P. LONGWELL, M.D., and MATTIE LOUISA BERRY, M.D., both of Wellsboro, Pa., at Leona, Pa., October 12.

Deaths

Frederick Holme Wiggin, M.D. Bellevue Hospital Medical College, New York City, 1877; a prominent physician of New York City; died at Atlantic City, N. J., October 28, aged 56. Dr. Wiggin was a member of the American Medical Association; formerly secretary and later president of the New York State Medical Association; third vice-president of the American Medical Association in 1898 and formerly a member of the Judicial Council; fellow of the New York Academy of Medicine; a member of the Harvey Society, the New York Medico-Surgical Society, and the New York Academy of Sciences; president of the Alumni Society of Bellevue Hospital; honorary member of the Congress of German Surgeons at Berlin; from 1892 to 1908 visiting surgeon and gynecologist at the New York City Hospital, and adjunct visiting surgeon at Bellevue Hospital during 1897 and 1898.

William Canniff, M.D. New York University, New York City, 1854; University of Victoria College, Toronto, 1859; assistant surgeon in the Royal Artillery from December, 1855, until the close of the Crimean War; member of the Royal College of Surgeons, England, 1855; lecturer on general pathology in Victoria University, 1858; professor of surgery in 1859, and given the degree of M.D. from that institution in the same year; acting assistant surgeon U. S. Army, 1865; one of the founders, secretary in 1867, and vice-president in 1869 of the Canadian Medical Association; president of the Medical Section of the Canadian Institute, Toronto, 1870; a member of the board of examiners of the College of Physicians and Surgeons, 1883; for several years health officer of Toronto, and later a resident of Gravenhurst, Ont.; died in Belleville, Ont., October 18, aged 80.

James Baynes Walker, M.D. University of Pennsylvania, Philadelphia, 1872; a member of the American Medical Association, American Climatological Association, American Academy of Medicine, and president of the Medical Club of Philadelphia, and formerly president of the Northern Medical Association of Philadelphia and Philadelphia County Medical Society; a member of the State Board of Medical Examiners; professor of practice of medicine in the Woman's Medical College of Pennsylvania from 1879 to 1890; visiting physician to the Philadelphia and Woman's Hospitals, and consulting physician to the West Philadelphia Hospital for Women; died at his home in Philadelphia, October 19, from diabetes, aged 63.

William Franklin Hines, M.D. College of Physicians and Surgeons, Baltimore, 1877; formerly of Chestertown; a member of the Medical and Chirurgical Faculty of Maryland, and chief of the Bureau of Vital Statistics of the State Department of Health; for four years a member of the State Board of Medical Examiners, for ten years health officer of Kent County, and for two years superintendent of the State Bureau of Immigration; died at his home in Baltimore, October 17, from cirrhosis of the liver, aged 54.

George Whipple Porter, M.D. Harvard Medical School, 1874; a member of the Rhode Island Medical Society and the American Academy of Medicine; one of the founders of and surgeon to the department of gynecology of the Rhode Island Hospital; one of the founders of and consulting physician to the Providence Lying-in Hospital and St. Elizabeth's Home; for several years surgeon of the First Light Infantry, N. G. R. I.; died in Boston, October 15, from pneumonia, aged 63.

John Somers Buist, M.D. Medical College of the State of South Carolina, Charleston, 1861; emeritus professor of general surgery and surgical pathology in his alma mater; a member of the South Carolina Medical Association, and Southern Surgical and Gynecological Society; surgeon in the Confederate service during the Civil War; died at his home in Charleston, September 29, from cerebral hemorrhage, aged 70.

James Americus Reagan, M.D. Shelby Medical College, Nashville, 1859; Vanderbilt University, Nashville, Tenn., 1877; a pioneer clergyman and practitioner of north Buncombe County, N. C.; for several years mayor of Weaverville; a member of the Medical Society of the State of North Carolina; died at his home in Weaverville, October 24, aged 86.

Nathan G. Hardister, M.D. Vanderbilt University, Nashville, Tenn., 1879; Jefferson Medical College, 1880; formerly of Jacksonport, Ark., but recently of Hoxie, Ark.; whose body was found floating in White River September 13, is believed to have committed suicide while under the influence of drugs. He was a Confederate veteran and 63 years of age.

William S. Webster, M.D. College of Physicians and Surgeons, New York City, 1856; a surgeon in the Army during the Civil War; local surgeon in Liberty, N. Y., of the New

York, Ontario and Western Railroad, and a practitioner of Liberty for more than fifty years; died at his home, July 23, from cerebral hemorrhage, aged 77.

Edwin Augustus Knight, M.D. New York University, New York City, 1867; of Newton, Mass.; a veteran of the Civil War; visiting physician at Newton Hospital; died in Franklin, N. H., June 14, from the effects of prussic acid, self-administered it is believed with suicidal intent, aged 67.

Charles E. Hill, M.D. Syracuse, N. Y., Medical College (Eclectic), 1850; surgeon of the One Hundred and Eighty-Eighth Volunteer Infantry during the Civil War; up to 1880 a practitioner of Fabius, and thereafter of Syracuse; died in North Syracuse, October 11, from heart disease, aged 85.

Orville B. Blackman, M.D. Hahnemann Medical College, Chicago, 1873; a member of the Illinois State Medical Society, and of the staff of the Dixon Public Hospital; died at the home of his daughter in Malvern, Pa., October 15, from cerebral hemorrhage, aged 58.

William G. Nicholson, M.D. Rush Medical College, 1897; a member of the American Medical Association and the Fox River Valley Medical Society; surgeon to St. Mary's Hospital, Green Bay, Wis.; died at his home in that city, October 16, from pneumonia, aged 41.

James McClelland Duncan, M.D. Miami Medical College, Cincinnati, 1892; a member of the American Medical Association; president of the school board of Pawnee, Ill., and for four years president of the village; died at his home, October 16, from typhoid fever, aged 48.

William Green, M.D. College of Physicians and Surgeons, New York City, 1854; formerly a practitioner of Scranton, Pa., and of Virginia; and for the last twenty years a resident of Lincoln, Neb.; died at his home, October 20, from cerebral hemorrhage, aged 79.

Samuel Marion Carter, M.D. University of Nashville and Vanderbilt University, 1885; a member of the Knox County Medical Society, and for ten years physician of Knox County; died at his home in Knoxville, Tenn., October 11, from chronic nephritis, aged 62.

William Henry Fisher, M.D. Bellevue Hospital Medical College, 1876; coroner of Tioga County, N. Y., from 1880 to 1883; a member of the board of health and first president of the village of Spencer; died at his home in Elmira, October 18, aged 56.

Jean Philippe Rottot, M.D. Laval University. —; one of the founders of the Montreal branch of Laval University and dean for many years, retiring in 1907; a practitioner of Montreal for 63 years; died in that city, September 28, aged 85.

William L. Rouse, M.D. Medical College of Ohio, Cincinnati, 1875; a member of the American Medical Association; president of the Greene County Medical Society; died at his home in Painterville, Ohio, October 18, from cerebral hemorrhage, aged 60.

Ballery Wagner Hunter, M.D. Medical College of the State of South Carolina, Charleston, 1883; a member of the American Medical Association; died at his home in Charleston, August 13, from pachymeningitis, following septicemia, aged 46.

John A. Leavy, M.D. St. Louis Medical College, 1857; an honorary member of the St. Louis Medical Society; surgeon in the Confederate service during the Civil War; died at his home in St. Louis, October 24, from cerebral hemorrhage, aged 76.

Harvey C. Ensign (years of practice, Wayne County, Pa., 1895); justice of the peace of Waymart for twenty years; and for about forty years a practitioner of Waymart; died at his home, October 17, from cerebral hemorrhage, aged 65.

Francis Drayton Nabers, M.D. Tulane University, New Orleans, 1867; of Birmingham, Ala.; a Confederate veteran; died at the home of his son in Birmingham, September 28, from paralysis agitans, aged 65.

James Ross Bell, an eclectic practitioner of Ohio for 62 years; surgeon in the army during the Civil War; died in the Soldiers' Home Hospital, Dayton, Ohio, September 24, from senile debility, aged 85.

Richard Leuschner, M.D. Michigan College of Medicine and Surgery, Detroit, 1892; a member of the American Medical Association; died at his home in Mount Clemens, October 14, from pneumonia, aged 51.

Phineas H. Wheeler, M.D. Dartmouth Medical School, Hanover, N. H., 1865; surgeon in the army during the Civil War; died at his home in Alton, N. H., October 19, from cerebral hemorrhage, aged 70.

David Presbury Butler, Jr., M.D. Boston University, 1898; physician in charge of the Rutland (Mass.) Cottages; died at his home in Rutland, October 15, from endocarditis, aged 37.

James Lemon, M.D. Joplin (Mo.) College of Physicians and Surgeons, 1882; a veteran of the Civil War; died at his home in Erie, Kan., October 7, from chronic nervous disease, aged 69.

T. Newton Lewis, M.D. Pennsylvania Medical College, Gettysburg, 1861; formerly of Adrian, Mich.; died at his home in Mount Dora, Fla., January 7, from heart disease, aged 70.

Charles Francis Brem, M.D. New York University, New York City, 1867; a Confederate veteran; died at his home in Charlotte, N. C., October 10, from heart disease, aged 64.

Warren Decoto Osgood, M.D. Cooper Medical College, San Francisco, 1910; of Oakland, Cal.; died in the Alameda Sanitarium, October 14, from typhoid fever, aged 23.

Samuel L. Hargreaves, for many years a practitioner of Hebron, Neb., and prior to that time for twenty years in Missouri; died at his home, August 6, aged 75.

Peter Orrin Stonebraker, M.D. Rush Medical College, 1892; of Scotland, S. D.; died in St. Joseph's Hospital, Sioux City, Iowa, September 27, from pneumonia, aged 45.

Jesse Walter Evans, M.D. Rush Medical College, Chicago, 1873; a veteran of the Civil War; died at his home in Varna, Ill., October 14, from pneumonia, aged 73.

Daniel Archibald Sinclair, M.D. University of Toronto, 1903; formerly of Melbourne, Ont.; died at his home in Pasadena, Cal., October 1, from nephritis, aged 34.

Daniel Richardson Pool (license, Miss.); for many years a practitioner of Ellisville; died at his home, July 21, from senile debility, aged 84.

Benjamin James Zdzense, M.D. Rush Medical College, 1891; died at his home in Sparta, Mich., August 3, from valvular heart disease, aged 60.

Charles Stoddard Stroud, M.D. McGill University, Montreal, 1876; died at his home in Montreal, June 5, from cerebral hemorrhage, aged 66.

Alonzo Atwood (years of practice, Ohio, 1896); died at his home in Middlefield, April 9, from senile debility, aged 78.

Edmund Henry Dillabough (license, Ont., 1868); died at Hamilton, Ont., October 26, aged 76.

Pharmacology

TWO DANGEROUS HAIR DYES

"Eau Sublime" and "Mrs. Potter's Walnut Tint Hair Stain"

Inquiries were recently made regarding the composition of "Eau Sublime," a hair dye put on the market by Mrs. H. Guilford, New York. Our correspondent states that a patient using this preparation was suffering from "a marked lassitude and an obscure general eruption." Since many similar cases have been reported from the use of Mrs. Potter's Walnut Juice Hair Stain, now called "Mrs. Potter's Walnut Tint Hair Stain" which owes its poisonous properties to the presence of paraphenylen diamine, the presence of the latter in "Eau Sublime" was at once suspected. In view of the dangerous nature of this substance, it was considered of importance to make a chemical examination of "Eau Sublime" to determine whether or not paraphenylen diamine was responsible for the effects following its use. On request for a specimen of the preparation, the correspondent sent an original package, which was examined in the Association Laboratory. The following is a report of the examination:

"Eau Sublime," as received in the Association Laboratory, was contained in a carton sealed with a label bearing the name of the preparation, its manufacturer and its uses. The carton contained two one-ounce bottles, one marked "A" containing a brown liquid and the other marked "B" containing a colorless liquid. The cork in this bottle, which was wired down, was bleached where it was exposed to the liquid.

That one of the ingredients of "Eau Sublime" is paraphenylen diamine was shown by the response of the liquid in bottle "A" to the following tests, recommended for the detection of paraphenylen diamine: Some of the liquid was mixed with an equal volume of hydrogen peroxid solution and the mixture placed on paper or cotton, which became bluish-black on drying. A splinter of pine wood dipped into the liquid and then treated with dilute acetic acid became bright red. The diluted acidified liquid became violet on adding ferric chloride solution. A few drops of the liquid added to 4 or 5 c.c. of a 1 per cent. solution of potassium permanganate decolorized the latter, emitting at the same time a faint odor of ammonia. A drop of the liquid placed on a white surface and then treated with a drop of bromine water, became at first a bright green and then a dull violet color.

The identification of the contents of bottle "B" as hydrogen peroxid, suggested by the bleached condition of the cork and the pressure of the gas in the bottle, was verified by the following tests: Added to dilute, acidified potassium permanganate solution the latter was decolorized. A few drops added to 4 or 5 c.c. of an acidified solution of potassium dichromate and the mixture shaken with 5 c.c. ether, produced in the latter a blue color.

These tests show that "Eau Sublime" consists, essentially, of hydrogen peroxid and paraphenylen diamine. This emphasizes the need of cautioning the public against the indiscriminate use of hair dyes, particularly those containing paraphenylen diamine, which, although exploited as "harmless" preparations, are decidedly dangerous. The tests above mentioned could be carried out by a physician, and from the results of such tests he would be placed in a position to act as an adviser and to caution his patients.

"Eau Sublime" has been declared misbranded by the federal government and the case published in Notice of Judgment No. 434. While no mention is made in the government's report of the identity of the essential drug in the nostrum, the statement is made: "the use of said drug ["Eau Sublime"] would tend to produce an eczema of the scalp."

Between the dates of Feb. 13 and Oct. 22, 1909, there were reported to THE JOURNAL twenty-three cases of poisoning due to the use of Mrs. Potter's Walnut Juice Hair Stain. This hair dye was shown by analysis to depend for its action on the presence of paraphenylen diamine. The predominating symptom of the poisoning in each case was a dermatitis of varying degrees of intensity. We now have to report five more cases of poisoning from the use of the same dangerous dye.

Sept. 21, 1910, Dr. P. R. Straight, Bradford, Pa., one case.
Oct. 4, 1910, Dr. H. B. Ormsby, Cleveland, one case.
Oct. 17, 1910, Dr. H. K. Gaskill, Philadelphia, three cases.

CAMPHENOL

To the inquiry, "What is Camphenol?" the chemical laboratory reports:

Camphenol is made by Johnson & Johnson, New Brunswick, N. J. Under the name of the article on the carton appears the following formula: $C_{10}H_{16}O-C_6H_5(CH_3)OH=C_6H_5OH$. This formula consists of the chemical formulas for camphor, cresol and phenol, written one after another, and from this one would conclude that Camphenol is a compound of camphor, phenol and cresol in molecular proportions. Examination shows, however, that Camphenol is but a modification of the well-known camphorated phenol (the liquid produced when solid camphor and phenol are triturated together). In Camphenol a part of the phenol, in the camphorated phenol, has been replaced by cresol, and this liquid has been diluted and emulsified with gelatin or some similar substance and perfumed. In other words this preparation is an emulsion containing relatively small quantities of cresol, phenol and camphor and is another illustration of the attempts of would-be pharmaceutical houses to produce new synthetics in the simplest manner possible—that of writing the chemical formulas of the constituents of a remedy in a way to indicate a chemical combination.

1 THE JOURNAL A. M. A., Feb. 13, 1909, p. 557; March 6, 1909, p. 787; April 3, 1909, p. 1121; May 15, 1909, p. 1579; Aug. 11, 1909, p. 528; Sept. 4, 1909, pp. 803 and 809.

Correspondence

Interstate Reciprocity in Licensing Physicians

To the Editor:—This subject is not receiving the attention it should receive by the medical profession in general. To be sure an occasional article appears from time to time in medical journals, but that is not enough. More action is needed. Something must be done for the future of the old practitioner—for the physician who is in good standing with his local and state societies and the American Medical Association, and who has been in active practice for the last ten or more years.

Suppose that for his own health, or that of some other member of his family, or for any other good reason, he wants to go into some other state. If the state in which he wishes to locate does not reciprocate with the state in which he has been practicing, he must then go before the board of medical examiners and pass an examination before he can get his license; an examination which probably three-fourths of the members of the board themselves could not pass; an examination meant for recent graduates. What chance does the old practitioner have of passing this examination?

To make it still worse, some states are about to require that no physician will be allowed to even take the state board examination unless he has studied a year or two in a college previous to taking his medical course. To make this apply to the old physician is a decided injustice. When he began his medical studies he was not obliged to have had any college training. He had all the necessary requirements at the time but since he graduated, the requirements have changed.

What is he going to do? Must he go back to the university and take a college course before he can get a license to practice medicine? Again I say is it just? And what is going to be done about it? Something must be done or else they will rise up in arms against the unjust way they are being treated. I am most heartily in favor of higher requirements for the coming physicians—but allowances must be made for the old practitioner who for good reasons wishes to change his location from one state to another. It seems to me a national license should be issued granting the privilege to practice anywhere in the United States to physicians who have been practicing ten or more years, and are in good standing in their local and state societies and the American Medical Association.

E. F. HAMLIN, M.D., Slatersville, R. I.

To the Editor:—In THE JOURNAL of October 15, p. 1397, is a communication headed, "Interstate Reciprocity in License to Practice," which is much overdrawn, although probably unintentionally. The writer appears to be much put out with present methods used in the examination and licensure of practitioners of 10 to 25 years' standing, and refers to this "tyranny against which the masses of the older practitioners should rise up." He also designates the trained modern graduate as one of "the inexperienced tyro and the compend brigade."

If the doctor really wishes to change his location without an examination, it would be well for him to get the "Laws (abstract) Regulating Practice . . ." from the American Medical Association, and he will find that many of the states make provision for the old practitioner by reciprocating on the basis of his diploma alone, without the examination. However, if an examination appears necessary, I would suggest that he consult the State Board number of THE JOURNAL, May 21, and observe the number of low-grade states in which practically everybody gets through; then ascertain with what other states they reciprocate on the basis of an examination. There are several low-grade states that reciprocate with others of much higher standard, and this, meanwhile, is one weak point in reciprocity. Now if the old practitioner will buy some modern "compend," and read systematically every day

a certain number of pages, he will before long have an up-to-date knowledge of the essentials requisite to pass examinations in any of those easy states referred to. Then he will not feel the burden of the job, but will grow into the knowledge, which he will find very helpful in other respects as well.

Any old practitioner of average ability who could not prepare himself in this manner must be sadly in need of renovation. The points that he learns will give him a renewed interest in the study, and get him up to date. The satisfaction also of earning a medical license by examination, which makes available a wider field of reciprocity, will pay for the moderate effort.

C. FRED CURTIS, M.D., Bath, Me.

The Electric Treatment of Poliomyelitis

To the Editor:—In the short paper on "The Treatment of Poliomyelitis from the Neurologist's Point of View" published in THE JOURNAL, October 22, Dr. B. Sachs says: "Muscular exercise is the chief aim in the treatment, and for that reason one must follow the simple rule that in treating the paralyzed muscles that form of current is to be used which gives the best contraction with currents of moderate strength."

I believe that all who have paid attention to this matter will agree with this statement of Dr. Sachs. But in many cases of poliomyelitis no contraction whatever can be produced by "currents of moderate strength." And indeed in many cases no contraction, or only a feeble one, can be produced by even painful currents. No good can be accomplished by using electricity unless the current produces muscular contraction. And in many cases muscular contraction can be produced only by currents which are painful. Such currents ought not to be used, at least on a child. Indeed many young children will not bear even a moderate amount of pain and soon come to dread the application of electricity.

I have often known a mild current to be used which produced no contraction of the muscles. These applications of electricity are useless. On the other hand, contractions of the muscles are sometimes brought out by the use of strong currents which produce crying spells and states of nervousness in the child. If the electric current produces no contraction of the muscles it is useless; if it produces pain, and nervousness, and outeries it is worse than useless; it is distinctly harmful. I speak now especially of young children. Of course older persons will stand a current much better than young children.

So I would quite agree with Dr. Sach's statement that electricity is of value in the treatment of poliomyelitis only if we can get "contractions with a current of moderate strength." But I have known of so much useless and harmful treatment by electricity that I have thought it worth while to write this brief note by way of protest against it.

I believe that the electric treatment of poliomyelitis must be considered as the least valuable measure that we have and of far less worth than massage, passive exercise and orthopedic measures which Dr. Sachs so well describes. I advise electricity in only a small number of cases of poliomyelitis.

THEODORE DILLER, Pittsburg.

Hexamethylenamin in Pellagra

To the Editor:—Two weeks ago I began to treat a patient with well-defined pellagra in the second stage, with 15 gr. of hexamethylenamin, three times a day, with what seem to be remarkable results. The second night after the patient began to take the medicine, she slept 3 hours; the third night she slept 6 hours, and now for a week, she has slept all night and several hours during the day. Before this, the insomnia had resisted all ordinary narcotics. Within 4 days after the patient began the treatment all vertigo disappeared; also the numbness, tingling and burning. All these symptoms

had been constant and very annoying for 5 months previously. The urine became clear and the stools normal in frequency, color and odor for the first time in 6 months. The patient's improvement in every way was so remarkable that I took her yesterday to Dr. Beverly R. Tucker, of Richmond, Va., who confirmed my diagnosis. He informed me at that time that he also had treated several patients with hexamethylenamin, but in smaller doses, with excellent results. Do you think that this rapid improvement is due to the time of the year or are there other instances in which a patient has improved so rapidly? Hexamethylenamin is known to be a systemic antiseptic; on this fact I based the treatment.

I hope that others may try this and obtain the same satisfactory results.

B. B. BAGBY, West Point, Va.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

LITERATURE ON TUBERCULIN

To the Editor:—Please furnish references to the most recent literature on tuberculin treatment. M. N. C., Alabama.

ANSWER.—As our readers are aware, we often, in answering correspondents, give in this department lists of articles and books on various subjects, when we think that such lists will be of general interest. In many cases, however, we receive questions similar to the above, which we do not feel justified in answering in THE JOURNAL because of the Index which we publish every six months, and which is intended to answer such questions. It includes the principal articles published during the previous six months and it is in constant use by physicians everywhere. Its completeness and accessibility make it unnecessary in most cases for us to publish new lists of references. New readers are apt, of course, to overlook this feature of THE JOURNAL, and we therefore take space here to call attention to it. The following titles are selected from a list of over seventy references in the Index to the last complete volume, January to June, 1910, and from others to be indexed in the current volume:

- Adfrecht, E.: Tuberculin in Diagnosis and Treatment of Pulmonary Tuberculosis. *Berl. klin. Wchnschr.*, March 14, 1910; abstr. in THE JOURNAL, April 30, 1910, p. 1485.
- Baldwin, E. R.: General Principles of Tuberculin Diagnosis and Treatment, THE JOURNAL, Jan. 22, 1910, p. 260.
- Crowe, H. W.: A New Method of Treating Acute Pulmonary Tuberculosis by the Alternate Use of Human and Bovine Tuberculin. *Lancet*, London, 1910; abstr. in THE JOURNAL, May 21, 1910, p. 1727.
- Escherich, T.: Indications for and Results of Tuberculin Treatment of Tuberculosis in Children. *Wien. klin. Wchnschr.*, May 13, 1910; abstr. in THE JOURNAL, July 2, 1910, p. 94.
- Griffin, W. A.: The Use of Tuberculin at the Sharon Sanatorium. *Boston Med. and Surg. Jour.*, July 28, 1910; abstr. in THE JOURNAL, Aug. 13, 1910, p. 621.
- Hartwell, H. F., and Streeter, E. C.: Therapeutic Administration of Tuberculin in Surgical Tuberculosis. *Boston Med. and Surg. Jour.*, Jan. 6, 1910; abstr. in THE JOURNAL, Jan. 22, 1910, p. 319.
- Hawes, J. B., and Floyd, C.: Tuberculin Treatment of Tuberculosis in Dispensary Patients. *Boston Med. and Surg. Jour.*, Jan. 6, 1910; abstr. in THE JOURNAL, Jan. 22, 1910, p. 319.
- Neumann, J.: Treatment of Tuberculosis with Large Doses of Tuberculin. *Lancet*, London, 1910; abstr. in THE JOURNAL, March 12, 1910, p. 917.
- Raw, N.: Treatment of the Surgical Forms of Tuberculosis by Tuberculin. *Lancet*, London, March 26, 1910; abstr. in THE JOURNAL, April 23, 1910, p. 1410.
- Willard, D., and Thomas, B. A.: Therapy by Bacterins and Tuberculins in Mixed Suppurative Bone and Joint Disease. THE JOURNAL, July 9, 1910, p. 161.

HOW TO BECOME AN F.R.C.S.

To the Editor: Please give requirements for obtaining the diploma of F.R.C.S. in England or Scotland. C. N.

ANSWER.—The diploma of F.R.C.S. is granted by the Royal College of Surgeons of England to a few distinguished persons in an honorary capacity. Each year, two persons who have long held the diploma of member may be elected to the fellowship. But the majority of fellows obtain the diploma by passing an examination which consists of two parts, the first covering anatomy and phys-

iology, which may be taken after completing three years of medical work, and the second covering surgery, surgical anatomy and pathology, which may be taken after six years of professional study. These examinations are held in May and November of each year and are partly written and partly oral. The second includes also a number of practical tests, such as the examination of patients and the performance of operations on the cadaver. The candidate must be 25 years of age and a graduate in medicine of some university recognized by the college or hold a diploma from some other British licensing body. The fees for admission to the fellowship, including the fees for the examinations, are 30 guineas, or about \$150. For candidates who already hold the membership diploma of the college the fee is 20 guineas (about \$102). The Royal College of Surgeons of Edinburgh seldom grants its fellowship except on the passing of one examination, and the fee is £45 or about \$215, or £35 for candidates who are already licentiates of the college. We suggest that our correspondent address a letter to the secretary of the Royal College of Surgeons, London (or Edinburgh, or both), stating what medical qualifications he now holds, where and when obtained and after what period of study, and asking what steps in the circumstances it would be necessary for him to take to obtain the fellowship of the college.

TREATMENT OF MORPHIN POISONING

To the Editor:—Please give in your Queries and Minor Notes department the chemical antidote for morphin poisoning, and explain its action. H.

ANSWER.—The most effective chemical antidote for morphin poisoning is potassium permanganate, which is believed to act by oxidizing morphin to oxydimorphin, which is non-poisonous. It should be employed as a solution to wash out the stomach. This is applicable even in cases in which morphin has entered the system by other channels, since morphin is excreted into the stomach. Precipitants of alkaloids, such as tannic acid, may act as antidotes by rendering the morphin insoluble.

LOCOMOTOR ATAXIA

To the Editor:—If locomotor ataxia is sclerosis of the posterior columns of the spinal cord, which are sensory, then why does it affect motion mostly? W. P. H.

ANSWER.—In locomotor ataxia there is degeneration of sensory fibers, chiefly those coming from the deeper tissues, such as the muscles, tendons and joints. As these fibers supply the muscular sense, this sense is to a large extent lost in locomotor ataxia. Hence the ataxia patient cannot regulate his movements, although in the earlier stages of the disease there is no loss of muscular power.

BOOKS ON CANINE SURGERY

To the Editor:—Kindly give references to books or literature pertaining to surgery on dogs, as well as anatomy of the dog and cat. O. M. S.

ANSWER.—There is no book devoted to the subject of surgery on the dog, all the literature on this subject being contained in scattered original articles treating each of certain features. The recognized authority on the anatomy of the dog is "Anatomic des Hundes," by Ellenberger and Baum, Berlin, 1891, published by Paul Parey. Rigard and Jennings' "Anatomy of the Cat," published by Henry Holt & Co., New York, is an excellent work on this topic.

The Public Service

Medical Department, U. S. Army

Changes for the week ended Oct. 29, 1910.

De Loffre, S. M., capt., relieved from duty at Fort Bliss, Texas, in time to enable him to comply with this order and will proceed to San Francisco and take the transport to sail for the Philippine Islands about Jan. 5, 1911, for duty.

Manly, Clarence J., major, granted leave of absence for one month on surgeon's certificate of disability.

Phelan, Henry Du R., Med. Res. Corps, relieved from duty at Fort De Russy, Honolulu, H. T., and will take the transport leaving Manila April 15.

The following officers are relieved from duty in the Philippine Islands and will sail from Manila to the United States on the date named: Jan. 15, 1911: Mocerlet, W. H.; Huntington, P. H., and Powell, W. A., captains, and Daywalt, George W., Med. Res. Corps, Feb. 15, 1911: Bloombergh, H. D., and Purnell, H. S., captains; Worthington, J. A., 1st lieutenant, and Le Hardy, J. C., and Lincoln, H. F., Med. Res. Corps, March 15, 1911: Davis, William B., colonel, April 15, 1911: Snyder, H. M., 1st lieutenant, and Bagby, E. W., and Ballard, J. C., Med. Res. Corps.

Hogan, David D., Med. Res. Corps, granted leave of absence for one month on his relief from duty at Fort Schuyler, N. Y.

Tetrault, C. A., Med. Res. Corps, at expiration of his present leave of absence ordered to Fort Micbie, N. Y., for duty.

Medical Corps, U. S. Navy

Changes for the week ended Oct. 29, 1910.

Brownell, C. D., surgeon, detached from the *North Dakota* and ordered to await orders.

Pleadwell, F. L., surgeon, detached from the bureau of medicine and surgery, Navy Department, and ordered to the *North Dakota*.

Shook, F. M., passed asst.-surgeon, granted sick leave for one month when discharged from treatment at the Naval Medical School Hospital, Washington, D. C.

McDowell, R. W., asst.-surgeon, granted sick leave for two months when discharged from treatment at the Naval Medical School Hospital, Washington, D. C.

Cather, D. C., passed asst.-surgeon, detached from the *Iowa* and ordered to the *Delaware*.

Whitmore, G. E., asst.-surgeon, detached from the *Delaware* and ordered to the *Connecticut*.

McDowell, R. W., asst.-surgeon, detached from the *Connecticut*.

Brownell, C. D., surgeon, ordered to duty at the naval hospital, Los Angeles, Oct. 26.

Kelley, H. L., passed asst.-surgeon, commissioned passed asst.-surgeon from June 6, 1910.

Lawrence, H. F., passed asst.-surgeon, commissioned passed asst.-surgeon from Sept. 21, 1910.

U. S. Public Health and Marine-Hospital Service

Changes for the seven days ended Oct. 26, 1910.

Trask, J. W., asst.-surgeon-general, granted 2 days' leave of absence from Oct. 24, 1910.

Carmichael, D. A., surgeon, granted 19 days' leave of absence from Nov. 15, 1910.

McIntosh, W. P., surgeon, granted 21 days' leave of absence from Nov. 11, 1910.

Wertenbaker, C. P., surgeon, leave of absence for 4 days, from Oct. 20, 1910, amended to read 2 days.

Young, G. B., and Wertenbaker, C. P., surgeons, detailed to represent the service at the annual meeting of the Association of Military Surgeons, to be held in Richmond, Va., Nov. 1-4, 1910.

Stimpson, W. G., surgeon, directed to proceed to Delaware Break-water (quarantine), Delaware, on special temporary duty.

Lavinder, C. H., passed asst.-surgeon, directed to proceed to Columbia, S. C., on special temporary duty.

Rucker, W. C., passed asst.-surgeon, directed to proceed to New York, Boston, Philadelphia and Baltimore on special temporary duty.

Frost, W. H., passed asst.-surgeon, granted 7 days' leave of absence from Oct. 18, 1910, under paragraph 191 of the Service Regulations. Granted 7 days' leave of absence from Oct. 25, 1910.

Ridlon, J. R., asst.-surgeon, relieved from duty on United States Revenue Cutter *Manning* and directed to proceed to Washington, D. C., and report to the Director of the Hygienic Laboratory for duty.

Marsh, W. H., acting asst.-surgeon, granted 11 days' leave of absence from Oct. 29, 1910.

Tappan, J. W., acting asst.-surgeon, detailed to represent the service at the meeting of the International Medical Association to be held in El Paso, Texas, Oct. 27-29, 1910.

Wakefield, H. C., acting asst.-surgeon, leave of absence for 14 days from Oct. 10, 1910, revoked. Granted 7 days' leave of absence from Oct. 18, 1910, under paragraph 210 of the Service Regulations.

Wilson, J. G., acting asst.-surgeon, granted 21 days' leave of absence from Nov. 4, 1910.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

LODGE PRACTICE IN NEW YORK CITY

Lodge practice, with its evils and dangers, is a prominent factor in the practice of medicine in other countries, notably England. Its growth and possible influence on physicians in this country has been much discussed. Frequent instances of disputes between local lodges and local medical societies, in the past few years, abundantly prove that this evil is increasing. This is strikingly illustrated in an article by Dr. Morris J. Clurman, of New York City, in the *Medical Record* (Oct. 22, 1910, p. 717).

Dr. Clurman states that, in the lower East Side of New York City, there are at present between 1,500 and 2,000 lodges consisting of societies and benevolent associations, founded mainly by the poorer class of working men, for the double purpose of social intercourse and mutual aid. Each of these societies elects some physician to take care of the local society members. As Dr. Clurman says, such an arrangement would

seem, at first sight, to be "reasonable, practical and eminently satisfactory." but, like Captain Cuttle's celebrated aphorism, "The value of the observation lies in the application of it." Dr. Clurman points out that the test of the value of such an arrangement is the practical manner in which its medical benevolences are administered. He gives a graphic picture of the experience of the lodge doctor 20 years ago and to-day:

"Twenty years ago, when lodge practice was in its infancy, societies would send humble delegates to some physician and ask him to accept the office of lodge doctor for a fair and reasonable consideration. In most cases, the physician thus approached would think twice before entering into such an agreement since, very naturally, routine family practice with its direct returns for every call seemed more remunerative than cheap contract practice. However, young and ambitious medical tyros naturally sought some means of getting patients to come to them and this seemed an easy way to help make both ends meet and also to obtain what seemed to be a legitimate and ethical way of advertising oneself.

"Tis true that for some years all physicians who undertook such lodge practice found in it a wonderful stepping-stone toward obtaining a medical reputation. The lodge doctor found that he came in contact at the sick bed with a large class of patients who would not have patronized him in any other way. In time, however, the lodge physician, after establishing a reputation as a busy practitioner—and perhaps as a good one—became more or less independent. He discovered that it now paid him to disentangle himself from the onerous duties of the lodge doctor and once more to resume straightforward family practice. What with the advertisement he had received, the numerous families who had employed him in the capacity of lodge doctor and the normal growth of his regular practice, he now found that financial affairs went smilingly with him even after giving up these societies. Very naturally such shining examples of medical success and pseudo-prominence came to be regarded with envy by others in the East Side profession and more especially those of the younger element.

"Hand in hand with the increased number of physicians on the East Side a keen competition now arose among them to be elected as lodge physician in as many societies as possible. . . . But now the quilt had been reversed. It was the doctors who sought after the societies and not vice versa, as formerly. The societies found that, inasmuch as physicians were so anxious to be their lodge doctors, they could well afford to discriminate and choose from the numerous candidates.

"At first the chief qualification for a physician who wished to be a lodge doctor were his medical skill and knowledge, but . . . it was not long before the physician with the best business instincts 'crawled and intruded' into the occupancy of these positions. The physician who knew how to ingratiate himself into the good-will of some of the individual leaders or more active members of these societies were almost invariably elected. At first, he simply had to be a 'good fellow' with them to become the holder of the coveted positions. In time, even that was not enough. He had to hold out more inducements, and these inducements naturally varied with the caliber of the men with whom he was dealing. Sometimes the judicious distribution of a few 'shekels' among the most influential of the society leaders brought the physician the necessary votes to elect him. Sometimes it was the unwritten promise of a bounteous blow-out to the members if he were elected. . . . It often happened that a worthy medical candidate would be defeated by his more Philistine colleague. It is easy to see what a deplorable state of affairs such an unequal competition has naturally and inevitably brought about."

The above might well be headed "The Evolution of the Lodge Doctor." The introduction of contract methods, competitive bidding, unprofessional and undignified competition and the giving of unlimited services for limited and inadequate compensation must inevitably result in degeneration of professional standards and services. The picture presented is commended to the careful consideration of all physicians who contemplate engaging in lodge practice, in the belief that it will serve as a stepping-stone to something better. In the great majority of cases, the steps lead down and not up.

After an equally vivid description of a society election, at which three or four physicians are rival candidates, and an account of an actual instance in the practice of an East Side

lodge doctor, as illustrating the contempt in which the contract physician is held by his patients, Dr. Churman continues:

"To-day there is scarcely an East Side working man who is not a member of some association which has a physician to take charge of its members. . . . With few exceptions the market price 'per head' is as follows: One dollar a year for the unmarried member and \$3 a year for every married member, including his family. Let us not forget that the East Side working man, when married, does not believe in race suicide. For these terms he [the physician] is supposed to make as many professional visits in time of sickness as he is called on to do. Very often he may be called on forty or even fifty times a year by one family. Time and again he is called for the most trivial of complaints since his presence is so easily obtained."

Dr. Churman is equally graphic in describing the effect of such a system on the young physician.

"Let us consider what little chance a young graduate now has on the East Side. If he happens to be a well-trained man from a good medical school, a hospital man and perhaps with a good preliminary medical education, it is all the worse for him. He will not be given a chance to practice medicine legitimately. A fair competition would be conducive to his medical progress, but when he discovers that commercialism has become the prime factor, it is not long before his lofty ideals are dragged and sullied in the dust. Especially is this true of the able but needy young practitioner. He soon discovers that the only way he can build up a practice is by getting lodges. Instead of devoting his spare time to perfecting himself in his medical knowledge he is compelled to devise ways and means for obtaining societies. The iron heel of necessity compels him to become proficient in the invidious art of winning out at society elections. His medical mind becomes warped, and instead of progressing ethically he gradually retrogrades into a proselyte of commercialism and a mere huckster of medical advice."

Dr. Churman's description of the degeneration of the young and enthusiastic medical graduate to the "commercial huckster" who has not time to keep abreast of the advances in medical knowledge is perfectly in harmony with the facts and emphasizes the frequently reiterated statement that the commercial and ignorant physician is not only a menace to the profession but a positive danger to the community.

After describing a routine day's work of a lodge physician with eight or ten lodges to look after and arriving at the very natural conclusion that as a result of lodge practice "the lodge doctor becomes careless and slipshod in his medical ways," Dr. Churman concludes:

"We are in too enlightened an age not to be able to remedy or at least to make lighter most evils, and the evil of lodge practice is one that can be solved and eradicated. To do this, vigorous and strenuous action must be taken by the East Side physicians. In the main it is only by a return to their medical ideals and by grappling these ideals to their souls with hooks of steel that they can solve this problem."

The only possible solution of the evils of lodge practice lies in the unanimous refusal of all competent and self-respecting physicians to engage in such work. County and local medical societies should discuss this question frequently and, above all, dispassionately and impersonally. Senior medical students should be told that such methods as a stepping-stone to independence and a competency are disappointing and lead, in the end, only to degeneration and ultimate degradation. Leaders of lodges and fraternal societies should be shown that competitive methods in the selection of professional men can lead only to securing the cheapest and poorest professional services and that the lodge that pays a pittance for its medical service can expect to secure only services commensurate in value to the compensation given.

Above all, the public should be informed that the lodge doctor is not a safe man to employ, since the large demands on his time and the number of calls required of him effectually prevent him from keeping abreast of medical progress and cause him to degenerate into a distributor of pills and draughts, careless in his methods of examination and hasty and often inaccurate in his diagnosis. When these facts are known election as a lodge physician will no longer be

regarded as a desirable step to an independent practice and the incentive for such ruinous and unprofessional competition will disappear.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Third Month—Fourth Weekly Meeting

NEPHROLITHIASIS

ETIOLOGY AND PATHOLOGY: Age, sex, water, diet, habits. Changes in kidney structure.

CHEMICAL VARIETIES: (1) Uric acid and urates, (2) oxalate of lime, (3) triple phosphates. Shape, size and number of calculi. Uric-acid, sodium-urate, and lime infarcts.

SYMPTOMS: 1. Aseptic cases. Pain, colic, urine. 2. Septic cases. Urine, chills, fever, sweats. Physical examination.

DIAGNOSIS: Value of x-ray, of wax-tipped ureteral catheter, exploratory operation. Differentiation.

TUMORS OF THE KIDNEY

VARIETIES: Benign, adenoma, fibroma, lipoma. Malignant, hypernephroma, sarcoma, carcinoma. Cysts of kidney, simple, retention cysts, and polycystic disease.

SYMPTOMS OF TUMOR: Hematuria, pain, tumor.

OPERATIONS ON THE KIDNEY

NEPHROPEXY: Indications. Incision, sutures, Brödel's suture. DECAPITATION OF KIDNEY FOR CHRONIC NEPHRITIS: History, indications, technic. (Edebohl's: Surgical Treatment of Bright's Disease.)

NEPHROTOMY: Indications; technic in detail.

NEPHROTRESIS.

NEPHROLITHOTOMY: Indications; technic.

NEPHRECTOMY: Total or partial, pericapsular or subcapsular, lumbar or abdominal. Technic in detail.

Monthly Meeting

The Significance of Hematuria, of Pyuria.

Indications for Nephrectomy; Technic of Operation.

Diagnosis for Treatment of Calculus in the Kidney; in the Ureter.

State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, Little Rock, November 8-9. Sec., Dr. F. T. Murphy, Brinkley; Homeopathic, Little Rock, November 11. Sec., Dr. P. C. Williams, Texarkana; Eclectic, Little Rock, November 8-9. Sec., Dr. G. A. Hinton, Hot Springs.

CONNECTICUT: Regular, City Hall, New Haven, November 8-9. Sec., Dr. Charles A. Tuttle; Homeopathic, Grace Hospital, New Haven, November 8. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave.; Eclectic, Hotel Garde, New Haven, November 8. Sec., Dr. Thomas S. Hodge, 19 Main St., Torrington.

FLORIDA: Palatka, November 9-10. Sec., Dr. J. D. Fernandez, Jacksonville.

LOUISIANA: Homeopathic, New Orleans, November 7. Sec., Dr. John T. Crebbin, 1207 Maison Blanche Building.

MAINE: City Council Rooms, Portland, November 8-9. Sec., Dr. Frank W. Searle, 806 Congress Street.

MASSACHUSETTS: State House, Boston, November 8-9. Sec., Dr. Edwin B. Harvey.

NEBRASKA: State Capitol, Lincoln, November 9-10. Sec., Dr. E. Arthur Cuff, 141 S. Twelfth Street.

NEVADA: Carson City, November 7-9. Sec., Dr. S. L. Lee.

TEXAS: Palestine, November 22-24. Sec., Dr. R. H. McLeod.

WEST VIRGINIA: Morgantown, November 14-16. Sec., Dr. H. A. Barbee, Point Pleasant.

Maryland June Report

Dr. J. McPherson Scott, secretary of the Board of Medical Examiners of Maryland, reports the written examination held at Baltimore, June 21-24, 1910. The number of subjects examined in was 9; total number of questions asked, 90; percent

age required to pass, 75. The total number of candidates examined was 117, of whom 95 passed and 22 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington University	(1907) 75	(1910)	79
College of Physicians and Surgeons, Chicago	(1908)		76
Johns Hopkins University	(1910) 78, 80, 81, 82, 82, 83, 84, 84, 85, 85, 86, 86, 88, 89		
University of Maryland (1909)	75	(1910) 75, 75, 75, 75, 76, 78, 79, 80, 80, 80, 81, 82, 82, 83, 83, 83, 84, 84, 85, 85, 86, 86, 87, 89, 89, 89	
Baltimore Medical College (1909)	75, 77	(1910) 75, 75, 76, 78, 80, 81, 81, 81, 82, 82, 83, 84, 85, 85, 86, 87, 88	
College of Physicians and Surgeons, Baltimore	(1907) 82; (1909) 81; (1910) 77, 82, 83, 84, 85, 86, 87, 88		
Maryland Medical College	(1908) 76	(1910) 75, 79, 90	
Woman's Medical College of Baltimore	(1910)		79
Harvard Medical School	(1910)		82
Jefferson Medical College	(1910)		80, 91
University of Pennsylvania (1910)	75, 75, 78, 79, 81, 83, 83, 86, 87		
University of the South	(1908)		75
Queen's University, Kingston, Ontario	(1888)		86
University of Dublin, Ireland	(1877)		79

FAILED

Howard University, Washington, D. C.	(1908)	72
Louisville and Hospital Medical College	(1908)	64
University of Maryland (1903)	56; (1909) 61, 66; (1910) 61, 66, 71, 72, 72, 73, 73	
Baltimore Medical College	(1901) 48; (1904) 67; (1910) 67, 68	
Maryland Medical College (1907)	65; (1909) 65; (1910) 53, 65, 70	
University College of Medicine, Richmond	(1908)	55

The following questions were asked:

ANATOMY

1. Give a general classification of bones and name a bone in each class. 2. Name structures transmitted through any four of these six foramina: foramen magnum, jugular foramen, sphenoidal fissure, foramen ovale, foramen rotundum, optic foramen. 3. What bones enter into formation of the nasal fossae? 4. Name cavities of the heart and describe the valves. 5. Locate the imaginary lines dividing the abdominal cavity into regions. Name regions and state contents of lower central region. 6. Describe the lachrymal apparatus. 7. Through what arteries is the collateral circulation carried on after ligation of subclavian artery (lower third)? 8. Locate and describe Peyer's patches. 9. What nerves supply the tongue? 10. Give origin, insertion, action and nerve-supply of the latissimus dorsi and biceps femoris muscles.

MATERIA MEDICA

1. What are alkaloids? What is an infusion? What is a decoction? Define fixed and volatile or essential oils. 2. Give two remedies of the following classes and the doses of each: galactagogues, sialagogues, emetics, antiseptics, anthelmintics, diuretics, antipyretics. 3. Give six official preparations of iron used internally, and give dose of each. 4. Cinchona: Mention the most important preparations and their doses. 5. Arsenic: Mention the official preparations and average dose of each. Give the official antidote for arsenical poisoning and how prepared. 6. Name five official acids used internally and give dose of each. 7. Name three preparations obtained from the animal kingdom and give source of each. 8. Give six official preparations of mercury used internally and dose of each. 9. Name five official powders, composition and dose of each. 10. Write a prescription using official terms containing compound tincture of gentian, tincture of nuxvomica and bicarbonate of soda. Write one containing reduced iron, arsenious acid, sulphate of strychnin and sulphate of quinin. One containing digitalis, nitrate of potassium and extract of buchu. One containing pepsin, subnitrate of bismuth and paregoric.

OBSTETRICS

1. Give general directions and preparation of the patient for labor and delivery. 2. What anesthetic should be used in labor, and the indications for use of each? 3. What conditions demand the emptying of the uterus prior to quickening, and what is the technic of the procedure? 4. What indications require the use of forceps, give the method of using them and the dangers of their use to mother and child. 5. What is the mechanism of labor in a breech presentation? 6. Describe Credé's method of expressing the placenta. 7. What are the common causes of hemorrhage during and after labor? 8. Give indications for and method of amputation of the cervix uteri. 9. Give causes and treatment of pelvic peritonitis. 10. What are the dangers to be avoided in performing a dilatation of the cervix and curetting of the uterus?

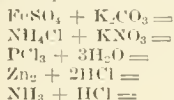
SURGERY

1. What are the signs of intestinal perforation in typhoid fever, and what is the surgical treatment? 2. Describe what is generally known as the radical operation for the cure of cancer of the breast. 3. Describe intubation of the larynx, laryngotomy and laryngotracheotomy. Give indications for each. 4. Give symptoms and treatment of acute catarrhal conjunctivitis. 5. Describe phimosi, paraphimosi, hypospadi, epispadi. 6. Describe two operations for cancer of the stomach. 7. Define the following operations: (a) enterotomy; (b) enterostomy; (c) entero-anastomosis; (d) enterectomy. 8. Define and describe the following diseases of the hip: (a) coxitis; (b) coxitis tuberculosa; (c) coxa vara. 9. Describe ectropion of the bladder, cause and treatment; (a) palliative; (b) operative. 10. Describe mastoiditis, acute and chronic, causes and treatment of each.

CHEMISTRY

1. Define (a) chemistry, (b) chemical compound, (c) chemical affinity and (d) chemical reagents. 2. What does the presence of an abnormal quantity of chlorin in drinking water indicate? Give

tests to determine its presence. 3. State the names and the general chemical and physical properties of the "halogens." 4. State of the two chlorids of mercury: (a) their names, (b) chemical formulas, (c) composition, (d) solubility, (e) color and other properties. 5. What are normal and decinormal solutions and how are they made? 6. Complete the following equations:



7. (a) State the specific gravity of normal urine, (b) causes of deviations in the specific gravity of urine, and (c) What is the reaction of urine during the formation of phosphatic calculus? 8. Give a chemical test for each of the following: (a) proteids, (b) phenol, (c) lactic acid, (d) amyllum, (e) croceate. 9. State of silver nitrate: its composition, properties and names by which it is known. 10. (a) Give tests and antidotes for nitric acid, (b) What are amalgams? (c) What are "indicators"? (d) Give a brief outline of the differences between "leucomaines" and "ptomaines." (e) What kinds of blood are distinguished and give the differences between them?

PRACTICE

1. Define (a) enteroptosis, (b) Ludwig's angina, (c) purpura, (d) myxedema, (e) angina pectoris. 2. Define (a) rabies, (b) ascaris lumbricoides, (c) empyema, (d) chololithiasis, (e) dysphagia, and give some of the causes. 3. Give differential diagnosis between measles and scarlet fever. 4. Give differential diagnosis between serofibrinous pleurisy and pneumonia. 5. Give differential diagnosis between hysteria and epilepsy. 6. Give treatment of a case of typhoid fever and the most frequent complications. 7. Give treatment of early pulmonary tuberculosis and state in detail what methods should be employed to prevent contagion from such a case. 8. Name types of chronic nephritis and symptoms of each type. 9. What diseases are likely to occur in the right inguinal region? 10. Give symptoms and treatment of gastric ulcer.

THERAPEUTICS

1. Name five antispasmodics and the general indications for their use. 2. Write two prescriptions in Latin, each containing four ingredients, one in dry, the other in liquid form, with directions for administration, and state the condition for which they are to be used. 3. What is an antitoxic serum? Name disease most amenable to serum therapy; give source of serum and describe method of administration. 4. What are the therapeutic uses of opium? Strvehin? Describe symptoms of poisoning by each. 5. Give the indications for venesection and describe the operation. 6. Give the physiologic action and therapeutic uses of colchicum. 7. Give the physiologic action, therapeutic use and effect of overdose and constant use of digitalis. 8. Describe purpose and method of introduction of vaccine lymph into human system and physiologic manifestations. 9. Give mode of action of cardiac sedatives, cardiac stimulants, cardiac tonics; name three of each. 10. What is meant by the terms "antagonists," "antidotes?" Describe uses and mode of action.

PATHOLOGY

1. State the method you would use in preparing a specimen of fresh kidney tissue for microscopical examination. 2. State the general principles of the methods used in isolating and identifying bacteria. 3. How would you prepare a specimen of sputum in order to demonstrate the presence or absence of tubercle bacilli? 4. Give the life history of the *Trichina spiralis*, and the pathology of a case of human trichinosis. 5. If you were given two specimens of serum and told that one was human and the other bovine, how would you proceed to differentiate them? Or, what is anaphylaxis, and what alarming symptoms are sometimes due to this phenomenon? (Answer either one of the above, but not both.) 6. What would you expect to be the macroscopic appearances of the abdominal viscera in a patient with typhoid fever dying of hemorrhage in the third week of the disease? 7. State in the order in which they occur the changes which lead from healthy lung tissue to a healed tuberculous cavity. 8. What changes, not local, may be noted during the course of, and what sequelae may follow, an attack of diphtheria? What is the best way to prevent these changes, and why? 9. What is arteriosclerosis? What are the common causes leading to this condition? Mention its effect on the heart and kidneys. 10. What changes in the brain may lead to, occur in, and follow a stroke of apoplexy, the effect of which is paralysis of the right side?

PHYSIOLOGY

1. (a) What is meant by muscular contraction? (b) What effect has temperature or veratrin on muscular contraction? (c) What is the difference between simple and compound or tetanic contraction, and what are the chemical changes in the muscle during contraction and rigor? 2. State briefly the general physiology of the nerve-cell and what is meant by the neuron doctrine? 3. (a) What is meant by the knee-jerk? (b) What use are the knee-jerk and spinal reflexes as diagnostic signs? 4. What changes take place during sleep, and what are the neuron and an-mia theories of sleep? 5. Give the composition of the blood, its reaction, specific gravity, temperature, difference between arterial and venous, the amount in the body and the time required for a complete circulation. 6. What is meant by blood-pressure and how determined? (b) What effect has menstruation on blood-pressure? (c) What effect has the blood-pressure in the arteries on the pulse rate? 7. Give the difference in each ingredient, between inspired and expired air, (b) the effect of work on the respiratory movement, (c) the cause of the first respiratory movement. 8. Give composition and specific gravity of the saliva and the gastric juice, and the composition and physiologic action of the pancreatic secretion; (b) which is the only secretion in the body containing a free acid, and what is the acid? 9. State the general physiologic importance of bile, and what would be the effect of complete occlusion of the bile duct. 10. Name the nerves of the submaxillary gland, and state in full the effect of stimulating each. (b) What is meant by the paralytic "secretion"?

Book Notices

LIPPINCOTT'S NEW MEDICAL DICTIONARY. A Vocabulary of the Terms Used in Medicine and the Allied Sciences, with their Pronunciation, Etymology, and Signification, Including Much Collateral Information of a Descriptive and Encyclopedic Character. By Henry W. Cattell, M.D., Editor of "International Clinics." Flexible Leather. Price, \$5. Pp. 1,198, with illustrations in the text. Philadelphia: J. B. Lippincott Co., 1910.

This dictionary possesses a number of excellent features, some of which are innovations, and a few less excellent. It appears to offer copious information, well arranged, and made more accessible by a good system of cross-references. The practice of referring to current literature and to other works of reference is a commendable one. Another satisfactory feature is the arrangement of such terms as "Krause's corpuscles," "van't Hoff's law," "Noguchi's method" under "Krause," "van't Hoff," and "Noguchi" instead of under the generic portion of the term. Since the proper name is constant and the generic word often variable (for instance, one person will speak of the "Wassermann method," another of the "Wassermann test," and a third of the "Wassermann reaction"), arrangement under the generic word is apt to be unsatisfactory. Preference is given throughout to arrangement under specific instead of general heads. In some instances this results in making information somewhat less readily accessible; for example, there are no tables of muscles, nerves, etc., from which each one can be picked out at a glance. Some items of information appear to be lost entirely in the shuffle; for example, we are unable to find Mallory's and Van Gieson's stains, either under "stain" or under "Mallory" and "Van Gieson." The definitions of proprietary substances are, as a rule, good.

A blemish which is not peculiar to this work is the insertion at separate points in the vocabulary of two forms of the same word, as, for instance, "gastrenteralgia" and "gastroenteralgia," without cross-reference from one to the other or any indication of preference.

It is difficult to understand the principle which guided the selection of illustrations; for instance, portraits, however eminent the subjects, seem out of place in a work which makes no pretense of occupying the place of a biographical dictionary; and it seems equally unsuitable to fill space in a medical dictionary with illustrations showing elementary botanical facts.

The work is made a guide to capitalization by confining the use of capitals to words which are always capitalized, such as proper nouns. This is a very useful feature. It is a pity that this dictionary could not also have distinguished abbreviations from symbols and uncontracted words in the vocabulary by omitting periods after the unabbreviated expressions. Phonetic pronunciation is not given, but division of words into syllables is indicated. The spelling "anæsthesia," "œsophagus," etc., are preferred to "ane-sthesia," "esophagus," which is to be deplored as a step backward.

On the whole, however, the book is a very creditable and useful piece of lexicography.

THE DIAGNOSIS OF SMALLPOX. By T. F. Ricketts, M.D., Medical Superintendent of the Smallpox Hospitals and of the River Ambulance Service of the Metropolitan Asylums Board. Illustrated from Photographs by J. B. Byles, F.R.C.S., Senior Assistant Medical Officer at the Smallpox Hospitals of the Metropolitan Asylums Board. Cloth. Price, \$6 net. Pp. 154, with 136 illustrations. New York: Funk & Wagnalls Co., 1910.

The authors of this book have seen small-pox and write from knowledge gained through personal experience with the disease. This fact gives confidence and assurance of safe guidance to the inexperienced when struggling to make a diagnosis with information derived from books alone. The book, though not free from serious faults, is a painstaking and valuable presentation of the diagnosis of small-pox. The authors have especially emphasized the value of the distribution of the small-pox lesions as an aid to diagnosis. The distribution of the eruptions in small-pox has always been of much value in making a diagnosis, and we should never neglect to scrutinize closely the location of the lesions and give due weight to the findings, but the authors have laid greater stress on the distribution of the lesions as a guide to diag-

nosis than is generally given to this feature of the disease. They really overestimate this factor in diagnosis, but it is gratifying to see this feature of small-pox so thoroughly presented. An experienced diagnostician will not depend on this sign with as much confidence as the authors would have him, and the inexperienced who rely on it to the extent advised will certainly come to grief. It is but fair to say, however, that the authors, after discussing distribution, call attention to the numerous exceptions to the rule which they make so prominent.

The illustrations are good and give as perfect a picture of the skin lesions as the photographic art can make. For the most part, they are in duplicate; that is, two pictures of the same subject are placed side by side on the same page, to be viewed through a stereoscope. They are perfect enough for diagnostic purposes when viewed by the unaided eye, but seen through a stereoscope the picture is almost as satisfactory as that seen when looking at the living subject.

There is, however, a very serious fault in presenting all these fine photographs, and no doubt the authors have discovered it before this. Certainly they will see the fault as soon as their attention is called to it. In order to make a diagnosis in small-pox it is of the greatest importance that we know the life history of a lesion; that is, how many days old the lesion is. A photograph of a case of chicken-pox on the fifth day of the eruption may look to the eye identical with a photograph of a case of small-pox on the twelfth day of the eruption. For example, Plate XIV is said to be from a photograph of a case of small-pox; but no one could make the diagnosis of small-pox from the picture without knowing the number of days these lesions have existed. If it is small-pox, it is the twelfth or thirteenth day of the eruption. If the case looks like this on the fifth day it would certainly be chicken-pox. And distribution in this very picture would not save the diagnostician from error if he knew not the day of the eruption. Plate CIX shows chicken-pox; and the lesions must be not more than five days old. Hundreds of cases of small-pox look like this when photographed on the twelfth or thirteenth day. An experienced diagnostician could make the diagnosis in these cases, perhaps, without knowing how old the lesions are; but in this book photographs are used to teach the inexperienced; and this cannot be done if the day of the eruption is not known. This is a defect that can easily be remedied in a second edition. The day of the eruption should be noted below all the photographs.

The colored plates are valuable to those who are not familiar with the natural color of the eruptions of the various diseases presented. These are taken by the Sanger-Shepherd process and give the natural color of the skin lesions.

The chapter on vaccination is sound and can be safely followed. The publishers have done their work well, not forgetting to name a high price for the book—six dollars.

AIDS TO MICROSCOPIC DIAGNOSIS (BACTERIAL AND PARASITIC DISEASES). By Ernest B. Knox, M.D., Diplomat in Public Health (Honors), Royal Colleges of Physicians and Surgeons, Ireland. Cloth. Price, \$1 net. Pp. 156. New York: William Wood & Co., 1910.

This is practically an epitome, and is intended to serve the purpose of a review of the subject only. The title is misleading, because the book contains much that is entirely foreign to microscopic diagnosis, such as prophylaxis and treatment, and inasmuch as other works cover the same ground to better advantage, there really does not seem to be any *raison d'être* for this book.

AMERICAN RED CROSS ABRIDGED TEXT-BOOK ON FIRST AID: A Manual of Instruction. Industrial Edition. By Major Charles Lynch, Medical Corps, United States Army and First Lieutenant M. J. Shields, Medical Reserve Corps, United States Army. Prepared for and endorsed by the American Red Cross. Paper. Price, 30 cents net. Pp. 175, with 49 illustrations. Philadelphia: P. Blakiston's Son & Co., 1910.

This book is a manual of instructions for workers in the industrial field with especial reference to mine workers, abridged with great care from the "American National Red Cross Text-Book on First Aid and Relief Columns," by the same author, prepared for, and endorsed by, the American National Red Cross.

Medicolegal

Constitutionality of Order of School Board Requiring Vaccination

The Court of Civil Appeals of Texas says, that it was contended in the case of *McSween vs. Board of School Trustees of the City of Fort Worth* (129 S. W. R. 206), that an order of the school board, requiring the vaccination of pupils as a condition precedent to attendance in the public free schools of the city, was in contravention of the provision of the state constitution, that "the legislature may pass laws prescribing the qualifications of practitioners of medicine in this state and to punish persons for malpractice, but no preference shall be given by law to any school of medicine." But the court does not agree with the contention, because, as shown by the language quoted, it is evident that the restriction therein imposed was intended to apply to legislation only which might be enacted prescribing the qualifications of practitioners of medicine.

Furthermore, the order adopted by the school board, excluding from the schools all pupils who should refuse to be vaccinated unless successfully vaccinated already, merely prescribed a condition on which the right of pupils to attend the schools should depend. It gave the pupils who had not been successfully vaccinated the choice to be vaccinated and attend school, or to refuse to be vaccinated and remain out of school until the danger of small-pox had passed. It did not compel vaccination, and, therefore, was not in violation of the provision of the state constitution that "the people shall be secure in their persons, houses, papers and possessions from all unreasonable seizures or searches.

Nor does the court agree with the contention that the power vested in the board of city commissioners, by the city charter, to enact laws, rules and regulations for the promotion of health and the suppression of disease, left the school board without authority to adopt the order complained of. The provisions in the city charter that the board of school trustees should adopt such rules, regulations and by-laws as they might deem proper, and that the free schools of the city should be under the control and supervision of such board, which should have the power to control, manage and govern said schools in all things and matters, etc., were sufficiently comprehensive to include the delegation to the school board of authority to pass the order. In case of an epidemic of small-pox, unquestionably it could have closed the schools temporarily, if the trustees should be convinced that to continue them would result disastrously to the health of the pupils. Such an order would have excluded all pupils, and it would have been valid even though the purpose of its adoption were to protect the health of the pupils. It cannot be said that in the adoption of the city charter the legislature intended to deny the school board power to adopt sanitary regulations for the schools. Indeed, the court thinks a contrary intention was apparent from the provisions of the charter with reference to the powers of the school board. If correct in this, the board was authorized to adopt any reasonable regulation to effect the purpose sought to be accomplished.

The order in question was the exercise of police power for the protection of the pupils of the public schools, and, therefore, was not unconstitutional as depriving of liberty without due process of law.

Legal Insanity and Epilepsy

The Supreme Court of Wisconsin says, in *Oborn vs. State* (126 N. W. R. 737), that the term "insanity," as used in the special plea in a criminal case, means such abnormal mental condition, from any cause, as to render the accused at the time of committing the alleged criminal act incapable of distinguishing between right and wrong, and so unconscious at the time of the nature of the act which he is committing, and that commission of it will subject him to punishment. True, there are things in some of the cases liable to lead to the belief that legal insanity may exist if, though the person

be fully conscious of the wrong and its punishable character, he because of a perverted mind, is moved by an uncontrollable impulse.

This court, however, is not committed to the doctrine that one can successfully claim immunity from punishment for his wrongful act, consciously committed with consciousness of its wrongful character, on the ground that, through an abnormal mental condition, he did the act under an uncontrollable impulse rendering him legally insane. One, at his peril of punishment, commits an act while capable of distinguishing between right and wrong, and conscious of the nature of his act. He is legally bound, in such circumstances, to exercise such self-control as to preclude his escaping altogether from the consequences of his act on the plea of insanity, though his condition may affect the grade of the offense. Thus far the charity of the law goes and no farther.

Nor does proof of epilepsy necessarily directly establish insanity, as epilepsy is not, as a matter of fact or law, insanity, though evidence of an epileptic condition may bear, circumstantially, on the mental condition of the afflicted person to the extent of establishing insanity. As the court reads the cases cited to it, they are to the effect that a person may be an epileptic and be perfectly responsible for his actions, except when suffering from an epileptic disturbance, called a fit; that epilepsy may cause insanity, but does not constitute it, and the two should not be confounded. That a person afflicted with insanity may yet have capacity to distinguish between right and wrong, and if so he is legally sane. That it is not sufficient to establish irresponsibility to show epileptic affliction, but it must be shown by evidence as a fact that epilepsy is a disease which affects the mind, or produces insanity, and that there was legal insanity in the given instance.

Therefore, whether the accused, in any given case, was afflicted with epilepsy, and if so whether the affliction was a mental disease or had impaired his mind, and if so whether sufficiently to render him unable to appreciate between right and wrong, are matters of fact to be established by evidence.

Pregnancy, Childbirth, Sound Health and Insurance

The Supreme Court of Idaho holds, in *Rasicot vs. Royal Neighbors of America* (108 Pac. R. 1048) that an agreement or stipulation in a contract of insurance made with a married woman that the policy shall not go into effect unless it is delivered to her "while in sound health" is not violated by reason of the applicant being pregnant at the time of the delivery of the policy.

Pregnancy, the court says, is not *per se* a condition of "unsound" health, nor is it a "disease" or "ailment" within the meaning of those terms used in this application and policy. The term "sound health" has been frequently defined by the courts, and, so far as the court is advised, it has never been held that this term used in an insurance policy or certificate covered every slight ailment or indisposition of health of a temporary character which does not tend directly to shorten the life or undermine the constitution of the insured. So far as the court is informed, this term of itself and standing alone has never been held to cover or include a case of pregnancy.

So, also, a statement made by a married woman who applies for insurance in a fraternal benefit society that she has not consulted with a physician "in regard to a personal ailment" within the last seven years does not cover a single attendance by a physician on the applicant some three years prior thereto when she was confined and gave birth to a child. Confinement in childbirth is not a "personal ailment" within the meaning of such a provision in the contract. Childbirth is a physiologic fact which occurs in the regular course of Nature, and neither signifies nor entails disease or ailment in the usual and ordinary use of those terms.

But, besides all this, the court holds that where a fraternal benefit society received an application from a woman for insurance which warranted the literal truth of the answers given by her, and she represented, and at the time honestly believed, that she was not pregnant, when in fact and truth she was, and the contract provided that the society would

not become liable in such a case and that it would not consider such an application until at least two months after confinement, and the society collected and received dues, assessments and premiums from the insured for a period of nearly five years thereafter, during which time the applicant was in good health, the insurance society will be held to have waived the right to insist on a breach of the contract for the falsity of the answer.

Society Proceedings

COMING MEETINGS

Am. Assn. for Study and Prev. Infant Mort., Baltimore, Nov. 9-11.
Hawaiian Territorial Med. Assn., Honolulu, Nov. 26-28
Ohio Valley Med. Assn., Evansville, Ind., Nov. 9-10.
Southern Medical Assn., Nashville, Nov. 8-10.
Southern Surg. and Gyn. Assn., Nashville, Dec. 13-15.
Western Surg. and Gyn. Assn., Chicago, Dec. 19-20.

INDIANA STATE MEDICAL ASSOCIATION

Annual Meeting, held at Fort Wayne, Sept. 28-30, 1910

The President, DR. T. C. KENNEDY, Shelbyville, in the Chair

Officers Elected

A list of the officers elected was published in THE JOURNAL, Oct. 8, 1910, p. 1293.

The Wassermann Reaction and Its Value to the Physician

DR. W. T. MEFFORD, Chicago, besides giving the general principles in regard to the uses of the Wassermann test, reported his experience in this work. The value of the test was shown particularly in cases of obscure diagnosis in which the reaction proved positive, and in which the patient then being put on mercurial treatment, rapidly improved.

Serodiagnosis of Syphilis

DR. J. P. SIMONDS, Indianapolis: The phenomenon of bacteriolysis, first demonstrated by Pfeiffer in 1894, gave to the study of immunity an importance it had not before possessed. It has been shown that:

1. There is in the blood serum of a syphilitic patient an antibody which, in the presence of extract or syphilitic liver or solution of lecithin, has the power of binding or absorbing complement, and thus of preventing hemolysis when red-blood corpuscles and hemolytic amoebocytes are added.

2. This principle has been utilized in a test which is highly specific for syphilis, so that we are probably justified in saying that any patient whose serum gives a positive reaction still harbors the syphilitic virus.

3. This test is of unquestionable value to the practitioner in differential diagnosis, in solving the difficult problem of when a syphilitic may safely marry, and, if not in actually controlling, at least in directing the treatment of the patient.

Discussion on Serodiagnosis of Syphilis

DR. C. G. BEALL, Fort Wayne: Following the Wassermann announcement of this test for syphilis, many attempts have been made to determine the presence of syphilitic virus by simpler methods. Principal among these was an attempt to get a precipitate in the serum of luetic individuals by means of a solution of liver salts. The consensus of opinion now is that the precipitate test was practically worthless. A more simple recent test is that of Nicolas, Favre and Gautier, by the introduction beneath the skin of a preparation called syphiline, which is a syphilitic extract. Like tuberculin, it is used on and beneath the skin. Results have been reported in fifty cases, and in 42 per cent. they agreed with the Wassermann reaction. Another test for the same purpose has been the cobra-venom test. However, this has the same objections that the Wassermann has or the Noguchi modification, because of the experience that is necessary to obtain reliable results. Recently it has been found that the reaction occurs frequently after ether narcosis. I have made about forty tests, and they agreed fairly well with the clinical diagnosis, yet my results are not to be relied on, because of the extreme technical skill required in making the test, and the

number of errors that are apt to appear. Kaplan made 300 tests before he felt competent to draw any conclusions. Naturally, this puts the test beyond the ordinary man's power.

DR. C. F. NEU, Indianapolis: It is unfortunate that in a test that is apparently so valuable there are so many difficulties in the application. When one takes into consideration the details that have to be watched, and the minutiae so necessary to carry out the operation, one can readily understand that it is not practical for the ordinary practitioner. It can be carried out only by one who devotes his time and attention to laboratory methods.

It should be borne in mind that the tests are negative in from 8 to 10 per cent. of cases in which there is positive evidence of syphilis, and the positive reaction is given in other conditions besides syphilis. The Wassermann reaction has been reported positive in cases of scarlet fever, tuberculosis, leprosy, meningitis and malignant growths. It is true that there might have been some syphilitic conditions present, but the mere facts that in from 8 to 10 per cent. of syphilitic cases the Wassermann reaction was negative, and that a positive reaction is obtained in other conditions besides syphilis, makes it very important that these points be kept in mind.

DR. W. R. DAVIDSON, Evansville: The consensus of opinion seems to be that the test should be limited only to expert laboratory workers, and yet almost in the same breath the recommendation is made that everybody who treats lues should make this test. If the work is good, certainly it should be carried out more extensively; but in the nature of things it would be impossible for me, for instance, to make this test every day. Would it be advisable for me to go on and work with it?

DR. H. R. ALBURGER, Bloomington: I think that the wisest plan for the man doing ordinary clinical diagnosis, if he does want this test, is to put it in the hands of a man who is specializing on it. I believe it is only a question of a short time until this test will be put on a practical basis for general use, but the general practitioner must as yet depend on the men in the laboratories to do that sort of work for him. I believe that the reason we get positive results in cases that are negatively syphilitic is that we have all inherited some immunity to syphilis.

DR. JOHN A. MACDONALD, Indianapolis: Dr. Alburger has perhaps unintentionally sounded a note of warning. By the very nature of the work it must be in the hands of men who are prepared to do it. There are few men in any community who are prepared to do this work correctly. If we overload them with work we shall get unsatisfactory or delayed results. This, however, does not impair the value of the reaction; it should only produce an economy in its use. If we limit its use to decisions of the possibility of marriage in certain forms of syphilis or to those cases in which doubt arises, and to conditions of the central nervous system, then we have done quite enough at the present time.

There are two diseases which are very similar in our hands—syphilis and malaria. If an error of 8 per cent. in the Wassermann reaction be admitted, we must go right back to the therapeutic test. Consequently, we give a man quinin and iron and the usual treatment for malaria, and with the patient with suspected syphilis we go ahead and give him mercury, and he recovers or improves if he has syphilis.

DR. THEODORE POTTER, Indianapolis: Dr. Davidson's question remains unanswered. The most important feature of this question, I think, is to get the mass of the profession to understand what a test of this sort is and what a laboratory method is, and to use it rationally and operate with the laboratory men. We have the idea that laboratory tests are perfect and infallible, and we misjudge the reports of the laboratory men and do harm to the whole cause. It was so with the examination for tubercle bacteria. It is so still in many instances; if the patient's sputum is examined for tubercle bacilli with negative results, the physician often and the patient generally conclude that the latter is not tuberculous. We are to blame for such misinterpretation. We should join with the laboratory men in working the matter out, but we should not make the mistake of thinking that the reports are all infallible, or that the test is always absolutely final.

I like Dr. McDonald's suggestion that, so far as possible, we reserve the application for the test to cases in which it is really needed, and not call on the laboratory men to make the Wassermann test in a perfectly plain case of syphilis.

DR. W. T. MEFFORD, Chicago: All laboratory men and men who have written on the technic make it seem extremely difficult. They frighten people from attempting to learn it. It is a very simple matter. There is not a man or woman here whom I cannot teach to do this test in two days. The materials are standardized and prepared all ready for use, and anyone can take the serum and do the work, after one or two days' experience. The best laboratory worker we ever had was a young woman 18 years old, and it was not two weeks until she was doing the work as perfectly as I could. One afternoon I taught another to do laboratory work for Dr. Butler, who is an expert in the Wassermann test, and he told me that she was as good a worker as he ever saw. In my opinion we all ought to learn to do this test. The materials necessary are: an incubator (\$35), a centrifuge (\$30) and a few test-tubes. Langstein introduced the drop method of doing this work. I use it and find it absolutely correct. As to the absolute necessity of having all the materials exact, it is necessary to have exact only the luetic liver, the serum, the complement and the amboceptor. Ten drops of the salt solution can be put in a test-tube and it works just as well as another amount. Some corpuscles give off more serum than others, so one will not have the exact number of corpuscles anyway.

DR. J. P. SIMONDS, Indianapolis: My experience has convinced me that the serum test for syphilis is by no means a simple one; that it is exceedingly delicate and useful; but that if improperly done it may lead to great confusion in diagnosis. The mere mechanical manipulation of reagents and apparatus necessary to making the test is comparatively simple. But in all work in hemolysis the opportunity for error is very great and often comes from sources entirely unexpected. Hence I do not believe that the work of a man who knows only the mechanical side of the test without a thorough knowledge of the underlying principles can be relied on. Unless one has accurate amounts of amboceptor one is likely to get either a positive or a negative reaction where one should not. The only way to determine the amount which is accurate is to restandardize very often. This applies to the antigen, which must be restandardized occasionally. In order to restandardize reagents one must understand the principles of hemolysis. Mere mechanical skill is not sufficient. It is often stated that reagents dried on filter-paper will keep almost indefinitely. At the Indiana State Laboratory we had one test-tube of the fluid serum and a lot of the dried filter-paper slips. For some reason, to our great surprise, the serum that was dried on the filter-paper deteriorated first. That is entirely contrary to the teachings of the text-books. Our fluid serum has lost very little of its original potency, but had to be restandardized. This experience is an illustration of the unexpected things that may happen.

As a further illustration of the ease with which a mistake may occur, it has been found that a very slight variation in the acidity of the reagents may entirely change the results of the test. Sachs and Altman tested serum with reference to the influence of alkalinity on the reaction, and found that if 1/800 to 1/3,200 normal sodium hydroxid solution were added, the syphilitic reaction with known positive serums could be abolished. But if to this alkaline serum enough hydrochloric acid was added to bring it back to the proper reaction, a positive result would be obtained. Not infrequently, an exceedingly slight variation in the alkalinity or acidity of a serum, such as might be produced by unclean test-tubes, may entirely vitiate the result. I must say, however, that Sachs and Altman found that varying the reaction in non-syphilitic serums would never make them react positively. I believe that the test done by the average busy practitioner would give results more confusing than enlightening, and that it should, therefore, be done only by regular laboratory workers who are well equipped with all necessary apparatus and who thoroughly understand the principles of hemolysis.

(To be continued)

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

Sixtieth Annual Meeting, held at Pittsburg, Oct. 3-6, 1910

(Continued from page 1582)

Treatment of Croupous Pneumonia

DR. G. W. NORRIS, Philadelphia: The most important therapeutic indication in pneumonia is to prevent toxemia. Many of the drugs employed are worse than useless. Serotherapy has proved of no value, as also that with leukocytic extracts. It is still too early to be dogmatic concerning the efficacy of vaccine therapy, although the results so far have been somewhat promising. Death in pneumonia is generally the result of toxemia, and, to a considerable extent, is independent of the amount of pulmonary involvement. In its production vasomotor failure plays a much more prominent part than heart failure. This fact is still not sufficiently appreciated, and hence treatment is often misdirected and inefficient. All drugs and methods of treatment which tend to lower blood pressure are therefore contraindicated.

Public and Private Aspects of the Pneumonia Question

DR. W. C. WHITE, Pittsburg: I here suggest two plans for a systematic crusade against pneumonia: (1) the discovery of a specific cure; (2) the inauguration of a popular campaign of education and instruction in the laws governing the prevention and cure of pneumonia similar to, and involving the same scope as the plan already utilized for the reduction of the mortality from tuberculosis.

Effect on the Different Forms of the Leukocytes in Cases of Tuberculosis Produced by Some Therapeutic Measures

DRS. SOLIS-COHEN AND STRICKLER, Philadelphia: One hundred and thirty-five leukocytic counts were made on 25 patients with pulmonary tuberculosis. Bier's suction hyperemia in cases suitable for this treatment causes an increase in the proportion of lymphocytes and of polymuclear cells with one and two nuclei. Application of fly blisters every five days and the absorption of the serum cause an increase in the proportion of polymuclear cells with one and two nuclei, and, in most instances, an increase in the proportion of lymphocytes. Iodin in the form of iodoform, administered by mouth, causes an increase in the proportion of polymuclear cells with one and two nuclei. Creosote given in the form of the carbonate, as a rule, causes an increase in the proportion of the lymphocytes and of polymuclear cells with one and two nuclei. Nuclein seems to cause an increase in the proportion of polymorphonuclear neutrophils. The effect produced in the blood by many therapeutic measures is not, as a rule, maintained indefinitely, but only for a variable period, averaging about a month.

Enuresis from Thyroid Insufficiency

DR. E. BOSWORTH MCCREADY, Pittsburg, read this paper, in which he formulated the following conclusions: 1. There is a large class of individuals which includes many of those who, as children, show various developmental defects, whose condition may be traced to a primary defect in the ovum, resulting from disease in the progenitors. 2. The resulting cell hypoplasia involves the structural elements of the ductless glands. 3. Enuresis is a very common symptom of hypoplasia. 4. The administration of thyroid extract will not only relieve the enuresis, but will also cause a marked improvement in the general physical and mental condition.

Mental Disturbance Following Traumatism. Medicolegal Considerations

DR. ALFRED GORDON, Philadelphia: I have studied thirty-seven cases during a period of 8 years, and have formulated the following conclusion: Trauma may be a determining cause of abnormal psychic manifestations, following immediately, or sometime later. Their appearance weeks after the shock excites the suspicion of their existence in a mild form immediately following the accident. Confusional states and delirium are the most frequent forms of insanity following traumatism.

Dementia may be the ultimate result of persistent confusional and delirious states. Traumatic psychoses do not present a strictly defined morbid picture, but present a great variety of psychic manifestations.

Present Status of Psychotherapy

DR. E. E. MAYER, Pittsburg: Physicians should well understand what they mean by the term psychoneurosis. We are apt to speak of neurosis when we do not mean neurosis. For example, we refer to gastroneurosis, when we know there is no underlying physical defect, but a mental factor at play and, therefore, that the condition is not a gastric condition, but a psychic state. That which should be done is to get at the patient's mental state, ascertain what things are troubling him mentally. The treatment of these conditions has a technic just as important and just as complex as that of any physical disease.

Traumatic Neurosis

DR. J. L. SALINGER, Philadelphia: The existence of traumatic neurosis as a nosologic entity is still denied by some of the most prominent neurologists. The causative factor is trauma, but there are many predisposing conditions. The litigation which frequently ensues after accidents is a large etiologic factor. The symptomatology consists largely of mental phenomena. If proper and speedy adjustment of the patient's claims is impossible the neurosis is apt to be prolonged. Litigation hysteria and traumatic hysteria must be strictly differentiated. Following an accident only when the presence of symptoms that were not previously present are demonstrated, can a causal connection between trauma and disease be regarded as probable.

Discussion on Neurosis

DR. T. DILLER, Pittsburg: While the claims of the subjects of traumatic neurosis are still unsettled there is practically no treatment for these patients. I should hesitate to attempt an analysis of the mental troubles of patients as suggested by Dr. Mayer. I have practiced the old-fashioned psychotherapy, that of ordinary sympathy, re-education, suggestion, and that sort of thing, but I should feel that we were getting into pretty deep water to follow Dr. Mayer's plan.

DR. T. A. WILLIAMS, Washington, D. C.: The general practitioner should disabuse his mind of the idea of there being special difficulty or complexity in psychotherapy. Psychoanalysis is no more difficult or impossible than chemical analysis. However, it requires a technic of its own and a thorough knowledge of the subject. This knowledge may be acquired by any one willing to take the trouble.

DR. A. GORDON, Philadelphia: There is no rule in regard to recovery in cases of litigation following traumatic neurosis. I have had cases in which the neurosis persisted in spite of satisfactory settlement of litigation.

DR. E. E. MAYER, Pittsburg: It is the physician's duty to find the cause of the trouble, be it physical or mental. I do not doubt that Dr. Diller really practices psychotherapy, though he may not dignify it by the name.

DR. J. L. SALINGER, Pittsburg: I should regard the cases mentioned by Dr. Gordon as persisting in spite of receiving indemnity as not cases of neurosis, but of organic disease.

Treatment of Acne Vulgaris

DR. JOHN G. BURKE, Pittsburg: The usual constitutional measures against constipation, anemia and sluggish circulation must be carried out. Additional constitutional agents are the bacteria, though the results cannot be relied on to the exclusion of other remedies. Stock vaccines have been of little service, the best results having been obtained with a mixture of the acne bacilli and *Staphylococcus aureus*. A preparation containing beta naphthol, 5 per cent.; precipitated sulphur, 20 per cent.; green soap, 35 per cent., and wool fat, 35 per cent., has been of service. The x-ray will cure acne, but the tendency to produce atrophy of the skin with the resulting telangiectasis should make one hesitate to use it, as we may replace a curable disease with an incurable one.

Diagnosis of Hay-Fever in Children

DR. W. C. HOLLOPETER, Philadelphia: Hay-fever is essentially a disorder of early life. It is the sequel of hay-fever, annually repeated, that we find eventually seriously handicapping mature life in the form of asthma, emphysema, and cardiac and renal troubles. It is because hay-fever may be called anything rather than what it really is, especially in children, that so much uncertainty is caused in its early diagnosis. Hay-fever, like diphtheria, is a local expression of a systemic toxemia, and for its relief often calls for the making-over of the child physically as well as mentally.

Subacromial Bursitis: Etiology, Anatomy and Pathology

DR. A. R. ALLEN, Carlisle: Sepsis, traumatism and non-use are the causes of subacromial bursitis. The abnormal conditions found in these cases are thickening of the bursal walls, adhesions and adhesive bands. In some cases cheesy deposits occur.

Treatment of Subdeltoid Bursitis

DR. J. T. RUGH, Philadelphia: Inasmuch as the seat of the trouble is in close relation to the shoulder-joint, the restoration of function will be accompanied by pain. The fact that treatment will extend over a prolonged period of time must be impressed on the patient and his will power and fortitude must be developed to secure and maintain the thorough cooperation so essential to success. Many of these patients unfortunately are of the nervous, shrinking and pessimistic type, a fact which renders the labor and efforts of the surgeon doubly hard, as he must overcome their tendency to give up after a week or two of painful experience. A necessary adjunct to be constantly held out to the patient is the fact that the condition is curable, no matter what the character of the lesion in the bursa.

Discussion on Bursitis

DR. D. SILVER, Pittsburg: I find in these, as well as in post-operative cases, that it is much better to put them up to the full limit of motion once a day, then let them alone. I have not found it necessary to use a splint, but keep the arm in a sling and use manipulation. Put these patients through the whole range of motion and they come out very nicely. I think we are in error in diagnosing these cases as rheumatic instead of trying to find out what the real condition is.

DR. W. H. CAMERON, Pittsburg: I deal almost entirely with subacute and chronic cases and some patients with supposed rheumatism come to my office, and I seldom find that they have been examined.

DR. T. T. THOMAS, Philadelphia: Besides clinical observations, I have been making some studies on the cadaver in the last year in connection with these cases. I know that the bursitis theory is being rapidly and generally accepted in this country and is gaining ground abroad, still I do not believe that the cause of the trouble in these cases is in the bursa. I believe the condition is due to a peri-arthritis, but not to one localized to the bursa.

DR. G. G. DAVIS, Philadelphia: I believe that there is such a thing as a bursitis which is induced by disease in the same way that a person can get housemaid's knee in rheumatoid cases; also, I think that bursitis, subacromial or subdeltoid, can be due to an injury. When the joint is moved it moves to a certain extent, and then it is stopped by the ligaments. It is not stopped by the bursa. The bursa have nothing to do with the strength of the joint.

Traumatic Lesions of the Brachial Plexus and its Component Roots

DR. C. K. MILLS, Philadelphia: Lesions of the brachial plexus and its component roots are usually of traumatic origin. The few cases not instances of traumatism being examples of a neuritis, due to infection or toxemia, and rare cases of neuro-mata and of hemorrhage into the plexus or its roots. The diagnostic points of most value in distinguishing this condition from hysteria are the absence of atrophy, electrical changes in the nerves and muscles, and also the retention of the deep and superficial reflexes in the hysterical case. The sensory changes, if carefully studied, have a different topog-

raphy, those of hysteria being glove-like, or assuming some other form not related to the nerve supply; those of root and plexus lesions following the peripheral or root distribution of the sensory nerves. Emotional crises may be present in the hysterical and organic cases. Surgical procedures are important in traumatic cases. Now and then much can be accomplished by dissection of the plexus from the inflammatory tissues in which it has been embedded, but usually such an operation is of little permanent result. When pain is intense and persistent, it is desirable to have a unilateral laminectomy performed and the sensory roots cut. The good accomplished in such cases is not always immediate, as memorial pain may remain for some time, but usually the result will eventually be good. Conditions in the shoulder-joint should always be carefully attended to, as the pain present may be due in part to local conditions which can be relieved by opening and treating the parts within it. Even in cases in which paralysis and atrophy are permanent, it is usually best not to resort to amputation, as often, even after this operation, painful neural responses remain.

DISCUSSION

DR. C. H. FRAZIER, Philadelphia. We have two groups of cases: those in which we do operation and find the plexus embedded in a mass of cicatricial tissue, and in which, after the removal of the cicatricial mass and careful, well-planned nerve anastomosis, the results of the operation are very unsatisfactory; and a second group in which at the operation no gross macroscopic lesion is demonstrable even though patients may have been subjected to the same character of injury. The operation of laminectomy for relief of traumatic neuritis, brachial neuralgia, the tabetic crises, and excessive pain for inoperable tumor of the cord, should be resorted to much more frequently than it is. It is not nearly so formidable an operation now as in the past.

DR. T. TURNER THOMAS, Philadelphia: The extravasation of blood around the nerve due to injury produces a condition which probably explains a good many of the so-called traumatic conditions in which the plexus itself is supposed to be injured.

DR. E. E. MAYER, Pittsburg: In my opinion, the first practical question in reference to paralysis of the brachial plexus is the question of operative procedure or not, and my opinion is practically that expressed by Dr. Frazier.

(To be continued)

MICHIGAN STATE MEDICAL SOCIETY

Forty-Fifth Annual Meeting, held at Bay City, Sept. 28-29, 1910

(Concluded from page 1587)

Stomach Disorders Requiring Surgical Intervention from the Viewpoint of an Internist

DR. C. D. AARON, Detroit: The simplest operation on the stomach is gastrostomy. It is indicated in impermeable strictures of the esophagus, for the removal of foreign bodies situated so low down in the esophagus as to make their removal from above impossible, and for the removal of foreign bodies in the stomach. In carcinomatous strictures of the esophagus or of the cardia gastrostomy is a thankless operation and should be undertaken only when the stenosed part is impassable for fluids. A simple, uncomplicated gastric ulcer does not demand surgical intervention. Only in the event of complications and of the ulcer defying thorough internal treatment, and impairing nutrition by interference with motility, should there be any question of surgical intervention. So far as surgery is available, no procedure but the removal of the ulcer by excision or gastro-enterostomy is to be considered. One of the most frequent complications of gastric ulcer is hemorrhage. The surgically most important complication of gastric ulcer is benign pyloric stenosis with subsequent dilatation of the stomach. Hypertrophic stenosis of the pylorus has been successfully operated on in very young children. In hour-glass stomach gastro-anastomosis is the procedure to be recommended. The diagnosis of this condition is now easily made by the use of bismuth with the x-ray.

DISCUSSION

DR. C. B. BURR, Flint: The neurotic patient is often submitted to an operation which might have been avoided, in all probability, and the operative furor is by no means confined to the surgeon. The patient has often acquired an appetite for an operation, which, if fed by the physicians, leads to bad consequences. In cases of feeble mobility, deficient innervation, or the direct consequences of depression, there is oftentimes this disposition on the part of both physician and patient to adopt surgical measures for the relief of what seems to be symptoms that demand that sort of interference.

DR. H. M. RICH, Detroit: There are two kinds of congenital pyloric stenosis in small children, one of which is a true hypertrophy, while the other is a spastic condition. It is always important that a diagnosis be made as early as possible, because in the treatment of hypertrophied stenosis an operation seems to be the only thing that will cure those patients, and it has been very successful when undertaken early.

DR. B. A. SHEPARD, Plainwell: In a case of gastric ulcer, when we figure out the condition of the patient, he is in an anemic condition, and yet without hemorrhage. Ulcer is a result in such cases more than it is a cause, and yet we often look to the ulcer as the cause of the condition. In conditions of that kind a surgical procedure will aggravate it. Instead of following surgical means we should push nutrition. We cannot always do it by feeding everything, but by a rational course of nutrition the patient can be brought up above the standard where we can supply the "antipepsin," if that is what we want to call it.

DR. WILLIAM E. BLODGETT, Detroit: In regard to the relation of posture to gastric dilatation and the retention of food, and morbid decomposition and absorption, Dr. Patterson, of Ann Arbor, reports the case of a woman physician who had had chronic arthritis for a number of years, and on whom he operated for a chronic condition which had no relation to the joint stiffness. There were no considerable adhesions of the joints, but it was a remarkable condition to find a patient who had previously been stiff-kneed, generally limber and without pain. In a few days the condition returned. A number of cases have been reported. I think we might suppose that care of the stomach may improve some joint conditions when the origin is not the tonsils, or any other definite and discoverable source.

DR. C. W. HITCHCOCK, Detroit: Frequently mental states may have an influence on the digestive functions. Unnatural attacks of depression and persistent attacks of excitement will produce in themselves the most profound alterations in the digestive functions, and these sometimes the surgeon will overlook. I have had patients complain more acutely of the digestive derangement than of the mental state, when it has been proved that it was the mental depression itself which produced the profound alterations of the digestive functions to which the patient's attention was chiefly attracted.

DR. J. E. DAVIS, Detroit: The point should be emphasized that it is in the class of functional diseases that the greatest care should be exercised in referring patients for surgical treatment. Probably 70 per cent. of stomach diseases are functional in character, and these would not be helped by surgical treatment. We should take the firm position that when we have a distinctly functional case, it should not be referred for surgical treatment.

DR. J. FLINTERMAN, Detroit: I remember the case of a man of 63 who had all the symptoms of stenosis caused by carcinoma. The stomach was dilated, but a peculiar feature was that the man had erratic chills, followed by a very high temperature, and by symptoms of mental excitement; in the attacks he became unmanageable, and could not be kept in bed, but as soon as the temperature dropped these symptoms stopped. Careful examination showed that the man was subject to endocarditis, and for some reasons an operation was declined, although the patient insisted on it. He had not had any chill for several weeks. The heart did not make

any serious trouble, and finally operation was decided on. Stenosis of the pylorus was found. Immediately after the operation the man had serious chills again, and died under acute symptoms of pulmonary edema. Necropsy showed that the patient had endocarditis. On one of the mitral valves was a distinct polypus, but the condition was not due to a malignant tumor; it was found to be of a benign nature. In this case operation was out of place, but the wishes of the patient were carried out.

The Future of Psychotherapy

DR. T. KLINGMAN, Ann Arbor: The contentions of many physicians that psychotherapy is unscientific and unworthy of the interests of a natural philosopher were until recently, perhaps, not without foundation, but since the works of Freud and Jung have placed this method of treatment on a sound scientific basis, we must regard this verdict as unjust and erroneous. We no longer limit the application to our usual consolation to our patients through which we place them in a state of credulous expectation, nor do we regard the treatment of psychoneuroses by suggestion a scientific procedure, as we know that the suggestion technic does not concern itself with the origin and significance of the morbid symptom, but suppresses it and prevents the pathogenic idea from manifestation. Suggestion increases the resistance which we must overcome before we are able to bring the malady to a favorable termination. It cannot therefore be regarded as either sound medicine or sound psychology. I have long since rejected hypnosis and find a more satisfactory means in gaining access to the subconscious through the analysis of dreams in the application of the psychoanalytic method of treatment which is the method which has placed psychotherapy on a sound scientific basis, and has opened a wide field for a new line of research.

Differential Diagnosis of Organic and Functional Diseases of the Stomach

DR. J. E. DAVIS, Detroit: The chief graphic signs should be as well known as their names. Functional signs will be most frequently used in eliminating the less important. The patient's history should be carefully obtained; data should be critically compared, and indecision should hark one back to the original history.

DISCUSSION

DR. B. A. SHEPARD, Plainwell: I think that we often find people who are afflicted with gastric disturbances of nervous origin, among those who are doing intellectual work, especially school children, and those who follow the higher intellectual pursuits.

DR. J. T. WATKINS, Detroit: Functional diseases of the stomach are being gradually lessened in number. In the last two years a great many obscure diseases of the stomach have been cleared up by the finding of gall-stones or chronic appendicitis, or perhaps a chronic cholecystitis, and in those cases it hardly seems to me that we can attribute the stomach symptoms to the nervous system.

DR. J. G. MANWARING, Flint: The statement has been made, and not approved, that the hypersecretion of hydrochloric acid is evidence of ulcer. I think with a little moderation that is true. Recurring attacks are practically due to ulcer. A malignant development of ulcer on the duodenum is a great rarity. The development of a malignant condition in ulcer of the stomach is not so rare. One can thoroughly diagnose ulcer of the duodenum, and assure the patient that the probabilities are that he will never have cancer there. We cannot so assure him if it is in front of the pylorus.

Inoculations of Bacterial Vaccines in Rheumatic Arthritis

DR. G. A. PETERSON, Mount Clemens: So far as treatment is concerned, the cases may be divided into three groups. Patients in the first received the salicylate treatment and mineral baths; those in the second received mineral baths only; those in the third received inoculations of bacterial vaccines and mineral baths. One hundred and sixty-two rheumatic patients were treated with bacterial vaccines from June

1, 1906, to Oct. 1, 1909. On March 1, 1910, the records show recurrences in 54 patients; during the same period 48 patients were treated with salicylates and mineral baths, 26 of whom had recurrences.

DISCUSSION

DR. ANDREW P. BIDDLE, Detroit: From personal experience as a patient, I desire to express my positive conviction that the vast majority of rheumatic conditions are septic in character. The majority of the patients who go to the so-called resorts are not treated in a scientific manner. Very little distinction is made in many instances between a case truly rheumatic, and one due to some other condition. I believe that most so-called rheumatic conditions are due to bacterial infection.

Symposium on Obstetric Anesthesia

DR. W. H. MORLEY, Detroit, discussed scopolamin and morphin.

DR. J. B. WHITNEY, Grand Rapids, described the technic of anesthesia in obstetrics.

DR. JOHN BELL, Detroit, spoke of anesthesia in its relation to post-partum hemorrhage.

DR. N. N. WOOD, Ann Arbor, discussed chloroform and ether, stating that chloroform is not the ideal anesthetic for obstetrical use. He pointed out its disadvantages, and said that it was not so free from danger as was commonly believed or as the text-books usually stated. The element of danger was distinctly increased when chloroform anesthesia was used for obstetric operations. Ether might be used as a routine anesthetic in obstetric work. He described the method of administration as practiced at the University Hospital Maternity, and the results obtained.

DISCUSSION

DR. R. R. SMITH, Grand Rapids: I do not think the use of morphin-scopolamin in obstetrics will ever be very popular. I have used it as an adjunct in between 400 and 500 surgical cases and am fairly well acquainted with its action. It is rather uncertain, and tends to reduce the strength of the pains, modify the natural course of the labor, and would require perhaps more constant attention on the part of the obstetrician than is often practical to give in the average case.

DR. C. E. BOYS, Kalamazoo: I desire to emphasize the point of decomposition of chloroform when used in the presence of an open light. In one instance during a high forceps operation I almost collapsed because of the accumulation of gas in the room. I have in mind also another instance in which three physicians and two nurses were in attendance on an operation, when three out of the five were overcome and had to retire to another room, thus leaving the patient in charge of only two. This constitutes one of the objections to chloroform.

DR. J. H. CARSTENS, Detroit: Having been an obstetrician myself once, and having used chloroform thousands of times in obstetrics, I must say I cannot feel that there is any particular danger in its use. I have never had any trouble with it. When operating on a pregnant woman I never hesitate to use chloroform. As to the danger of postpartum hemorrhage, I have been in the habit of giving a hypodermic injection of ergot or a good dose of it before giving the chloroform, and then when nearly finished I would stop the chloroform, so that by the time the forceps were applied and the child delivered or version performed the patient would be almost out from under the influence of the anesthetic, after which I would watch the uterus well to see that thorough contraction took place.

DR. REUBEN PETERSON, Ann Arbor: My opinion has always been similar to that expressed by Dr. Carstens. Perhaps it is imagination that has led me to believe that some peculiar reason exists whereby the obstetric patient does not run the same risk or danger in the taking of chloroform as do other patients. Still I cannot but feel that possibly our observations have been a little incomplete, and certain recent reports have shown that there is considerable danger in the administration of chloroform to the pregnant woman. In the Univer-

sity Hospital we try to teach a method that can be readily employed by the practitioner, and we have not taken up the use of scopolamin. A little nitrous-oxid gas has been used, but we have confined ourselves to the administration of ether almost entirely for the purpose of teaching the student to use one anesthetic.

DR. H. W. YATES, Detroit: With Dr. Carstens and others we must agree that in the case of a normal patient, one who needs the anesthetic for but a short time, chloroform is the easiest means of anesthesia and fairly safe.

DR. JAMES P. LETTS, Romeo: Chloroform should not be indiscriminately used in obstetrics. As country physicians we find times when it is impossible to use anything except chloroform because we are alone, and the only help we have is that of a servant or neighbor. Under these circumstances I have found that chloroform is about the only anesthetic we have.

DR. E. T. ABRAMS, Dollar Bay: In my own practice I do not believe I have ever used ether in an obstetric case. The great danger from the use of chloroform comes from its indiscriminate and careless use. There is no question but that anesthesia is a predisposing factor to post-partum hemorrhage in any case and in all cases.

DR. STEVENS, Detroit: I have never seen any danger from the use of chloroform in obstetrics.

DR. H. W. LONGYEAR, Detroit: I have never been afraid to give chloroform in obstetric cases. In surgical work I rarely use it—never unless anesthesia by gas and ether is contraindicated.

DR. B. R. SCHENCK, Detroit: In a normal case, I believe chloroform is the proper anesthetic to use, providing one can give it at the beginning of pains and take it away so that it is not continuous. If one has an operative case in which the patient must be completely under the influence of the anesthetic and relaxed, I think ether should be employed. In giving a mixed anesthetic, such as morphin and scopolamin, the danger is that before the advent of anesthesia the patient does not show the line of resistance she would show previous to the administration of ether. A skilled anesthetist is necessary.

DR. B. A. SHEPARD, Plainwell: In pregnancy, the kidney is doing an unusual amount of functioning which tends to raise the blood pressure, and labor also tends to raise blood pressure. Ether, if it has any effect, also tends to raise blood pressure. Hence we have in the administration of ether in these cases an agent which will make a bad matter worse, in that we are liable to have excessively high blood pressure at the time of labor. Chloroform, on the other hand, is a drug which lowers blood pressure, and by giving it in labor we offset that tendency.

Pelvic Infections, Based on the Study of One Hundred Consecutive Operations

DR. B. R. SCHENCK, Detroit: I criticize the method employed by most text-book writers in considering this subject, in that so much stress is laid on the different pathologic lesions that the student loses sight of the subject in its broader aspects, and the physician attempts to diagnosticate and treat a particular lesion rather than attempt to aid Nature to take care of an infection. The subject is the most important one in gynecology, because the commonest, and the most difficult because of the low average of the patients requires the utmost conservation of organs. The average age of my patients, 100 in number, was 29; 40 patients were under 25 years. The proportion of lesions in the 100 cases was: adherent appendages in 31; pyosalpinx and ovarian abscess, 36; pelvic abscess, 14; salpingitis, 8; hydrosalpinx, 5; pelvic peritonitis with localized effusion, 6, and associated appendicitis in 12 cases. It is more important to recognize the type of the infection than the exact pathologic condition. Of gonorrhoeal infection there were 43 cases; of puerperal infection 21, and of tuberculosis, 14. Tuberculosis is more frequent than is generally supposed. Many cases are missed unless the specimen is examined microscopically. There are no hard and fast rules of treatment. In general, except for the evacuation of the abscess vaginally, gonorrhoeal infection should be treated without operation. When chronic, with acute exacerbations,

hysterectomy should be done, although conservative work is often justifiable. Streptococcus infection should be treated by the opsonic method. Great caution is required in doing abdominal operations, even in chronic cases. In one of my patients culture showed streptococci two years after infection. From 60 to 70 per cent. of the cases of peritoneal tuberculosis in women show primary foci in the tubes. A radical operation should be done. The operations done in these 100 cases were: hysterectomy, 37; conservative abdominal operation, 41; vaginal puncture, 17; incision and drainage above Poupert's ligament, 5. There were two deaths, both cases being instances of streptococcus infection.

Value of Vaginal Incision in Acute Pelvic Infections

DR. REUBEN PETERSON, Ann Arbor: It is inadvisable to operate from above in acute pelvic infections because, first, such septic patients do not stand prolonged abdominal operations well; second, contamination of the peritoneal cavity by the contents of pus tubes will result in death from peritonitis in a certain percentage of cases on account of mixed infection being present. A better plan is to open through the vagina and establish good drainage. Later, when pulse and temperature are normal, if the patient still has pelvic symptoms, a laparotomy can be safely performed, and all or part of the internal genitalia removed.

Discussion on Pelvic Infections

DR. J. H. CARSTENS, Detroit: We recognize two distinct pathologic conditions in the pelvis: the one is infection of the uterus going up into the tubes, producing an inflammation of the pelvic peritoneum with pus in the tubes, surrounding the tubes, and in the adhesions. Another kind of pelvic inflammation involves the pelvic cellular tissue, and has nothing whatever to do with the peritoneum except that the inflammation extends from within the loose cellular tissue to the peritoneum, when we have there a kind of peritonitis which will cause adhesions. When we open up an abdomen like that we find that the tubes are intact, the pelvis is free from pus, there is nothing the matter with the uterus and tubes, but the infection has traveled by the lymph channels through a tear in the uterus or the vagina and has involved the lymphatics and the cellular tissue of the pelvis. These conditions are generally of puerperal origin. In these cases the pelvis should be opened and drained. We can operate in the chronic cases by abdominal section, but in the acute cases drainage should be instituted.

DR. T. A. MCGRAW, Detroit: The extension of gonorrhoea into the tubes may be prevented by vigorous and correct treatment of the acute condition. Acute pelvic infections in many cases follow urethritis or acute gonorrhoeal infection of the gland of Bartholin or its duct. Those patients do not come to us in the primary stage. In a great many cases the physician himself unwittingly and carelessly assists in the extension of the infection from the gland of Bartholin, or from the lower urinary tract to the tubes by unwarranted manipulations. If physicians would understand that the cervix or vagina is not affected, but simply the lower part of the generative tract, and keep out of the upper part, I think that in a great many cases extension might be prevented. There are generally two or three abscesses present; therefore, when we open up that is not enough, for we can find that there are other abscesses by good bimanual examination, palpating with one finger in the opening and the other in the abdomen. A drainage tube is better than gauze. I always use it and never have trouble. We must not use too stiff a tube because it might ulcerate the bowel.

DR. R. R. SMITH, Grand Rapids: In treatment of tubal infections, a great many different factors must be considered, and among them the duration, the nature, and the extent of the lesion. The younger the woman the more reason there is for conservatism; and the older the woman the more reason for radicalism. There are no minor arguments. We must consider all factors and resort to a variety of procedures in handling of these cases.

DR. H. W. YATES, Detroit: In the acute stages of gonorrhoeal infection operation should almost always be deferred,

If it is necessary to do anything at this time it should be simply drainage. Cases of acute puerperal origin are of a different type. The late Dr. Pryor called attention to the good results which he obtained from making a wide opening in the posterior cul-de-sac and the free use of gauze. To him we owe much in the treatment of acute cases of puerperal fever.

DR. F. W. ROBBINS, Detroit: In the treatment of conditions of the uterus we should ask ourselves: What would I advise if this patient were my mother or sister?

DR. L. W. TOLES, Lansing: In spite of the best drainage, many of these patients will need care in the future, and they should be warned of that possibility and told that they may avail themselves of the chance of a permanent cure in the future.

DR. A. S. WHELOCK, Goodrich: In many cases that seem just as severe as any that we have drained and thought necessary to drain, operation being refused, the destruction has proved not so serious as we had believed it to be. Many of these patients have gone on to perfect recovery and subsequent pregnancy, and in after years absolutely no trace of former trouble could be found.

DR. R. J. HUTCHINSON, Grand Rapids: Every surgeon seems to have trouble with the openings closing before the diseased tissues in the pelvis have become repaired. The transverse incision is the correct one to make, but in making that incision and taking measures to prevent its closing we must bear in mind that the healthy vaginal mucous membrane and tissues immediately underneath it are the ones that close over and keep in the septic material. By making a T-shaped incision, getting the finger in the cavity and making one incision at right angles to the other, we prevent the two edges coming together. It is almost impossible for the center of that incision to heal before drainage is established.

Immediate vs. Deferred Operation for Hemorrhage Due to Tubal Pregnancy

DR. H. H. HEWITT, Detroit: In about 95 per cent. of cases there is little difference whether the operation is immediate or deferred. In the remaining 5 per cent., or in patients in profound shock from hemorrhage, there is opportunity for argument as to the time for operation.

DISCUSSION

DR. R. R. SMITH, Grand Rapids: The question really restricts itself to the patients who present marked shock at the time they are seen. All other cases are acknowledged to be operable surgical cases, and should be so treated.

DR. J. BELL, Detroit: It must not be forgotten that in waiting, or not operating, which some men advocate, there is always the possibility of pus being in the pelvis, a lot of blood is poured out there, and there is liable to be sepsis which will develop into abscesses or possibly peritonitis. I favor operating always and never trusting to Nature to repair the condition.

Local Anesthesia for Radical Cure of Inguinal and Femoral Herniæ

DR. J. A. MACMILLAN, Detroit: The surgical anatomy of these regions favors the successful employment of local anesthesia. Nerve blocking is not applicable in operation for femoral hernia. There are advantages in local over general anesthesia for these operations; but modifications of the operative technique are required.

DISCUSSION

DR. J. REYCROFT, Potoskey: People are afraid and unwilling to be operated on under a local anesthetic, and physicians would be unwilling to operate if they were compelled to do so under local anesthesia.

DR. L. J. HIRSCHMAN, Detroit: It is much easier for the surgeon to put a patient under a general anesthetic, but it is not easier for the patient. Many patients have been operated on for so-called trivial troubles under local anesthesia where we would often have deaths from postoperative pro-

cedures. There has been a demand for local anesthesia so that we can still further reduce the mortality of surgical operations.

DR. W. H. BELKNAP, Greenville: I think that in certain cases local anesthesia has a decided advantage. A woman of 34 on whom I operated for a strangulated hernia was not in condition to take a general anesthetic. I used a 0.5 per cent. solution of adrenalin by skin infiltration, did a radical operation, and she had practically no pain. Anesthesia was complete, and healing was perfect.

The Radiograph as an Aid in Diagnosis of Suppurations in the Mastoid and Accessory Sinuses

DR. E. J. BERNSTEIN, Kalamazoo: The careful clinician is being convinced that many hitherto obscure ailments owe their origin to diseases of the accessory sinuses of the nose, and that often serious trouble may exist there without demonstrable pus in the nose. The radiograph gives a graphic picture not only of the presence or absence of pus, but also of the kind, whether diploic, cellular or pneumatic, and the size of the mastoid. This enables the surgeon to avoid wounding structures.

DISCUSSION

DR. A. W. CRANE, Kalamazoo: It is only by the skiagraphy of the great number of cases, and many of them not in acute stages, that such a diagnosis or anything like a working knowledge of plates can be obtained.

MEDICAL ASSOCIATION OF THE SOUTHWEST

Fifth Annual Meeting, held at Wichita, Kan., Oct. 11-12, 1910

(Concluded from page 1588)

Officers Elected

The following officers were elected: president, Dr. Middleton L. Perry, Parsons, Kan.; vice-presidents, Drs. J. M. Griffin, Sulphur Springs, Kan., William H. Stauffer, St. Louis, and Wilmer L. Allison, Fort Worth, Texas; and secretary-treasurer, Dr. Fred H. Clark, El Reno, Okla. (reelected).

Resolutions were adopted endorsing the use of antiseptics in the preservation of food products, and favoring the establishment of a national department of public health.

The next meeting is to be held in Oklahoma City.

Treatment of Patients Desperately Ill in Consequence of Accident

DR. CHARLES E. BOWERS, Wichita, Kan.: Many of these patients seem to be beyond hope; others recover notwithstanding shock, hemorrhage, or infection, which may be present. In such cases it becomes necessary to do what we can to save lives that are thus jeopardized, and prompt and efficient intervention is demanded. In treating shock the first therapeutic agent indicated is something that will raise the body temperature, and the best heat is dry or moist. Perhaps a hot bath will do most. The second thing to do is to lower the head in order to improve the circulation of the brain, which has much to do with shock; with better brain circulation the patient will soon recover from shock. The third thing to do is to re-establish the normal specific gravity of the blood, and that can be done by saline solutions subcutaneously or by the rectum, or by the transfusion of blood.

DISCUSSION

DR. HOWARD HILL, Kansas City, Mo.: The various manifestations of lowered blood-pressure, such as anemia, can best be met by the use of normal saline solution; the application of heat externally, and the internal administration of salines constitute practically all that has to be done. Morphine is beneficial in many cases of shock. It cuts off the afferent impulses.

DR. JOHN PUNTON, Kansas City, Mo.: From whatever the shock may come, to whatever the injury may be due, the prognosis is always as important as the treatment itself. Shock spends its force on the vital organs, hence we have a disturb-

ance of the pulse, the temperature and respiration. I have found that shock is attended with more or less loss of consciousness, and the question of prognosis in the presence of loss of consciousness is often a very perplexing one to the surgeon as well as to the internist. There is no surgical rule that enables the surgeon to tell positively whether the prognosis is favorable or not, but I have found that a good rule to adopt in such cases is not to lengthen the time the loss of consciousness is present. The generally accepted view is that the longer the duration of the loss of consciousness the less chance there is for recovery. As a general rule that is true, but it is subject to so many exceptions that it is worth while for us to remember that in the presence of shock, and in the presence of loss of consciousness due thereto, the respiratory center plays a more important rôle in the prognosis than does the temperature or the increased pulse when there is a question as to prognosis; therefore, it is wise to remember that the increased respiration is a very much more unfavorable sign than either the raised temperature or the accelerated pulse, and if the surgeons will adopt that rule, they will give a favorable prognosis when they might otherwise be led in the loss of consciousness to give an unfavorable one.

DR. GEORGE A. BOYLE, Enid, Okla.: I think the personal element enters into every case of shock. There are individual characteristics. Phlegmatic persons will stand more injury with greater shock and recover than others who are highly organized, nervous individuals. After twenty-five years' experience I am unable to determine just what the prognosis in a given case of shock is going to be.

DR. D. A. MYERS, Lawton, Okla.: In cases of infection in which the pulse and temperature are divergent, by giving a bad prognosis one will be on the safe side. But as soon as the pulse and temperature begin to harmonize, it is safe to encourage the patient. The outlook is more favorable.

Postoperative Thrombosis

DR. ST. CLOUD COOPER, Fort Smith, Ark., read a paper in which he reported a case of postoperative thrombosis complicated with neuritis.

DISCUSSION

DR. J. D. GRIFFITH, Kansas City, Mo.: I have encountered postoperative thrombosis of the lower extremities in six cases. Two such cases I have had within the last two or three weeks, and in five of these cases the thrombosis has occurred on the left side, and one on the right side.

DR. EDWARD H. OCHSNER, Chicago: So far as I know, no one has been able to throw any light on the cause or causes of postoperative thrombosis, or why it occurs more frequently on the left than on the right side. Thrombosis occurs after simple cases of appendectomy, and it takes place in a larger percentage of cases on the left side than on the right after operations for appendicitis.

DR. J. E. GILCHRIST, Greenville, Tex.: We know very little about the cause or causes of postoperative thrombosis. It not only occurs following simple surgical operations, but sometimes follows fevers and other conditions. I have seen severe thrombosis following typhoid; the patient's limb would be greatly swollen and blistered, the condition being attended with great pain and all the symptoms of surgical thrombosis. The treatment outlined by Dr. Cooper is rational, and in the cases I have had I have employed the same method of treatment.

DR. CHARLES H. CARGILE, Bentonville, Ark.: I recall a case of thrombosis following exploration of the region of the kidney for obstinate pain. The pain was relieved by operation. In this case the thrombosis occurred on the left side.

DR. HOWARD HILL, Kansas City, Mo.: Several years ago, Franklin P. Mall of Johns Hopkins Hospital conducted an investigation on cadavers, in which, in a number of cases, he found a constriction ring in the common iliac vein before it joins with its fellow of the opposite side. This constriction ring leads to slowing of the current in the vein in the region below. If these observations could be confirmed by some other anatomist, it would be a clue to the reason why thrombosis occurs on the left side. I do not know the reason

DR. ST. C. COOPER, Fort Smith, Ark.: I do not think the blisters I spoke of were caused by poor circulation; they were probably due to some trophic disturbance such as we have in Raynaud's disease.

President's Address: Fatigue

DR. G. H. MOODY, San Antonio, Tex.: Fatigue is relative in degree and follows prolonged and excessive activity. The degree of fatigue which may follow a given amount of activity or strain will depend on the nervous integrity and the healthfulness of the individual. Also, the amount of fatigue which an individual may be able to overcome promptly by rest and sleep is likewise dependent on the recuperative capacity of the individual, and on his opportunity and inclination for adequate rest and recuperation. The more normal and robust the individual, the more easily, naturally and irresistibly will sleep and rest follow and continue until the fatigue is fully overcome. On the other hand, the more delicate or neuropathic the individual, either from bad heredity, disease, or prolonged strain, or other cause, the less will be the capacity for rest and pleasurable repose, and the fatigue of each day's activities may not be fully restored from day to day, and there will result, finally, a chronic irritability and restlessness which renders impossible adequate recuperation voluntarily. This tends to produce a condition simulating brilliancy, in which greater efforts are encouraged in the young, until there ensues an acute breakdown or chronic exhaustion. The forms in which these results of prolonged fatigue and exhaustion generally appear are indigestion, malnutrition, the various fatigue neuroses, known as the occupation neuroses, insomnia, neurasthenia, psychasthenia, hysteria, the acute insanities, in which the strain of the climacteric plays a part, and dementia and paranoia, which are generally misfortunes of the developmental period of life. There also occur drug and alcohol addictions, the majority of which are developed as the result of a conscientious effort to bear the burdens of life by means of stimulating, anesthetizing, or narcotizing overfatigued feelings, in order to make life bearable for awhile, with the hope that a change in conditions may perchance finally come.

Locomotor ataxia and pareses may occur when continued strain and fatigue play an important part together, generally with a syphilitic diathesis and a neuropathic constitution. In fact, while the best authorities maintain that there is a specific constitutional basis in these cases, they seem never to develop without the long-continued fatigue and the neuropathic constitution in which adequate rest is difficult through life. Formerly, patients with tabes or paresis degenerated rapidly, and dementia and death came early. In the light of recent investigations, it is found that the decline could be brought to a standstill in most of these cases, and that the tabetics, especially, should be able to have a comfortable and fairly useful life, not shortened materially by reason of the disease, and that the paretics should become able to live at home comfortably for many years, their degree of comfort depending on the time and the course of the disease when the diagnosis is made and proper treatment instituted. It is hoped that in these parasymphilitic conditions the "606" of Ehrlich will prove of great value. Much is being done by proper administration of mercury and arsenic preparations, preferably hypodermically in both instances, the arsenical preparation found efficacious being sodium cacodylate. These patients should not be given the iodids. They degenerate the patient rapidly and do no good. From whatever standpoint these cases are considered, the important elements of fatigue must be kept always in mind.

In such purely physical disorders as gastro-enteroptosis, and other conditions of similar origin, we more readily take into account the general condition of fatigue and the diminished general muscular tonicity of the patient, and reckon with it in whatever other medical or surgical procedure thought to be indicated.

It is to be hoped that in time there will be a universal attempt on the part of the public to make a scientific estimate of the individual capacities and limitations of each child. With this estimate correctly made or even approximately so,

individuals will pass through the educational and developmental stages of life into maturity without so much uncertainty concerning their future.

Oration on Surgery: The Prevention and Treatment of Septic Infections of the Extremities

DR. EDWARD H. OCHSNER, Chicago: The severer wounds that naturally come to the physician from the very first we must divide into two classes: the more superficial wounds, that are likely to be infected with ordinary pyogenic microorganisms only, and those which are likely to be infected with the tetanus bacillus in addition. In the latter the same method of disinfection is used as in the former, but in addition I always give a prophylactic dose of antitetanus serum, and, if the wound is deep or likely to contain foreign material, I lay it wide open, remove the foreign material and leave the wound gaping and to heal by granulation subsequently. All fresh wounds are treated in the following manner when they first come in: If the laceration is extensive, the patient is given a general anesthetic; if less severe, the extremity is immersed in a 2 per cent. phenol solution in tepid water for from 5 to 10 minutes. This is an excellent local anesthetic, and makes it possible to scrub the parts without causing undue pain. The extremity is cleansed thoroughly with soap and sterile water by the aid of a brush or pieces of sterile gauze; then washed off with ether, scrubbed well with turpentine, swabbed with tincture of iodine, rinsed with alcohol, and finally a sterile dressing is put on. If in spite of these precautions, or because of their neglect, septic infection does develop, by instituting and rigidly adhering to a definite rational plan of treatment we can secure healing with practically no mortality, rarely, if ever, lose a member, and usually without permanent impairment of function. A patient with septic infection with pyrexia, be it ever so slight, should be kept in bed with the extremity elevated in a comfortable relaxed position. This last point is of considerable importance. If the muscles are not relaxed they make pressure on the lymphatics and veins and hinder return circulation, and the tenseness of the muscles tires the patient unnecessarily and reduces his resistance. The two factors which lower resistance almost more than any other two are pain and fatigue, and by observing the rules here laid down these can be reduced to the minimum. By the proper combination and judicious application of phenol, boric acid, alcohol, and tincture of iodine, one can practically always destroy the bacteria or decrease their virulence. Ninety-five per cent. phenol is a powerful germicide, and can be safely applied with a cotton swab over the reddened, inflamed area, until it turns white; the phenol is then quickly washed off with strong alcohol. Inflamed skin will tolerate an amount of 95 per cent. phenol that would destroy normal healthy skin. After this preliminary application, the extremity is encased in a large hygroscopic elastic wet dressing. For wet dressing I use a saturated solution of boric acid in water, to which from 1/6 to 1/2 of 95 per cent. alcohol is added. Saturated solution of boric acid is, in my opinion, the best non-toxic antiseptic we have, and alcohol is a powerful dehydrant, and in addition keeps the part warm and comfortable, preventing that cold, clammy feeling which a wet dressing is so apt to cause. In the majority of cases, the veins and lymphatics can be drained by simply elevating the affected extremity, and this can be done so effectually that incision rarely becomes necessary. This drainage by elevation is assisted by the dehydrating power of the alcohol.

In conclusion, permit me briefly to recapitulate: Insist on absolute rest and proper elevation of the affected extremity, with the patient recumbent in bed if there is the slightest pyrexia. Do not incise until there is unmistakable evidence of pus, and do not remove the lymph glands unless they are necrotic and suppurating. If incision becomes necessary, it should be within the line of demarcation and, if possible, distal to it and to an Esmarch constrictor. The incision should be swabbed with tincture of iodine, the constrictor being released so as to close the cut veins and lymphatics. The inflamed part should be manipulated, kneaded and squeezed as little as possible. General hygiene and elimination must be attended to. If very red and inflamed, the skin may be

painted with 95 per cent. phenol until it turns white, when it is washed off with strong alcohol, and a copious wet dressing applied, consisting of from one to five parts of saturated solution of boric acid and one part of 96 per cent. alcohol.

If these directions are carefully followed, healing can be secured in a relatively short time, with almost no morbidity and practically no mortality.

Colitis

DR. W. H. STAUFFER, St. Louis: Errors of digestion as a cause of colitis have been much exaggerated, though as causes of gastritis and enteritis they easily take first rank. In most cases of colitis the important factors are how, when and where we eat rather than what we eat. Syphilis, tuberculosis and impairment of the nervous system are responsible for at least 50 per cent. of all the cases that have come under my observation. Most children, and not a few adults, respond to the call of Nature only when compelled to do so, with the inevitable result that what in health is a not unpleasant duty is soon transformed into a painful pathologic process. The most valuable diagnostic aid is the proper use of the sigmoidoscope, an instrument which has not been sufficiently used by the general practitioner. Dr. Hanes of Louisville has suggested the inverted position in examining and treating patients with colitis. The treatment of colitis until recently has been very unsatisfactory. Tuberculous ulceration may be primary and entirely local, and as such will respond to local antiseptics and nourishing food. So-called membranous colitis is generally organized retained mucus, and may be treated effectively by rest and drainage. When possible, direct application to the diseased part should be made through the sigmoidoscope, or a Wall's bougie placed in position under direct observation. Jacobi, Tuttle and Soper have demonstrated the impossibility of passing a rectal tube into the colon unless there is some abnormality of the sigmoid. The medication depends on the pathology, and every indication must be met as it arises. Ichthyol and argyrol in various percentages are of signal service. Oil of eucalyptus or thyme in olive oil has given me excellent results. Appendicostomy or cecostomy should always be employed in amebic dysentery. Experience has shown that there should be no haste in closing the fistulas.

DISCUSSION

DR. L. P. WARREN, Wichita, Kan.: It is the consensus of opinion among expert proctologists that it is practically impossible to pass a tube into the descending colon. The sigmoid itself and rectum may be inspected, but it is not possible to pass the proctoscope far enough to see into the descending colon.

DR. S. N. MAYBERRY, Enid, Okla.: The general practitioner is not always able to interpret correctly what he sees. What is the clinical appearance of early tuberculosis of the anus before the patient complains of any symptoms to speak of? After introducing the sigmoidoscope, I am unable to tell in some cases whether there is a tuberculous condition or not. I have had two cases of rectal disease in which I could not make a satisfactory diagnosis.

DR. W. H. STAUFFER, St. Louis: It is not possible to pass a tube in all cases into the colon, but it can be done in 50 per cent. It takes great care and a great deal of cooperation on part of the patient. It cannot always be done the first time, any more than the practitioner can pass a stomach tube the first time he tries to do so.

As to the clinical appearance of disease about the anus, the best comparison we can make of ulceration or of the various pathologic conditions in this region is that they resemble conditions of the throat. In 50 per cent. of the cases, if one should find a syphilitic ulcer in the rectum, he could probably find a similar condition in the patient's throat. Edges and everything would compare with the one seen in the rectum.

Pyloric Obstruction Due to Extrinsic Causes

DR. G. A. BEENLE, Kansas City, Mo.: One patient, very fat, and slightly jaundiced, with temperature of 102 F., complained of cutting pains throughout the right hypochondrium and

epigastrium extending through to the back or right side, opposite the lower thoracic vertebra. The tongue was coated, and there were nausea and vomiting. The stomach was distended. No peristaltic wave could be elicited by massage. Extension upward and backward of the left arm caused an increase of pain, and tenderness was diffused over the epigastrium. A diagnosis of gall-stones complicated with adhesions involving the stomach was made, and operation advised. Incision revealed a mass at the site of the gall-bladder which proved to be a reflected portion of omentum containing a hard caseous mass of tubercular deposit, wedged down on the gall-bladder, and adherent in every direction. Careful exsection revealed the pyloric half of the stomach drawn down and firmly anchored. There was a slight amount of fluid in the cavity, and a few scattered tubercles could be felt on the peritoneum. The gall-bladder, although slightly dilated and full, appeared normal and was not opened. This patient recovered with complete freedom from the previous symptoms, and was in good health six months after operation. In this case, had a stomach analysis been made, the findings no doubt would have strongly indicated obstruction with dilatation and motor insufficiency, but decision as to the actual cause could be made positive only through incision.

Diagnosis and Treatment of Psoriasis

DR. W. FRICK, Kansas City, Mo.: There are no specifics in the treatment of this disease. Patients must be studied as well as the disease, and cannot all be treated successfully in the same manner or with the same drug. Many patients with psoriasis appear to be perfectly healthy in every other way. In these cases we will find sometimes deficient elimination, imperfect assimilation, or some other imperfection in metabolic processes of which the patients are not aware. When these defects are discovered and corrected the patients are treated with better results. Of recent years it is remarkable to see the rapid improvement under a few treatments with the *x*-ray. This improvement is not permanent, however, and must necessarily be supplemented by other methods of treatment. External treatment is resorted to in nearly all cases, and relief is obtained more quickly by this means than by internal treatment. Various drugs are used in treating this disease; the essential thing to do for patients is to cure the existing disease and teach them how to avoid the causes, if possible, or how to check a beginning attack.

Other Papers Read

The following papers were also read: "Germophobia," by Dr. A. K. West, Oklahoma City; "Appendicitis Obliterans; a Clinical and Pathologic Study," by Dr. H. Reed, Oklahoma City; "Cardiac Murmurs and Their Clinical Significance," by Dr. L. J. Moorman, Oklahoma City; "Pathology of Insanity," by Dr. G. W. Robinson, Kansas City, Mo.; "Methods and Material the Secret of Success on Local Anesthesia," by Dr. A. E. Hertzler, Kansas City, Mo.; "Gastric Roentgenology," by Dr. E. H. Skinner, Kansas City, Mo.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

New York Medical Journal

October 22

- 1 The Discard Heap—Neurasthenia. G. M. Parker, New York.
- 2 *Bacteriologic Studies in Cases of General Paresis. R. C. Rosenberger and S. Stern, Philadelphia.
- 3 Atypical General Paralysis of the Insane. B. Glueck, Washington, D. C.
- 4 *Paratyphoid Fever. G. P. Paul, Round Lake, N. Y.
- 5 Digitalis Fuchsii (Foxglove V. Foxes-Glew); "Opium of the Heart." "Quinquina du Curur." J. Knott, Dublin, Ireland.
- 6 *Hexamethylenamin in Treatment of a Case of Meningococcus Meningitis. W. Brem, Cristobal, Canal Zone.
- 7 What is a Rational Diet? M. Lyon, Kansas City, Mo.
- 8 Waters of Bad-Nauheim and Their Therapeutic Effect. H. Engel, Bad-Nauheim, Germany.
- 9 *Easy Method of Determining the Dose for Infants Below One Year. H. Fried, New York.

2. **General Paresis.**—The bacteriologic studies on which this preliminary report is based were carried out in twenty-nine cases, which included general paresis of the insane, and other forms of insanity as controls, in which the authors secured a growth of their organism in nine. The description of the organism isolated is as follows: A short bacillus, from 2 to 3 microns in length, from 0.3 to 0.5 microns in thickness, arranged singly and in pairs (end to end) and in groups; sporiferous; Gram positive; actively motile. Bouillon: turbid; no pellicle. Gelatin stab: growth follows the puncture, whitish in color; and no liquefaction of medium; no gas production. Agar slant: growth moist, grayish white, filmlike, abundant in from 48 to 72 hours. Potato: no visible growth up to 10 days. Litmus milk: turned acid in 3 days, followed by coagulation in from 5 to 7 days. Blood serum: filmlike, and whitish in color; no liquefaction. Microscopic agglutination tests, using 1 to 20 and 1 to 40 dilution, were positive in general paresis and negative in a few controls, using blood for the latter tests from apparently normal individuals and from cases of dementia praecox. As to identification of this organism, comparative studies fail to show any organism that has the same cultural peculiarities.

4. **Paratyphoid Fever.**—This paper is based on six cases of paratyphoid fever occurring in the author's practice. Five of these occurred within a week, and apprehension as to an impending epidemic was excited, but no more developed. The mode of transmission was never discovered, neither was the focus of origin located. Some of the patients used ice, others did not; the homes were widely separated; the milk supply was not common; the drinking water was found to be free from all contamination; and the failure of further development of the disease excluded the water as the source of disease. It is Paul's opinion that many cases of this disease are diagnosed and treated as typhoid.

6. **Hexamethylenamin in Meningitis.**—In this case, clearly one of meningococcus meningitis, hexamethylenamin was prescribed, 10 grains on the evening of November 18, and 15 grains four times daily afterward. Two days later the test for hexamethylenamin in the cerebrospinal fluid was positive. The cells in the fluid were diminished from 18,360 before hexamethylenamin was administered to 3,030 to each c.mm.; meningococci were present in smears and cultures before, absent after. November 29, there having been no disturbance from hexamethylenamin, it was increased to 20 grains, four times daily (80 grains daily). The patient's condition was growing worse, and he died December 8.

Necropsy: Purulent cerebrospinal meningitis with Gram-negative intracellular and extracellular diplococci in the exudate; purulent sphenoid sinusitis and purulent otitis media of the right ear with Gram-negative diplococci; catarrhal inflammation of the left ear and antrum; early bronchopneumonia; calcified tubercles in lung; fibrous pleuritis.

The apparent effect of the drug on the organisms of the spinal fluid, the comparatively long duration of an apparently very acute infection treated with hexamethylenamin, together with its demonstrated presence in the spinal fluid in strengths of from 1 in 50,000 to 1 in 200,000, Brem believes, indicate that the drug might be useful as an adjunct in the treatment of meningitis cases or as a substitute for Flexner's serum in meningococcus meningitis should the serum not be obtainable.

9. **Doses for Infants.**—Fried's formula is as follows: "Make the age in months numerator, and 150 denominator of the fraction." Thus, for a baby 2 months old, 2/150; 3 months, 3/150; 4 months, 4/150, etc. This simplifies the computation. The resultant fraction will be very near or the same as when arrived at by Young's rule. For those who for some reason or other would prefer to retain the classic rule of Young, Fried has somewhat modified or rather added to the rule, which will facilitate considerably the computation of doses for children below one year. Young's rule as modified now reads as follows: For children below 12 years and above 1 year, add 12 to the age and divide the age by the number

thus obtained. For infants below 1 year, add 144 to the year in months and divide the age in months by the number thus obtained: Thus, for a baby 8 months old, $\frac{8}{8+144} = \frac{8}{152}$ of adult dose; for a baby 1 month old, $\frac{1}{1+144} = \frac{1}{145}$ of adult dose.

Medical Record, New York

October 22

- 10 Post-Prostatic Cystotomy. E. Fuller, New York.
- 11 Manic-Depressive Insanity and Dementia Præcox. C. G. Wagner, Binghamton, N. Y.
- 12 Postscarlatinal Anuria for Five Days in a Boy Three and a Half Years Old; Recovery. W. P. Northrup, New York.
- 13 History of Forensic Medicine from the Renaissance to the XIX Century. C. G. Cumston, Boston.
- 14 Hospital Treatment of Nervous Diseases. P. Bailey, New York.
- 15 Constipation and Toxemia. J. G. Sauer, New York.
- 16 Abscess in the Frontal Lobe of the Brain After Chronic Frontal Sinusitis; Erysipelas in Connection with Acute Mastoiditis. A. Wiener, New York.
- 17 The Lodge Practice Evil of the Lower East Side. M. J. Clurman, New York.
- 18 The King's Evil. H. Grealey, Brooklyn.
- 19 Tetanus Successfully Treated with Magnesium Sulphate. C. D. Fox, Philadelphia.
- 20 Guide for the Lateral Sinus Line. E. Amberg, Detroit.

Boston Medical and Surgical Journal

October 20

- 21 Technic of Arthrotoomy. C. F. Painter and A. P. Cornwall, Boston.
- 22 The Small Fibrous Prostate. A. L. Chute, Boston.
- 23 *Analysis of Wound Infection in 1,000 Consecutive Clean Operative Cases. W. P. Graves, Boston.
- 24 Comparative Histology of the Femoral Bones. J. S. Foote, Omaha, Neb.
- 25 Theory and Practice of Medicine. Gastric and Duodenal Ulcer. F. W. Palfrey, Boston.

23. **Analysis of Wound Infection.**—The series of 1,000 cases reported on by Graves comprises 574 laparotomies, of which 235 were combined with plastic vaginal operations; 376 uncombined plastic operations, 55 breast operations and 11 miscellaneous. In the list of laparotomies are included inguinal hernias and operations on kidneys. Cases of chronic pelvic inflammatory disease are included as clean cases if the patients were not running a high temperature at the time of the operation. Some of these having sterile pus in the pelvis were temporarily drained through the vagina. Radical operations for cancer of the cervix uteri are also included as clean cases, although operation was done in the presence of an ulcerated surface. Complete lacerations of the perineum are also regarded as clean cases, although the field of operation is exposed to the mucous membrane of the rectum. Out of the 1,000 operative cases, 51 patients had some form of wound infection which in all but one case was of a mild form, the organism being a staphylococcus in all instances. Twenty-eight of these infected cases were laparotomy wounds in which the infection consisted mostly (19 cases) of slight sepsis of a buried catgut knot, the wound closing immediately after extraction of the knot. The other 9 laparotomy wounds were septic to a greater or less extent throughout the wound. Of these 9 cases of general sepsis in the laparotomy wound, 7 occurred in extensive abdominal hernia wounds and 2 occurred in inguinal hernia wounds. In other words, all the cases of general sepsis in the list of laparotomies occurred in hernia wounds. Nine of the breast wounds were more or less septic, the sepsis of 2 of them, however, being confined to a small area where the angle of a too tightly drawn plastic flap necrosed. Ten of the perineum wounds had stitch abscesses, though none was completely septic. Three of these cases were operations for complete lacerations; 4 were cases of very large thin-walled rectoceles. Of the trachelorrhaphies, one wound failed to unite; of the anterior colporrhaphies, one went septic; of the miscellaneous cases, a plastic on the urethra and an operation on the cervix for antelexion failed to unite by first intention. The total mortality from all causes in the 1,000 cases was 3. One patient died from shock following a radical operation for cancer of the cervix. The second patient with a pre-existing heart lesion died of cerebral embolism following an operation for chronic

appendicitis. The third patient was operated on for an enormous postoperative ventral hernia. The lower end of the wound became septic. Five weeks after the operation and after the wound had healed, the patient died of sudden acute endocarditis, which was probably in some way the result of the wound sepsis. This case is, therefore, recorded as one of death from sepsis.

Lancet-Clinic, Cincinnati

October 15

- 26 The Case of Mary Baker G. Eddy. R. W. Reed, Cincinnati.
- 27 Newer Surgery. B. M. Ricketts, Cincinnati.
- 28 *Family-Physician Refracting as a Factor in Medical Practice, and Its Promotion During 1910. L. Connor, Detroit.

28. Abstracted in THE JOURNAL, April 16, 1910, p. 1333.

Journal of Nervous and Mental Diseases, New York

October

- 29 *Resection of Dorsal Spinal Nerve Roots for Gastric Crises of Tabes. J. J. Thomas and E. H. Nichols, Boston.
- 30 *Autopsychology of the Manic-Depressive. E. C. Reid, Washington, D. C.
- 31 *Intradural Cyst of the Spinal Meninges Removed by Operation. C. S. Potts, Philadelphia.

29 and 31. Abstracted in THE JOURNAL, July 9, 1910, pp. 155, 156.

30. **Autopsychology of the Manic-Depressive.**—Reid says that although insight is generally given as one of the diagnostic features of manic-depressive insanity, a careful study of the question would indicate that it is not as constant as is generally supposed. The following figures are based on a series of 100 cases of manic-depressive insanity treated in the Government Hospital for the Insane during the past two years. These patients have been discharged recovered, or have recovered and remain in the hospital, owing to their short periods of lucidity: Insight complete, 39 per cent.; insight partial, 33 per cent.; insight lacking, 28 per cent. The majority of these are cases in which there was no doubt as to the diagnosis, inasmuch as they have had one, and in some cases many previous attacks. In compiling the above figures it was noted that all those cases manifesting complete insight into their condition were persons of average or superior intelligence, and that there were no colored persons in this group. Of the 28 individuals completely lacking in insight, 6 were colored and 22 were white. Only 5 of the 28 were persons of education. Reid is, therefore, led to believe that insight is, to a large extent, dependent on the intelligence of the individual. The records of this hospital fail to show that insight is ever complete in the colored race.

American Journal of Urology, New York

September

- 32 Bilateral Renal Lesions. A. T. Osgood, New York.
- 33 Bubo of Chancroid and Its Treatment. C. G. Cumston, Boston.
- 34 Method of Determining Size of Inner Visual Field of Cystoscopes and Cysto-Urethroscopes. L. Burger, New York.
- 35 Invasion of the Gonococcus of Neisser into Bones, Joints, Tendons and Bursa. J. P. Piske, New York.
- 36 Perforation of Intramural Portion of Left Ureter by a Calculus. C. S. Stern, Hartford, Conn.

Northwest Medicine, Seattle

October

- 37 Alimentary Intoxication. J. Bildersback, Portland, Ore.
- 38 *One Thousand Cases of Obstetrics. J. S. Moore, Portland, Ore.
- 39 Inter-scapulo-Thoracic Amputation for Malignant Diseases. J. B. Eagleson, Seattle, Wash.
- 40 Mixed Infection in Surgical Disease. H. Power, Spokane, Wash.
- 41 Carcinoma of the Stomach in a Young Woman, Simulating Nervous Vomiting. G. F. Koehler, Portland, Ore.

38. **One Thousand Cases of Obstetrics.**—Of the whole number of cases included in Moore's list there have been 16 deaths, a mortality of 1.6 per cent. The causes of death have been: Sepsis 7, eclampsia 5, tuberculosis (last stage) 2, pneumonia 1, typhoid 1. In the last 450 cases there has been but one death from septic infection. There were 12 cases of eclampsia; 4 cases of placenta prævia, all marginal except one, in which the os was entirely covered. Hematoma occurred once. In this instance the tumor of the vulva was as large as a fetal head. It occurred postpartum and did not, therefore, interfere with delivery. Rupture of the lower uterine segment occurred twice, in both instances extending above the

vaginal junction. Prolapse of the funis occurred 5 times with the loss of 2 children. Moore had 3 cases of fibroma interfering with delivery. In 1 case a low attached pedunculated tumor was detached and brought away before the advancing head in the grasp of the forceps. In the other 2 cases the tumors were intramural and so obstructed the passage as to render delivery difficult. This was accomplished, however, without further interference than the use of forceps.

In Moore's series there have been 4 cases of twins. There have been 17 still-born children from the following causes: prolapsed funis, 2; trauma from difficult deliveries, including 1 craniotomy, 5; breech deliveries with retained head, 2; children of eclamptic women, 2; placenta prævia, 2; causes unknown, 4. The sexes were divided very evenly, 517 girls and 483 boys. A somewhat remarkable fact in connection with these cases is that fully 50 per cent. of the mothers have been primiparæ. When it is considered that not 20 per cent. of women in the childbearing period are recent brides, what, asks Moore, is the inference in a record like this? Simply, American women who are at all engaged in the perpetuation of the race have one child and quit.

Journal of the South Carolina Medical Association, Charleston

September

- 42 Prevalence of Pellagra. J. W. Babcock, Columbia.
- 43 Hemolytic Reaction in the Diagnosis of Syphilis. F. B. Johnson, Charleston.
- 44 Medical Inspection of School Children in South Carolina. E. A. Hines, Seneca.
- 45 Dental Inspection of Public School Children. J. P. McCreary, Spartanburg.
- 46 Hemorrhoids. A. D. Morgan, Perry.
- 47 Cholera Infantum. J. J. Vernon.
- 48 Don'ts in Medicine and Surgery. W. Cheyne, Sumter.

Archives of Internal Medicine, Chicago

October 15

- 49 *The Heart Muscle in Typhoid. L. Hamman, Baltimore.
- 50 Functional Disturbances in Paroxysmal Tachycardia. A. D. Hirschfelder, Baltimore.
- 51 *Pharmacology of Ergot. H. C. Wood, Jr., and C. A. Hofer, Philadelphia.
- 52 *Utilization of Milk-Fat by an Atrophic Infant. A. H. Wentworth, Boston.
- 53 Further Investigations in Experimental Myocarditis. M. S. Fleisher, Overbrook, Pa., and L. Loeb, Philadelphia.
- 54 *Constriction of the Splanchnic Arteries and the Association of Cardiac Hypertrophy with Arteriosclerosis. W. T. Longcope and A. T. McClintock, Philadelphia.
- 55 *An Individual Quantitative Index to Tuberculin Dosage in Treatment. W. C. White and K. H. Van Norman, Pittsburg, Pa.

49. **Heart Muscle in Typhoid.**—In a study of forty-three hearts from patients dying of typhoid, Hamman was able to find some changes in practically all, although in most the lesions were not extensive enough to allow one to assume with certainty that the efficiency of the heart muscle was compromised. In at least six of the cases both the fiber and interstitial lesions were so intense that he could hardly associate their presence with complete efficiency of the organ. He does not find any evidence of widespread change in the smaller branches of the coronary arteries, but frequently periarteritis and endarteritis in the large and medium-sized branches. No doubt these lesions must interfere in some degree with the nutrition of the heart and are of importance both for the immediate efficiency of the organ and its future integrity.

There are certain symptoms during the course of an acute infectious disease which point directly to the presence of some cardiac lesion and often to cardiac insufficiency, notably irregularities of rhythm, and the physical signs of beginning dilatation. Certain sudden deaths can be satisfactorily explained only on the assumption of abrupt cardiac failure. It is during convalescence particularly that the symptoms of a damaged myocardium stand out most clearly. Such symptoms are not nearly so common after typhoid as after other infections, notably diphtheria, but they occur frequently enough to indicate the significance of the damage the heart has sustained. Undoubtedly these lesions of the myocardium and of the arteries are of the greatest importance for the future health of the individual. Typhoid has not in this regard the same importance as rheumatism, syphilis, or diphtheria, but on account of its prevalence is a factor seriously to be reckoned with. The prevention of infectious diseases will proba-

bly prove one of the strongest prophylactic measures against the degenerative lesions of the circulatory system.

51. **Pharmacology of Ergot.**—The important facts brought out by Wood and Hofer are to the effect that ergot is a stimulant to all the unstriated muscle tissue of the body. As a part of this general action there is a stimulant effect on the arterial muscles and probably also on the heart. The action on the blood-vessels occurs after destruction of the vasomotor center and, therefore, must be the result of an effect on some portion of the peripheral vasomotor mechanism. The degree of elevation of blood-pressure affords an accurate criterion of the activity of ergot and is, in their opinion, the most available method for the biologic assay of the drug. The active principle of ergot is an alkaloidal substance which occurs in the drug probably in chemical union with a resinous body. For the combination they suggest the retention of the name suggested by Jacobi—sphaecelotoxin—and for the alkaloidal substance the term applied by Kraft—hydro-ergotinin. The percentage of sphaecelotoxin varies accurately with the physiologic activity of different specimens of ergot. The percentage of sphaecelotoxin in a fluid extract may easily be estimated by precipitating with water and extracting with benzol. A fluid extract of ergot exposed to the air deteriorates extremely rapidly. The deterioration of fluid extract of ergot may be much retarded by protecting it against contact with the air, but under the most favorable conditions there is a loss of strength approximating 10 per cent. a month.

52. **Utilization of Milk-Fat.**—This paper furnishes a comparison of the results obtained from three observations made on an atrophic infant in which the absorption of fat was determined. Each observation lasted for 3 days, during which time the fat in the food and feces was determined. For 12 days immediately preceding the first observation the infant was fed exclusively on human milk and the first observation succeeded this preliminary period without interruption. There was an interval of 4 days between the first and second observations and an interval of 3 days between the second and third observations. During the first observation the infant was given 840 c.c. of breast-milk daily. During the second observation he was given 840 c.c. daily of a mixture of cow's milk containing approximately 3 per cent. of fat, 6 per cent. of milk-sugar and 1 per cent. of protein. During the third observation the infant was given 840 c.c. daily of a mixture of cow's milk prepared with rennet, in which the percentages of fat, sugar and protein were approximately the same as during the second observation. In the interval between the first and second observations the infant was fed on breast-milk. In the interval between the second and third observations he was given the same preparation of cow's milk treated with rennet that he received during the third observation. Carmin was given at the beginning and end of each observation.

The dried feces from the breast-milk period contained 33.4 per cent of fat; from the cow's-milk period 54.4 per cent. and from the second cow's-milk period 52.75 per cent. The difference between the breast and cow's-milk periods is offset to a great extent when the total percentage of excreted fat is estimated. Assuming that the fat in the feces represents fat that has been ingested, then 10.6 per cent of the ingested fat was excreted in the feces during the breast-milk period against 11.5 per cent. during each of the cow's-milk periods. Wentworth has little doubt that the absorption of fat during the breast-milk period was disturbed by the excessive quantity of fat ingested the first day, and that these percentages do not afford an accurate basis for comparison of the three periods. During the breast-milk period the infant ingested 11 gm. and absorbed 10.35 gm. more fat than during either of the cow's-milk periods. In other words, he absorbed 16 per cent. more fat during the breast-milk period than during either of the cow's-milk periods.

54. **Constriction of the Splanchnic Arteries.**—Sudden occlusions of the superior mesenteric artery in dogs results in hemorrhagic infarction of the intestines. Permanent constriction of the superior mesenteric artery and celiac axis, as well as gradual occlusion of one or both of these vessels, may be present in dogs for at least 5 months, without

giving rise to a definite and constant elevation of blood-pressure or to hypertrophy of the heart. At necropsy, no definite association can be found in man between sclerosis of the abdominal aorta and great splanchnic vessels and cardiac hypertrophy.

55. **Quantitative Index to Tuberculin Dosage.**—The authors maintain that it is just as possible to obtain a constitutional reaction from tuberculin placed on the skin as from tuberculin introduced beneath the skin. Tuberculin reactions, whether local, focal or constitutional, must be looked on as varying grades of the same response of the body to a varying quantity of tuberculin used. In the body in which tuberculosis has developed, the degree of the reaction of the surface cells to the poison contained in the different tuberculins depends on (a) depth of scarification; (b) point of application; (c) distribution of lymphatics; (d) readiness of absorption; (e) exact amount of tuberculin used. At times the serum of individual patients contains a substance which is capable of producing a cutaneous tuberculin reaction in individuals who are very susceptible to tuberculin. The interval of dosage varies for the result desired, less than 7 days for tolerance, and 14 or more for retention of the reaction power of the cells. In the majority of patients, if the interval of doses be 2 weeks or more, the amount of local reaction from the same dose of tuberculin does not change in a period of many months. It is possible by determining the minimal cutaneous reaction to 0.01 c.c. of varying solutions of tuberculin, to state the exact amount of tuberculin which will produce a certain grade of reaction when introduced beneath the skin.

Journal of the Arkansas Medical Society, Little Rock

September

- 56 Diagnosis and Symptomatology of Typhoid. A. E. Harris, Little Rock.
57 Typhoid—Its Prevention. O. K. Judd, Little Rock.
58 Peculiarities and Some Peculiar Types of Typhoid. G. A. Warren, Black Rock.
59 Treatment of Typhoid. E. R. Dibrell, Little Rock.

Journal of Biological Chemistry, Baltimore

October

- 60 Partial Hydrolysis of Proteins. P. A. Levene, D. D. Van Slyke and F. J. Birchard, New York.
61 Insoluble Lead Salts of Amino-Acids. P. A. Levene and D. D. Van Slyke, New York.
62 Refractive Indices of Solutions of Certain Proteins. T. B. Robertson, San Francisco.
63 Metabolism Experiment as a Statistical Problem. H. L. Rietz and H. H. Mitchell, Chicago.
64 *Digestibility of Bleached Flour. E. W. Rockwood, Iowa City, Iowa.
65 Effect of Alkali on Melanin. R. A. Gortner, Washington, D. C.

64. **Digestibility of Bleached Flour.**—The experiments of Rockwood tend to show that the gluten of bleached flour, both cooked and uncooked, digests somewhat more readily than that of unbleached flour. Bread made with yeast from bleached flour did not differ in digestibility from that made from unbleached flour. The nitrite reacting material largely or altogether disappears before the bread is removed from the oven. Boiled starch prepared from bleached and unbleached flour forms, by the action of pancreatin, reducing sugar at equal speeds. Tested with iodine there is no difference in the rapidity of starch digestion, either by pancreatin or by the salivary ferment. Diastase gives the same results.

Bulletin of the American Academy of Medicine, Easton, Pa.

October

- 66 Adolescence and the Sex Problem. W. S. Hall, Chicago.
67 Social Aspect of Gonococcal Infection of the Innocent. W. A. N. Dorland, Philadelphia.
68 Gonococcus Infections in Women. H. O. Marey, Boston.
69 Causes and Prevention of Venereal Diseases in Children. C. D. Lockwood, Pasadena, Cal.
70 *Ocular Disease in Hereditary Syphilis. S. D. Risley, Philadelphia.
71 *Black Plague and the Educational Remedy. G. R. Dodson, St. Louis.
72 *Social Plagues and the Public Schools. I. S. Wile, New York.
73 Introduction of Social Hygiene in the Public Schools. C. F. Hodge, Worcester, Mass.
74 *Advancement of Medical Education. G. M. Lintleum, Baltimore.
75 *The Five-Year Course. J. W. Scane, Montreal, Canada.

70, 71 and 72. Abstracted in THE JOURNAL, July 16, 1910, p. 244.

74. Abstracted in THE JOURNAL, April 9, 1910, p. 1228.

75. Abstracted in THE JOURNAL, April 16, 1910, p. 1331.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

October

- 76 Causation of Menstrual Disorders. E. Novak, Baltimore.
77 *An Improved and Perfected Operation for the Relief of Extreme Cases of Proctocoele, Cystocoele and Rectocoele. J. R. Goffe, New York.
78 *Postoperative Neuroses of Pelvic Origin. H. W. Crouse, El Paso, Texas.
79 *Twisted Pedicles. F. N. Ward, San Francisco.
80 Combined External and Vaginal Version. H. M. Stowe, Chicago.
81 Surgery of the Upper Pelvic Floor by Direct (Suprapubic) Approach. W. M. Polk, New York.
82 Pathologic Diagnosis of Incipient Carcinoma of the Uterus. I. C. Rubin, New York.
83 Pregnancy Following Salpingectomy. J. O. Polak, Brooklyn.
84 *A Modified Gilliam Operation for Suspending the Uterus by the Round Ligaments. J. R. B. Branch, Baltimore.
85 Missed Abortion and Labor. F. A. Rhodes, Pittsburg, Pa.
86 Vertex and Foot Presentation. P. E. Gilbert, Linneus, Me.
87 The Exceptional Child; The Influence of Environment and Education on His Development. S. P. Goodhart, New York.
88 Prevention of the More Common Errors of Development. J. P. Fiske, New York.
89 Treatment of Nasal Catarrh. C. G. Crane, Brooklyn.

77. Abstracted in THE JOURNAL, May 21, 1910, p. 1714.

78. **Postoperative Neuroses of Pelvic Origin.**—Crouse advises that we should be extremely careful to weigh the nerve features of our patients, together with the pathologic state of the female genitalia, before promising prompt relief after operations. A gynecologic examination is not complete without a careful examination of the sacral plexus, which is best located through the rectum. A sensitive state of this plexus, or other intrapelvic nerves, prohibits a promise that the irritating symptoms will promptly disappear after operation—the symptoms which frequently induce a woman to submit to the trying ordeal of a severe operation. Time, tonics, eliminatives, rest, and an assurance of ultimate success on the part of the surgeon, are the remedies needed.

79. **Twisted Pedicles.**—A series of interesting cases is reported by Ward. Briefly, they are as follows: Case 1. Acute torsion of an enormous hydrosalpinx of the right side simulating acute appendicitis, complicated by a 4 months' pregnancy; operation; recovery. Case 2. Twisted pedicle of a left hydrosalpinx; acute strangulation, followed by diffuse peritonitis; operation; recovery. Case 3. Twisted pedicle of a dermoid cyst of the right side with recurrent attacks of partial strangulation and peritonitis. Diagnosed as appendicitis by several physicians. The case was complicated by a dermoid of the left ovary; operation; recovery. Case 4. Parovarian cyst with twisted pedicle firmly bound down to uterus and accompanied by a peritonitis and persistent hemorrhage; operation; recovery. Case 5. Left parovarian cyst with a number of attacks of partial strangulation; no peritonitis; operation; recovery. Case 6. Left parovarian cyst with twisted pedicle; very severe dysmenorrhea; no adhesions; operation; recovery.

Ward says that the lesions most closely simulating acute torsion of a pelvic tumor, be it hydrosalpinx, parovarian or ovarian, are: acute appendicitis, ruptured tubal pregnancy, intestinal perforation, and acute intestinal obstruction. In all these lesions, the onset is inaugurated by localized sharp acute pain, accompanied by symptoms of shock, followed by those of peritonitis. In a case of twisted pedicle, the pain of the acute strangulation persists, to a greater degree, is more acute, agonizing, paroxysmal and cramp-like than the pain of a diffuse peritonitis unaccompanied by a strangulation. In ruptured tubal pregnancy or intestinal perforation, shock and collapse are more acute and profound. In intestinal perforation there is the history of the ulcer, and in the ruptured tubal pregnancy the menstrual history and the pelvic signs. In acute intestinal obstruction there is the inability to secure a bowel movement or the passage of gas. In all these lesions the treatment must be the same if the patient's life is to be saved, i. e., prompt surgical interference. In acute strangulation, the earlier the operation is undertaken, the less severe is the peritonitis with its accompanying adhe-

sions, the simpler is the operation, and the milder is the post-operative reaction.

84. Suspending the Uterus by Round Ligaments.—The operation referred to by Branch is done as follows: A small median abdominal or Pfannenstiel incision is made exposing the pelvic organs. A silk traction suture is passed through each round ligament about 3 cm. from the uterus. A purse-string suture of catgut is placed on each side beginning in the parietal peritoneum near the internal abdominal ring, including the portion of round ligament extending from the internal abdominal ring to the silk traction suture previously taken. This suture is tied later and closes up an open space through which a loop of bowel has been known to enter and became strangulated. A sharp Halsted clamp is pushed through the rectus muscle, its posterior fascia, and peritoneum, grasping the traction suture, and by drawing it the round ligament is brought out and readily sutured to the under surface of the outer portion of the fascia of the rectus. Fine silk is generally used for this purpose, care being taken not to stragulate the ligaments by too sharp a kink. The ligaments are usually not crossed over to the opposite side, but sutured to the fascia on its own side. The catgut purse-string sutures previously placed are now tied and the incision closed in layers throughout.

Branch emphasizes the importance first, of the purse-string catgut suture, and second, of the suturing of the round ligaments to the under surface of the rectus sheath, thus shutting off the peritoneal cavity from the exterior by strong fascial layers. In some cases the vaginal outlet was relaxed and perineorrhaphy was also done. Of the patients who came to be relieved of retroflexion, a large majority were nulliparous white women; 66 per cent. of these are cured absolutely of their symptoms; 75 per cent. of subsequent pregnancies have been normal; 10 per cent. of the women suffer recurrence of symptoms after labor. The operation described is only fairly satisfactory, in that it falls short of fulfilling the requirements imposed on it.

Journal of Abnormal Psychology, Boston

October-November

- 90 Mechanism and Interpretation of Dreams. M. Prince, Boston.
- 91 Dreams as a Cause of Symptoms. G. A. Waterman, Boston.

Old Dominion Journal, Richmond, Va.

October

- 92 Acute Purulent Frontal Sinusitis. C. M. Miller, Richmond.
- 93 The Owen Bill and Its Opponents. S. A. Knopf, New York.
- 94 Remarks on Tic in Children. T. A. Williams, Washington, D. C.

Philippine Journal of Science, Manila

July

- 95 *Studies on Infant Mortality. A. J. McLaughlin and V. L. Andrews, Manila.
- 96 Relationship of Food to Physical Development. D. McCay, Calcutta, India.
- 97 Unsolved Health Problems Peculiar to the Philippines. V. G. Heiser, Manila.
- 98 Pathogenesis of the Female Crescent Body. H. M. Neeb.
- 99 Malaria Parasites of the Orang-Outan. G. Shibayama, Tokio, Japan.
- 100 Malarial Fever During the Puerperium. J. M. Atkinson, Hongkong.
- 101 *Tropical Bronchomycosis. A. Castellani, Ceylon.
- 102 *Intestinal Flagellate in Man. A. Castellani and A. J. Chalmers, Ceylon.
- 103 Clinical Aspects of Mycetoma. A. Hooton, Kathiawar, India.
- 104 *Prevention and Treatment of Amebic Abscess of the Liver. L. Rogers, Calcutta, India.
- 105 *Intestinal Amebiasis Without Diarrhea. W. E. Musgrave, Manila.
- 106 *Differential Blood Counts in Wet Preparations. E. R. Stitt, Canacao, P. I.

95. Studies on Infant Mortality.—The death-rate among Filipinos (47.65 per cent.) in Manila, as shown by McLaughlin and Andrews, is excessive compared with that of other nationalities: Spaniards, 12.05 per cent.; Americans, 13.27 per cent.; other Occidentals, 14.32 per cent.; Chinese, 16.64 per cent. This enormous death-rate is due to the high mortality of children. Of 9,307 deaths among the Filipino population, 6,041 or 64.9 per cent. were of children under the age of 5, and 4,542, or 48.8 per cent. were of infants under 1 year of age. According to the United States census of the year 1900, the deaths of children under 1 year constitute 18.28 per cent. of the total mortality; in France, from 1896 to 1900, the

infant mortality constituted 20 per cent. of the total, but in Manila the deaths of infants under 1 year aggregate 48.8 per cent. of the total number.

Beriberi is the largest factor in the infant mortality of Manila. The deaths of breast-fed children constitute 73.74 per cent. of the total infant mortality; furthermore, 87 per cent. of infants dying of beriberi and convulsions in Manila are breast-fed. The average Filipino mothers are in poor physical condition, many of them are beriberic and subsist on a diet favorable to beriberi. It seems that there is an intimate relation between beriberi of infants and a mother's milk poor in quality and lacking certain necessary elements which are not included in the mother's dietary. At first glance it might seem advisable to supplant breast feeding by artificial, but under existing conditions this would be a blunder. The children saved from beriberi would be sacrificed to enteric diseases. That small part of the population which is artificially fed furnishes 65 per cent. of the deaths from enteric diseases, and the breast-fed, much the larger part of the population, furnishes but 35 per cent. of the infant mortality from this cause; so that even in Manila, breast-feeding of infants exerts a deterrent influence on the mortality from gastrointestinal diseases. A possible solution of the problem lies in improving the quality of the mother's milk and encouraging the continuance of the custom of breast-feeding so general among the Filipino poor.

101. Tropical Bronchomycosis.—Castellani says that a type of bronchomycosis in which oidium-like and saccharomyces-like fungi are found is not rare in Ceylon. The condition might be called broncho-oidiomycosis, or more briefly broncho-oidiosis. Two types of the condition may be clinically distinguished, a mild and a severe one, the latter closely resembles phthisis. The mild type is apparently amenable to treatment with potassium iodid.

The strains of oidia found in Castellani's cases are different from the ordinary *Oidium albicans* and *Oidium lactis*, as they do not affect milk. All the strains found by Castellani are identical in all respects, except that some produce gas in galactose and others do not. For the oidium which produces gas in galactose he proposes the name *Oidium tropicale*; for the saccharomyces he suggests the name *Saccharomyces krusci*. The diagnosis of broncho-oidiosis can be made only by bacteriologic methods. It is differentiated from phthisis by the absence of tubercle bacilli and the negative animal inoculation; from bronchial spirochetosis by the absence of spirochetes; and from endemic hemoptysis by the absence of the ova of the trematode. Care should be taken before making the diagnosis of bronchomycosis that the sputum is collected in sterile vessels and examined as soon as possible, because sputum left exposed to the air frequently becomes contaminated in the tropics with various species of non-pathogenic saccharomyces and oidia. Primary bronchomycosis should be also differentiated from those cases of chronic debilitating disease in which *Oidium albicans* spreads from the mouth to the bronchi.

Castellani has recently encountered two cases of a peculiar type of acute, fatal enterocolitis showing intermediate symptoms between dysentery and cholera. Some of the stools were serous and cholera-like; others consisted practically of mucus only. There was no blood. Both patients died within 48 hours. The stools, collected in sterile Petri dishes, were examined for *Vibrio cholerae*, with negative results. On the other hand, 85 per cent. of the colonies which developed on bile-salt agar and ordinary agar were of a peculiar spirillum; the others resembled organisms of the colon group. The cultural characteristics show the spirillum most probably to be a new species, for which Castellani proposes the name of *Spirillum ceylanicum*.

102. An Intestinal Flagellate in Man.—In the stools of patients in Ceylon suffering from ankylostomiasis, Castellani and Chalmers have observed a flagellate which is pear-shaped or rounded, measuring from 8 to 20 microns in diameter, possessing two flagella and an undulating membrane, and being capable of ameboid movements. It is easily cultivated together with bacteria on several media, the best of which is apparently nutrose-agar or nutrose-broth. The developmental

stages and the methods of reproduction have not as yet been studied and therefore the exact zoologic position of the parasite can not be defined. They propose to classify it provisionally under the genus *Bodo* and to name it *Bodo asiaticus*.

104. **Amebic Abscess of the Liver.**—Rogers attributes not a little of the recent improvement in the results of the treatment of liver abscess in the Calcutta hospitals to the adoption of a routine course of ipecacuanha in the after-treatment of liver abscesses, however they may be dealt with.

105. **Intestinal Amebiasis without Diarrhea.**—The purpose of this paper is to show that the prevalence of amebic infection of the colon without diarrhea is of sufficiently frequent occurrence to deserve careful consideration by clinicians and to make evident the necessity of altering our conception of the disease to conform with the acceptance of such observations. In selecting the fifty cases for this report, only those in which the clinical observations were of sufficient accuracy for publication and in which the diagnosis was confirmed by necropsy have been used. Of the fifty patients, eight were foreigners and forty-two natives of the Philippine Islands, forty-seven were males and three females. The causes of death were as follows: From peritonitis following perforation of the appendix, 3—2 of these were produced by amebic ulceration, the other by an unknown cause, not amebic; from liver abscesses, 4—in 1 perforating into the right pleura, 1 into the abdominal cavity, and 2 were without perforation; from acute pericarditis, 1; from pulmonary tuberculosis, 8—and in 3 of these abdominal tuberculosis was also present; from chronic æstivo-autumnal fever, 2; from perforation of amebic ulcers in the large intestines, 5—4 times in the cecum and ascending colon and once in the transverse colon; from acute beriberi, 7; from lobar pneumonia, 20. Characteristic amebic lesions were present at necropsy in all of the fifty cases. These lesions varied in type from those which were just beginning to those showing ulcers having the characteristic extensive destruction of the mucous membrane of the bowel so often seen in cases of amebiasis of long standing. Other parasites, such as monads, trichuris, hookworms and ascaris were present in several of these patients.

106. **Differential Blood Counts.**—By employing the ordinary technic for making a count of the white blood-cells, with the exception that he uses a diluting fluid made by adding five drops of Giemsa's stain to five cubic centimeters of 2 per cent. formalin, Stitt also is able quickly and accurately to make a polymorphonuclear percentage count, or a complete differential count in addition to that of the leukocytes. Another advantage is that blood-parasites are also perfectly stained, are shown distinctly, and by reason of the larger amount of blood visible in each field, the finding of them is far less tedious than where a stained, dry film is used. The usual technic in making the hemocytometer preparation is employed, Türk ruling being used. Stitt counts the leukocytes in the three upper or lower square millimeters, divides by three to obtain an average per square millimeter, multiplies by ten for the content of a cubic millimeter and then by twenty for the dilution (blood to 0.5, diluent to 11). Having counted the leukocytes he again goes over the same portion of the ruled surface and determines the polymorphonuclears and estimates the percentage of these to the total leukocytes. The red cells are practically diaphanous and not disintegrated as they are when acetic acid is used as a diluent; consequently it is easy to distinguish the particulars concerning the size, etc., of a particular red cell containing a malarial parasite.

Buffalo Medical Journal

October

- 107 Progress in Obstetrics and Gynecology. J. C. Webster, Chicago.
108 Ichthyosis. A. A. Young, Newark, N. J.
109 Conservation in Prostatic Hypertrophy. N. W. Wilson, Buffalo, N. Y.

Medical Fortnightly, St. Louis

October 10

- 110 Syphilis as a Non-Venereal Disease. A. H. Ohmann-Dumesnil, St. Louis.
111 *Family-Physician Refracting as a Factor in Medical Practice and Its Promotion During 1910. L. Connor, Detroit.
112 Obliteration of Drug Craving. W. F. Waugh, Chicago.

111. Abstracted in THE JOURNAL, April 16, 1910, p. 1333; also published in *The Lancet-Clinic*, Oct. 15, 1910.

Louisville Monthly Journal of Medicine and Surgery

October

- 113 *Teaching of Clinical Psychiatry. F. P. Norbury, Kankakee, Ill.
114 *Diagnosis of Surgical Lesions of the Kidney. L. Frank, Louisville, Ky.
115 *The Modern Doctor, His Successes, His Failures, His Future. J. K. Mitchell, Philadelphia.
116 Facts the Public Should Know About the Ear and Its Treatment. L. J. Lautenbach, Philadelphia.

113, 114, 115. Abstracted in THE JOURNAL, Oct. 1, 1910, pp. 1219 and 1220.

Annals of Surgery, Philadelphia

October

- 117 Transfusion by Carrel's End-to-End Suture Method. E. H. Pool and R. D. McClure, New York.
118 *Blood Transfusion in Hemophilia. C. Goodman, New York.
119 *Graft of the Vena Cava on the Abdominal Aorta. A. Carrel, New York.
120 *Treatment of Air Embolism. V. P. Blair and H. McGuigan, St. Louis.
121 Preservation of the Submaxillary Branch of the Facial Nerve in Operations on the Neck. C. E. Farr, New York.
122 Anæsthol Poisoning, Causing Acute Yellow Atrophy of Liver After Operation for Ileocolic Intussusception. F. Torek, New York.
123 Epulis and Sarcoma of the Jaw. J. Speese, Philadelphia.
124 Differential Pressure in the Treatment of Empyema. E. M. von Eberts, Montreal, Canada.
125 Primary Sarcoma of the Stomach. A. E. Maylard and J. Anderson, Glasgow, Scotland.
126 *Function of the Appendix and the Origin of Appendicitis. E. M. Corner, London, England.
127 *A Simple Method of Suturing All Hollow Viscera. W. Bartlett, St. Louis.
128 *Rectosigmoidal Arterial Anastomosis. C. B. Davis, Chicago.
129 Bone Metastases of Hypernephroma. C. L. Scudder, Boston.
130 Plastic Repair of the Thumb. H. A. Haubold, New York.
131 *Wright's Solution for Drainage. L. R. G. Crandon, Boston.
132 Relation of the Ductless Glands to Surgery. J. E. Sweet, Philadelphia.

118. **Blood Transfusion in Hemophilia.**—In the case reported by Goodman, the patient was only 2½ years old. The donor was a young man, aged 19. The transfusion was continued for one hour and a half and was successful, checking all nozing.

119. **Graft of the Vena Cava on the Abdominal Aorta.**—The operation consisted of transplanting between the cut ends of the abdominal aorta a segment of vena cava. Its purpose was to study the details of the technic of the graft of a large vein on the aortic trunk and its remote results. Three experiments were performed on two cats and one dog. The three animals which underwent the transplantation of the vena cava on the abdominal aorta were in normal condition a few hours after the operation and recovered without any complication. The causes, which after several months brought about, directly or indirectly, the death of the animals are completely independent of the operations. Three months, ten months, and fourteen months after the operation the abdominal aorta of the animals and its venous segment were extirpated for the study of the anastomosis and of the venous wall. It was found that the venous wall reacts against the arterial blood-pressure by thickening its wall. The condition of the venous wall and of the anastomoses examined fourteen months after the operation shows that, for a long time, a segment of vena cava can functionate as a part of the abdominal aorta. It is probable that in the treatment of aneurysm, rupture of large arteries, embolus, and localized arteritis, the transplantation of venous segments can be used safely, but it must be emphasized that without a proper technic, the results of the operation will be disastrous.

120. **Treatment of Air Embolism.**—Cats and dogs were used by Blair and McGuigan. The animals were prepared for blood-pressure tracings. A cannula was inserted in the right external jugular close to its innominate junction, for the injection of air and adrenalin and salt solution. A continuous blood pressure measurement was taken during the experiment, and is recorded in millimeters of mercury. A measured volume of air was injected in each case, when the quantity was small, injection was made with an air-tight syringe; when over 10 c.c. it was pressed in by a siphon. They found that injection of air into the heart, no matter how small the quantity, produces a disturbance of the circulation that can be readily

seen in the blood-pressure record; there are fall of pressure, dyspneic symptoms, and restlessness. If the volume of air injected be small, the changes are usually temporary; if large, a sudden fall of pressure to almost the base line occurs, great dyspnea and labored breathing, and a fluttering heart. The respiration always stops before the heart, but the ineffectiveness of the heart-beat is the cause of the respiratory failure. In other words, the practically valveless right heart cannot supply blood to be pumped to the respiratory center and the center fails while the heart continues to beat ineffectively, the blood-pressure being almost zero.

While the heart is in this condition, the injection of adrenalin is effective in restoring the normal pressure in some cases; in others it is worthless; whether or not it is of value seemed to depend largely on the character of the heart-beat at the time the injection was made and the length of time that had elapsed since respiration ceased. Except when air or fluid is rushed into the heart under considerable pressure, the heart-beat does not cease for some time, but becomes less and less strong. When at necropsy, after rushing air and fluid into the heart, no beat was seen, the beat always recurred on opening the heart and removing the internal pressure. In all cases in which at necropsy air was found in quantity in the left heart, adrenalin was ineffective. The action of adrenalin can also be most clearly seen if it is injected with the air, or closely following.

During these experiments the authors observed nothing that would verify the conclusions that the depression accompanying air embolism is due to blocking the pulmonary vessels with air, but the rarity with which traces of air were found on the left side of the heart or were seen in the carotid cannula, even after large quantities of air, 10 c.c. or more, had been rapidly disposed of, leads them to the tentative conclusion that at least a part of the air was either eliminated or absorbed while passing through the pulmonary circulation. Based on the observations made during these experiments, they believe that death from air embolism is clinically a rare occurrence, but should grave depression follow the aspiration of air into a vein, the treatment they propose is the introduction of adrenalin chlorid in a fairly concentrated solution, 1:10,000 to 1:1,000, directly into the right ventricle and that this be accompanied by a small amount of normal saline solution. In their experiments they always used 40 c.c. or more of saline solution, but in most cases a large quantity of air had been put in under pressure and it required a pressure of 60 cm. of water to force the fluid into the vein. They suggested that for clinical application a fine hypodermic needle could be pushed through the chest wall directly into the right heart, which could be done by inserting the needle through the chest wall and lung at the anterior extremity of the third or fourth right intercostal spaces. They observed no evil effects in dogs from perforating the heart wall with a fine needle, but to attempt to do it through the chest wall would be a very uncertain procedure.

126. Function of the Appendix.—Corner claims that: (a) Lymphoid tissue is the characteristic feature of the cecal apex. The vermiform appendix of man is represented in the vertebrate kingdom by a mass of lymphoid tissue, situated most frequently at the cecal apex. (b) As the vertebrate scale is ascended, this lymphoid tissue tends to be collected together into a specially differentiated portion of the intestinal canal, the vermiform appendix. (c) The vermiform appendix of man is not, therefore, solely a vestigial structure, though it undoubtedly represents the terminal part of the cecum. On the contrary, it is a specialized part of the alimentary canal. Nature having made use of a disappearing structure and endowed it with a secondary function by giving it lymphoid tissue to protect the body against the micro-organisms in the ileocecal region. The comparative absence of lymphoid tissue in the rest of the large intestine is inexplicable, as it is in the cecum that the feces have been brought up to the proper consistence to allow of their passage along the colon, and in consequence there are no more prolonged periods of "rest" in the presence of moisture, the feces becoming dryer and harder; consequently there will be less fermentative action.

127. Suturing Hollow Viscera.—Since it has been abundantly proved that perforating stitches are harmful in theory only, Bartlett asks why not carry all gut needles into the lumen and thus be sure to get the firmest sort of a hold. That is what he does.

128. Rectosigmoidal Arterial Anastomosis.—Davis examined twenty-one subjects. The rectosigmoidal loop was present in nineteen cases; superior hemorrhoidal artery bifurcated before junction with loop, seven cases; loop anastomosed with lower division, two cases. The lowest loop was found in one subject with the critical point almost in the bottom of the cul-de-sac of Douglas. In the vast majority of other cases it was found about 1.5 cm. beneath the promontory of the sacrum. Davis suggests, therefore, that following high resection of the rectum, gangrene of the stump can be avoided by ligation of the superior hemorrhoidal artery proximal to the point of entrance of the anastomotic loop from the sigmoidal artery. When high resection of the rectum is to be done by the sacral route, a preliminary abdominal incision is of value to determine the presence and location of the critical point, the relations of the superior hemorrhoidal artery, and permits of a definite placing of ligatures to check hemorrhage. The anastomotic loop is not present in some cases. High resection of the rectum for carcinoma in these cases should be terminated with a permanent colostomy.

131. Wright's Solution for Drainage.—This solution is composed of sodium chlorid 4 per cent. and sodium citrate 1 per cent. in water. Sodium citrate (1 per cent.) in the solution causes a precipitation of calcium salts in the lymph, removing thereby that which is essential to coagulation. The presence, then, of the sodium citrate in the wound cavity ensures a comparatively free exit of the lymph discharge. The sodium chlorid, in hypertonic solution (4 per cent.), by osmosis brings about a flow of lymph through the walls of the cavity, the sodium citrate having dissolved clot and prevented further coagulation. Thus there is brought about a continuous pouring forth of lymph of high antitrophic power from the blood stream and lymph spaces, through the walls of the abscess cavity and out through the wound. The 4 per cent. solution is in itself antiseptic since bacteria will not grow in it. The abscess is opened by a wound as small as will allow the cavity to be wiped out, or thoroughly emptied by expression. The skin round the wound is thoroughly cleaned with 70 per cent. alcohol.

The skin in this region, up to the very mouth of the wound, is smeared with boric acid or eucalyptus vaselin. If the skin tension closes the lips of the wound a bit of rubber dam may be put in. The wound is covered with a voluminous pad of gauze or of absorbent cotton covered with gauze, dripping wet with hot salt and sodium citrate solution. A many-tailed bandage or some other application holds the poultice in position and the part is put at rest. Outside the dressing may be applied a hot flaxseed poultice or a hot-water bottle. In any case, as often as the dressing gets cold more of the hot solution is poured over the whole dressing to wet and warm it again, or the dressing is removed and the whole part is soaked, if possible, or bathed with the same solution. The amount of sodium chlorid in this solution is such that it will irritate the skin and lead to pustulation in a few days. Hence the frequent application of protective vaselin to the unbroken surrounding skin. This solution is contraindicated if there is a tendency to persistent oozing of blood from the wound. It is also contraindicated when the formation of protective adhesions is desirable, as in certain abdominal wounds just after operation. The solution should be used only for the first 36 to 72 hours after operation, during the acute stage of the inflammation. If used longer it leads to maceration and indolence in healing.

Journal of the Oklahoma State Medical Association, Muskogee
October

- 133 Hygiene of Infancy and Childhood. G. W. Little, Okmulgee.
134 Surgical Treatment of Bone Tuberculosis. L. H. Hoffman, Hobart.
135 Anterior Poliomyelitis. J. C. Mahr, Oklahoma City.
136 Diagnosis and Treatment of Extra-Uterine Pregnancy. I. B. Oldham, Muskogee.
137 Eclampsia. G. A. McBride, Fort Gibson.
138 Concussion. B. F. Fortner, Vinita.

Journal of the Missouri State Medical Association, St. Louis

October

- 139 Public Health. B. S. Warren, St. Louis.
 140 Clinical Significance of Epigastric Symptoms. H. C. Crowell, Kansas City.
 141 Problems Presented by Dermatoses Coexisting with Syphilis. J. Grindon, St. Louis.
 142 Medical Roentgenology as a Specialty. R. D. Carman, St. Louis.
 143 Life-Insurance Examinations. G. W. Goins, Breckenridge.
 144 How to Interest Young Men in the Society. F. W. Burke, Laclede.
 145 Spinal Anesthesia. C. A. Potter, St. Joseph.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

October 8

- 1 *Hereditary Aspects of Nervous and Mental Diseases. F. W. Mott.
 2 Congenital Pyloric Stenosis. R. Hutchison.
 3 Prizes and Performances. S. S. Sprigge.
 4 Woman's Sphere in Medicine. E. W. Roughton.
 5 Evolution of Surgery. W. Thorburn.
 6 Acidosis. D. L. Edsall, Philadelphia.
 7 Chronic Constipation and Its Treatment. J. E. Goodhart.
 8 *Aneurysm of the Aorta Communicating with the Superior Vena Cava. L. Humphrey.
 9 Acromegaly with Hypertrophied Heart. L. Humphrey.
 10 Evolution of Racial Types of Europe. J. S. Mackintosh.
 11 Starvation and Purgation in the Relief of Disease. G. Guelpa.
 12 Injection Treatment of Neuralgia and Sciatica. W. Harris.
 13 Effects of Electrical Currents on Blood Pressure. E. Sayer.
 14 Tuberculin in Pulmonary Tuberculosis. W. C. Wilkinson.
 15 Operative Treatment of Simple Fractures. W. A. Lane.

1. **Hereditary Aspects of Nervous Disease.**—Mott feels convinced from his own observation and experience that Gowers is correct when he asserts that there are few diseases in the production of which inheritance has a more marked influence than in epilepsy, and the traceable influence is always far less than that which exists. Moreover, he has observed that a similar heredity occurs in a considerable number of cases of insane epileptics. Mott has endeavored to ascertain the proportion of insane, feeble-minded and epileptic members occurring in the pedigrees of his hospital patients. In thirty-two pedigrees, which would include about 1,000 living representatives and 250 dead individuals, there were eight who had been in asylums, and in eight others fits were chronicled. In no case was either parent of the patient insane or epileptic. Two of the pedigrees furnished most of the cases. One was that of a patient suffering from neurasthenia, in which there were, besides insanity and epilepsy, migraine, hysteria, deaf-mutism, and imbecility. The other was the pedigree of a patient with exophthalmic goiter with several neuropathic members in the stock.

Two years ago Mott undertook to study the convolutional pattern of the brains of relatives dying in the asylums, with a view of seeing whether there is a similarity in the convolutional pattern in the members of the same family, just as there is a similarity of the physiognomy. An inquiry was initiated concerning relatives at the various asylums, and a request was made that brains of relatives should be kept for examination after the necropsies had been made. Isolated instances of two or more members of the same family were known to exist by Mott in the various asylums; but it soon became evident that a properly coordinated card system would reveal the fact that a very large number of parents and offspring and brothers and sisters, besides collateral relatives, were resident in the London County Asylums, or had been recently. In June the numbers had risen from a few hundred known instances to 1,834, made up from 854 families. Of 752 instances of two of a family, making in all 1,504 cases, the vast majority are directly and not collaterally related.

Another fact stands out prominently in an analysis of the 752 instances of two of a family, and that is, the much greater incidence of transmission from parents to offspring through the female side. The mother transmits to the offspring in the proportion of 60.7 per cent., the father 39.3 per cent. This is not accounted for wholly by the fact that there are more females in the asylums insane than males, for the ratio of females to males in the asylums is rather less than 11 to 9. When pairs of offspring of the two sexes are

affected, the proportion of males to females is 43.9 per cent. to 56.1 per cent., a difference of 12.2 per cent. But the percentage in which the mother transmits insanity to the offspring as compared with the father is as 67.7 per cent. to 39.3 per cent., a difference of 28.4 per cent., and this increase of 14.2 per cent. is mainly due to the fact that she transmits to the daughter nearly twice as often as the father does. It may well be asked whether this may not partly be due to the fact that the daughter, at the time of life when insanity is manifested, is more at home than the son, and therefore has more to do with her insane mother. Grandparents' heredity undoubtedly is very much below the proper ratio; it is due to the fact that there is far more difficulty in obtaining records. The hereditary transmission from females, however, markedly preponderates. In collateral insanity there is a more marked preponderance of females affected than males than in direct heredity, but the numbers are too few to draw any very decided conclusions, except the fact that the females with aunt affected are as numerous as all the rest combined. Of an average insane population of approximately 20,000, 717 cases are thus related, representing 342 families.

Mott says that every insane person should be considered as a biologic study. To say, merely, that one of his ancestors was insane, and therefore he has a bad heredity, and to label him thus, as is the common custom, is absurd. What we wish to know is what he was born with, and what has happened to him since birth. Consanguinity does not appear to produce insanity or nervous disease, provided both stocks are free from taint; but if there is insanity or epilepsy (not necessarily in the first ascendants, but even in the collaterals), then intermarriage of first cousins from these two stocks with collateral insanity will tend to insanity or epilepsy in some cases in the offspring of the two sane related parents. Mott has observed in many of these pedigrees, that maniac-depressive insanity in a stock is frequently associated with suicide in the members so affected, and even in others not affected. The tendency to suicide often runs in families, and some remarkable pedigrees have been published in which members of families in successive generations have taken their lives in a particular way, and sometimes even at a particular age; there is a suicidal obsession. Mott would explain this by initiative suggestion acting on a neuropathic stock. The transmission of an acquired character, such as the desire for alcohol, is contrary to the doctrine of heredity. That the desire for alcohol is transmitted from parent to offspring, in the form of like begetting like, instead of like begetting a tendency to like, Mott claims to be without foundation. What may be transmitted, he says, is the temperament that induces alcoholism, namely, a lack of will power and moral sense.

8. **Aneurysm of the Aorta.**—The patient in this case was a man, aged 49, who had previously been in the army for fifteen years. There was no history of previous illnesses, but he had probably had syphilis. On July 30, 1908, he drove into the country, and after returning stabled his horse and ate his supper. About 9 p. m. he felt a sudden feeling of suffocation, as if his throat was swollen. He was admitted that night into the hospital by the house physician, who noted that he was very short of breath, that there was some swelling of the neck, and that a loud systolic murmur was audible over the chest. He complained of no pain, but much distress. The next morning the patient was sitting up in bed with evident dyspnea, the eyeballs were staring; there was extreme cyanosis of the face and ears, and the neck looked thick and swollen; there was some swelling of the right arm and the right side of the chest, and the right hand was cold. The right pupil was larger than the left, the pulses were equal, and the pulse rate 100. On examination of the chest, the apex beat was in the fifth interspace, $\frac{1}{4}$ inch external to the nipple line, and there was visible pulsation over the second, third and fourth right intercostal spaces; over this area there was dulness to percussion, and a systolic thrill could be felt. On auscultation there was a systolic murmur at the apex, and over the pulsating area at the aortic base there was a loud continuous murmur of a whizzing character with marked systolic intensification; the murmur could also be heard behind over the spines of the dorsal vertebrae; the

second sound could be heard feebly. The lungs were emphysematous.

After a few days the more urgent symptoms were relieved, but there was still marked cyanosis of the face, and there was some edema of the right side of the chest and right arm. The superficial veins were becoming visible over the chest, and the external jugular veins, especially the right, were prominent. At first there appeared to be some slight systolic pulsation in this vein, which soon ceased. During the next few weeks the patient's condition gradually improved, so that by September 28 he was able to be up and about, and was discharged from the hospital. The physical signs then showed that the pulsation to the right of the sternum was less marked, and the continuous murmur had much diminished in intensity; the edema was also passing off, but the superficial veins were becoming more visible.

He was readmitted the following November for an attack of bronchitis following a chill, and it was then noted that the cardiac signs were much the same, except that the thrill and murmur had much diminished in intensity, but that the collateral circulation in the veins had visibly increased. These latter consisted of three large channels on each side of the abdomen, passing up from below from the iliac veins, four on the front of the abdomen, and one situated laterally on each side; the lateral veins passed up to the axilla and veins of the arms, the two in front joined the epigastric and intercostal mammary veins on the front of the chest wall; there were also some large channels from the thyroid veins. All these large veins were tortuous, and the current of blood was shown, on exercising pressure, to be traveling from above downward.

The patient left the hospital again and enjoyed fairly good health for the next twelve months; he could walk about with comfort, but was not capable of exertion or active exercise. In November, 1909, he began to be troubled with cough and dyspnea, and was readmitted to the hospital. There was then increasing cyanosis and edema of the right arm, neck and chest, and the lower part of the abdomen was also swollen, but not the legs. The veins were all more distended and loaded, and the intercostal veins were very prominent, but no pulsation could be seen or felt in the external jugulars. The heart was noticed to be markedly displaced downward; the apex beat was in the sixth intercostal space. He complained of pain around the left side of the chest and under the scapula. He became rapidly worse, and signs of hydrothorax supervened. He died on Jan. 13, 1910, having lived only one month on eighteen months from the time the aneurysm ruptured into the vein.

A necropsy was performed. At the upper part of the right side of the thorax there was a mass consisting of the aneurysm, distended superior vena cava, right auricle, lung and pleura, intimately adherent together; the heart was greatly displaced downward and was placed somewhat transversely, so that the upper border of the right auricle was at the level of the fourth interspace. All the external veins were greatly dilated, and the *venæ azygos*, major and minor, were also much dilated. The heart was slightly enlarged. The aorta was dilated and very atheromatous, and from the right and posterior part of the first part of the arch an aneurysm of the size of a Tangerine orange protruded toward the right side, pressing on and partly enveloping the superior vena cava; above, this vein was greatly dilated. The aortic valves were competent. There was a second aneurysmal dilatation at the junction of the second and third parts of the aorta. The other organs were healthy.

Lancet, London

October 8

16 *Hereditary Aspects of Nervous and Mental Diseases. F. W. Mott.

17 *Meaning of Audible Signs in Mitral Stenosis. A. Morison.

18 *Active Lobar Collapse of the Lung After Abdominal Operations. W. Pasteur.

19 Ehrlich-Hata "606." W. E. Hoime.

20 See Abstract No. 1.

17. Meaning of Audible Signs in Mitral Stenosis.—The case reported by Morison exemplifies a common clinical experience, namely, that of the existence of unsuspected valvular

disease. A well-made man, unemployed but employable, is exhausted, and doubtless depressed, by a long and fruitless search for work, takes insufficient food for a fatiguing journey, develops a suppurative tonsillitis, and when apparently convalescent suddenly finds himself overwhelmed by cardiac palpitation. After recovery a short recurrence of tonsillitis with some rise of temperature induces an arrhythmic action, which suddenly blazes into a short and sharp tachycardia, which subsides as suddenly as it arose. Morison maintains that these disturbances of cardiac motion are originated in the nervous, not in the muscular system of the heart, and that they may be induced by any exertion, emotion, enfeeblement, or reflex irritation, which tends, under certain circumstances, by accelerating the action of the heart or otherwise, to cause the muscular factor in this or that part of the organ to escape from the control of the nervous system.

The physical signs on which Morison dwells more particularly are the absence of bruit in the tachycardiac heart; the triple rhythm audible at the apex; the so-called crescendo murmur so characteristic of this lesion in many cases; and the arrhythmia. In the case related there were four phases as regards the audible signs:

1. A period of accelerated regular action, in which the first and second sounds resembled one another in duration and character, a "tic-tac" rhythm, as it has been called, in which no adventitious bruit was audible.

2. A period of slow action, in which there were triple rhythm at the apex and reduplication of the second sound at the base, when bruit was likewise absent, except in so far it was represented by a bruit-like admixture or modification of the last of the sounds at the apex.

3. A period somewhat suddenly inaugurated by the complete presence of a characteristic and loud crescendo murmur at the apex, accentuated first sound, and disappearance of the triple rhythm, while the reduplication of the second sound persisted—the time interval or duration of this reduplication at the base being the same, so far as the ear could determine, as when the triple rhythm with slow rate was present.

4. A period just prior to the relapse of this case into the second tachycardia, when the heart was arrhythmic, moderately accelerated (114), and still presented the presystolic crescendo bruit, which was abolished by the succeeding regular tachycardia, the latter being suddenly followed by triple rhythm, slow rate, and a bruit noted as diastolic; this, again, yielding to the characteristic presystolic crescendo murmur with restored cardiac force, with which the patient left the hospital.

18. Active Lobar Collapse of the Lung.—The cases described by Pasteur prove, he says, as conclusively as clinical evidence can prove, that sudden deflation of large tracts of lung may occur after certain surgical operations with a fairly well-defined train of attendant symptoms and physical signs.

Case 1.—Radical cure of hernia; active collapse of the right lower lobe 24 hours after operation; recovery.

Case 2.—Abscess in the right side of the abdomen following operation for right inguinal hernia; incision and drainage; active collapse of the right lower lobe on the fourth day; recovery.

Case 3.—Left salpingectomy for pyosalpinx; active collapse of the left lower lobe on the third day; recovery.

Case 4.—Cholecystitis; cholecystectomy; massive collapse of the right, middle and lower lobes early on the fourth day; recovery.

Case 5.—Gall-stone colic; cholecystotomy; active collapse of the right lower lobe on the second day, with recurrent attacks of heart failure; recovery.

Pasteur looks on these five cases as clear examples of active lobar collapse from reflex inhibition of the diaphragm, occurring most probably in otherwise fairly healthy lungs, and in the absence of inflammatory lesions of the diaphragmatic pleura or peritoneum, such as are almost invariably found in fatal instances of the condition after surgical operations on the abdomen. As to the cause of active lobar collapse in these cases, Pasteur says the following points are to be noted:

1. The cases of diphtheritic paralysis quoted above prove beyond question that arrest of diaphragmatic movement does cause massive lobar collapse of the lung.

2. The entire series of fatal cases (other than those due to paralysis) have, without exception, this feature in common, namely, the existence of a powerful source of irritation in the neighborhood of the diaphragm within the area supplied by the vagus—that is to say, a condition of things in which reflex inhibition of that muscle might very readily be set up.

3. In four out of five cases the lung affected is on the same side as the operation wound.

4. The disappearance of apex beat and heart sounds from the normal position and their displacement toward the affected side.

5. The sudden overdilatation of the unaffected lung.

6. The almost complete silence over the affected lobe.

In the face of this evidence, Pasteur continues, it is difficult to resist the conclusion that arrest of diaphragmatic movement is the cause of massive lobar collapse in these cases; indeed, it seems almost impossible to account for the facts observed on any other hypothesis.

Journal of Tropical Medicine and Hygiene, London

October 1

- 20 Goundou, W. Burrows.
21 Investigation of Pellagra. L. W. Sambon.

Dublin Journal of Medical Science

October

- 22 Schinznach-les-Bains. J. Little.
23 Colloids and Some of Their Biologic Relations. W. G. Smith.
24 Present Position of Tuberculin Therapy. W. Leggett.

Glasgow Medical Journal

October

- 25 Advice to Patients in Bellefield Sanatorium, Lanark. J. W. Allan.
26 *Problems in Infant Feeding. L. Findlay.
27 Acute Leukemia. J. S. Dunn.
28 Strangulated Femoral Hernia. J. Morton.
29 *Double Central Blindness Following Injury to the Head by a Fall. L. Buchanan.
30 Old Glasgow Institutions with Medical Associations. H. A. McLean.

26. **Problems in Infant Feeding.**—During the past few months Findlay has gathered some information regarding weaning of babies. He quotes statistics relating to 200 cases. Of the mothers, 95.5 per cent. had milk at the beginning; 91.5 per cent. had sufficient milk for the first month; 69.5 per cent. suckled their children for at least six months; and 29 per cent. for twelve months or longer. Of the 58 children weaned before six months, 32 were taken off the breast during the first month; 14 during the second month; 8 during the third month; 3 during the fourth month; 1 during the fifth month. Of those weaned during the first month the causes were: disappearance of milk, 9 cases; abscess of the breast, 4 cases; puerperal fever, 3 cases; menstruation, 1 case; child being sent out to nurse, 3 cases; child not having the strength to suck, 2 cases; mother having rheumatism, 1 case; mother going out to work, 1 case; unknown, 7 cases. Weaning during the second month was occasioned by illness of mother in 2 cases; illness of child in 1 case; child being sent to hospital in 1 case; mother going out to work in 1 case; milk disappearing in 3 cases; milk not being considered good in 1 case; inflamed breasts in 1 case; child refusing to suck in 1 case; causes unknown in 3 cases. In the third month no cause was given in 3 cases; the milk disappeared in 3 cases; in 1 case the medical adviser considered the mother too weak to suckle; and in another case the child did not seem to be thriving. The child being sent to hospital with bronchitis, the mother developing mastitis, and the milk disappearing were the causes of weaning the three children during the fourth month. No cause was given for the case weaned during the fifth month.

The chief point of interest in the above statistics is the large proportion of children weaned during the first month, and it would thus seem, says Findlay, that if a mother can manage to suckle her child for the first month there is great probability that she will be able to continue breast-feeding for at least six months. In only 8 per cent. of all cases was the cause of weaning before six months really due to want of milk.

29. **Double Central Blindness.**—Buchanan's case is interesting, especially in view of the fact that, as a result of a fall on the street and striking the back of his head on the causeway stones, the man lost the power of central vision of both eyes while peripheral vision remained but little altered. Vision of each eye was very markedly reduced, being only 2/60 in the right eye and 1/60 in the left. Perimetric examination revealed the fact that there was but little contraction of the peripheral parts, but that there was a distinct central scotoma, of small size only, in each eye.

Clinical Journal, London

October 5

- 31 Abscess and Fistula. F. S. Edwards.
32 Meningococcus Meningitis. J. H. Thursfield.

Medical Press and Circular, London

September 28

- 33 Vaccines of Scarlet Fever. E. Wardman Willbourne.
34 Mongolianism. J. M. Bligh.
35 Bee-Sting Treatment of Rheumatism. J. Knott.

October 5

- 36 Certain Results of Cerebral Arteriosclerosis. J. W. Russel.
37 Abortive Treatment of Syphilis. H. Hallepeau.
38 Excision of Carcinoma of the Rectum by Combined Abdominal and Sacral Routes. R. A. Stoney.

Journal of Laryngology, Rhinology and Otology, London

October

- 39 Aural Tuberculosis in Children. W. Milligan.

Presse Médicale, Paris

September 28, XVIII, No. 78, pp. 721-728

- 40 Hydrotherapy during Pregnancy. M. G. Koim.
41 Swallowing of Air. (L'aérophagie.) M. G. Schreiber.
42 The Humoral Doctrine in the Past and Present. (L'humorisme ancien et l'humorisme moderne.) C. Richet.
43 Endovesical Segregation of the Urine and Catheterization of the Ureters. G. Luys.

Semaine Médicale, Paris

October 5, XXX, No. 40, pp. 469-480

- 44 Incomplete Forms of Exophthalmic Goiter. (Quelle est la signification nosologique des formes frustes de la maladie de Basedow?) F. Rose.

Beiträge zur Klinik der Tuberkulose, Würzburg

XVII, No. 2, pp. 151-277. Last indexed Sept. 17, p. 1060

- 45 Displacement of Organs with Chronic Pulmonary Tuberculosis. (Organverlagerungen bei Phthise.) E. Ruediger.
46 Vaccination of Cattle against Tuberculosis. (Impfung gegen die Tuberkulose der Rinder.) M. Klümmer.
47 Complement Binding in Tuberculosis. H. Much and H. Boessli.
48 Simplified Record of Tuberculin Dosage. R. Nuttray.
49 Development of Tuberculin Sensitiveness in Children. (Entwicklung der Tuberkulinempfindlichkeit beim Kind.) F. Hamburger.
50 Development of Sensitiveness to Tuberculin in Animals and Primary Local Manifestations of Tuberculosis. F. Hamburger and T. Toyofuku.
51 Tuberculin Cutaneous and Conjunctival Reactions with Varying Concentration of Tuberculin. J. Lossen.
52 The Tuberculin Cutaneous Reaction. (Therapeutische Bedeutung der v. Pirquetschen Impfung.) W. Münch.

Berliner klinische Wochenschrift

September 26, XLVII, No. 39, pp. 1773-1812

- 53 Experimental Research on Treatment of Strychnin Poisoning with Aid of Intratracheal Insufflation. A. O. Shalke and S. J. Meltzer.
54 Pathology of Acute Articular Rheumatism. E. Mosler and B. Valentin.
55 *Floating Capsule Test of the Functioning of the Stomach. (Zur Untersuchung des Magens mit Wismutkapseln.) M. Cohn.
56 Recovery after Resection of the Pylorus in Four Cases. S. Berjushinski.
57 *Inherited Diatheses in Children. (Die Konstitutionslehre in der Kinderheilkunde.) P. Heim.
58 Serologic Research on Relation between Syphilis and Internal Disease. (Beziehungen der Syphilis zu Nerven- und anderen inneren Erkrankungen auf Grund von 573 serologischen Untersuchungen.) R. Ledermann.
59 Ehrlich's "606" in Out-Patients. E. Kronmayer.
60 Wassermann Reaction in Diagnosis of Syphilis. (Syphilis-Mikrodiagnostikum.) C. S. Engel.
61 Momburg Belt Constriction to Combat Postpartum Hemorrhage and to Obviate Manual Separation of the Placenta. F. Heymann.
62 Modern Tendencies in Treatment of Fractures. H. Coenen.

55. **Floating Capsule Test of Stomach Functioning.**—Cohn gives the patient a capsule containing 1 gram of bi-muth and in a few minutes it can be seen at the lowest part of the stomach. The test meal is then taken, and another capsule with half a gram of bi-muth is then swallowed. This floats on the surface of the stomach content until it finally lands beside the first capsule. With a test cauliflower meal the capsule sinks through the fluid portion of the stomach content and floats on the more solid stratum, while with a meat test meal there is no such stratification of the stomach content and the capsule floats on the top of the stomach content. He explains this by the stimulation of gastric secretion by the meat; this digests and renders the mass more homogeneous. It is thus possible to detect gastric achylia by this means, having the two capsules swallowed together. If there is no gastric secretion both capsules float side by side on the stomach content until it is all evacuated, while with gastric secretion and consequent digestion, the heavier capsule sinks downward earlier. Cohn was able to see by the moving shadow of the floating capsule the pulsation of the left ventricle in a case of aortic insufficiency. The capsule had been swallowed after a glass of milk. It is even possible in this way to distinguish the single phases of the systole and diastole.

57. **Constitutional Pathologic Tendencies in Children.**—Heim remarks that a bird's-eye view of the history of medicine in the last hundred years shows a periodical prevalence and recurrence of medical conceptions which he explains as a result of a periodical prevalence and recurrence of certain constitutional tendencies. They are not passing fashions thought but the logical outcome of the conditions that confront practitioners in different decades. The vogue of venesection two generations ago is a typical instance of this; people were shorter, stockier, and more plethoric, and venesection then was urgently indicated. Now the predominance of the thin, the nervous and the anemic forbids venesection for the majority of patients although its importance under proper indications is recognized. Not only the conditions of life and hygiene, but also the character of the pathogenic microbes are constantly varying. Children used to thrive on milk, eggs, meat and butter, and some do so still; but, he declares, if we attempt to push such a diet for the children of the present day, fully 70 per cent. will grow thin and pale and lose their appetite. Any attempt to feed such infants with fat, especially the fat of milk, or any overfeeding is liable to be followed by the development of eczema, milk crust, urticaria, prurigo, recurring pharyngitis or coryza, bronchitis, adenoid vegetations, mucous stools, etc. With restriction of the ingestion of fat, the symptoms subside. Finkelstein ascribes this to exudative diathesis to defective metabolism, but it is not necessary to go back of the simple fact that these symptoms are elicited by fat in the diet and tend to subside when the intake of fat is reduced. It is remarkable, Heim continues, that it is the fat of cow's milk which is most injurious; the infants can frequently bear pig fat or cod liver oil much better. He has seen eczema heal under a course of cod liver oil. There is nothing in these children to reveal the tendency to this diathesis until the manifestations develop. In children with the exudative diathesis the reaction to tuberculous infection assumes the familiar picture of scrofula. The larger part of the clinical picture of scrofula is an artificial product, the result of forced feeding with milk, eggs and butter or overfeeding of any kind, and this part of the clinical picture may be eradicated by dieting, while a course of tuberculin may modify for the better the tuberculous element in the syndrome. Scrofula is the exudative diathesis plus tuberculosis. This diathesis modifies likewise the reaction to all other infections. It is an everyday experience that such children take vaccination very hard and that they are particularly susceptible to "children's diseases," especially scarlet fever. This disease is less common than measles as many children seem to be immune to it, and since Czerny's views in regard to the proper diet and treatment of children with the exudative diathesis have been practically applied to the children in Breslau by himself and physicians trained in his service, the number of cases of scarlet fever in the town has fallen off to a remarkable extent. Heim goes still further and asserts that the severer form of scarlet fever, fatal in three or four days, occurs only in children with the exudative diathesis plus a neuropathic constitutional tendency. Malignant scarlet fever is analogous to the "fatal driving-in of eczema" which we now know to be the toxic sepsis of infants with the exudative plus the neuropathic tendency. The latter tendency, he continues, may be recognized by the floating tenth rib and flabby muscles, the general nervousness and unstable temperature. With this tendency alone a change from breast to cow's milk is often beneficial. The change to artificial feeding should generally be reserved for the pure neuropathic constitution. The latter is usually associated with the exudative diathesis, and in this event any fat in the artificial diet will do harm. In these cases the superposed injurious influence of both diatheses is apparent; no change of diet seems to benefit and some intercurrent infection is liable to carry off the infant. The indications in these cases are for exclusive or mixed whey or buttermilk diet. Prurigo is a symptom of the exudative diathesis, he says, but the itching reveals the neuropathic tendency, as also the croup and asthma in the laryngitis and bronchitis due to the exudative diathesis. Further research on prevailing constitutional tendencies viewed from a broad outlook will certainly, Heim

declares, open new horizons for successfully influencing the health of the rising generation.

Deutsche medizinische Wochenschrift, Berlin

September 29, XXVI, No. 39, pp. 1785-1832

- 63 Dysmenorrhoea. A. Sippel.
- 64 Ehrlich's "606" in Syphilis. (Weitere Erfahrungen bei syphilitischen para- und metasyphilitischen Erkrankungen mit Ehrlich-Hata-Injektionen.) G. Treupel.
- 65 *Idem. (Einfluss des Ehrlich-Hataschen Mittels auf die Spirochäten beim kongenitalen Syphilis.) G. Herxheimer and F. Reinke.
- 66 Ehrlich's "606" in Malaria. H. Werner.
- 67 Minimum of Normal Metabolism. (Minimum des Erhaltungsumsatzes.) A. Loewy and F. Hirschfeld.
- 68 Constancy of Substance Metabolism. A. Loewy.
- 69 *Indications and Contraindications for Lumbar Puncture. H. Curschmann.
- 70 Typhoid. (Zur Klinik und Prophylaxe des Unterleibstypus.) A. Zweig.
- 71 Bacteriologic Examination in Tuberculosis of Urinary Apparatus. G. Schuster.
- 72 Pepsin in the Urine as Sign of Gastric Cancer. (Harnpepsin als differentialdiagnostisches Kriterium zwischen Carcinoma ventriculi und Apepsia gastrica.) K. Takeda.

65. **Influence of Ehrlich's "606" on Inherited Syphilis.**—Herxheimer and Reinke examined post mortem the organs of two infants, about two months old, who had been given "606" two and four days before death, the condition being practically hopeless at the time. No normal spirochetes could be discovered in any of the organs and all the organs were free from them except the lungs; here spirochetes were found but all were agglutinated or degenerated or nearly or quite destroyed. These findings were remarkable in comparison with the large numbers of spirochetes found so constantly in the organs of children with such serious signs of inherited syphilis as these infants presented. The restriction of the spirochetes to the lungs may be due to a possibly longer survival in the presence of oxygen.

69. **Lumbar Puncture.**—In this address delivered at the annual meeting of the Mittelrheinischer Aerzte, Curschmann pleads for the more general adoption of lumbar puncture both for diagnosis and as a curative measure, extolling its value and insisting on its comparative harmlessness. He regards it as far more important for the early diagnosis of tabes or paresis than the Wassermann reaction in the blood serum. Only the cytologic and chemical examination of the cerebrospinal fluid gives decisive findings in these cases, disclosing or excluding these diseases by the local findings. In all forms of meningitis, he declares, lumbar puncture is of the greatest symptomatic and very frequently of direct curative importance, and should be the first thing done in every form of meningitis. Among the cases he cites to illustrate this is one of metastatic suppurative meningitis after erysipelas, a typical instance of a post-traumatic infection of the meninges after a fall on the back of the neck and head. The severe streptococcus meningitis rapidly healed after a single lumbar puncture releasing about 30 c.c. of fluid under a pressure of over 300 mm. He has also witnessed similar benefit in fibrinous-suppurative meningitis following pneumonia or influenza, and also prompt symptomatic relief when convulsions and other symptoms indicated merely increased pressure of the spinal fluid without inflammation. In the tuberculous form the outlook is less promising, but Stark and others have reported recoveries under systematic lumbar puncture, and Curschmann has encountered three cases of tuberculous meningitis in which the disease progressed with long remissions and necropsy revealed old and recent lesions in the meninges. The spontaneous improvement observed in these cases, although transient, suggests the necessity for more active measures in treatment of tuberculous meningitis, especially repeated lumbar puncture. Likewise in hemorrhagic internal pachymeningitis lumbar puncture may cure; this happened in two out of three cases of this variety, the recovery persisting to date, two and three years later, and the other patient was materially improved for several months. Neisser and Pollack have reported cures from puncture of the brain in such cases, but lumbar puncture should be given a trial first. The diagnostic importance and therapeutic efficiency of lumbar puncture for symptoms following trauma of the skull are demonstrated in other cases cited. The headache and vertigo subsided in some cases after the puncture even when the

fluid seemed to be normal, as in the case of one patient not punctured until five weeks after the accident. A traumatic neurosis had seemed inevitable in this case but the patient recovered completely after the puncture. He insists that if lumbar puncture were applied as a routine measure after every accident to the head, the present conception of the purely functional nature of the disturbances observed would often have to be revised. In his seven years' extensive experience with lumbar puncture he has observed only one threatening collapse and that was in an obese patient with syphilitic spastic paralysis who required camphor injections to combat the collapse that followed the puncture. Curschmann punctures with the patient reclining on his side and advises this position, at least for the very impressionable, for arteriosclerosis and patients with weak hearts. He had one tragic mishap; suppurative meningitis developed 4 days after a diagnostic lumbar puncture in a woman of 58 suspected of progressive paresis. The most serious contraindication for lumbar puncture, he continues, is the presence of a tumor or of accumulated blood in the posterior cranial fossa, especially in the cerebellum. But even with a tumor, lumbar puncture may give great relief and ward off choked disc and blindness. Oppenheim and others have reported fatalities from this cause and Curschmann had one similar experience, the lowering of the pressure in the spinal canal causing a small tumor protruding into the fourth ventricle to be sucked against the foramen magnum. It is possible, he adds, that if a sterile fluid had been injected under pressure into the spinal canal when alarming symptoms developed, the counter-pressure might have opened up the foramen again. In a certain proportion of cases, however, the supposed tumor proves to be merely a serous meningitis or hydrocephalus and lumbar puncture is directly curative. In one such case recently the suspicion of a tumor in the cerebellum prevented the proposed lumbar puncture but necropsy revealed nothing to explain the symptoms but internal hydrocephalus; the fluid might possibly have been easily drained away.

Münchener medizinische Wochenschrift

September 27, LVII, No. 39, pp. 2025-2072

- 73 Ehrlich's "606" in Syphilis. (Intravenöse Einspritzung des Ehrlichschen Mittels 606.) E. Schreiber.
- 74 Idem. J. Selloi.
- 75 Idem. G. Hugel and A. Ruete.
- 76 Idem. R. Sieskind.
- 77 Two Cases of Permanent Bile Fistula and Osteoporosis. II. Seidel.
- 78 Care Before and After Laparotomies. (Vor- und Nachbehandlung bei Bauchoperationen, insb. frühzeitige Aufstehenlassen.) A. Krecke.
- 79 Intermittent Limping with Ischemia Followed by Hyperemia. (Fall von Dysbasia angiosclerotica.) L. Fiseher.
- 80 Method of Enhancing Action of Local Anesthetics. O. Gros and A. Löwen.
- 81 Acute Poliomyelitis Epidemic in St. Petersburg. M. Joghichess.
- 82 Medical Impressions of Eastern Africa. M. Hahn.

Wiener klinische Wochenschrift, Vienna

September 29, XXVIII, No. 39, pp. 1367-1402

- 83 Bacteriologic Examination in Typhoid. A. Weisskopf.
- 84 Ehrlich's "606" in Syphilis in Children. R. Kalb.
- 85 Ehrlich's "606" in Syphilis. A. v. Torday.
- 86 Putrefaction Properties of Acolic Stools. (Studien über Darmfäulnis. VI.) A. Rodella.

Zentralblatt für Chirurgie, Leipzig

October 1, XXXVII, No. 40, pp. 1305-1336

- 87 Surgery of the Trifacial Nerve. (Operationen am Nervus trigeminus.) L. J. J. Muskens.
- 88 Infection of the Epicondyle of the Humerus. (Epleondylitis humeri.) H. Vuillet.

Zentralblatt für Gynäkologie, Leipzig

October 1, XXXIV, No. 40, pp. 1281-1320

- 89 *Sign of Twin Pregnancy. (Neues Zeichen für die Diagnose der Zwillingschwangerschaft.) C. J. Gauss.
- 90 Medicolegal Estimate of Duration of Pregnancy. (Schwangerschaftsdauer vor Gericht.) W. Poten.

89. Sign of Twin Pregnancy.—Gauss calls attention to the frequent oblique anterior parietal presentation of the head of the first twin. The sagittal suture lies oblique and so close to the sacrum that the entire anterior parietal bone can be easily palpated. He describes three typical cases with illustrations; the pressure from the second fetus twists the head, already in the pelvis, of the first twin into an extreme Nägele oblique presentation. He states that there were 58 twin

births in 4,014 deliveries at the Freiburg clinic and he found this sign in 54.5 per cent. of the 11 cases in which the head of the first twin presented. It can scarcely be recognized except by examination through the vagina. It does not occur with every twin vertex presentation as the first head may be twisted around as under normal conditions, but when it is present it may be accepted as a certain sign of twins.

Gazzetta degli Ospedali e delle Cliniche, Milan

September 27, XXXI, No. 116, pp. 1225-1232

- 91 *Prophylaxis of Echinococcus Disease. P. Barabasci.

91. Prophylaxis against Echinococcus Disease.—Barabasci suggests immunizing dogs against the echinococcus and thus breaking the chain of this pathologic cycle. His experiment gave promising results, the antibodies generated in the females being transmitted to their puppies. He injected the animals for months with fluid from echinococcus cysts and then fed them with large amounts of tapeworm heads. They seemed to tolerate and expel the tapeworms without injury, no parasites being discovered in the animals when they were killed over 2 months later.

Riforma Medica, Naples

September 26, XXV, No. 39, pp. 1065-1092

- 92 Hyperchlorhydria. (Gastropatie dinamiche secretorie peccesso.) G. Rummo.
- 93 Pharyngeal Hypophysis in Man. G. Arena.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

STUDIES ON LEPROSY. IX. Mosquitoes in Relation to the Transmission of Leprosy. X. Flies in Relation to the Transmission of Leprosy. By Donald H. Currie, Passed Assistant Surgeon and Director Leprosy Investigation Station. XI. Heredity Versus Environment in Leprosy. By Harry T. Hollman, Acting Assistant Surgeon Leprosy Investigation Station. P. H. and M.-H. S. Pub. Health Bull. 39, P. H. and M.-H. S., September, 1910. Paper Pp. 50. Washington: Government Printing Office, 1910.

A SYSTEM OF SYPHILIS. In Six Volumes. Edited by D'Arcy Power, F. R. C. S., and J. Keogh Murphy, F. R. C. S. With Introduction by Sir Jonathan Hutchinson, F. R. S. By Various Authors. Cloth. Price, \$13.50. Vol. V, pp. 356, with illustrations. Vol. VI, pp. 514, with illustrations. New York: Oxford University Press, 1910.

INDEX-CATALOGUE OF MEDICAL AND VETERINARY ZOOLOGY. Part 30. (Authors: T to Thon.) Pp. 2327-2386. Part 31. (Authors: Theodor to Utz.) Pp. 2387-2442. Part 32. (Authors: V to Vyner.) Pp. 2443-2508. By Ch. Wardell Stiles, Ph.D., Consulting Zoologist, Bureau of Animal Industry, and Albert Bassall, M. R. C. V. S., Assistant Zoologist, Bureau of Animal Industry. Paper. U. S. Department of Agriculture, Bureau of Animal Industry—Bull. No. 39. Washington: Government Printing Office, 1910.

APPLIED ANATOMY. The Construction of the Human Body Considered in Relation to Its Functions, Diseases and Injuries. By Gwilym G. Davis, M.D., Associate Professor of Applied Anatomy, University of Pennsylvania. Cloth. Price, \$6. Pp. 630, with 630 illustrations by E. F. Faber. Philadelphia: J. B. Lippincott Co., 1910.

A SYLLABUS OF A COURSE OF CLINICAL LECTURES ON MENTAL AFFECTIONS. Designed as a Note-Book for the Use of Students. By J. Montgomery Mosher, M.D., Clinical Professor of Insanity, Neurology and Electro-Therapeutics, Albany Medical College. Cloth. Price, \$2. Pp. 158. 1911.

A HANDBOOK OF THE SURGERY OF CHILDREN. By E. Kimmission, Professor of the University of Paris. Translated by J. Keogh Murphy, F. R. C. S., Surgeon, Miller General Hospital for South East London. Cloth. Price, \$7. New York: Oxford University Press, 1910.

ALCOHOLISM AND INSANITY. By Charles L. Gregory, M.D., Superintendent of the North Texas Hospital for the Insane. With an Introduction by J. B. Gambrell, D.D., Editor Baptist Standard. Cloth. Price, \$1.50. Pp. 159. 1910.

TRANSACTIONS OF THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS. Vol. XXII. For the Year 1909. Cloth. Price, \$5. Pp. 329, with illustrations. W. W. Potter, Secretary, 238 Delaware Ave., Buffalo, 1910.

DISEASES OF THE STOMACH AND UPPER ALIMENTARY TRACT. By Anthony Bassler, M.D., Visiting Gastro-Enterologist to the Peoples Hospital. Cloth. Price, \$6. Pp. 836, with 108 illustrations. Philadelphia: F. A. Davis Co., 1910.

FRACTURES AND THEIR TREATMENT. By J. Hogarth Pringle, F. R. C. S. (Eng.). Glasgow. Cloth. Price, \$5.50. Pp. 384, with 144 illustrations. New York: Oxford University Press, 1910.

CHRONICLES OF PHARMACY. By A. C. Wootton. In two volumes. Vols. I and II. Cloth. Price, \$6.50 net. Pp. 760, with illustrations. New York: The Macmillan Co., 1910.

SEVENTH ANNUAL REPORT OF THE BARLOW SANATORIUM (Incorporated). Chavez Ravine, Los Angeles, Cal. Paper. Pp. 43, with illustrations. Sept. 1, 1910.

The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOL. LV, No. 20

CHICAGO, ILLINOIS

NOVEMBER 12, 1910

KIDNEY AND URETERAL STONES*

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It is my purpose in the present paper to confine myself chiefly to a discussion of the diagnosis and complications of kidney and ureteral stones, and to report a case of more than usual interest. Concerning the number and size of these concretions I have nothing of interest to report except that in the case herewith reported the combined weight of the stones removed from the ureter was 1.920 grains (1 ounce), the largest single stone weighing 1.420 grains. So far as my knowledge goes this is the largest stone ever removed from the ureter, and the collection exceeds in weight any other collection removed from a single ureter.

CASE 1.—In my experience the youngest patient was a girl baby, which, when less than six months old had numerous attacks of ureteral colic and passed a teaspoonful of calculi ranging in size from a millet-seed to a wheat-grain. At four years of age this child was operated on by me for a stone in the bladder. A report of this case was published,¹ and it is pertinent to remark that this patient remained well up to April of this year.

That these concretions may be carried for long periods of time with no, or slight, subjective symptoms, is borne out by reported cases. Young² reports a case in which the stone was carried twenty-seven years. In my case, above referred to, a detailed report of which is appended, the stone was carried for fifty-three years. During this time the patient led a busy life as student, lawyer and jurist.

SYMPTOMS ACCOMPANYING STONE

The first symptoms complained of may call attention to the bladder as the seat of the trouble, and these symptoms may be the occasion for consulting the surgeon. Lillenthal,³ Belfield⁴ and Cabot⁵ have reported cases illustrating this point.

CASE 2.—One of my patients, a woman, was brought to me because of intense bladder pain and tenesmus with incontinence and stinking urine. The patient was so seriously sick and the suffering was so intense that it was thought best to do an immediate cystotomy and allow the patient to recuperate somewhat before attacking the kidney. The cystotomy relieved the pain and the acuter symptoms of sepsis, the woman gained in strength and two weeks later was nephrectomized, a kidney containing many stones and abscesses being removed.

The coexistence of kidney and bladder stones is so frequent that it should be the rule of surgeons always to examine the bladder in cases of kidney and ureteral stone, and the kidney and ureter in cases of bladder stone.

CASE 3.—Mr. T. came to me complaining of intense and constant bladder pain. An examination revealed a stone in the bladder, which was removed. No x-ray of the kidney was taken, as no kidney symptoms were complained of. He left the hospital improved, but did not get well, and was forced to return to the hospital four and a half months later for the removal of an abscessed kidney with stones, which should have been recognized and remedied when the bladder work was done.

Beck⁶ says that since he has been using the x-ray in his kidney work he has found stones in the kidney in every case of bladder-stone.

As our knowledge of the subject grows the rôle of infection as an etiologic or a complicating factor in urinary lithiasis becomes more and more prominent. This fact has an important bearing on both the diagnosis and the treatment.

McGuire⁷ and Schlagintweit have reported cases of appendicitis simulating ureteral stone and causing ureteritis. Bevan⁸ in 1,500 appendix operations found four cases in which the cause of the attacks was kidney or ureteral stones. In the case of fibrinous calculus reported by Gage and Beal⁹ ureteritis was present, and it is highly probable that infection was the prime etiologic factor in many if not all cases of this kind that have been reported.

The frequency with which bacteria of different kinds are found forming the nuclei of urinary calculi is so well known that mere mention of the fact is sufficient at this time.

Robinson¹⁰ and others have reported cases of nephritis with hemorrhage simulating kidney-stone. In the case of Gage and Beal above referred to, there were infarcts in the kidney and these authors ascribe the formation of the calculi to the hematuria. One such case has come under my notice.

CASE 4.—The patient was a male who was known to have a chronic interstitial nephritis, but who was referred to me because of severe pain simulating kidney colic, with partial suppression of urine. He was found to have a tender, enlarged right kidney. The x-ray showed no stone. Nephrotomy revealed a hemorrhagic kidney with blood clots in the pelvis and ureter. The patient was not relieved by the operation and died two days later. Post-mortem examination confirmed the diagnosis. It is perhaps worthy of remark that in this case a diagnosis of appendicitis had been made by another surgeon and an appendectomy recommended, but refused.

* Read in the Section on Surgery of the American Medical Association, at the Sixty-first Annual Session, at St. Louis, June, 1910.

1. *Ann. Surg.*, December, 1901, xxxiv, 819.

2. *Ann. Surg.*, xxxvii, 679.

3. *Ann. Surg.*, xxlii, 257.

4. *New York Med. Rec.*, May 14, 1887.

5. *Disorders of the Bladder*, p. 99.

6. *Ann. Surg.*, xlii, 869.

7. *THE JOURNAL A. M. A.*, Jan. 16, 1909, p. 241.

8. *THE JOURNAL A. M. A.*, Feb. 26, 1910, p. 666.

9. *Ann. Surg.*, lviii, 378; li, 111.

10. Robinson, E. P.: *Kidney Conditions Simulating Renal Calculi*, *THE JOURNAL A. M. A.*, April 17, 1909, p. 1255.

STONE AS A CAUSE OF CANCER

That stone in the kidney or ureter may be the cause of cancer is acknowledged by most writers on the subject. My limited experience, coupled with the result of an inquiry, equally limited, among my surgical friends leads me to the conclusion that the subject is deserving of more attention than it has received. Of course the association of cancer and stone does not necessarily mean that the former was due to the latter, or, *vice versa*. But my opinion is that the association is

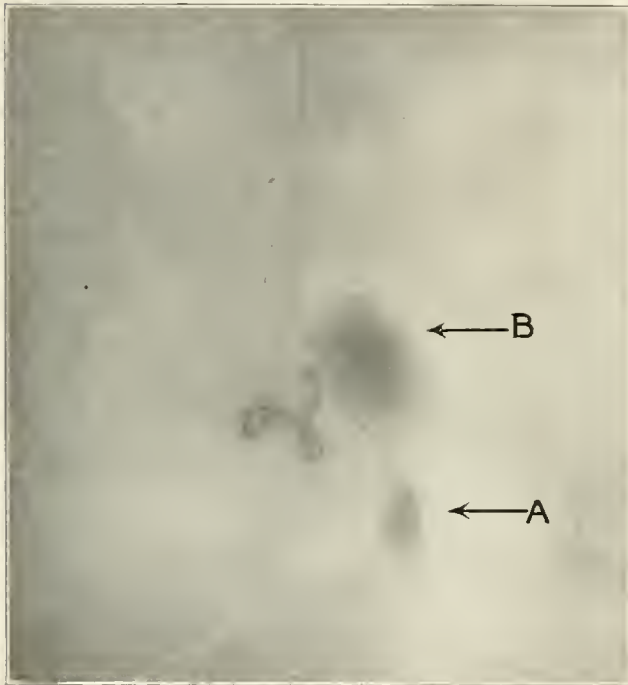


Fig. 1.—Showing one stone in (A) and one (B) just without the ureter. Catheter within the ureter.

sufficiently frequent to warrant the conclusion that stones are the cause of cancer in a sufficient percentage of cases to make the fact deserving of the attention of surgeons when dealing with nephrolithiasis.

Cancer with a large stone means that the stone was present before the cancer, and the inference is fair, I think, that it is the cause of the cancer in those cases in which the kidney cancer is primary. Two cases of kidney cancer apparently due to stones have occurred in the Mayo clinic. Both patients underwent nephrectomy; one patient was alive and well two years after the operation and the other died fifty-one days after the operation of metastasis in the liver.

Ransohoff¹¹ reported a case in 1899. He estimates the duration of the growth at twelve months and that of the calculus at a much longer time as it was large. The calculus was removed and the patient died forty-eight hours after the operation. I have had one case of cancer due to stone in my clinic (see appended report).

Pain was a dominant symptom in three of these four cases. In the two patients (one a patient of Mayo and one of mine) who lived some time after the operation, but ultimately died of the disease, the pain persisted after the operation. In one of the Mayo cases there was no pain, but the patient came to operation largely because of loss of weight and general ill health. In the other three cases it was the pain and general ill health that brought the patients to operation.

It would seem that in a certain proportion of cases of cancer of the kidney with stone, the patients come to the surgeon because of the symptoms due to the cancer rather than because of those due to the stone. Given a case of nephrotomy for stone in which pain persists, the suspicion of cancer should be aroused.

When kidney stone and cancer coexist there is usually found a large stone or many smaller ones. This is equivalent to saying that the stones have existed a long time. Hence the possibility of stone causing cancer of the kidney should lend weight to the advice of Shepherd¹² and others, that in the case of large stone, nephrectomy should be the operation of choice.

STONE AND TUBERCULOSIS

G. T. Vaughn¹³ voices the opinion of most surgeons when he says that tuberculosis of the kidney is primary in about 15 per cent. of cases, and is usually of hematogenous origin. That trauma is often the exciting cause of tuberculosis is universally acknowledged. These facts taken together would seem to warrant the assumption that tuberculosis of the kidneys may be caused by stone.



Fig. 2.—Two stones removed from A. Z. at first operation. Weight of large stone, 1,420 grains; small one, 20 grains.



Fig. 3.—Skilagraph showing three stones marked by arrows

An extensive search of the literature, however, fails, to my mind, to bear out this assumption. A large number of cases in which kidney tuberculosis and stones co-existed are reported; but in a number of cases it is quite as probable that the stones were the result of the tuberculosis as that they were the exciting cause of it. More-

11. Tr. Am. Surg. Assn., 1:49.

12. Med. News, April 23, 1887.
13. Ann. Surg., xlvii, 1:25.

over, the relatively small number of cases reported in which tuberculosis and stones coexisted renders it improbable that either is often the cause of the other. Personally I have met with no case in which stone and tuberculosis of the kidney were coexistent.

X-RAY IN DIAGNOSIS OF STONE

A few years ago I was decidedly skeptical as to the value of the *x*-ray in the diagnosis of kidney and ureteral stone, but with increasing experience and knowledge, my respect for the efficiency of this agent as a diagnostic aid increased until now I am convinced that a complete *x*-ray examination is the most reliable diagnostic agent we have.

I agree with Bevan⁸ that it is a more reliable method of examination than exploratory operation. Indeed, I have explored the kidney for stones and found none, but had a good *x*-ray picture taken which showed stones that were removed at a subsequent operation. The case herewith reported illustrates this point and further shows that when the *x*-ray findings are negative the symptoms are probably not the result of stone. I fully concur in Baeljer's¹⁴ opinion, that calculi when present can practically always be found with the *x*-ray, provided the technic and apparatus are good. Phleboliths, calcareous glands, etc., lying in juxtaposition to the ureter, may be differentiated from ureteral stones by *x*-ray pictures taken at different angles, with the stilet catheter in the ureter. No matter at what angle the picture is taken the shadow of the stone in the ureter will always be

side and that without the ureter lies to the outside. Both are ureteral stones and of the same composition, but different in shape. The upper stone holds exactly the opposite relation to the catheter to that held by the lower stone, the only other difference being that the upper stone is outside the ureter, but against it, and the lower inside the ureter. The skiagraph was made on a male cadaver weighing over two hundred pounds, with the intestines full of gas and feces. Care was exercised to place the stones in the same relative position, and

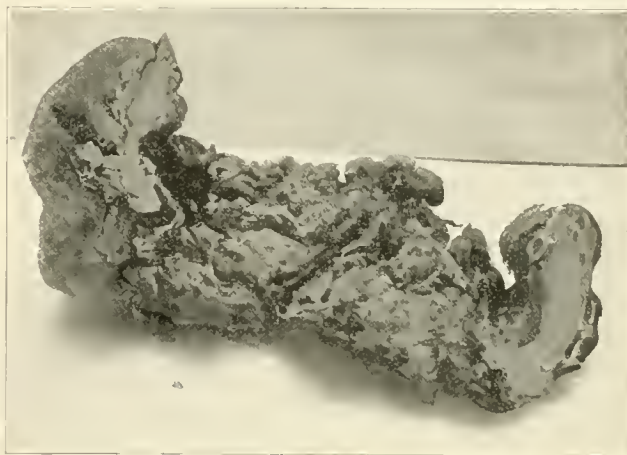


Fig. 5.—Kidney from case of A. Z. showing carcinoma caused by stone.

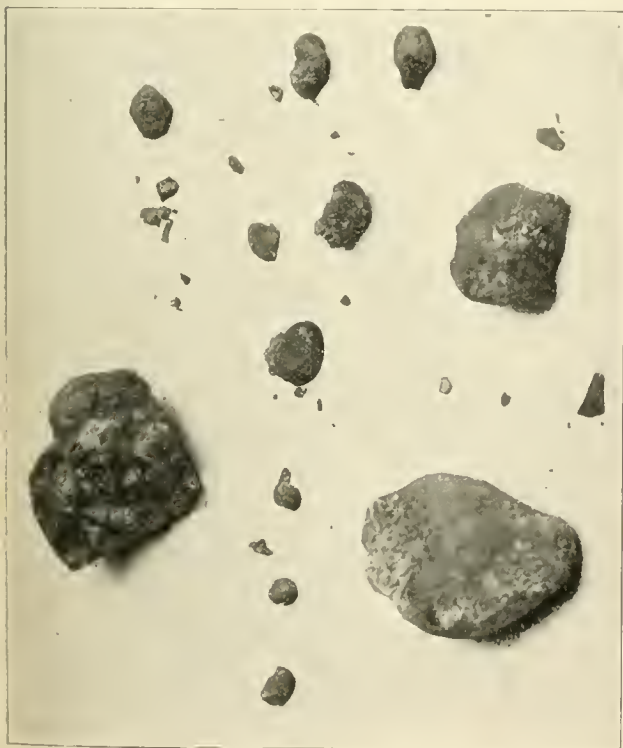


Fig. 4.—Stones removed from A. Z. at second operation; combined weight, 480 grains.

continuous with the shadow of the catheter, while the shadow of the extra-ureteral concretion will, at the proper angle, be shown at an appreciable distance from the catheter. Figure 1 is a skiagraph showing a stone in the ureter at A, and above at B, a stone lying against the ureter. The stone within the ureter lies to the in-

side after the picture was taken an examination was made to make sure that the position of the stones had not been altered by the placing of the plate or the compression of the diaphragm. Less pressure was made by the diaphragm in taking this picture than would be borne without noticeable discomfort by the average patient. The skiagraph was made by Dr. B. P. Weaver, my assistant, and the position of the stones verified by him and by Dr. Charles G. Beall, who also assisted me in the work.

Careful inquiry in cases of kidney and ureteral stone will reveal points of diagnostic import in many instances which patients, if left to themselves, will not mention. Most of the mistakes in diagnosis which I have made can be traced directly or indirectly to imperfect history taking, and this applies with especial force to nephrolithiasis.

REPORT OF CASE

CASE 5.—Synopsis.—Man, aged 69. Calculus history of 53 years. Stones aggregating in weight 1,920 grains in upper three-fourths of ureter removed at two operations. Cancer found in drain track, leading to third operation, which included removal of kidney and diseased ureter. Recovery from operation with death later from metastasis.

History.—A. Z., aged 69, married; lawyer. The patient has two sisters, both of whom are said to be scrofulous. One is thought to have cancer. Patient has never been very vigorous. When 18 years of age he had typhoid fever. When 22 years old he had a terrific attack of pain in the abdomen, which came on quickly and went off in the same way; he was out of bed the same day. This was diagnosed as an attack of ureteral colic. In 1874 he had a similar attack of pain, which lasted longer and was accompanied by fever. At this time he was sick eight or ten weeks. In 1877 he had a similar attack, but milder; in 1897, a lighter attack. In 1909 patient had a hematuria not accompanied by pain, which stopped in a few days. He had never passed any calculi. Ten or twelve years ago he passed a great deal of sand in the urine. Six weeks prior to his admission to the hospital, March 29, 1909, he commenced complaining of pain in chest, abdomen, legs and back, especially severe in left side. Hematuria developed coincidentally with

14. Johns Hopkins Hosp. Rep., 1906, xiii, 479.

the pain and was still present in April, 1909. He had constant aching pain in region of left kidney, which was seldom acute, and never cutting. He had slight burning on passing urine, also pain in glans rarely, some weeks previously did have some frequency of micturition. He had no chills or fever; appetite was poor; marked constipation; temperature and pulse were normal on entering hospital.

Examination.—Fairly nourished, sandy complexion, blue eyes, rather anemic. Temporal arteries somewhat rigid. Pres-

blood cells. Prior to the patient's entrance into the hospital two x-ray pictures were taken, both of which show a large stone apparently occupying the pelvis or upper portion of the ureter and three smaller masses lying to the outer side. A diagnosis was made of kidney and ureteral stones, with complete closure of the ureter, dating from the last attack of colic.

First Operation and Findings.—Under ether a lumbar nephrotomy was done April 1, 1909. There was found a hydrone-

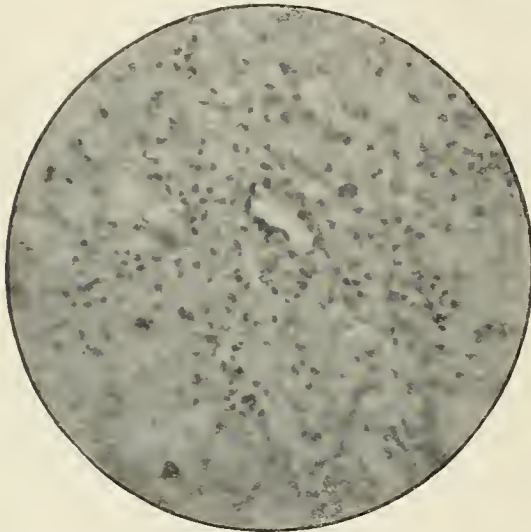


Fig. 6.—Section from kidney (Patient 5), showing interstitial nephritis; but one tubule patulous in field; 1.6 obj. (B. W. Rhamy).



Fig. 8.—Carcinomatous invasion of granulation tissue from skin wound (Patient 5); transplantation from kidney. Epithelial pearl at x; 2.3 obj. (B. W. Rhamy).

sure over left kidney caused pain. Some enlargement of the kidney apparent.

Blood Examination.—Hemoglobin 90 per cent., leukocytes 16,480. Differential count: polymuclear cells, 72.4 per cent.; large lymphocytes, 8.4 per cent.; small lymphocytes, 14.4 per cent.; transitional cells, 3.4 per cent.; eosinophiles, 1 per cent.; mast cells, 0.4 per cent.

phrosis, the amount of urine being approximately six ounces. On introduction of the finger into the pelvis of the kidney this was found to be empty. The upper part of the ureter would admit the tip of my finger with the use of slight force. Immediately below this point my finger came on the upper part of

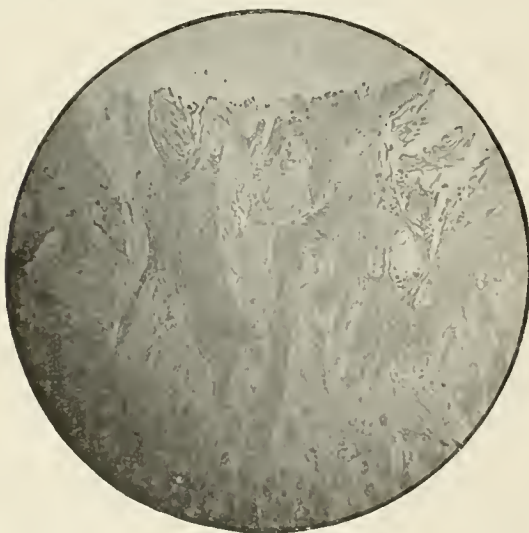


Fig. 7.—Epithelioma arising from squamous layer of pelvis of kidney (Patient 5); 2.3 obj. (B. W. Rhamy).

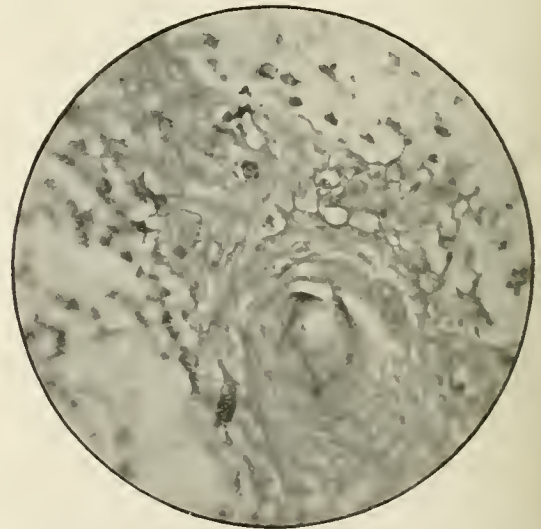


Fig. 9.—Transplantation carcinoma in skin from area x in Figure 8. Epithelial pearl; 1.8 obj. (B. W. Rhamy).

Urine.—Analysis of the urine showed the presence of albumin, no casts, many pus and red blood cells, a few kidney cells, much mucus, many proteus bacilli, numerous streptococci; urea 8.6 gm. in twenty-four hours.

Twenty-four hours after entering hospital the patient was taken with a severe, typical attack of ureteral colic, accompanied by chills and a rise in temperature to 102.4 F. Immediately after the onset of this attack the urine became clear and an examination showed that it did not contain any red

the stone. With a pair of forceps the ureter was dilated and the large stone delivered with considerable difficulty. After the delivery of the large stone a probe was passed until it met with an obstruction in the pelvic portion of the ureter. This obstruction proved to be a small smooth stone about the size of a large pea (Fig. 2A). The large stone (Fig. 2B) weighed 1,120 grains and the small one 20 grains. Further search with the probe and finger failed to reveal the presence of any more stones. A ureteral catheter was passed into the bladder

without trouble. The patient stood the operation well and left the hospital May 15, 1909. The fever subsided immediately after the operation. When the patient left the hospital he was able to be up and around and his condition seemed satisfactory, save that he was not free from pain, but complained as much as before the operation was done. On this account another x-ray picture was taken (Fig. 3) which showed one stone apparently occupying the upper portion of the ureter and two others lower down.

Second Operation—July 28, 1909, about four months after the first operation, the old wound was enlarged and the peritoneum and colon pushed forward to the inside. Two large and several small stones were found and removed (Fig. 4). Just prior to this second operation frequent attempts to pass a ureteral catheter through the wound failed. After the second operation and before dressing the wound the ureteral catheter passed without trouble. The combined weight of the stones removed at this operation was 480 grains. It was noted at this second operation that the granulation tissue covering the wound seemed to be superabundant and unusually firm and friable. A portion was removed for examination and a report showed that there were no evidences of malignancy.

The patient recovered from this operation but did not show the improvement looked for. Occasionally there would be a slight rise in temperature, never reaching 102 F., and the pain remained about the same. The granulation tissue, which was partially removed at this second operation, was soon reproduced in greater abundance than ever. Another x-ray was taken, but showed no stone. A microscopic examination of a second specimen of the granulation tissue showed it to be carcinomatous.

Third Operation—Accordingly, on Sep. 28, 1909, six months after the first operation and two months after the second, ether was again administered and the kidney, with the upper three-fourths of the ureter, was removed. The granulation tissue about the external wound was also removed. The ureter at point of section below seemed perfectly normal; the catheter passed through it to the bladder without trouble. The upper part of the ureter seemed to have been transformed into an elongated cavity whose walls were formed of connective tissue so that in removing the kidney and attempting to follow the ureter from the pelvis downward, the connection between the pelvis and the upper end of the ureter was found to have been practically destroyed, thus making it impossible to identify the ureter at this point. As indicated above, from this point down to the brim of the pelvis the ureter was transformed into an irregular sac, which was formerly occupied by the stone, and at the last operation was very much smaller than at the preceding ones. At the lower end of this sac the ureter was readily identified and therefore dissected out and removed to a point well below the apparent disease, which would correspond with a point below the brim of the pelvis. The inner surface of the pelvis of the kidney was occupied in part by what appeared to the unaided eye to be masses of granulation tissue. These masses were rather firm and friable. Microscopic examination of these masses by Dr. Rhamy, pathologist of Hope Hospital, corroborated by Dr. Hektoen of Chicago, showed them to be carcinomatous (Fig. 5).

From this last operation the patient reacted satisfactorily and soon began to gain in strength, so that he was able to sit up and take a few steps. The improvement was of short duration, however. The pain, which was never entirely relieved, grew worse, he lost his appetite, became weaker and more anemic and died Dec. 19, 1909, a little less than three months after the last operation, and nine months after the first.

207 West Wayne Street.

ABSTRACT OF DISCUSSION

DR. HUGH H. YOUNG, Baltimore: In my case, to which Dr. Porter referred, I found a calculus in the lower end of the ureter, just above the bladder. The patient had presented symptoms for 27 years—a feeling of weight and heaviness in the pelvis and pain on defecation. In another case, a young man for 23 years had a fistula in his back. He came to me for operation with a diagnosis of necrosis of the spine. He had been operated on two or three times

before, in attempts to get the fistula to heal. With the cystoscope, we found the right ureter functioning well, but in the region of the left ureter nothing was seen; no urine was coming from it and I wondered whether we did not have a case of calculus of the kidney. A radiograph was made and showed 5 stones. A nephrectomy was done, the kidney being found completely atrophied. A third case was that of a man who 10 years before had been seen by Dr. Osler, who told him he had a ureteral calculus. He got entirely over the pain and it was thought that the stone had passed. Ten years later he came to me complaining of pyuria. I found that the pus came from the left kidney. The x-ray showed a stone about the size and length of the index finger, situated just at the pelvic brim of the left side. It was successfully removed by operation.

The symptomatology in these cases is very varied and many cases diagnosed as stone in the kidney are not stone in the kidney at all. We all have made these diagnoses and afterward failed to find a stone. I have had 25 cases which were sent to me for operation for stone in the kidney, in which the symptoms were typical—intermittent attacks of pain, colicky in character, often requiring heavy doses of morphin and sometimes associated with hematuria. In these 25 cases I found that inflammatory infiltration around the seminal vesicles was responsible for the attacks of reflex pain in the kidney. Cases associated with hematuria showed on cystoscopic examination a markedly hyperemic median portion of the prostate and of the trigone, the congestion extending down into the posterior urethra, and generally associated with inflammation of the verumontanum, which probably accounted for the presence of blood in the urine.

Operative technic, as Dr. Porter said, is extremely varied. If there is a single stone in the pelvis of the kidney, pyelotomy should be done if possible. If more than one stone is present, pyelotomy ought probably to be avoided, and a nephrectomy done, so as to get a good exposure of all the calices in the kidney. If a marked pyonephrosis is present, nephrectomy should be done, as there would probably otherwise be a recurrence of the stone. Stone in the kidney and in the ureter can always be removed by an extraperitoneal operation. To-day no one is justified in going into the abdomen or doing the combined extraperitoneal and intraperitoneal operation. I have had 10 cases of stone in the lower end of the ureter in the male, cases that we formerly considered to be beyond reach by the extraperitoneal route, and yet no great difficulty was experienced in removing the calculi and closing the ureteral wounds. We must be careful not to injure the ureteral sphincter, because if it is cut, pyelitis is apt to follow. If the stone projects into the bladder or is largely within the bladder, it can be removed most easily either through a suprapubic incision or by the operating cystoscope. It is possible to grapple and remove easily a stone almost a centimeter in diameter by means of the operating cystoscope, and with little loss of time and with very little shock. One can usually crush such a stone through the operating cystoscope and remove it readily through the urethra.

DR. WILLIAM D. SUMPTER, Nashville, Tenn.: While it is true that we owe to the x-ray a great debt of gratitude for what it has done for renal surgery so far as diagnosis is concerned, there are recorded in the literature cases (and we have all had the same experience) which force us to confess that the x-ray, at least in soft calculi, fails to show the stone. I trust that there will come a day when the x-ray will reveal conditions which for years have not been diagnosed, and which will give us a greater feeling of certainty where the kidney is concerned. I have seen the best operators open the kidney, expecting to find a stone, and fail to find anything. I have been guilty of such a misdemeanor and have had to explain whether the pain present had been due to a nephralgia or to a stone. A number of years ago I found 26 stones in a kidney that had never given the patient, a woman, any trouble whatever. She had a miscarriage and the condition was discovered during an examination. About two months ago I saw a kidney that for 3 years had continually poured out pus, as was determined by the ureteral catheter. The patient

had not lost any weight, but suffered severe pains. After continued and repeated attacks of renal colic, she consented to operation. She had consulted no less than 8 surgeons, all of whom agreed in the diagnosis of stone. A radiograph was made and the roentgenologist also made a diagnosis of stone. I opened the kidney and, much to my surprise, found only some concretions, smaller than a matchhead, 4 in number. They had probably caused the pain. I removed them, closed the kidney and the woman has been well ever since.

I enjoyed hearing Dr. Young recommend the extraperitoneal route. I believe, however, that the point to be emphasized is not so much the technic of the operation as the perfection of diagnosis of stones in the kidney and ureter.

DR. MAURICE H. RICHARDSON, Boston: I agree with Dr. Porter that the Roentgen ray in the diagnosis of renal and ureteral stones is almost infallible—almost, but not quite. In my experience an existing calculus has sometimes been overlooked, or a shadow interpreted as a stone has been cast by something else. There is always the possibility of error. A recent useless nephrotomy was based on an erroneous expert interpretation of two *x*-ray shadows in the left kidney that really were caused by healed infarcts.

Stone demonstrated in the ureter by the *x*-ray, and left to itself, we can now for the first time study. I should like to hear discussed the question of removing ureteral stones long impacted and apparently causing no symptoms. In my experience ureteral stones, after the agony of their passage from the kidney to their final impaction, become and remain quiescent. I recently removed from the left kidney of a man aged 69 a stone of great size. This stone had for 35 years caused symptoms and had finally destroyed the kidney. The *x*-ray showed also a stone as large as an olive in the left ureter near the bladder. At the first consultation, in which Drs. Jaenaway and Fitz and I participated, operation was deemed inadvisable on account of the man's great weakness, and the secondary importance of the renal condition to the general condition. Later an acute local disturbance demanded operation at any cost. The stone was removed from the kidney, with recovery of the patient. Whether or not to remove the ureteral stone—that was the difficult question. Inasmuch as the kidney was completely destroyed, and as the impacted stone presumably caused no symptoms—it would not have been suspected, except from the *x*-ray. Attempts at its removal were deemed inadvisable. In a second case—in which the patient, a man of about 50, was himself a surgeon—we all made the diagnosis of acute appendicitis. A tender tumor could be felt at the right pelvic brim. This man is now perfectly well and able to practice, but the stone remains impacted in the same place. Several patients who have been operated on by others for appendicitis I have found to have stone impacted in the right ureter.

The subject of Dr. Porter's essay is extremely interesting to me as an abdominal surgeon. I meet with cases under the most unexpected circumstances. I usually make the diagnosis as Dr. Porter does, from the history. In most cases there is no doubt; but my experience is so large in surgical explorations under the diagnosis of stone that I have learned to look with a little doubt on the infallibility of even the most expert roentgenologists. Unless there is a significant history to back up the *x*-ray opinion, I have learned not to be surprised if exploration shows no stone either in the kidney or in the ureter. Even if the history and the *x*-ray agree, the finding of nothing but healed infarcts to account for both history and *x*-ray is a little disconcerting and forbids a too positive diagnosis.

DR. JOHN B. DEEVER, Philadelphia: A case of carcinoma of the ureter immediately below a small stone in a nurse at the German Hospital was one in which the diagnosis rested between this condition and appendicitis. There was no question in my mind as to the nature of the condition, but I hesitated to open the abdomen until the *x*-ray had revealed the stone. The kidney was diseased and I did a nephrectomy. The report came back that the ureter had already begun to show carcinoma. However, inasmuch as the patient had had a slight attack of appendicitis, I removed the appendix. I am very sure that I could not have

made a diagnosis in that case without the *x*-ray. That was 4 years ago, and that woman plays an important rôle in the nursing at the hospital. She is still entirely well.

The question of diagnosis between appendicitis and ureteral stone is important. I am certain that I would have slipped up on several occasions if I had not resorted to the *x*-ray. There was a time when surgeons did not have any confidence in the *x*-ray, and I have had the experience of having an *x*-ray made and not operating, and the patient went to Dr. Richardson and he removed 5 stones. With regard to the stones in the pelvis of the ureter, it has always been my practice to do nephrotomy, making a small incision just large enough to introduce a pair of forceps and carry these into the ureter in preference to opening the pelvis. Like other surgeons, I have had trouble with stone in the lower part of the ureter. I believe that the proper procedure is the extraperitoneal operation. I make an incision through the linea semilunaris and it is a simple matter to bring up the ureter, but not to get out a stone, especially when it is near the junction of the ureter with the bladder or in the bladder wall. One of the hardest operations I have done recently was one in which I had to remove a stone lodged in the ureteral orifice. I did the suprapubic operation. The operating cystoscope appeals to me strongly.

Diagnosis between movable kidney and stone is often difficult. I have seen cases of movable kidney with a twist in the ureter exhibit the same train of symptoms—hematuria, pronounced renal colic, necessitating large hypodermics of morphin—so that I finally had to operate, but found simply a movable organ, but not a stone, which, by the way, the *x*-ray also failed to show.

DR. WILLIAM T. ELAM, St. Joseph, Mo.: A year ago a patient came to me and I made a diagnosis of stone in the kidney. The *x*-ray showed that the right kidney was a veritable stone quarry. The entire renal pelvis was dilated by the calculous mass, with numerous small nests in the kidney substance which extended up into the calices. In all there were something like 500 stones in the kidney. The *x*-ray revealed the stones in this kidney, but did not show stones in the opposite kidney. As the result of these findings, I did a nephrectomy, feeling confident that if the *x*-ray would show stones in the right kidney, it would also show them, if present, in the left kidney. It did not do so, however. Another case, very similar to this, was one in which the stones were in the right kidney, but the symptoms were reflected to the left kidney. The man complained of nephritic colic in the left kidney, and a diagnosis was made of stone in the right kidney, which was proved to be correct at the operation. The pelvis of that kidney was completely filled with stones, although the organ itself was not involved. These cases prove that one cannot depend on the *x*-ray picture when it comes to deciding whether or not to do a nephrectomy in cases in which one cannot remove the stones. In the first case reported, the stones could not have been removed even after hours of curetting; the nephrectomy proved fatal in this case.

DR. MAX BALLIN, Detroit: We seem to be agreed on the technic in cases of stone in the upper part of the ureter, but there seems to be some doubt as to the best technic for removing stones from the lower end of the ureter. Difficulties always arise in the case of stone in the neighborhood of the bladder. I have employed the following method with considerable success in two cases: The stone was imbedded in the right ureter close to the bladder. I opened the bladder suprapubically, but was unable to dislodge the stone through the bladder. Noticing how easily the ureter with the stone could be moved about in the pelvis, I had my assistant pass two fingers into the bladder wound and push the ureter with the stone toward the right groin. I then made an extraperitoneal incision along Poupart's ligament through muscles and deep fascia and pushed the peritoneum away without opening it. It is surprising how close the stone can be moved to Poupart's ligament. The stone in the ureter came right up against the fascia and was steadied by the two fingers of the assistant introduced into the bladder. The ureter was then easily opened, the stone extracted, the ureter sutured, and the wound drained. The benefit of

this method is obvious. Not everyone is able to operate through an operating cystoscope, as Dr. Young does. The extraperitoneal method alone requires a formidable incision—5 or 6 inches in length—so that one can see the entire anatomy of the parts—iliac vessels, ureter, etc.—but by my method one is able to extract the stone through a two-inch extraperitoneal incision, being assisted by the assistant's hand in a suprapubic incision through the bladder.

DR. STEPHEN A. MAHONEY, Holyoke, Mass.: A case recently came under my observation that covered some of the points brought up by Dr. Young relative to the extraperitoneal method of removing stone from the ureter, and in which I had a great deal of trouble in carrying out the method in its entirety.

The patient came under my care about 3 years ago, suffering from what appeared to be a nephritic colic. I had confidence in the *x*-ray and sent him to an expert radiographer. The plate was returned to me, showing a stone the size of a large olive down in the lower part of the left ureter. I operated and easily removed the stone. About 2 months after that the man had a severe attack of colic and the next day 2 small stones were evacuated from the bladder. A year ago he again came under my observation, this time for a mere discomfort in the back. He went to the radiographer and had both his kidneys examined. The left kidney was found to be practically normal, but in the right kidney, much to our surprise, was a stone occupying the entire pelvis. The entire tracts on both sides were *x*-rayed. We removed the stone from the right kidney. That was in June, 1909. In April, 1910, he had another attack of nephritic colic on the right side. A radiograph was again taken and a stone the size of an almond discovered down in the lower part of the right ureter. The first stone had been removed from the left ureter. Comparing the 2 skiagrams, the one from the first operation 3 years ago and the last skiagram made before the final operation, it appeared that, owing to the fact that the latter stone was so much nearer the brim of the pelvis than the former, we would have an easy time removing it. At operation we discovered the ureter easily enough, but in running the finger upward and downward we failed to discover any stone, but having sufficient confidence in the *x*-ray I opened the ureter, inserted a large-sized probe, passed it downward and upward along the course of the ureter, but still failed to discover the stone. Then I had the assistant pass a sound into the bladder to see whether we could meet the sound in the ureter from below, but failed. Still thinking that there must be some cause for the shadow in the skiagram, I did a laparotomy and, thinking that possibly the shadow might have been caused by a concretion in the appendix, we examined the appendix and found it practically normal. I ran the finger down behind the bladder in the cul-de-sac and palpated a small movable lump, which could easily be brought upward along the ureter, and therefore was easily delivered in the incision. I had used all the methods I could think of to discover that stone by the extraperitoneal method, but had failed entirely in doing so. When I got the stone out it was about the size of an almond. I could easily see on the stone lines of demarcation where it had projected into the bladder. The stone was half in half out of the bladder, and I would have failed entirely to discover it, had I not opened the abdomen.

DR. A. D. BEVAN, Chicago: In a considerable experience, covering about 70 stone operations, I have formed, as the result of rather sad experiences at times, some convictions in regard to the technic of the operation itself. I believe that whenever possible pyelotomy is preferable to a nephrolithotomy. In three cases, I have been compelled to remove the kidney for hemorrhage after a nephrolithotomy. In nephrolithotomy the great danger is subsequent hemorrhage, and this is almost entirely avoided if the operation of pyelotomy is done, and that should be done whenever it is possible. Of course, when it is not possible, on account of multiple stones or of the position of stones in the calices, a nephrolithotomy is indicated. When this is done, however, the incision in the kidney should be made as small as possible.

I have not tried the silver wire division recommended by the Hopkins school, but the division, so far as the knife is concerned, should be a small one, a division of the connective tissue by blunt artery forceps, stretching the kidney and removing the stone in that way. Of course, when the kidney is extensively involved and it is evident that it will remain an organ of little use to the individual, and when the other kidney is sound, it is better to do a primary nephrectomy and clean up the case at one sitting. When the stone is in the upper end of the ureter, the case can be handled with the same incision and technic as in pyelotomy. If the stone is located in the central portion of the ureter, it is better to do a muscle-splitting operation, such as is done in appendectomy, with the exception that the peritoneum is not divided, but is lifted up and the ureter sought for. If possible, the catheter should be put into the ureter immediately before the operation, because it would serve as a guide of much value. Then with blunt hooks the ureter can be lifted well up into the wound, incised, the stone removed, the incision closed, the ureter dropped back, and the catheter removed. In the lowest part of the ureter in 2 cases I have resorted to an interesting as well as an unusual technic, and that is attacking the ureter through a perineal incision, very much like the old left lateral lithotomy operation. The incision is carried down to the prostate, but not into it. Then by blunt dissection first with one finger, then with two fingers, the incision is carried around the prostate to the base of the bladder, and the stone found. This operation is, of course, limited to cases in which the stone is in the lower part of the ureter. The stone having been located, a pair of closed, sharp-pointed scissors is carried down to the ureter by a blind dissection, and the ureter is then divided, the stone being removed in this way. The procedure is applicable only to cases of stones of fair size located in the far lower end of the ureter.

DR. MILES F. PORTER, Fort Wayne, Ind.: How many pictures did Elam take in the case in which both kidneys contained stones and in which the radiograph showed stones in only one kidney?

DR. ELAM: Two exposures were made of each kidney.

DR. PORTER: This demonstrates again that we often find fault with instruments of precision when the fault lies with the individual who uses them. Separate radiographs should be made of each kidney, in order to study the organs thoroughly. I do not believe that a satisfactory picture of both kidneys can be taken at one time, but when a number of plates are made of each kidney separately we may expect that one at least will show the stones, if present. I do not believe in the infallibility of anything human, but I do believe that the *x*-ray is the best single diagnostic element in this work that I know anything about.

THE CLINICAL USE OF STROPHANTHUS*

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AND

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The clinical use of digitalis has proved one of the greatest problems of medicine and, despite the advances made in our knowledge of the pharmacology of this group, the problem has been advanced only, not solved, and there are few practitioners who can invariably distinguish the toxic action of digitalis from the symptoms of cardiac disease.

The difficulties in the way of the therapeutic use of the digitalis bodies depend on several factors. In the first place, we have no definite knowledge of the rate of

* From the Laboratory of Pharmacology Cornell University Medical College.

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

absorption of these bodies from the alimentary tract, and this knowledge is the first requisite for correct dosage by the mouth. In the next place, we know little or nothing of the rate of excretion and destruction in the body, and these facts are also of prime importance. Furthermore, except for the well-known vagus stimulation, we do not know whether they act directly on the cardiac muscle or indirectly through some nervous mechanism. Finally, the symptoms of their toxic action resemble closely those which they are intended to relieve and, without unremitting care and watchfulness, the toxic action of the drug may be superadded to the effects of the cardiac disease without the fact being recognized.

We believe that the different members of the digitalis group exert the same direct action on the heart, when once they are introduced into the circulation, and that the discussion of the choice of the member resolves itself, primarily, into a consideration of the relative rates of absorption, excretion and destruction, and, secondarily, into that of the relative intensity of the direct cardiac action on the one hand and of the indirect and side actions on the other hand. A comprehensive discussion of these facts would here be impossible, even if we had the necessary data, and we shall limit ourselves to a consideration of a few phases of the subject.

I. COMPARATIVE ACTIVITY OF THE VARIOUS DIGITALIS BODIES

Two years ago we called attention to the utter confusion existing in regard to the doses of strophanthin and strophanthus commonly advised, the largest daily dose given being several hundreds of times larger than the smallest single dose. This fact alone suffices to show how limited is our knowledge of the best method of employing these substances and the necessity of any accurate method of determining their relative activity, as a prerequisite to reliable clinical studies of their effects. The same thing is true to a certain extent of digitalis.

We are convinced by the results of a large number of experiments that the relative activity of these agents on the human heart can be determined with a far greater degree of precision by means of the intravenous injection into mammals than by any other means hitherto suggested. Even such closely related bodies as strophanthin and crystalline ouabain (strophanthin being methyl ouabain) show different ratios of activity by subcutaneous and intravenous injections into the cat, because the question of absorption is involved when they are injected subcutaneously, and these two bodies show differences in their rates of absorption from subcutaneous tissues. The differences are far greater when digitoxin is compared with strophanthin.

The average therapeutic dose of crystalline ouabain, or crystalline strophanthin, so called, by intravenous injection is about 0.5 mg., or five "cat units,"¹ the equivalent of 1.5 mg. of digitoxin or 4 c.c. of a good tincture of digitalis. It is obvious, therefore, that the dose of strophanthin used is much too high, or that of the other digitalis bodies is too low, for it must be remembered that the dose by the vein is far less than that by the mouth.

1. The "cat unit" is that amount of crystalline ouabain (0.1 mg.) which, when injected slowly and continuously into the vein, causes death within ninety minutes. When the term is used with reference to any other member of the digitalis group, the minimal lethal dose of that body per kilo of weight is meant, or the equivalent of 0.1 mg. ouabain; but many of these bodies do not kill the animal so promptly, unless an amount in excess of the minimal lethal dose is used.

II. ABSORPTION OF THE DIGITALIS BODIES FROM THE ALIMENTARY TRACT

If all of the digitalis bodies were absorbed from the alimentary tract at the same rate, or each one uniformly, it would be a comparatively simple matter to determine the correct dose of each of these, but, unfortunately, they show great differences, and the text-books on pharmacology give little information on this subject.

We have shown that the absorption of strophanthin from the alimentary tract of the cat and dog is extremely variable, and we now wish to present evidence that man shows an equal variability in absorption.

The following report shows that large doses of strophanthus may be given by the mouth without causing perceptible effects:

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The following cases illustrate the *apparent* effect of moderate doses of strophanthus on the pulse-rate, and the fact that rest in bed may account for the result in reality:

A patient, in the ninth month of pregnancy, had a cardiac lesion with a fair degree of compensation. She received 90 minims of the tincture of strophanthus, the equivalent of 167 units, by the mouth in three days, after which the pulse was found to be slower by 22 beats per minute.

Another woman in the same condition with regard to pregnancy, cardiac lesion and compensation, was placed in bed and given a placebo for three days. Her pulse was slowed by 21 beats per minute.

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That the oral administration of comparatively small doses of strophanthus may give rise to toxic symptoms is shown by the following case:

A man aged 36 years, suffering from myocardial and valvular lesions, with marked dilatation, was given 70 minims of tincture of strophanthus in two days. This is the equivalent of 130 units, or about three-fourths of the calculated fatal

vein dose per day. The patient had persistent nausea and vomiting and the characteristic symptoms of the toxic action on the heart, the pulse being slow and irregular, despite the fact that the administration of strophanthus was stopped when the first symptom of the toxic action was perceived. After remaining in a critical condition for two days, the patient began to improve slowly and then passed from our control.

We wish to reiterate the statement that the clinical use of strophanthus by the mouth is irrational in the present state of knowledge of the subject. The experiments, still in progress, seem to show that the absorption of digitalis is also variable, but less so than that of strophanthus.

This variability in the absorption and dosage of strophanthus explains why many clinicians have praised the drug enthusiastically, prompt absorption having occurred in their cases, while others, having failed to secure absorption, have condemned it as useless.

III. EXCRETION AND CUMULATIVE EFFECTS OF THE DIGITALIS BODIES

The term "cumulation" is used loosely by many, but Dorland defines "cumulative" as "increasing suddenly in intensity after slow additions." The accumulation of strophanthus in the alimentary canal with continued administration may certainly lead to sudden absorption, but there is also a true summation of effects of that already absorbed, so that a smaller dose is required to cause death than would be necessary in the normal animal.

Whether this cumulative effect is due to a retention of a part of the drug in the heart or to an increased susceptibility resulting from the previous dose we cannot say at present, but it is suggestive that strophanthus shows cumulative effects to a much less degree than digitalis and we know that strophanthin is excreted rapidly by the rat. Our numerous experiments with the dog also show that nearly all of a sublethal dose is excreted or destroyed in twenty-four hours, and the following unpublished results illustrate the relative cumulative effects of strophanthin and digitalis:

Cumulation equal to one-eighth of the dose administered was observed twenty-four hours after giving 80 per cent. of the fatal dose of ouabain to a cat, but cumulation accounted for 50 per cent. of the dose administered four days after injecting 60 per cent. of the fatal dose of digitalis. Since both of the drugs were injected intravenously the question of absorption is not involved. These results are in accord with abundant clinical experience, but we believe that this is the most accurate estimation of cumulative effects which has been made.

The study of cumulation of the different digitalis bodies is in progress in our laboratory, the following method being used: A definite percentage of the fatal dose is injected intravenously and, after the desired interval of time, the amount required to cause death is determined by means of slow intravenous injection.

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It is generally stated that strophanthus acts more promptly than digitalis (when it acts at all); hence strophanthus is sometimes given to induce the action promptly, after which digitalis is administered to maintain the action thus begun.

All of the digitalis bodies which we have examined, including digitoxin, digitalinum verum, digitalein, digitalis leaf, strophanthus and ouabain, act almost instan-

aneously on the cat's heart after the intravenous injection. The effect of ouabain has been observed within two minutes, and digitoxin, the most insoluble member of the group, may cause death within a few minutes. Just as a chemical reaction goes on more slowly toward the end, so the full action of digitoxin is delayed somewhat after the minimal lethal dose. One cat died four days after receiving digitoxin, but when the minimal lethal dose is exceeded moderately the animal may die in a few minutes.

If an animal is given about half of the fatal dose of digitoxin by the vein, and after about half an hour is given half of the lethal dose of ouabain, death follows promptly, the full action of both drugs being elicited. It is true that even with ouabain the absolutely minimal lethal dose is not immediately fatal, but the amount required to kill at once is very slightly more than this minimal lethal dose, the difference being negligible in the case of ouabain, strophanthin and, probably, with digitalein; it is greater with digitalis, and still greater with digitoxin, but, even here, it is not extreme.

It follows that since strophanthin and ouabain are capable of replacing the different digitalis bodies these must be considered as synergists. Caffein is also synergistic to the digitalis bodies, but to what extent we have not determined, though the synergism is such that it should be borne in mind when digitalis is given to those who use large amounts of tea and coffee. But caffein has been said to be antagonistic to the digitalis action.

V. SUMMARY

The choice of the member of the digitalis group which is to be used in a given case, whether it shall be digitalis itself in the form of the tincture or the infusion, or one of the active principles, such as digitalein, digitalinum verum or digitoxin, or whether it shall be strophanthus, strophanthin or ouabain, must be considered mainly as a question of administration, and not with the view to securing any essentially different action, until we know more of the differences following equivalent doses.

The oral administration must continue in favor because of the greater convenience of this method, but it cannot be considered so accurate as the intravenous or the intramuscular injection, and in acute cases, in which it is imperative that the action of digitalis be secured as quickly as possible, the intravenous or intramuscular administration is preferable, because these alone afford any degree of certainty as to the rate of absorption.

At the present time we have two pure digitalis principles available, crystalline ouabain and crystalline digitoxin. The ouabain may be used in sterile solution, but the digitoxin is insoluble in water. We come, therefore, to the logical conclusion that crystalline ouabain deserves the preference in urgent cases, and that it should be administered intravenously or intramuscularly.

Fortunately, however, we have a method of comparing the activity of the various digitalis bodies on the mammalian heart, so we can determine the equivalent dose of any of the preparations, and it will be a source of surprise to many to learn that both the tincture and the infusion of digitalis represent the leaf fully, and we must abandon the idea that the action of one is different from that of the other, aside from the minute effect of the water in the infusion.

Furthermore, another of our long-cherished beliefs is probably incorrect. The results of our numerous experiments make it difficult for us to believe that therapeutic

absorption of these bodies from the alimentary tract, and this knowledge is the first requisite for correct dosage by the mouth. In the next place, we know little or nothing of the rate of excretion and destruction in the body, and these facts are also of prime importance. Furthermore, except for the well-known vagus stimulation, we do not know whether they act directly on the cardiac muscle or indirectly through some nervous mechanism. Finally, the symptoms of their toxic action resemble closely those which they are intended to relieve and, without unremitting care and watchfulness, the toxic action of the drug may be superadded to the effects of the cardiac disease without the fact being recognized.

We believe that the different members of the digitalis group exert the same direct action on the heart, when once they are introduced into the circulation, and that the discussion of the choice of the member resolves itself, primarily, into a consideration of the relative rates of absorption, excretion and destruction, and, secondarily, into that of the relative intensity of the direct cardiac action on the one hand and of the indirect and side actions on the other hand. A comprehensive discussion of these facts would here be impossible, even if we had the necessary data, and we shall limit ourselves to a consideration of a few phases of the subject.

I. COMPARATIVE ACTIVITY OF THE VARIOUS DIGITALIS BODIES

Two years ago we called attention to the utter confusion existing in regard to the doses of strophanthin and strophanthus commonly advised, the largest daily dose given being several hundreds of times larger than the smallest single dose. This fact alone suffices to show how limited is our knowledge of the best method of employing these substances and the necessity of any accurate method of determining their relative activity, as a prerequisite to reliable clinical studies of their effects. The same thing is true to a certain extent of digitalis.

We are convinced by the results of a large number of experiments that the relative activity of these agents on the human heart can be determined with a far greater degree of precision by means of the intravenous injection into mammals than by any other means hitherto suggested. Even such closely related bodies as strophanthin and crystalline ouabain (strophanthin being methyl ouabain) show different ratios of activity by subcutaneous and intravenous injections into the cat, because the question of absorption is involved when they are injected subcutaneously, and these two bodies show differences in their rates of absorption from subcutaneous tissues. The differences are far greater when digitoxin is compared with strophanthin.

The average therapeutic dose of crystalline ouabain, or crystalline strophanthin, so called, by intravenous injection is about 0.5 mg., or five "cat units,"¹ the equivalent of 1.5 mg. of digitoxin or 4 c.c. of a good tincture of digitalis. It is obvious, therefore, that the dose of strophanthin used is much too high, or that of the other digitalis bodies is too low, for it must be remembered that the dose by the vein is far less than that by the mouth.

1. The "cat unit" is that amount of crystalline ouabain (0.1 mg.) which, when injected slowly and continuously into the vein, causes death within ninety minutes. When the term is used with reference to any other member of the digitalis group, the minimal lethal dose of that body per kilo of weight is meant, or the equivalent of 0.1 mg. ouabain; but many of these bodies do not kill the animal so promptly, unless an amount in excess of the minimal lethal dose is used.

II. ABSORPTION OF THE DIGITALIS BODIES FROM THE ALIMENTARY TRACT

If all of the digitalis bodies were absorbed from the alimentary tract at the same rate, or each one uniformly, it would be a comparatively simple matter to determine the correct dose of each of these, but, unfortunately, they show great differences, and the text-books on pharmacology give little information on this subject.

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Furthermore, another of our long-cherished beliefs is probably incorrect. The results of our numerous experiments make it difficult for us to believe that therapeutic

from being too severe, were not rigid enough, for the only sharp criticism that has ever been received from disinterested members of the profession was to the effect that we were too lax in certain ways and especially in the admission of preparations that were clearly designed more or less for the use of the self-drugging laity or in admitting catch-penny pharmaceutical mixtures which seemed reasonably honest and harmless, but which had no originality or other scientific merit to warrant their use. As soon as it was apparent that such alteration was widely demanded, the Council altered its rules so that it could exclude preparations of unscientific composition and those objectionably named, and could in other ways meet what was demanded. This required the elimination of some preparations that had already been accepted; others will drop out at the expiration of due and proper notice given them, unless meanwhile they are modified so as to conform to the rules; and a goodly number of preparations that would earlier have been accepted have also been excluded. This involved a large additional amount of work in regard to the questionable preparations that had already been accepted, for all these were, in justice to their manufacturers, necessarily acted on over again individually by the whole Council and not merely automatically dropped.

In the beginning the Council devoted itself to the consideration of proprietary drug articles only. Another way in which the work has grown to an enormous extent is that it has gone far beyond this class of substances. It was readily apparent that what was really needed was an investigation of all substances, proprietary or other, that are at all widely used medicinally or that have even any reasonable appearance of medicinal value and are not contained in the U. S. P., so that the physician might have at his service an authoritative statement of their composition, uses, etc., and be able to form more than a vague idea of their value. I need only mention such things as medicinal foods, the extracts of organs, the varied digitalis preparations, the organic iron preparations, serums and vaccines and mineral waters as instances of things that one either cannot get reliable knowledge of from other sources or can find discussed only in fragmentary or otherwise incomplete and unsatisfactory way. Most of these have been taken up by the Council or are now under consideration, and others will be considered in the near future. While there is still much more to come in this, it has already involved an astonishing amount of work. The preparation, for instance, of the report on serums and vaccines that will be found in *New and Nonofficial Remedies* was a most laborious task, for which the chairman of the committee that had it in charge deserves great credit; the report on medicinal foods and that on meat and beef-juices (the latter reprinted in the "Propaganda for Reform in Proprietary Medicines") constitute extensive chemical studies. And so it is with many of the others in this class, large amounts of time and labor having been expended on short but comprehensive articles.

The regular work of the Council week by week is by no means child's play. Every preparation that comes up is carefully considered as to the correctness of the statements regarding its composition, its action, its uses, etc., and the printed matter used for advertising it is carefully scrutinized for any infractions of the rules. It is, in short, considered carefully in connection with each of the ten rules of the Council. If objectionable features appear they are brought to the attention of the manufacturer and opportunity is given him to conform to the rules. Indeed, he is often given an almost unduly long

time to do this. Any suggestions or complaints from manufacturers are discussed and acted on in a purely judicial way. With each preparation a report is first rendered by an individual member of the Council termed the referee, to whom the article is first referred. The committee into whose hands the preparation properly belongs then discusses this report and any other information in regard to the substance, and forms its conclusions regarding it. (There are committees on chemistry, pharmacy, pharmacology and therapeutics.) Finally it is discussed and subsequently voted on by the whole Council. This routine work is so extensive that every week each of the members of the Council receives, and must carefully consider almost every sentence in, a bulletin which sometimes fills forty or more sheets, and which requires constant reference to previous bulletins in forming a judgment. I mention all this in order to give an idea of the desire for thoroughness and fairness in the work, and this is only a fraction of the work. In addition to the constant studies that the Chemical Laboratory of the American Medical Association makes of articles that do not come within the scope of the Council, the latter constantly receives reports from this laboratory regarding the chemical composition of articles that are under consideration. Furthermore, when questions come up concerning a preparation or a group of preparations, such as the medicinal foods, that cannot be safely settled in other ways, members of the Council or others who have generously offered their services have frequently conducted actual extensive investigations to settle these questions and in case evidence was offered in rebuttal other investigators have gone over the matter again and at times yet again in a patient endeavor to eliminate all possibility of error. This means that a considerable group of men, consisting of some of the most distinguished of the general, physiologic, and pharmaceutical chemists, pharmacists, pharmacologists, bacteriologists and hygienists in this country have given freely of their time, labor and skill in conducting what were often long and elaborate investigations, frequently painfully dull and uninteresting to them, for no other purpose and with no other result to them than to furnish the profession with real facts about substances that are sometimes useful but only too often worthless. Besides this a large group, constituted of some of the most distinguished clinicians in the country, have acted as a board to which questions regarding the clinical use of substances under consideration could be referred, and have often given opinions and at times conducted clinical observations of the value of these substances in actual practical work.

What are the results of all this work? Previously the good, the indifferent and the bad were all in one class—we knew nothing reliable about any of them. We believed that some were above reproach—most of the others were used only too often with a subconscious feeling of ignorance as to what their composition or action really was. Severe criticism was visited on physicians by some lay journals in the earlier days of the reform movement for being willing to use means of treatment without having any real knowledge of their composition or action, when their responsibilities are so great. It was indeed an evil state of things, but the fault lay less with the individual than with the conditions under which he did his work. Circumstances practically forced him to use many of these substances, and he could not learn anything but what the manufacturer told him. The reproach fell on the profession as a body, rather

than on the individual practitioner, for putting its head into the noose and not seeing the trap until it was in it. The spectacle astonishes one now that it can be viewed from the perspective of growing distance: a learned scientific profession doing about one half of what is its chief work—treating the sick—on the strength solely of information received from advertisements and detail men. It is in entirely altering the conditions under which we work that the most evident result has been accomplished. Now the profession has at its disposal a book of 250 pages, *New and Nonofficial Remedies*, which is as closely packed with information as any book that can be found on any subject, and which includes every important proprietary drug except a very few that are not fully investigated; and not only the important drugs but all those that conform to the rules of the Council, whether really important or not. In addition to this the book already includes medicinal foods, serums and vaccines, many non-official but non-proprietary drugs and a variety of other medicinal substances, and gradually all substances of therapeutic importance are being included. All this is for sale by the American Medical Association for the trivial price of twenty-five cents.

So much in brief for those articles that are not evil. None of these is recommended by the Council. I would especially remark. They are simply found to be not in conflict with the rules of the Council so far as we can determine. Now what about those substances that are not accepted? Their absence from *New and Nonofficial Remedies* is sufficient to show that they are not acceptable when judged by the rules that have been established with the approval of, and in large part as a consequence of, the direct demand of the members of the Association. When they have been found to be actually frauds or in case there has been controversy over an unfavorable decision, and often when other reasons made a printed record of the matter desirable in order to deal fairly with the profession and the manufacturers, the evidence has been first given in *THE JOURNAL* of the American Medical Association and then has been made permanently available in the "Reports of the Council on Pharmacy and Chemistry," in the "Reports of the Chemical Laboratory of the American Medical Association," or in the "Propaganda for Reform in Proprietary Medicines." All these are obtainable for a few cents each. Thus for a little over one dollar one may now arm oneself with a great store of information that covers most of the things that he needs to know in regard to these matters.

It is very striking to find how valuable these publications are. I have the same experience as others in finding that I use them daily in determining points that I could not otherwise settle. For instance, within a few hours of writing this, I happened to be asked by three men who are in other professions, the nature and usefulness of three proprietary articles. One of these is in *New and Nonofficial Remedies* and is apparently reliable; one had been rejected by the Council for very strong reasons fully given in its printed reports, and one, a gross and dangerous fraud, was fully described in the "Propaganda for Reform." With this evidence at hand I at once satisfied my questioners, while otherwise I should have been able to offer only vague information, even though I have been obliged to acquire some special knowledge of these things, for there is such a mass of them on the market that one cannot keep track of them all, even if he has once met them.

Many articles are simply not mentioned in any of these books. That means either that they are useless or unscientific or harmful, or that they are more or less

fraudulent or simply that their makers are exploiting them by methods that are generally recognized now as unacceptable. In occasional instances they are rejected solely because they will not give up a name that covers up a potent and dangerous ingredient or one that is likely in other ways to lead to dangerous self-drugging on the part of the laity, or because they persist in evading or distorting the truth about the nature of the article in some minor way, or grossly exaggerate its power for good, or because in some other relatively minor way they refuse to abide by a definite rule of the Council.

Misunderstandings between the Council and the profession have sometimes arisen in regard to individual cases of rejected articles. Most commonly the Council has been asked why it does not publish a list of all articles rejected and let it be clearly evident that they are unacceptable, instead of publishing only the list of those that are accepted. This, however, would be impossible, as it would constitute a black list, which would be illegal; and besides being impossible, it is unnecessary, for what is needed is the list of those that do conform to the rules. The others are legion and we do not need to have them labeled as such, any more than we need to label the whole population of the earth as our friends or not our friends. Those that are not acceptable we may allow to go their way with the assurance that they will rapidly fall into the class of ordinary patent medicines that cater solely to a confiding laity or that they will soon vanish if they make a pretense of catering to medical men but do not do it.

Again, the Council is asked why it accepts anything, even though all right in itself, from firms that have once deliberately tried by direct or indirect means to deal unfairly or dishonestly with the profession; that is, the Council is asked to make its rules to cover the general conduct of the people with whom it deals as well as their individual articles. This would be very desirable, it is true. It is undoubtedly very trying and at times seems degrading to have relations with people when they have once been shown to be willing to adopt falsehood or dishonorable subterfuges in order to accomplish their ends. Such practices would in ordinary life rapidly undermine the confidence of the people in a business house with which they dealt; but the medical profession is trained, I think, into a large tolerance of human frailties, and this sometimes goes much too far. Such action as this the profession has not yet shown itself ready to follow. Were such a rule made now and enforced, even with great moderation, *New and Nonofficial Remedies* would be a very thin volume, while if it were enforced strictly the Council's labors would be almost done; for at present it is the custom of nearly all manufacturers to present any important article and especially any new articles that need the support and interest of the best men in the profession, to the Council in conformity with its rules, and then under this virtuous cloak to offer anything else they wish in any way they wish to the riffraff that is a part of our profession as well as of any other, and even to offer what are essentially ordinary patent medicines to the public. We often see a firm that has articles in *New and Nonofficial Remedies* using most outrageously unethical methods in exploiting other preparations. In other words, ethics has no real place in the business policy of any except a very few firms. It is all a question of dollars and cents. When the time comes that a majority of members of the profession are willing to restrict themselves entirely to the preparations made by firms that adopt only strictly honorable methods, even though this be, as it will be, at much inconvenience to themselves at

first, the lines can be drawn in accordance with this, but the Council cannot take such action until the profession has indicated that it will take the consequences and follow the Council's decisions in its practice even up to this point, as so many physicians have already done and as so many more are constantly doing in regard to individual preparations.

Discussion has arisen also with a few members of the profession, through the fact that some article or articles that they have used with satisfaction have been refused admittance by the Council for what seemed to be rather minor reasons when all other requirements have been complied with. Some physicians who have not commented on such decisions have perhaps likewise thought that the Council was unduly rigid in such rulings. A little discussion of these cases has been sufficient to make clear the point of view and to remove the criticism. To begin with, the rules of the Council are known, and the burden of any infraction of them falls on the manufacturers. They can avoid it if they will. If they insist in refusing to abide by the rules—and it is always for some commercial reasons that any such insistence occurs—the Council can do nothing but act against them. If the rules were not adhered to, we should soon be in a state of hopeless confusion, and a storm of accusations of unfair and partisan decisions. Realizing the exigencies of trade, the Council attempts to be as mild as possible in regard to matters that are open to judgment, and especially in regard to names of articles, statements regarding their therapeutic value, and similar questions. But the Council cannot leave the decision of such things to the manufacturers, and hence, sometimes, preparations that are otherwise unobjectionable are refused because of the unwillingness of the manufacturers to abide by rulings that have been proved to be necessary—perhaps less necessary in some cases than in others, but still essential in order to avoid constant friction and frequent unfairness. In no case has an indispensable article, one that could not be replaced by some other accepted article, been refused for this reason, for the manufacturer would readily see to it that the article was made to conform to the rules if it were really a substance important to the better members of the profession. It is therefore very easy to let the manufacturer go his own way and use the other article instead.

I should not stop speaking of results accomplished through this work without mentioning two other gratifying things: One is the almost complete disappearance in all except perhaps some isolated regions of a certain highly curious but objectionable species of the genus homo—the lecturing type of detail man. We are now very little burdened in our office hours and in our hours of rest by ignorant and erroneous dissertations on any subject in medicine that bore on the samples that we were being presented with. We all had, I am sure, together with a sense of annoyance at such continuous visitations, some sympathy with these men, knowing well that they fully realized how unwelcome they and their lectures usually were. Since I have learned how often in their later days they were asked whether their preparations had been accepted by the Council, and were requested to depart if they had not been, I have a somewhat guilty sense of having contributed to the disappearance of an interesting race of men. The other point that I would mention is the real reason for the passing of the detail man, and the chief reason that the Council

feels a stimulus, not only to continue its work, but to extend it. A few years ago, statements of interested parties were very commonly accepted by the profession at pretty nearly their face value. Since then they have so often been openly shown to be biased, or wholly erroneous, or false, that we have had overwhelming evidence of the spread of a healthy skepticism in the profession, and such appreciation of the fact that an interested person cannot usually, even if he will, give fair and judicial information, that the Council looks forward to a time near at hand when it can proceed to put all these matters squarely on a scientific footing, and can advance to a point where it can reduce subserviency to the methods of any manufacturer, to commercial expediency, or to trade conditions in any way, down to the lowest point humanly practicable. In the future, I think it will become the duty of the Council to advise the profession, after careful investigation, in regard to the quality and reliability of all remedies, and I hope that it will not be very long before the Council, or some other authorized body, will publish an actual book on drugs and other medicinal substances which shall contain only reliable information, and be prepared in a strictly critical spirit, so that not only in regard to proprietary substances, but in regard to other substances, the physician may be able to secure in one book all the information which is essential to him concerning his means of treatment.

Much has been said about the use of the Pharmacopeia as the basis of teaching pharmaceutical therapy. This appears to be entirely impossible at present. In the first place the Pharmacopeia alone does not contain a certain number of drugs that are of widely recognized value, but of newer development. Of much more importance is the fact that the Pharmacopeia contains so much at present that is absolutely non-essential that any attempt to teach what is in it would lead to still worse conditions than now exist. Although much is commonly demanded of students at present, very few humane teachers require their students to learn something about each of the individual things in the Pharmacopeia. And, even so, the too frequent lack of critical sense among practitioners in regard to pharmaceutical therapy may be largely attributed to the excessive demands made on the student in this branch. In the elementary stages of the acquirement of knowledge, if time and energy are too largely used in remembering manifold facts, the pressure is too great to permit of their being reflectively and thoughtfully received and they come to be received, more and more, in a mechanical way; and, finally, dogmatic statements which require little or no reasoning for their appreciation become more acceptable than those that require thoughtful consideration, because dogmatic statements can be grasped in less time, and there is need for hurry if a great deal of ground must be covered.

There is but one subject in medicine in which it is customary to require that the student and young practitioner should know something of whatever is good as well as whatever is bad, the unimportant and the important, the old and established as well as that which is new and of doubtful value. That subject is therapeutics. It is the difference in the teaching of the two specialties, I believe, that makes the average young practitioner more sound in his diagnosis than in his treatment, and it is this, I am sure, that constitutes one of the strongest reasons for his ready acceptance of

statements that are based, at best, on mere casual impressions, when considering new methods of treatment. He has formed the habit of accepting dogmatic opinions in the domain of therapeutics, while in other domains he has formed the habit of critical consideration of statements before accepting them.

It is therefore most desirable that there should be a standard work, established by the profession itself, wisely controlled by the profession, guided only by a desire for thoroughness and constant progress, but limited solely to those things that have real importance, and excluding all things that are obsolete or useless for other reasons, whether they are pharmacopoeial articles or not.

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ACUTE NEPHRITIS FOLLOWING ACUTE TONSILLITIS*

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An experience with acute nephritis, following tonsillitis, during the winter of 1908-9, has brought two important facts to mind:

1. Acute nephritis is a frequent sequel of tonsillitis.
2. This is overlooked in practice by the great majority of practitioners.

Pediatricians are perhaps more familiar with the associations of nephritis and tonsillitis than are general practitioners and laryngologists, but what I have observed during the past year has convinced me that this association is too little appreciated by any class of practitioners. On this account, it has seemed timely to bring the relation of these two conditions to the notice of laryngologists, not so much to add anything new as to present the known facts, and to draw inferences from them that are justifiable.

The following cases are the first in which I have ever recognized the association of nephritis with tonsillitis:

CASE 1.—I. L., daughter of a physician, aged 13, had always been well and robust. She had an attack of measles several years before, but otherwise had no exanthematous disease. On several occasions she had an urticaria, and at one time an attack which resembled acute appendicitis, which, however, completely disappeared without recurrence. Dr. Engman, who had seen her in the attacks of urticaria, thought that this was probably a similar condition in the cecum. Patient suffered about once a year with a very mild attack of tonsillitis, but the tonsils themselves did not appear, up to this time, to be sufficiently large to require removal.

During the latter part of November, 1908, she was taken with a mild attack of lacunar tonsillitis, with temperature running up to 101 F. The tonsillitis continued for several days without any increase in fever. On account of the slight elevation of temperature, great care was taken to eliminate diphtheria, cultures proving negative. There was no evidence whatever of scarlatina. The attack was prolonged for something like two weeks, with intervals of amelioration and of increase. After this time she was permitted to return to school. Ten days later there was a recurrence of the tonsillitis, though evidently somewhat mild. However, it was deemed sufficient to justify her remaining home from school. Two weeks later, on December 17, she complained of headache at night. During the following day she was more or less indisposed, and on the night of the 18th she again complained

of headache, this time more severe. Aspirin was given to her, but with very little effect. On the morning of the 19th, her urine was examined with the following result: Specific gravity, 1.009, dirty red in color, with a ring of albumin, abundance of red corpuscles, hyalin, granular and pus casts. That afternoon, without warning except for a headache, patient had a uremic convulsion, which was succeeded thirty minutes later by another. Hot packs, enteroclysis, administration of large doses of water and pilocarpin, caused rapid improvement, and the quantity of urine for the first twenty-four hours after the convulsions amounted to 54 ounces.

On the afternoon of the 22d, she was again attacked with convulsions, more severe than the previous ones, and, an hour later, another convulsion appeared, less severe, but followed by coma. Reaction was much less rapid from this attack: in fact, the patient's life was despaired of, but the use of the electric light pack, combined with jalap powder and elaterium and magnesium sulphate, was finally successful, although she was very much weakened. The patient, after this, received the electric light pack, pilocarpin and liquid diet, and was retained between blankets without clothing for a period of eleven weeks. The urinary conditions improved very gradually. Specific gravity about 1.010 for a period of two weeks, blood gradually disappearing from the urine, as did also the casts and albumin. On March 26, 1909, albumin had entirely disappeared, with the exception of an occasional hyalin cast; the condition of the urine was practically normal. The patient left then for California. On arrival, it was found that the albumin had increased somewhat, doubtless owing to the long and trying trip. Patient spent six months in California and returned to the city with conditions entirely normal. Patient has increased in weight, and physically has been as well, or even better, than at any time in her life before. The tonsils were removed after she had been in bed for eleven weeks.

During the course of the disease she was under the care of Drs. J. S. Myer, J. R. Clemens, W. P. Elmer, G. C. Crandall, W. E. Sauer, Dudley Fulton and others.

CASE 2.—Mrs. M. G. S., aged 28, wife of a physician, married for three years, had one child 2 years of age; previous history unimportant.

Early in January, 1909, the patient had an acute lacunar tonsillitis of a rather severe type, differing in no particular from previous attacks. Cultures were taken and found negative as to diphtheria; streptococci present. Small superficial ulceration appeared on the palate, but this speedily disappeared. Although the attack lasted two weeks, longer than usual, it gradually subsided. About this time the patient began to complain of slight headaches, which gradually became more intense. Some puffiness having been noticed about the eyes and a general indisposition and lack of energy, a specimen of urine was examined and the following conditions were found: Specific gravity 1.005, acid in reaction, wide ring of albumin, a few pus casts, and red corpuscles.

Patient was at once sent to the Jewish Hospital with a diagnosis of acute hemorrhagic nephritis following the tonsillitis. Within the next few days the urinary conditions became gradually worse, the urine being decidedly bloody in character. Two per cent. of albumin (Esbach's test) was found, and casts of all sorts chiefly granular. Under the usual treatment in the hospital, conditions gradually improved, with the usual varieties in the urinary findings, and after a period of sixteen weeks the urine had returned to a perfectly normal condition, all evidence of nephritic involvement entirely disappearing. One year has elapsed since the inception of the trouble, and entirely normal conditions have existed ever since.

Drs. J. S. Myer and W. P. Elmer were associated with me in the case.

CASE 3.—C. H. R., intern in hospital, consulted me on January 11 on account of obstruction in his nasal passages. On Jan. 20, 1909, a submucous resection of the septum was performed, the nose being plugged immediately after the operation. That evening the plug was removed without any considerable hemorrhage. The next day, against advice, he pursued his usual work. That evening he was taken with a hemorrhage requiring packing, which was removed the follow-

* Read before the American Laryngological, Rhinological and Otolological Society, Washington, D. C., April 29, 1910.

ing morning. On the night of January 23, he was taken with severe pains in both ears, and on the morning of the 24th, paracentesis was performed on both sides. The bilateral middle-ear suppuration pursued the usual course, the discharge ceasing entirely about February 3 and 4. The patient, who was a very active man, took very little care of himself and pursued his duties in the usual way. On February 8 he discovered edema of the ankles. An examination of the urine showed a very large amount of albumin, blood, and casts. After three months of rigid treatment in the usual way, by Dr. William Engelbach, he entirely recovered from the acute hemorrhagic nephritis. It was only after the attack of nephritis came on that he told me that, at the time of the operation, he was suffering from an acute sore throat, which had been going on for a week before, and which continued for a week after the operation. He stated that he had refrained from telling me, fearing that I might postpone the operation.

While, of course, it must be admitted that an acute hemorrhagic nephritis could follow an infection subsequent to a plug in the nose for secondary hemorrhage after a submucous operation, in view of the fact that the other cases occurred about the same time, I have felt that I would be at least justified, with this explanation, in including this case among the others.

CASE 4.—J. R., intern at hospital, complained of sore throat for about three days, when first seen on March 26, 1909. He had been having, year after year, a number of attacks of acute tonsillitis. Tonsils moderately enlarged. He was put to bed, temperature being 100.4, respiration 20, pulse 100. Examination of the throat revealed lacunar tonsillitis affecting both tonsils. Culture showed absence of Klebs-Löffler bacilli and presence of staphylococci and streptococci. Under local application of argyrol and the administration of aspirin, caffeine, etc., the throat trouble entirely subsided in four days. The patient was permitted to leave the bed, minimum temperature being 97.8, maximum temperature 101.6 axillary.

Two days later patient complained of dull ache across kidney region and general malaise. He was again put to bed. Urinary examination showed a moderate amount of albumin, a few red blood cells, and a few hyalin and granular casts. The patient was put on liquid diet, with plenty of water and no medication except daily laxative doses of magnesium sulphate. The temperature, pulse and respiration remained normal, and the twenty-four-hour urine 60 to 80 ounces. The patient was permitted to leave the bed in six days. Urine entirely cleared up in about three weeks time from the patient's admission to the hospital the second time. Patient was kept on a restricted diet for two months. Previous to the throat trouble, the urine conditions were normal.

COMMENT

Of these four patients, two were physicians, one the daughter of a physician, and one the wife of a physician; and, presumably, greater care was to be expected in observation than in patients not directly related to physicians. And yet there was no suspicion of the possibility of a nephritic condition until the disease was well advanced.

In each instance, diphtheria and scarlet fever were positively excluded.

In each instance, the nephritis was of the hemorrhagic non-scarlatinal type; that is, there was no pyrexia or great edema.

In each instance the tonsillar inflammation was mild in character and the course unusually slow. The nephritis was not discovered in any of the cases until the tonsillar affection had disappeared. This differs materially from the nephritis of scarlatina and diphtheria, in which the physical signs as well as the symptoms of the nephritis are concomitant with the height of the disease.

Case 1 shows how insidiously the nephritis may develop without noticeable symptoms, and how serious it may become without marked warning.

Case 4 is a good illustration of a case caught at its inception; perhaps it would have continued mild and, if the patient had not chanced to examine his urine, he might have recovered without ever knowing of the presence of an acute nephritis.

In all the cases, the nephritis would have been considered as spontaneous, or idiopathic, if the tonsil affection had not been so closely observed.

REVIEW OF LITERATURE

The literature on the subject, although exceedingly meager considering the importance and gravity of the condition, bears out my own observation, particularly as to the course of the nephritis. Less attention has been paid to the character of the tonsillitis itself, which, after all, should be studied with the utmost care. This is mainly due to the fact that the subject has been far more widely studied by internists than by laryngologists.

The tonsil itself, as an atrium for the entrance of disease, has been investigated by a number of laryngologists; notably by Goodale, Wood and Wright.

Goodale¹ established that carmin granules may enter the parenchyma of the tonsil, and Wood² succeeded in finding tubercle bacilli in the cervical glands after rubbing a hog's tonsil with these micro-organisms.

Following the example of Goodale, Pirera³ made applications of coloring agents to the tonsil lacunæ and also micro-organisms in pure culture. In men, he made application of indifferent saprophytes (*B. prodigiosus*), and in narcotized dogs, pathogenic micro-organisms (*Staphylococcus aureus*). The result of the experiment was positive. He found that micro-organisms enter the tonsillar tissue more easily than coloring particles. The former are stopped under the lacunar epithelium, the latter are stopped within the follicle. The greatest possibility of invasion was found in connection with the pathogenic micro-organisms, which were scattered into the follicles as well as into the follicular connective tissue.

Jonathan Wright,⁴ on the other hand, claims that the experimental work of Pirera, frequently quoted in support of the idea that bacteria readily penetrate the epithelial walls of the tonsillar crypts, to be so crude, so glaringly open to criticism of technic, that his results and conclusions are utterly worthless. He thinks, however, that there is good presumptive clinical evidence that pathogenic bacteria, which in a state of equilibrium, are harmless inhabitants of the tonsillar crypts, are, under certain conditions, absorbed through the tonsillar epithelium.

He finds that there is fair experimental evidence that pathogenic bacteria of foreign origin in vast numbers and unmodified by the cellular environment of the tonsillar crypts, when blown into the throat of an animal unaccustomed to them, pass through the tonsillar epithelium and produce systemic effects.

In the first instance, we must suppose some antecedent change, some nerve shock, some systemic cause,

1. Goodale; Arch. f. Laryngol. u. Rhin., 1.

2. Wood, G. B.: The Significance of Tuberculous Deposits in the Tonsils, THE JOURNAL A. M. A., May 6, 1905, p. 1425.

3. Pirera: Le glandule dell'anello di Waldeyer, specialmente le tonsille palatine, considerate come via d'entrata delle effezioni (microbiche), Arch. Ital. di laringol., April, 1909.

4. Wright, Jonathan: The Difference in the Behavior of Dust from that of Bacteria in the Tonsillar Crypts. New York Med. Jour., Jan. 6, 1906.

which permits the pyogenic or other bacteria—habitual denizens of the crypt—to penetrate the epithelium.

In the next place, where there is presumably no systemic change, or shock, or other cause, we must suppose that the foreign pathogenic bacteria in numbers that do not obtain under the usual conditions, overpower the bacteriolytic and other protective influence which is sufficient to repel, under usual conditions of health, the inhabitants of the tonsillar crypt. Wright concludes, after making a number of experiments, that the carmin granules pass through the layer of viscous bacteria and then through the epithelium without carrying any of the bacteria with them.

Whether or not bacteriologic investigation shows the possibility of the tonsil being the point of entrance for disease, there is abundant clinical evidence—at least so far as nephritis is concerned.

As early as 1881, Leyden⁵ called attention to the possibility of nephritis occurring after a simple angina. He stated, however, that it was analogous to the fact that diphtheritic paralysis could follow simple angina. He also described a form of acute spontaneous nephritis showing itself after exposure to cold and wet, and characterized by slight fever, hemorrhagic urine, albuminuria. Some of these cases run a slight course without edema, other patients have severe symptoms with edema, uremia, and death.

A. Thouvenot⁶ reported, in 1894, the case of a woman, aged 45, who was suddenly attacked with acute lacunar tonsillitis. Ten days after the beginning of this disease, she was taken with headache, dizziness and severe dyspnea, rapid heart action, edema of the eyelids and legs, urine loaded with albumin. The albumin disappeared after four weeks' treatment, and the patient remained well. Thouvenot believes that there are many cases of acute nephritis, said to be due to exposure to cold, which really result from an attack of inflammation of the tonsils, which perhaps is overlooked.

Jessen⁷ reports four cases of acute tonsillitis in which the tonsils acted as points of entrance for severe general infections, and in two of which nephritis was present.

De Mensil de Rochemont⁸ states that in the clinic at Leipsic, out of 1261 cases of angina, 31 cases of nephritis were found in which the course was in the main not unfavorable. The majority of the patients went on to entire cure, while others required several months to recover, and one died.

On the other hand, Emil Mayer,⁹ in a very comprehensive study of the literature, in writing on the tonsils as portals of infection, only casually mentions albuminuria as one of the conditions known to follow angina.

Even Richards¹⁰ in his extensive review of the present status of the tonsil operations, simply mentioned nephritis with numerous other conditions caused by tonsillitis, such as aneurism, appendicitis, erysipelas, meningitis, pneumonia, paraplegia, strabismus, osteomyelitis, phlegmon, oophoritis, orchitis, and general septic infection.

Julius Ullman¹¹ calls attention to the fact that nephritis often follows acute tonsillitis, and states that nephritis later in life often results from angina in childhood.

John Lovett Morse¹² thinks that it is reasonable to consider tonsillitis as a cause of nephritis on account of the fact that it is due to bacterial infection, and that being complicated by cervical adenitis, peritonsillar abscess, or acute inflammation of the middle ear, it should lead to inflammation of the kidney as do other diseases due to micro-organisms. An additional reason is the fact that it is caused by streptococci, the usual cause of acute nephritis in scarlet fever. In eight months previous to his report he had seen four cases of tonsillitis resulting in acute nephritis in all of which it was possible to exclude scarlet fever as the cause.

He further states that it is evident from these cases that tonsillitis, whether of a severe or mild type, may be the cause of acute inflammation of the kidneys. It is probable that tonsillitis is more often followed by nephritis than is commonly supposed, and it is very likely that in many cases which are considered primary the infection enters through the tonsils, the local manifestations not being severe and having been forgotten. This being true, tonsillitis should not be looked on, as it usually is, as a simple disease of but little importance. The disease, which can cause acute endocarditis and acute nephritis, is certainly one worthy of consideration. The heart and urine, in tonsillitis, should therefore be examined as carefully as in rheumatism or scarlet fever, and the examination kept up for a time during the convalescence.

Herrick¹³ states that tonsillitis, or an every-day sore throat, is probably in many instances the atrium for the entrance of toxic infectious agents that induce nephritis, and in all cases of obscure origin careful inquiry should be made as to recent nose or throat trouble. A comparatively insignificant angina, a mild rheumatism, a cold or supposedly trifling grip, may be the precursor of a nephritis.

By far the best characterization of the relation of tonsillitis to nephritis is made by F. Müller.¹⁴ He considers that angina (including angina phlegmonosa) is much more often the cause of nephritis than has been formerly believed, and that we are not justified in looking on every angina followed by nephritis as scarlatina sine exanthemate.

Postanginal nephritis is frequently overlooked, as it so commonly begins insidiously with very mild albuminuria and hematuria which only a microscopic examination will reveal, and with no symptoms except a slight lassitude. Such a nephritis can be discovered early only by physicians who make it a point to examine the urine carefully after every attack of sore throat.

It must be remembered that only the severe anginas may cause nephritis but that, as in scarlatina, very mild—even ambulatory—cases of tonsillary infections may result in affections of the kidney. He calls attention to the insidious character of the condition in contradistinction to the scarlatinal nephritis, which is usually characterized by pyrexia, oliguria, and a murky brown-red urine. However, later in the anginal nephritis,

5. Leyden, E.: Ueber das erste Stadium des Morbus Brightii und die acute oder frische Nephritis, *Ztschr. f. klin. Med.*, 1881, iii.

6. Thouvenot, A.: Tonsillar Nephritis, *New York Med. Jour.*, May 5, 1894.

7. Jessen: Tonsil as Entrance for Severe General Infection, *Deutsch. med. Wchnschr.*, 1898, No. 32.

8. De Mensil de Rochemont: Ist es nothwendig Anginakranke zu isoliren? *München. med. Wchnschr.*, March 7, 1898.

9. Mayer, Emil: The Tonsils as Portals of Infection. *The Journal A. M. A.*, Dec. 2, 1899, p. 1381.

10. Richards: *Ann. Otol., Rhinol. and Laryngol.*, December, 1909.

11. Ullman, Julius: Tonsils as Portals of Infection, *New York Med. News*, Oct. 20, 1900.

12. Morse, John Lovett: Tonsillitis as a Cause of Acute Nephritis, *Arch. of Pediat.*, 1904.

13. Herrick: *Oster's Modern Medicin*, vi.

14. Müller, Fr.: *Morbus Brightii*, *Verhandl. Deutsch. Path. Gesellsch.*, 1905, p. 64.

slight edema, especially of the eyelids, appears, moderate albuminuria, cylindruria and red cells may be found for weeks and months, and even after many years there may be a recurrence of hematuria and albuminuria. Müller believes that the tendency to complete restitution is small; in some cases, there may be, in time, a rise in the blood pressure, hypertrophy of the heart, and other signs of a contracted kidney. Many of the relapsing chronic hemorrhagic nephritis in all probability are due to an original post-anginal nephritis.

Adler¹⁵ describes a form of nephritis which occurs in at least 75 per cent. of all cases of pure tonsillitis, not including, of course, scarlatina or other infectious diseases. Unless the physician makes it a point to look for this nephritis, no clinical manifestations will direct his attention toward it, as there are no symptoms. The urine, as a rule, is secreted in sufficient quantities and is not more scant or highly concentrated than we are accustomed to see in any febrile disease. Albumin appears usually within the first forty-eight hours from the onset of the tonsillitis, and is never very voluminous—in most cases but a trace. The microscope shows possibly a few red blood cells, some casts, hyalin, finely granular and epithelial, but always more or less abundant renal epithelium. We have, therefore, what is usually designated as desquamating nephritis. There is no edema, no vomiting, no headache, in fact no subjective or objective symptoms except those contained in the urine. In the overwhelming majority of cases, the nephritis disappears simultaneously with the tonsillitis or soon thereafter; disappears as unnoticed as it came. But sometimes it does not disappear and persists long after the tonsillitis is cured. Now and then, however, it does not permanently disappear, but persists indefinitely. It is true that these cases of persistence of nephritis after tonsillitis are, on the whole, not very frequent, but they are not nearly as rare as the very scanty literature on the subject would indicate.

Philip K. Brown¹⁶ reports a case of nephritis after tonsillitis in which albumin appeared in the urine on the day on which the throat was attacked. The sediment contained hyalin, granular, epithelial and blood-casts, and many mucous cylindroids, and also many red blood cells. Sugar was found, but never before nor after. The patient progressed toward a definite acute nephritis, which was further complicated by a course of acute mania toward the end of the nephritis.

F. Kleininger¹⁷ reports that, in three years, he had seen eighty-four cases of cryptogenetic diseases, of which there were forty-nine cases of rheumatism, sixteen of nephritis, and eight of endocarditis. Of these cases, in 83 per cent. the tonsils were the cause. He considers that the tonsils are a filtration apparatus which prevent bacteria from overwhelming the system.

H. Curschman¹⁸ asserts that every simple acute tonsillitis, with or without abscess formation, may be the cause of an acute or subacute (generally hemorrhagic) nephritis, which often, unfortunately, becomes a chronic and cannot be cured. The nephritis occurs sometimes immediately after the beginning of the tonsillitis, but, as a rule, it is a sequel. He reports three cases of tonsillar hemorrhagic nephritis completely cured after tonsillectomy.

CONCLUSIONS

1. Acute nephritis results from acute tonsillitis far more often than is generally believed.
2. The symptoms ordinarily are not manifested until some time after the inception of the disease.
3. The nephritis is of the hemorrhagic type and differs from that of scarlet fever in that pyrexia, edema, and oliguria are not marked symptoms of the disease. In addition, it follows the angina and is not concomitant as in scarlatina and diphtheria.
4. Judging from the course of the cases reported, there must be many in which a mild nephritis occurs incident to a tonsillitis, which goes on to resolution without patient or physician being conscious of its presence.
5. As each case of lacunar tonsillitis may be a potential source of acute nephritis, it is incumbent on practitioners to observe the urine, not only during the height of the disease, but for some time after as well.
6. Spontaneous or idiopathic nephritis is probably often due to a tonsillitis that has not been considered as an etiologic possibility.
7. Chronic affections of the kidney may very well owe their origin to unrecognized acute attacks of nephritis of tonsillar origin.
8. Much light may be shed on this subject by a study of the urine in a large number of cases of acute tonsillitis.

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THE TREATMENT OF TYPHOID BACILLUS-CARRIERS

WITH REPORT OF A CASE TREATED BY INOCULATIONS OF TYPHOID VACCINE*

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TYPHOID IMMUNITY

One year ago, before another Section of this Association,¹ I presented the results of a study of typhoid immunity and anti-typhoid inoculation. It was shown at that time that the factors of acquired immunity in typhoid were largely concerned with the process of phagocytosis, and those antibacterial elements which make phagocytosis possible; *i. e.* the opsonins and stimulins. The other antibacterial elements, the bacteriolytins, bactericidins and agglutinins, while possessed of certain powers antagonistic to the infection during and immediately subsequent to the attack, were considered, according to work so far done, of lesser value in the perpetuation of such immunity.

In this disease, as in many others accompanied by leukopenia, the problem of active immunization seems to resolve itself into a study of these measures which primarily augment the number of leukocytes, with secondary augmentation of those antitropic substances which render the leukocytes capable of phagocytosis.

After recovery from typhoid, as from certain other acute infections, the immunity acquired by the body cells usually lasts during the life-time of the individual.

15. Adler: New York Med. Jour., March 31, 1906.

16. Brown, Philip K.: Remote Effects of Tonsillar Infection. THE JOURNAL A. M. A., June 15, 1907, p. 2024.

17. Kleininger, F.: Fieber die Bedeutung der Tonsillen für das Zustandekommen der sogenannten kryptogenetischen Erkrankungen. Internat. Centralb. f. Laryngol., Rhinol. u. Wissensch., 1908.

18. Curschman, H.: München. med. Wchnschr., Feb. 8, 1910.

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Stone, W. J.: Typhoid Immunity and Antityphoid Inoculation, THE JOURNAL A. M. A., Oct. 16, 1909, p. 1253.

As shown, however, in the previous study, the immunity thus induced may vary greatly, and it is not at all uncommon to find that more than one undoubted attack has occurred within six or seven years. Dreschfeld's figures based on 2,000 cases in the Hamburg General Hospital showed that only 0.7 per cent. were affected twice. It is probable, however, that the incidence of multiple infection is greater than these figures indicate.

On the other hand, it must not be forgotten that other bacteria may produce conditions which are clinically identical with typhoid, and which many times are diagnosed as typhoid. The differentiation of typhoid-like, paratyphoid, colon and paracolonic infections is by no means easy under the most favorable circumstances. Some types of meningitis and *Bacillus coli* septicemia may give positive Widal reactions in dilutions usually considered diagnostic of typhoid, and when made by an observer familiar with the motility of the strain. Lumbar puncture will, it is true, in most cases, clear up the diagnostic atmosphere in cases which are suspected to be typhoid but in which there are positive Babinski and Kernig's signs; while blood cultures, in septicemia due to the *Bacillus coli communis*, will usually give sufficient evidence for differentiation. Certain strains of *Bacillus coli*, however, may not produce indol or coagulate milk, and differentiation may be possible only after prolonged cultural and animal tests.

The virulence of the infection—a factor of importance, but, unfortunately, in our present state of knowledge, difficult to ascertain—undoubtedly has much to do with the problem of immunity; since, if overwhelming in one instance, little active immunity may result, while if mildly stimulating in another with good cellular resistance, an active, long-persisting immunity may follow. This is in accord with present knowledge of all infections which produce their destructive results through growth and death of the bacterial cell within the body, *i. e.*, by so-called "endotoxins." The problem is somewhat different in such infections as diphtheria, pneumonia or tetanus, which do their damage through toxins elaborated during the life of the bacterial cell. The efficient neutralization of these toxins, in all probability a purely chemical problem, is followed by recovery but not by an efficient immunity.

TYPHOID CARRIERS

One of the most interesting problems with which we are concerned in typhoid is in connection with typhoid carriers; *i. e.*, the persistent elimination of bacilli for years after recovery, and during an interval when the individual shows increased resistive powers by methods calculated to measure his state of immunity. Such immunity, which may be designated as partial or incomplete immunity, is in all probability sufficient to protect the body cells against the damaging influence of the infection, but insufficient to exert any destructive or antagonistic power directed toward eradication of such infection. In other words, the phagocytic power may be higher than normal while the bacteriolytic and bactericidal powers may be low.²

In practically all reports of typhoid carriers, such individuals were not seriously inconvenienced by the presence of the infective agent which earlier, before partial immunity was established, produced manifestations of the disease. According to Park,³ in most chronic carriers, the bacilli are eliminated with the feces, while the urine contains the bacilli in a relatively smaller number.

Connell⁴ regards the bile as the medium in which the bacilli perpetuate themselves. He regards the feces as a greater source of danger during the active stage of the disease, and the urine as the great spreader of the disease during the decline and post-febrile stage. Forster believes the gall-bladder to be the site of constant reproduction of the bacilli, which are intermittently ejected into the intestines; a view also held by the Ledinghams,⁵ since investigations have shown that the bacilli may disappear during convalescence, only to reappear several months later.

Typhoid carriers who become such through association with the disease, "contact carriers"—and such instances are not uncommon among nurses and orderlies—who themselves have not had typhoid to their knowledge, likewise show tolerance to the presence of the germs without inconvenience. Their tolerance is probably to be explained as due either to a natural immunity or to partial immunity from an earlier unrecognized mild typhoid infection. From this standpoint it is not illogical to assume that the measure of immunity which protects the individual during and subsequent to attack against the infection itself, is to be found largely in those antitropic substances which are concerned with an augmented power of phagocytosis; while lowered antibacterial substances, such as the bacteriolytins and bactericidins, permit the infection to persist for years in the individual without serious damage to himself, but without eradication of the bacterial elements.

The history of typhoid carriers varies greatly. In most instances they have been discovered in hitherto unexplainable endemic outbreaks among the inmates of asylums or among families who have happened to employ the same cook or obtained milk from a dairy previously under suspicion because of its possible connection with earlier epidemics. A larger number of typhoid carriers, in the sense that they have been the cause of epidemics, have been women who have in some way been connected with the preparation or handling of food products. Houston⁶ in 1899 reported the first case of persistent typhoid bacilluria in a "contact" typhoid carrier, who for three years had shown symptoms of chronic cystitis. The largest number of recorded cases having origin from one source was reported by Lumsden and Woodward,⁷ who found a typhoid carrier in a dairy responsible for fifty-four cases of the disease among the dairy customers.

The time since the original attack has varied from one to fifty-four years. Scheller,⁸ who investigated an endemic on an estate in Prussia, found that during a period of fourteen years, thirty-two cases of typhoid had occurred, traceable to a woman employed in the

3. Park, W.: Typhoid Bacilli-Carriers, *THE JOURNAL A. M. A.*, Sept. 19, 1908, p. 981.

4. Connell, K.: *Am. Jour. Med. Sc.*, 1909, cxxxvii, 637.

5. Ledingham, A. and J. C. G.: *Brit. Med. Jour.*, Jan. 4, 1908.

6. Houston, T.: *Brit. Med. Jour.*, Jan. 11, 1899.

7. Lumsden, L. L., and Woodward, W. C.: A Milk-Borne Outbreak of Typhoid Fever Traced to a Bacillus Carrier, *THE JOURNAL A. M. A.*, March 6, 1909, p. 749.

8. Scheller: *Centralbl. f. Bakteriol.*, 1908, No. 5, p. 385; abstr. editorial, *THE JOURNAL A. M. A.*, June 13, 1908, p. 1986.

2. The determination of the opsonic index in patients with acute typhoid infection is difficult, since the bacilli are susceptible to the agglutinative and bacteriolytic action of the serum. In chronic typhoid infection (carriers), after one year, the agglutinative and bacteriolytic effects are, as a rule, markedly diminished, and the determination of the opsonic power of the serum is a matter of less difficulty. This matter of the time element accounts for the discrepancy in the results obtained by various workers on different patients.

dairy, whose attack had occurred seventeen years previously. Typhoid bacilli were found in her stools in almost pure culture. Out of forty people who drank of the milk of this dairy, eighteen were found to be typhoid carriers, and yet only five of the eighteen had ever had typhoid. Such individuals must be considered "contact carriers," as above mentioned.

Soper's most painstaking investigation⁹ showed that in six years twenty-six cases of typhoid could be traced to a cook employed successively in households where the disease appeared. Typhoid bacilli were obtained from her stools; none were found in the urine; her blood gave positive agglutinative tests. The Ledinghams,⁵ in the course of a study of the inmates of a Scotch asylum where typhoid had been endemic, found thirty typhoid carriers out of a total of ninety women examined.

Gregg¹⁰ has reported the case of a boarding-house mistress who served as the source of infection in seven cases of typhoid fifty-two years after her own recovery. No bacilli were found in the blood or urine, but pure cultures were obtained from the feces. Jundell has described the conditions present in a family the mother of which was shown to be a typhoid carrier, over fifty years after her attack. During an interval of fifty-four years, twenty-two members of the family were attacked. This carrier was 83 years old and her feces were found to contain typhoid bacilli. Huggenberg¹¹ reported thirteen cases of typhoid in a family, traceable to the mother, whose attack had occurred thirty-one years previously, and whose feces contained the bacilli.

Park³ has estimated that fully 2 or 3 per cent. of typhoid convalescents become chronic carriers, in the sense that the bacilli persist after years in stools and urine, and as such are dangerous to the community. Probably not more than one-half of such carriers actually infect others.

DIFFERENTIATION OF CHRONIC TYPHOID BACILLURIA FROM BACILLURIA DUE TO BACILLUS COLI COMMUNIS

Colon bacillus infections of the urinary bladder in women are relatively common for anatomic reasons. It has been found exceedingly difficult in my experience to differentiate some forms of bacilluria due to the *Bacillus coli* from chronic typhoid bacilluria. At the present time, I have under treatment two cases in which the cultural methods are confusing. Neither individual to his knowledge, has had typhoid fever. Both were considered from the early cultural tests as "contact" typhoid carriers; but latterly, the same strains which in the beginning did not produce gas in glucose gelatin, or produce indol, or coagulate milk, have been found to do so in slight amount, and the earlier expressed opinions are open to question.

One may differentiate these cases, I believe, in another way, i. e., by the local reaction to injections of autogenous vaccine. The colon vaccine is much more toxic than typhoid vaccine, although occasionally one may meet a relatively non-toxic colon strain. As a rule, however, an injection of 50,000,000 colon bacilli produces a local reaction equivalent in intensity to a dosage of 300,000,000 of typhoid bacilli.

THE TYPHOID CARRIER PROBLEM

The typhoid carrier problem is a perplexing one, since in certain American cities, where for years the disease has been endemic with a consequent large number of unrecognized carriers, the installation of adequate filtration plants, while reducing the disease incidences, will not for years to come rid these municipalities of typhoid. Popular education seems to offer a partial solution of the problem. Patients convalescent from typhoid should understand that from 2 to 5 per cent. of those who have the disease harbor the bacilli in their gall-bladders, intestines and urinary tract, for periods of years, and under such conditions become a source of constant danger to others.

It will be obviously impossible to control any large percentage of typhoid convalescents by bacteriologic tests, but it will be possible for physicians to educate their patients and always to bear in mind the possible connection between the earlier attack and symptoms, sometimes slight, referable later to the gall-tract, to a slight urinary cystitis, to a recurring mild dysentery, or headaches supposed to have their origin in faulty metabolism. Segregation of individuals known to be chronic carriers may be regarded as practically impossible. Since every typhoid patient requires the constant care of at least two, usually three individuals, it can readily be surmised that a large percentage of such attendants become "contact carriers" without themselves manifesting symptoms of the disease. Park has estimated that "probably one in every five hundred adults, who have never knowingly had typhoid fever, is a typhoid bacillus carrier."

TREATMENT

So-called urinary and intestinal antiseptics such as phenyl salicylate (salol), sodium phenolsulphonate and hexamethylenamin have been found to possess little value in the treatment of chronic typhoid infection. Treatment by autogenous or stock bacterial vaccines seems to offer more chance of success. It has been shown by the extensive work of Wright and Leishman and his co-workers that the bactericidal and bacteriolytic properties of the blood serum are augmented to a considerable degree by the injection of typhoid vaccine. As shown in my previous paper on this subject, the bactericidal substances are increased four- or fivefold by inoculations of typhoid vaccine. The bacteriolytic substances are also increased so that, as a rule, the serums of inoculated subjects when diluted 1 to 10 and mixed with living typhoid bacilli, will cause either complete disappearance of the organisms or their reduction to amorphous masses.

A stock vaccine is quite as efficient as vaccine prepared from recently isolated autogenous strains.¹² On the other hand, for various reasons, it is probably better to use a vaccine prepared from the patient's organisms. Irvin and Houston¹³ have reported disappearance of the infection by treatment with an autogenous vaccine in a patient who had contracted typhoid seven years previously. In the course of the seven years, six persons living in the same house as the patient, developed

9. Soper, G. A.: The Work of a Chronic Typhoid Germ Distributor, THE JOURNAL A. M. A., June 15, 1907, p. 2019.

10. Gregg, D.: Boston Med. and Surg. Jour., July 16, 1908.

11. Huggenberg, E.: Corr.-Bl. f. schweiz. Aerzte, 1908, xix, 635.

12. The immunizing potency of typhoid vaccine six months old is apt to be diminished. The best results are to be obtained with vaccine not over three months old. Care must be used not to overheat the vaccine in preparation, since overheating greatly impairs its immunizing properties. The thermal death point of most strains of typhoid bacilli is 53 C. Occasionally one may meet a more resistant strain.

13. Irvin, S. T. and Houston, T.: Lancet, London, Jan. 30, 1909.

typhoid fever. After she came under treatment, urinary antiseptics were tried without avail for five weeks. She received during the following two months five injections in doses varying from 50,000,000 to 500,000,000, with disappearance of the infection.

REPORT OF VACCINE TREATMENT

Mrs. A. B. P., aged 34 years, was seen Nov. 19, 1909. She complained of more or less constant chilliness, malaise and fatigue, diffuse abdominal tenderness, with constipation and tenderness over the gall-bladder and liver, with occasional painful micturition. These symptoms followed an attack of typhoid fever of five weeks' duration, one year previously. The attack was unattended with complications. The examination revealed a moderate secondary anemia due to menorrhagia (hemoglobin 72 per cent., Dare, erythrocytes 3,140,000); temperature normal; tenderness on palpation over gall-bladder, and general abdominal tenderness and distention due to gas. The urine was slightly cloudy, contained few pus cells or epithelial elements; no albumin or sugar, but with marked indican reaction which was persistent.

The diagnosis made at this time was secondary anemia, due to menorrhagia and constipation with auto-intoxication. The patient improved under Bland's mass with easeara. Potassium bicarbonate was prescribed for the bladder irritation. In December, 1909, the bladder irritation persisting, hexamethylenamin was prescribed (4 gm. daily) but without effect. In January, 1910, cultures taken from the urine revealed two types of organisms; both were motile, neither liquefied gelatin; but one, the preponderating type, corresponding to the typhoid group, did not produce indol, or acid in litmus gelatin, or coagulate milk, or produce gas in glucose gelatin; while the other, corresponding to the colon group, responded to these tests. The patient's blood gave a positive agglutinative reaction in one-half hour in dilution 1 to 20 with a stock typhoid culture, and agglutinated promptly in dilution 1 to 40, the organisms corresponding to the typhoid group present in the urine. The opsonic index was 2.3 while the bactericidal powers of the blood serum, using a dilution of 1 in 5, were found to be below normal. Since normal blood serum shows bactericidal power against the typhoid bacillus in a dilution of 1 in 10 it seems safe to assume lowered bactericidal properties in this particular serum. The bacteriolytic properties of the blood serum were lessened, since in dilution of 1 in 2 no effects were noticeable, other than agglutination, in two hours. Typhoid bacilli were not found in the stools. An autogenous vaccine was prepared from the typhoid organisms present in the urine. She received between February 11 and April 29 six injections in doses varying from 100,000,000 to 400,000,000. The typhoid organisms were no longer present on the plates after six injections, although since that time a few organisms, corresponding to the colon group, mentioned above, have been found. The patient is now under treatment with vaccine prepared from the colon group of organisms. Her blood on May 18, 1910, would agglutinate a stock typhoid culture in dilutions up to 1 in 100. Her subjective symptoms, such as the painful micturition and abdominal tenderness, disappeared after the third injection. The tenderness on palpation over the gall-bladder has also disappeared. The opsonic index has not been determined since the series of inoculations owing to the rapid increase in the agglutinative powers of the serum which, as mentioned above, interferes with the estimation of the index. The bactericidal powers have been increased during the inoculation, so that in dilution of 1 in 20 no colonies developed on the plates in twenty-four hours, after incubation of the serum dilution with a bouillon suspension for 15 minutes. The bacteriolytic power after the series of inoculations was increased so that in dilutions of 1 in 10 the bacilli were reduced to amorphous masses in two hours.

CONCLUSIONS

A survey of the literature citing typhoid carriers treated by bacterial inoculations, although few in number, appears to warrant the following conclusions:

1. The time element is an important factor in the reaction of susceptibility to inoculations of bacterial vaccines in typhoid carriers. Typhoid carriers, injected within a comparatively short time after their infection, will in all probability, receive more benefit from properly prepared autogenous vaccine than from any other known form of treatment.

2. "Contact carriers," who never to their knowledge have had typhoid, are more susceptible to the inoculations than carriers who have had a definite attack of this disease, and who are in all probability more immune.

3. Where the infection has persisted for years, it may be difficult to clear up the condition by bacterial inoculation. The effort should at least be made, since in the somewhat similar condition, chronic carriers of apparently non-virulent tubercle bacilli, the bacilli often disappear from the sputum during a course of inoculations of some one of the tubercle products.

4. The immunity manifested by typhoid carriers is in all probability a partial immunity in the sense that while these individuals are protected against the infection through an augmented phagocytic power held by their body cells, the antibacterial substances such as the bactericidins and lysins are lessened to a degree insufficient to exert any destructive power against the infection.

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ABSTRACT OF DISCUSSION

DR. JOHN J. BUETTNER, Syracuse, N. Y.: I wish to report the case of a typhoid carrier; there was given a history of a typhoid fever thirty years before; there had been possibly a reinfection five years ago. The disease in this patient was discovered by accident. The patient had a persistent diarrhea, with blood in the stools. There was absolutely no evidence—no abdominal tenderness, no rise of temperature, absolutely nothing—to suggest the possibility of this being a case of typhoid fever. The stools were carefully examined and pure culture of the typhoid germ was discovered. The urine at this time gave a positive diazo reaction. The Widal reaction was positive. At no time did this patient show any rise of temperature whatever. In this case autogenous vaccine was used; five injections were made of from 25,000,000 to 1,000,000,000 dead bacteria. This was done between the months of December and February. Since then three examinations of the stools have been made very recently and there has been no reappearance of the typhoid bacilli in the stools.

DR. JAMES T. TERRILL, Galveston, Texas: The question of typhoid fever carriers is, of course, an important one; and of exceeding interest and importance are the diagnosis of these conditions, and the identification of these typhoid carriers who are a menace to the communities in which they live. In the course in bacteriology given at the University of Texas, we experimented in the laboratory with the students, seeing if we could not get the Widal reaction from their own blood. We found that a large percentage of the students who had had typhoid fever at some time of their lives gave either a positive Widal reaction or a partial agglutination. I should say that one out of five of the men who had had typhoid gave these reactions. The question that has interested me most is, how many men who have had typhoid fever and who give a positive Widal reaction, are really typhoid carriers. The identification of the typhoid bacilli in the stools, especially when they are few in number, is difficult. It seems to me that the laboratory workers should develop some more certain and simpler method for the identification of typhoid carriers. Dr. Stone's work should be carried further, that is, testing the bactericidal (or perhaps "typhocidal" would be better and more proper term to use) property; this might give very valuable information.

I have had occasion to attempt the isolation of microscopic organisms found at the autopsy table; in a series of ten autopsies I found from none up to six different varieties; the autopsies were made less than four hours after death. In this series, there was one case in which I identified the typhoid bacillus and the patient had at no time given any history of the disease, so far as the hospital records are concerned. I should like to say in parenthesis, however, that the histories of charity patients are extremely unreliable and not to be depended on. Here there were one, possibly two cases, out of ten autopsied at random in which the typhoid bacillus was found. I believe that the extermination of these typhoid carriers rests with the manner with which they are treated. These patients should not be allowed out of quarantine till the physician is sure that they are rid of the germs of typhoid from mouth to anus. These patients should not be turned loose to become a menace to the community, but should be handled in a scientific way until they are free from the typhoid germs.

DR. WILLARD J. STONE, Toledo, Ohio; I should like to emphasize one feature included in my paper in regard to the problem of typhoid carriers in general. Dr. William H. Park of New York some years ago gave some statistics of interest; he estimated that fully one in every 500 adults in the United States, who had never had typhoid fever, was a typhoid carrier; I confess that this was a surprise to me. At the same time I believe this statement of Dr. Park's to be correct. It should be remembered that every case of typhoid fever requires the more or less constant care of from 2 to 3 individuals during the course of the disease and the possibility of these individuals contracting the infection is very great. Many of them do not manifest symptoms of the disease but become, as mentioned in my paper, typhoid carriers by contact; *i. e.*, "contact carriers." I do not believe that we should necessarily say that because the blood serum of an individual agglutinates typhoid bacilli in low dilution, that it is significant. However if the agglutination persistently occurs in moderately high dilutions, 1 to 40, or 1 to 60, then they may have some diagnostic significance. We should be very careful about diagnosing so-called typhoid carriers without having obtained the bacilli in pure culture from the stools or from the urine.

ARTIFICIAL IMMUNIZATION IN NON-BACTERIAL DISEASES *

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A large portion of our knowledge concerning the processes of immunity and nearly all the practical applications of this knowledge have been concerned with infectious diseases. Many of the theories, however, which have made progress possible have been elaborated on the basis of experiments with snake venoms, hemolytic reactions, and pure proteids; and this kind of laboratory experimentation has preceded, or been coordinate with our advance in knowledge concerning the infections. We have in the venom of poisonous snakes and in certain poisonous proteids of vegetable origin, such as ricin, examples of non-bacterial toxins which are quite as suitable for the purpose of immunity investigation as the bacterial toxins and the results obtained by the employment of these substances have been of great importance in the history of immunology. In the recent investigations respecting anaphylaxis, the reactions of the organism to proteids of non-bacterial origin have been studied, and the conclusions reached afford a sounder theoretical basis for a clear understanding of infections.

* Read at the General Meeting of the Congress of Physicians and Surgeons, Washington, D. C., May 3, 1910.

From a practical standpoint also, such studies have been of value, and Calmette¹ has perfected his methods of producing antivenene to such a degree that its therapeutic value is not to be doubted. To produce his serum, the immunization is begun with very small doses of venom, to which is added an equal quantity of 1 per cent. gold chlorid solution; injections are given every three or four days and continued over a period of three to sixteen months, at the end of which time the animal may be immune to one hundred times the fatal dose. Such a serum is therapeutically efficient when 2.5 c.c. of the serum will protect a rabbit weighing 2,000 gm. against 0.001 gm. of the venom. When such a serum can be given immediately after the bite is received, its protective power is very efficient; if there is delay, a much larger dose must be administered. The dose of 10 c.c. to 50 c.c. of serum is not larger than that used in many cases of tetanus.

Other animal toxins, such as those from the scorpion, from spiders, from the tarantula, heloderma, and from bees, have been used as antigens to develop immune serum, and in a few instances such serums have been used therapeutically.

All alien proteids when introduced directly into the circulation have marked toxic actions. This is particularly true of the very marked hemolytic behavior of cel-serum. Repeated injections of any foreign proteid which at first may be harmless may develop, on subsequent injections, the peculiar reactions of hypersensitization already described.

Weichardt² has described a peculiar toxin obtained from fatigued muscle. To obtain his toxin, originally animals were fatigued by means of a treadmill, or by strychnin poisoning, saline extracts of the muscles were prepared and the usual muscle extractives removed by dialysis. The toxin was non-dialyzable and, when injected into normal animals, it produced symptoms of fatigue. By the usual method of animal inoculation he prepared an antitoxin which alleviated the symptoms of fatigue and enabled an animal to perform more work. In a later paper he states that, by violent shaking of a proteid solution at ordinary temperatures, he obtained cleavage products having the character of his fatigue toxin, while, if the shaking was done at a higher temperature, an antitoxic substance was formed. This interesting point deserves further confirmation.

Toxic substances of vegetable origin have been used as antigens for many experiments in immunity investigation and, in some instances, notable additions to our theoretical and practical knowledge have been obtained. Ford³ has demonstrated that immune serum may be developed against the hemolytic glucosid of *Amanita phalloides*, and has had promising results in the practical application of immune serums developed against the toxic glucosid of poison ivy.⁴

The investigations by Dunbar and his pupils of the toxic action of pollen protein on susceptible individuals, and the development of serum against these proteins has been a matter of much theoretical interest and considerable practical value. The extreme susceptibility of an individual to the pollen protein seems to have analogy in those instances of anaphylactic death follow-

1. Calmette; Krans und Levaditi's Handbuch der Technik und Methodik der Immunitätsforschung, Jena, 1908.

2. Weichardt; Ueber Ermüdungstoxin und deren Antitoxin. München, med. Wehnschr., 1904, Nos. 1 and 48; 1905, No. 26; 190 Nos. 1 and 35.

3. Ford; Antitoxins for the Poisonous Mushrooms, Med. News, LXXXVII, 771.

4. Private communication.

ing injection of horse serum in patients known to be unsusceptible to the presence of horses.

The reactions of immunity are, however, not restricted to highly toxic proteins. As is now well known, the injection of any alien proteid stimulates the formation of antibodies, whose presence may be detected by one of several methods, such as the precipitin reaction, the hemolytic reaction, or the diversion of complement, as a basis of the Bordet-Gengou-Moreschi phenomenon. It was soon discovered that such reactions were to a high degree specific, that is, the anti-action of the serum was exhibited mainly against the specific biologic sort of proteid employed for the injections, but a slight reaction might be obtained with the proteid from closely related species. The biologic reaction has therefore enabled us to make sharp differentiations that cannot be detected chemically.

CYTOTOXIC SERUMS HAVING SPECIFIC ACTION

Very early in this work, the possibility of producing an antiserum that would have a specific action on a selected tissue attracted the attention of investigators, and von Dungern, on the basis of experiments with antiserum developed against ciliated epithelium, suggested the possibility of using an epitheliolysin to destroy unrecognizable cancer cells after an operation. Many investigators took up the question and cytotoxic serums of various degrees of activity and specificity were described during the next few years.

Several years ago, at the time I began work in this field it was generally believed that cytotoxic serum having specific action could not be produced. Such a deduction seemed justifiable on the basis of the experiments then available, but, because the methods were faulty, I was unwilling to accept the conclusion as final. Up to this time only crushed organs had been used as antigen. It seemed to me reasonable to believe that, if the characteristic proteids from different organs such as the liver and kidney, could be secured, a serum against them having specific properties, could be developed. It must certainly be believed that the varying function of different organs has a basis in their chemical constitution rather than in their morphologic structure or their nerve control. If this premise is accepted, it seems to me reasonable that what is believed to be the most important portion of the cell physiologically should be selected as an antigen. The nucleus is chemically unique and, as far as the evidence permits conclusions to be drawn, it is the most important physiologic structure in the cell. Its chemical basis is made up of nucleoproteids readily separable from the remaining albumins and globulins.

In 1905 I published a paper⁵ giving the results of a series of experiments with immune serums developed by injection of nucleoproteids. These experiments gave evidence of specific cytotoxic action, more definite than any which had been published previously. At the Toronto meeting of the British Medical Association, I⁶ read a second short paper dealing with the subject. Since these results have been made the basis of a therapeutic method, and since the validity of the observations has been entirely discredited in the minds of many by the few experiments of Pearce,⁷ I wish to review the situation and present reasons for adhering to the belief

expressed in my first paper on this subject, namely, "Such a thing as absolute specificity under all conditions has never been demonstrated and probably never will be, but it is possible to make a serum which will act primarily on a given organ."

Since the publication of the papers referred to above, I have made many experiments with nucleoproteid serums and have confirmed the position originally taken. The method of preparing the nucleoproteid has been practically the same as that outlined in my first paper, with the exception that blood-free organs have been used, and the prepared proteids have been preserved for injection by freezing rather than by chloroform or by drying.

If attempts are made to duplicate these results, I suggest that the method I have outlined for preparation of the proteids be followed. Pearce followed what he conceived to be an improvement, namely, the boiling of the hashed organ in salt solution previous to its filtration. This procedure undoubtedly hastened the filtration time, but it destroyed the biologic character of the proteid. It is known that many specific enzymes cling to nucleoproteids in their solution and precipitation; these would be destroyed by boiling. An excellent instance of the destruction of the specific character of a nucleoproteid by boiling may be seen in the case of the nucleoproteid of the parathyroid gland, which, when freshly prepared, is effective in relieving the symptoms of parathyroid tetany,⁸ but which is absolutely useless for this purpose if it has been boiled. Since the publication of Pearce's paper, I have made experiments in which the prepared nucleoproteid was divided into two portions for inoculation, one portion boiled and the other unboiled. The unboiled proteid was effective, but I have never been able to get an active serum with the boiled proteid. With the exception of the means of preserving the proteid, the same methods have been employed in the production of the serum as were outlined in the previous papers. I quote from one of the former papers⁶ certain observations regarding the difficulties to be encountered:

The proteid should be freshly prepared before each inoculation to get the best results. Considerable difficulty was encountered in the failure of a large percentage of the animals to produce a highly active serum, even though they had the best of care and were inoculated with satisfactory proteids. For instance, out of a lot of five rabbits inoculated with liver nucleoproteids, only one produced a highly active serum; of four sheep inoculated with thyroid proteids, only one produced an active serum. My experience in this matter has led me to the conclusion that it is more difficult to form antibodies to nucleoproteids than to globulins and albumins.

EVIDENCES OF SPECIFICITY

The evidence on which I draw the conclusions of specificity is based on precipitation, agglutination, absorption experiments and on the effects of animal injections.

The Precipitin Reactions.—The precipitin reactions are specific except in high concentration, and here the relative speed and completeness of the reaction shows a decided preference of the serum to unite with its specific antigen.

In Tables 1, 2 and 3 are shown the reactions of different serums made against human nucleoproteids as antigen:

5. Beebe, S. P.: *Jour. Exper. Med.*, November, 1905.

6. Beebe: *Brit. Med. Jour.*, 1906, II, 1786.

7. Pearce: *Studies from the Bender Hygienic Laboratory*, 1907, III, 28.

8. Berkeley and Beebe: *Jour. Med. Research*, 1909, xx, 149.

TABLE 1.—ILLUSTRATING ACTION OF THYROID NUCLEO-PROTEID SERUM ON THYROID, KIDNEY, SPLEEN, LIVER AND LYMPH-NODE NUCLEOPROTEIDS. HUMAN PROTEIDS.

	10 min.	30 min.	3 hrs.	24 hrs.
Thyroid N. P.	+	++	+++	+++
Kidney N. P.	—	—	—	—
Spleen N. P.	—	—	—	—
Liver N. P.	—	—	—	—
Lymph-nodes N. P.	—	—	—	—

TABLE 2.—ILLUSTRATING THE ACTION OF KIDNEY NUCLEO-PROTEID SERUM ON THE SAME NUCLEOPROTEIDS AS IN PREVIOUS TABLE

	10 min.	30 min.	3 hrs.	24 hrs.
Thyroid N. P.	—	—	—	—
Kidney N. P.	+	++	+++	+++
Spleen N. P.	—	—	—	—
Liver N. P.	—	—	—	—
Lymph-nodes N. P.	—	—	±?	+

TABLE 3.—SHOWING THE ACTION OF THE HOMOLOGOUS SERUM ON EACH NUCLEOPROTEID AT THE END OF THIRTY MINUTES

	Thyroid serum.	Kidney serum.	Spleen serum.	Liver serum.	Lymph-node.
Thyroid N. P.	++	—	—	—	—
Kidney	—	++	—	—	—
Spleen	—	—	+	—	±?
Liver	—	—	—	++	—
Lymph-node	—	—	±?	—	++

During the last two years my colleague, Dr. P. A. Shaffer, has confirmed my results on the specific precipitin and agglutinin reactions obtained by nucleoproteid serums, and I am able to quote one of his tables (Table 4) in support of these statements.

TABLE 4.—RESULTS OBTAINED IN AGGLUTINATION AND PRECIPITATION REACTIONS WITH SERUM-DEVELOPED NUCLEOPROTEID AS ANTIGEN

	LIVER SUSPENSION			
	20 min.	30 min.	1 hr.	16 hrs.
Kidney N. P. serum.	—	—	—	—
Liver N. P. serum.	—	—	+slight	++
	KIDNEY SUSPENSION			
	20 min.	30 min.	1 hr.	16 hrs.
Kidney N. P. serum.	+slight	+	+++	+++
Liver N. P. serum.	—	—	+slight	++
	LIVER NUCLEOPROTEID			
	20 min.	30 min.	1 hr.	16 hrs.
Kidney N. P. serum.	—	—	+very slight	+
Liver N. P. serum.	+slight	+	++	+++
	KIDNEY NUCLEOPROTEID			
	20 min.	30 min.	1 hr.	16 hrs.
Kidney N. P. serum.	+slight	+	++	+++
Liver N. P. serum.	—	—	+	+

The Agglutination Reaction.—This reaction closely resembles the agglutination reaction which is used so much in bacterial immunity work. The emulsion of fine organ particles is prepared as follows: the tissue is ground in a fine hashing machine and the pulverized mass suspended in normal saline. This suspension is centrifugated in a high speed machine with the result that the finer particles come down at the top of the sediment. These are removed by a pipette, suspended in salt solution and the suspension filtered through cotton; such an emulsion will be found to be serviceable for the flocking or agglutination reactions. The reaction is highly specific.

TABLE 5.—SHOWING THE REACTION OF THYROID ANTISERUM ON EMULSION OF THYROID, KIDNEY, LIVER, SPLEEN AND LYMPH-NODE

	5 min.	10 min.	20 min.	3 hrs.	24 hrs.
Thyroid	+	+++	+++	+++	+++
Kidney	—	—	—	±	+
Liver	—	—	—	—	±?
Spleen	—	—	—	—	—?
Lymph-node	—	—	—	—	—?

* At 24 hours the kidney showed a mild positive agglutination, but the others were no greater than controls.

Agglutination reactions of this sort have been obtained by a variety of serums, and with active serums the specific character is marked, as is shown in Table 5. The reaction is more readily carried out than the precipitin reaction, for the success of the latter depends on the use of perfectly fresh nucleoproteids and also on a neutral reaction. If the reaction is too alkaline, as is likely to be the case unless especial care is exercised, no precipitin reaction will be obtained, even with highly active serum.

Absorption Experiments.—In addition to the above reactions, absorption experiments have been tried as follows: The serum was mixed with finely hashed muscle tissue from the same animal species as the antigen from which the serum was developed, that is, serum developed by the injection of dog kidney nucleoproteid, was absorbed by finely chopped dog muscle. The mixture was allowed to remain in the incubator for fifteen minutes and was then transferred to the refrigerator for three hours. At the end of this time the extract was centrifugated and filtered, and the clear serum thus obtained was used in the same kind of precipitin and agglutination experiments as outlined above, with the result that both reactions still occurred, though they were somewhat weaker than before, but they had a more specific character. The common factors had been absorbed, but the specific ones remained. Such absorbed serum is not hemolytic, but retains its power of acting on the specific antigen.

Animal Inoculation.—The most searching and conclusive method of demonstrating the specificity of the serum, however, is by means of animal inoculation. In my first paper was published evidence to show that serum developed from the selected antigen had a markedly special action on its appropriate organs. The nephrotoxin caused acute nephritis, while the hepatotoxic caused focal necroses and general granular and fatty degeneration of the liver. These lesions were acute, and caused the death of the animal.

In attempting to repeat these animal experiments with an inactive serum which he had prepared by a faulty method, Pearce drew the conclusion that "such serums have mildly toxic properties acting in a general way and affecting especially the principal excretory organ, the kidney." He admits, however, that it is difficult so to explain the severe albuminuria which I described. To bring the matter clearly into view, I quote from my first paper results which have been repeatedly verified since:

A fox-terrier bitch of six kilos body weight was kept in a cage for three days for observation. The animal was in a perfectly healthy condition, as far as could be determined, and examination of the urine showed the kidneys to be sound. On April 8, 12 c.c. of nephrotoxic serum were injected into the femoral vein, using morphin and cocain as anesthetics. The animal showed the usual behavior toward the serum. The urine was collected daily, but no albumin appeared until April 12, when a trace was found by using the acetic acid and potassium ferrocyanid test. The albumin increased in quantity daily, the animal remaining normal in behavior until April 14. On April 15 she ate very little and later in the day vomited; the following day she refused to eat. The urine on this day solidified in the tube when heated, and analyses showed that 53 per cent. of the total nitrogen excreted in the urine was in the form of albumin. Abundant granular and hyaline casts also were found. The animal was very sick, the rectal temperature being 98 F. in contrast to 102 previous to the inoculation. On April 17, the rectal temperature had fallen to 95, and since it was evident that the animal would die shortly, chloroform was administered. The autopsy showed

the liver to be slightly congested, but otherwise normal; spleen, normal; kidneys, swollen and pale yellow with punctate hemorrhages and obscured markings. About 50 c.c. of clear, straw-colored fluid were in the peritoneal cavity.

The histologic examination of the tissues showed the following conditions: The liver shows a few vacuoles uniformly distributed in the cells and slight congestion of blood-vessels. No marked degeneration and no necrosis occur. The impression given by the section is that the organ is in a normal condition with no pathologic change. The pancreas, spleen, and lymph-nodes are normal.

The kidneys are very much congested, and on microscopic examination the blood appears to be agglutinated, though this appearance may be, and probably is, an artefact. Much cast matter exists in the tubules of the cortex and medulla, and many tubules are filled with blood. The tubules in places are considerably dilated, especially where there are casts. The tubular cells are separated by spaces, somewhat shrunken, often split lengthwise, and eroded. The nuclei stain poorly and some mitotic figures are seen. The glomeruli are normal.

Five additional dogs to which this serum was given showed practically the same lesions. In some cases from 350 to 500 c.c. of bloody serum were found in the peritoneal cavity at the autopsy. If the animal was killed before the process had reached such extreme conditions, the peritoneal cavity was free from fluid. There seems to be no doubt from these findings that this nephrotoxin sets up an acute degeneration of the kidney tissue, from which certain secondary changes in the liver might possibly be expected to result, but there was no evidence in these experiments that any of the lesions were caused by hemolytic or hemagglutinative properties in the serum.

With the serum made by injecting liver nucleoproteids I have produced very serious lesions of the liver, apparently without causing injury to other organs. I shall give an illustrative case:

A fox-terrier bitch of 3920 gm. body-weight was kept under observation for six days previous to inoculation. The urine was normal in every respect. On May 2 intraperitoneal inoculations of hepatotoxin were begun. These were of 2 c.c. each, and were made on the following dates: May 2, 3, 5, 10, 12, 13. The animal weighed 4125 gm. on May 15 and for some days had been quite sick, but its condition was not so serious as that of other animals undergoing similar treatment, and was far less serious than the condition of the animal described in which the nephrotoxin had been injected. There was no indication at this time of severe hepatic lesions. At no time had the urine showed the least trace of albumin or sugar. The animal was killed by chloroform on May 15. The autopsy made one-half hour after death showed the kidneys, spleen, and pancreas to be normal. There was no fluid in the peritoneum, and all the organs appeared healthy except the liver, which was curiously mottled and showed an evident fatty condition. The following is a brief report of the histologic examination of the tissues made by Dr. Ewing:

The liver, which is altered pathologically, shows areas one-fourth to one-half the size of the lobules in which the liver cells are invisible or missing, or the tissue is substituted by a mixture of necrotic liver cells, and detritus. Many of these areas appear to surround central veins. The liver cells in general show intense granular and fatty degeneration, and congestion, most marked in and about the necrotic foci where the red cells appear to be more or less fused. The fusion of red corpuscles may be a post-mortem change. About the hepatic veins round-cell infiltration exists.

The kidney shows nothing worthy of note except an accumulation of large round cells about the glomeruli. The tubules, normal in size and not dilated, contain a slight granular coagulum.

The spleen is normal.

It is evident, therefore, that this serum has caused a profound change in the liver, but has not damaged other organs. I do not think it probable that the specific action on the liver is to be attributed to the hemolytic and hemagglutinative effects of the serum. The difference in the action of this serum and that of Pearce and of Woltmann is undoubtedly to be ex-

plained by the fact that in its preparation it has been possible to eliminate from the tissue injected a large amount of extraneous material, as, for example, bile, which previously was included and which undoubtedly influenced the qualities of the serum.

I call attention again to the fact that, on the intravenous injection of the serum, an immediate reaction occurs which is much more marked than occurs with the same quantity of normal serum. This general reaction is evidently an expression of the general toxic character of the serum. It passes in a few hours, however, and the next day the animal is normal. The specific effects which prove serious are not manifest for several days, even though the serum has been given in one injection, and although the lesion may go on to a fatal termination.

Another point of interest is to be found in the fact that not all animals react alike to active serum. A serum which causes an acute fatal nephritis in one animal may cause in the same dose a milder lesion in another animal. Two dogs were given the same dose of an active hepatotoxin; one died in eight days, while the second, although severely ill, recovered after a period of two weeks.

The results which have been cited above appear to me to warrant the use of the term special or specific in their description. It is admitted that the work requires special attention to the technic, but I believe that other investigators can duplicate the results cited.

The bearing which these experiments have on pathology and therapeutics seems to me to be obvious. It is known to many that serum has been developed against the proteids of the human thyroid gland, and that such serum has been used clinically in the treatment of Graves' disease.⁹ Other possibilities suggest themselves.

At the time the first paper was published there was little evidence to show that immunity could be developed against a nucleoprotein. During the last few years, however, many investigators have used bacterial nucleoproteids as antigen for the purpose of developing immune serum and for vaccination. Without question, these proteids have been effective for the purpose used, and it is probable that the next few years will see a considerable increase in the application of this method in bacterial immunity.

IMMUNITY TO CANCER

It seems probable I shall do violence to no one's cherished belief in the infectious origin of tumors, if I include in this discussion the question of immunity to cancer. Within the last six years a large fund of information regarding the transplantability of malignant growths in animals and the conditions under which they develop, recover and are immune have made this field one of the most interesting in medical research. The founders of this line of investigation, Loeb and Jensen, had the imagination to see the large possibilities which their work introduced. Jensen observed the existence of natural immunity and attempted to produce active immunity by means of a cytolytic serum with some degree of apparent success, although subsequent work has failed to corroborate his observations in their entirety. He likewise suggested that active immunity might be developed in the patients by treating them with their own cancer cells, that is, by a kind of vaccination. These observations were the beginning of the extensive researches which have filled the last

9. Rogers, G., and Beebe, S. P.: The Treatment of Thyroidism by a Specific Cytotoxic Serum, *Arch. Int. Med.*, 1908, ii, 297.

few years, but, as usual, they were received with a high degree of skepticism when first announced. Many of us recall with what degree of incredulity we saw the first transplanted tumor in rats exhibited by Loeb.

Soon after Jensen's result became known, many other investigators took up the question, and various attempts were made to produce active cytolytic serums against cancer cells, and also to treat cancer patients with injections of carcinoma extract, and for some time the results were encouraging. No satisfactory results were obtained, however, by any of these procedures. At about this time I produced an active cytolytic serum from the nucleoproteids of a breast carcinoma and treated the patient from whom the tumor was removed by this serum. The object in view was to prevent a recurrence; but, since the operation had been a radical one, no conclusions in regard to its value may be drawn, although the patient did not have a recurrence. The observation by Gaylord and Clowes that a certain percentage of the mice inoculated with the Jensen tumor recovered and were thereafter immune was the first authentic experimental production of immunity in tumors. Although the accuracy of these observations was at first denied by many investigators, including Ehrlich and Bashford, they have been abundantly confirmed by all cancer workers, and at the present time investigations have been made on malignant tumors in mice, rats, dogs and rabbits all of which agree in what appear to be certain fundamental principles in cancer immunity.

The first of these principles is that a varying percentage of animals is normally immune to the tumor; the reason, however, is unknown. In some instances, apparently, it is related to the external physiologic surroundings, such as climate, food and water supply and, in other instances, to the inherent character of the tissues in which the tumor is planted.

The second principle is that a varying percentage of successfully inoculated animals recover spontaneously, the number depending on the virulence of the tumor and the resistance of the animal. We have found means to increase the virulence of the tumors, the most successful of which are as follows:

1. Growing the tumor in particularly susceptible animals.
2. Selecting carefully those tumors which give the highest percentage of takes.
3. Preliminary heating of the tumor to an optimum temperature.
 1. Selecting the most suitable location for the implantation; the axilla has been found better than the dorsal region for certain tumors.
 2. Selecting the older tumors in preference to the young.
 3. Implantation from the metastases instead of the original tumor.

The resistance of the animal, likewise, may be modified by various procedures, the most important of which are as follows:

1. Making the first implantations from avirulent tumors and using the immunity thus awakened to combat the more virulent strains later.
2. Subjecting the grafts before implantation to the effect of recovered immune serum.
3. Implantation of small amounts of tumor; animals may resist a small dose and the immune forces thereby be stimulated to the resistance of a larger amount.
4. Preliminary transplantation of heterologous tumor cells.
5. Preliminary injection of embryonic tissue, various organ tissue or even blood of the homologous species.

The third important principle is that the recovered animal is immune for a long time to further implanta-

tion of tumors of like virulence, and as a consequence of this principle the highest degree of immunity with which we are familiar occurs in those animals which have grown a virulent tumor and have spontaneously recovered therefrom aided, perhaps, by some one of the various methods under our control.

Immunity to tumors is not to any considerable extent a serum immunity, inasmuch as the usual methods of demonstrating immune factors by serum reactions have in most instances been negative. Clowes, however, found that serum from a recovered animal had a deleterious effect on tumor cells, preventing their growth in a considerable percentage of cases on subsequent transplantation. What seems the most conclusive demonstration yet published of the fact that the serum of a recovered animal has antagonistic action on the tumor, is found in the results published by Crile and myself,¹⁰ in which it was shown that transfusion of large quantities of recovered blood to an animal with actively growing tumors would cause complete absorption of the latter, with the usual subsequent immunity to further implantation. More recently, I have carried out a further series of transfusion experiments,¹¹ in which I have found unmistakable evidence that the regression of the tumor is an essential factor for the future immunization of the animal, and that transfusion of immune blood into an animal susceptible to the tumor, but free of tumors at the time of the transfusion, does not confer immunity for subsequent implantation. There apparently must be some interaction between the serum and tumor by which the regression is started, the immune forces of the animal thereby awakened and future protection assured.

It is not necessary, however, for the animal to have large tumors at the time of the transfusion or that time should be allowed for their complete absorption in order to show immunity. At the present time the methods which appear to be available for immunizing an animal with growing tumors are as follows, it being understood that these methods are successful in only a certain percentage of cases: First, Gaylord and Clowes¹² have shown that by repeated subsequent implantations of tumors, the later plants grew for only a short time and that the original tumor soon felt the effects of the developing immune forces and was completely absorbed. Second, Gay¹³ has modified this procedure by obtaining complete absorption of the first tumor by the subsequent transplantation of only one graft, provided it was done before the development of metastases. Similar observations have been made by Van Dungern and Coca,¹⁴ working with the transplantable sarcoma of hares. It would seem, from the results of these experiments, that a method of vaccination is a logical procedure in the treatment of malignant tumors; but it must be observed that efforts to accomplish the same results with tumor extracts, or with tumor cells killed by heat or chloroform or other physical means, have not served to stimulate the development of the immunity. Nothing short of the living tumor-cells is capable of having such an effect. Clowes and Gaylord¹² showed that the blood from recovered mice unfavorably affects the growing tumor and the transfusion experiments above quoted lend strong con-

10. Crile and Beebe: *Jour. Med. Research*, 1908, xviii, 385.

11. Beebe: *Jour. Med. Research*, 1910, xxii, 389.

12. Gaylord and Clowes: The results of these investigations are found in Reports of the New York State Cancer Laboratory, 1909-1909.

13. Gay: *Jour. Med. Research*, 1909, xx, 175.

14. Von Dungern and Coca: *Ztschr. f. Immunitätsforsch. u. Exper. Therap.*, 1909, ii, 391.

firmation to the belief that the serum contains some effective factor, although it must be present in small concentration and of a low degree of potency.

The interest which all cancer investigators have had in these experiments on cancer immunity has been greatly stimulated by the recent observations of Hodenpyl.¹⁵ He was fortunate in having under his observation a human patient with carcinoma who showed most remarkable spontaneous regression of a far-advanced tumor, the tumor being primary in the breast with extensive metastases in the liver. The regressive processes were accompanied by the production of chylous ascitic fluid; this observation was quite in harmony with that published by Mackay¹⁶ in 1907, the difference being that in this latter instance the recovery was ushered in by the production and absorption of a pleural exudate. The chylous ascitic fluid obtained by Hodenpyl has been injected subcutaneously and intravenously in a considerable number of patients with very favorable therapeutic effects in many instances. In some cases there was at first complete absorption and apparent recovery, but during the last few weeks these patients have shown a renewal of the growth. It is, of course, impossible to say in what manner this fluid acts, but in view of the experimental work of the last few years the results do not seem surprising. Startling as have been some of the effects following injections of this fluid, the procedure seems to be a logical one and, regardless of the ultimate outcome of the observations, they have at least served the purpose of awakening in us new interest and of giving us a new lead in this most perplexing and difficult line of work.

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SOME POINTS IN THE APPLICATION OF VACCINE THERAPY *

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The literature of the past year on vaccine therapy is characterized by a tendency to study more carefully the methods of use and the limitations of vaccines rather than to extend the range of their application. We have much theory in regard to the various methods of aiding Nature in the establishment of immunity, but our knowledge of what really happens when we inject a bacterial emulsion into a patient is still incomplete.

Those who have studied vaccine therapy from both the laboratory and the clinical sides will, I believe, agree that the method, either alone or in conjunction with other appropriate measures, may accomplish definite results, especially in localized infections, and that while control by means of serum and leukocytic reactions is often a valuable aid, the chief guide in the selection of cases and of the vaccines for their cure must come from clinical observations.

I wish to emphasize certain well-recognized principles in the use of vaccines, the neglect of which has laid vaccine therapy open to criticism, and often led to failure. In this brief discussion many statements must necessarily be dogmatic, but I believe they present the consensus of opinion on the subject.

The inoculation of bacterial emulsions is not a "cure-all" for infections to be used to the exclusion of surgical

measures. The treatment by vaccines alone of an acute abscess which ought to be incised, deserves all the condemnation it has received from the critics of vaccine therapy. Nor are all patients with infections suitable subjects for vaccine treatment. The fundamental theory of bacterial therapy assumes that the body is capable of reacting to the inoculation by the formation of antibodies which aid in limiting the infection. Theoretically the giving of vaccines as ordinarily prepared to a patient whose body is already overwhelmed with infection is wrong, and clinically the results in such cases are usually bad. A critical examination of the clinical histories in those cases of supposed severe sepsis in which vaccines were used with apparent favorable outcome will frequently show that in many a definite general sepsis was not present. High fever is often one of the symptoms of general sepsis, but its presence does not necessarily indicate that general sepsis exists. A persistent bacteriemia is often demonstrable, and is a most reliable indication of the so-called septic condition. We know, however, that a transient bacteriemia may occur in localized infections, so that even the finding of bacteria in the blood on one examination is not positive proof of the generalized character of an infection. The diagnosis of general sepsis rests on a careful weighing of the condition of the patient as to pulse, temperature, prostration, etc., together with the data obtained from the laboratory. Furthermore, the occasional recovery from general sepsis after the use of vaccines does not form an indisputable argument in favor of vaccine therapy in such cases for in some cases of sepsis recovery occurs spontaneously. The giving of vaccines as a last resort while it may be justifiable in certain instances, is not to be encouraged, for the patient is often harmed instead of benefited.

The relative value of stock and autogenous vaccines is fairly well established. All observations indicate that autogenous vaccines are always desirable, although in certain superficial infections and in some localized gonococcal infections, stock vaccines have given good results. Aside from their inferior therapeutic virtue, a further objection to the general use of stock vaccines is that it fosters the feeling that when a dose of vaccine has been procured and injected, the physician's duty is ended until the next dose is due as stated on the label. Both the dosage and the interval between injections require careful correlation with the clinical symptoms. The giving of vaccines consisting of a mixture of such organisms as happen to grow in cultures from a sinus, or of a mixture of stock vaccines, without regard to the predominating organism of the infection, in the vague hope that good may come, is unscientific and productive of harm. It is hardly necessary to emphasize the importance of employing pure cultures in making vaccines; especial care must be taken to avoid introducing some of the spore-bearing organisms such as that of tetanus.

Should vaccines be used only by those who have laboratory facilities and are specially trained in the methods of vaccine therapy? I believe that this question, frequently asked, is answered by the statements I have just made. If a physician is a good clinical observer and has a general practical knowledge of the principles of active immunization, and is willing to devote sufficient time to a careful observation of his patient, over whom he must have adequate control, then he is competent to use this form of therapy, at least in those forms of infection in which favorable results are ordinarily obtained. If he is not able to meet these condi-

15. Hodenpyl: *Med. Rec.*, New York, 1910, lxxvii, 389.

16. Mackay: *Brit. Med. Jour.*, July 20, 1907, p. 138.

* Read in the Section on Surgery of the American Medical Association, at the Sixty-first Annual Session, at St. Louis, June, 1910.

tions, then for the sake of his patient, he should leave the case to some one better prepared. Personal preparation of the vaccines, or at least an oversight of their preparation will contribute materially to his intelligent use of them.

The therapeutic value of vaccines is most conclusively demonstrated in chronic or recurrent localized infections, in which the results with and without vaccines can be readily observed. In staphylococcus infections, such as furunculosis, the inoculation treatment is of unquestionable value. In acne, vaccines have been of benefit in many cases. In carbunculosis, the use of vaccines combined with appropriate surgical measures hastens the cure, and often will render unnecessary the extensive surgical procedure formerly required. Infections of the urinary tract due to the colon bacillus, have received much attention during the past year, and the reports indicate that good may be accomplished in the alleviation of local distress, pyuria and general symptoms by the inoculation of autogenous colon vaccines. Something over 50 per cent. of urinary infections are due to the colon bacillus, and in still more, this organism is associated with other bacteria. In the mixed infections, combined vaccines have been used with advantage. The study of a series of urinary infections by Davis showed that in addition to the true colon bacillus, certain colon-like hemophilic organisms were sometimes met with, which presented peculiar cultural reactions, and were associated with pronounced hematuria. Vaccines prepared from these organisms apparently benefited the hematuria, but, as frequently occurs in colon infections, the bacilluria persisted after the subsidence of clinical symptoms. Colon infections of the prostate which have resisted all ordinary treatment have in a number of instances been improved by vaccines.

Streptococcus infections have not yielded to vaccines so satisfactorily as have those due to the staphylococcus. In erysipelas, the clinical course is so variable that conclusive evidence is difficult to obtain, but it appears that some benefit is derived from the use of autogenous vaccines. Modifications in the preparation of streptococcus vaccines by substituting sugar solutions for heat in sterilizing the emulsions may give better clinical results. Opinion is divided as to the advisability of giving vaccines in puerperal sepsis. In the severely toxic cases at least, one should hesitate before adding to the toxemia of the patient by inoculations of vaccines as they are at present prepared.

Fistulous tracts and other localized infections about the nose, throat and ear associated with staphylococcus, streptococcus or pneumococcus are reported as favorably influenced by vaccines in combination when necessary with appropriate surgical measures. In surgery, prophylactic inoculations of staphylococcus, streptococcus and colon vaccines prior to operation have been proposed as a means of preventing postoperative infections in cases in which they are likely to occur. Sufficient data are not yet at hand for the formulation of an opinion as to the advisability of this procedure.

Gonococcal metastatic lesions of the subacute and chronic type are often greatly improved and cure hastened by the inoculation treatment. The best results are seen in arthritis and in lesions of the periosteum and tendon sheaths. In acute arthritis the results are not so favorable, and in cases with high fever and severe toxic symptoms the employment of vaccines should be postponed. In urethritis, gonococcus vaccines have given indifferent results. The possible prophylactic

value of gonococcus vaccines in preventing metastatic complications of acute urethritis has been suggested. In vulvovaginitis in children, the period of treatment is apparently shortened in some cases by inoculations.

The treatment of tuberculosis of bones, joints and glands by tuberculin continues to receive the approbation of clinical investigators, and when carefully employed in suitable cases assists in the healing process. The danger of undesirable reactions is less than in cases of pulmonary tuberculosis.

A striking proof of the efficacy of bacterial inoculation in producing immunity is found in the statistics of the prophylactic inoculation against cholera, plague and bacillary dysentery. The incidence of these diseases in regions where they are endemic is reduced by this method to a small fraction of the incidence among the uninoculated, and the death-rate in the protected persons who do contract the disease is much less than in those not treated. Similar results have been obtained in typhoid fever in the British and other armies, and have been confirmed by our own army medical officers. The evidence in favor of the use of typhoid vaccines in the treatment of the disease does not yet warrant any opinion of their value. The prophylactic use of streptococcus vaccines in scarlet fever is receiving much attention, particularly by Russian physicians, whose statistics appear to show a remarkable immunity to the disease in those who have received the protective vaccines.

Ulcerative endocarditis due to the staphylococcus, streptococcus, pneumococcus and gonococcus has been extensively treated by autogenous vaccines, but the results in the majority of cases have been unfavorable. Occasionally transient improvement is seen, but usually the inoculations have failed to stay the course of the disease.

While it is believed that for the present the general practitioner will do well to confine the use of vaccines to cases of localized infections, mention should be made of the recent work on the treatment of pneumonia by the inoculation of preparations of the pneumococcus from which the toxic portion has been removed. This work is in the early experimental stage, but it suggests the possibility of advance in our methods of combating the more serious bacteremias.

The local and general reactions which follow the injection of dead bacteria and their products deserve more attention than they have heretofore received. With the exception of the tuberculin reaction and the mallein reaction in glanders, very little use has been made of the similar phenomena which follow the injection of bacteria in their respective diseases. Not only may these reactions be utilized as a guide to dosage and frequency of the inoculations, but they offer valuable confirmatory aid in diagnosis. In typhoid infections a characteristic cutaneous reaction can be obtained by the local application of a preparation of typhoid bacilli. In gonococcus infections a characteristic local and general reaction follows the injection of gonococcus vaccines. This reaction has been found of assistance in the diagnosis of obscure cases of arthritis and other metastatic lesions. Other vaccines, such as the staphylococcus and colon, when inoculated into persons suffering from lesions due to the corresponding organism, cause local and general reactions which in some cases may prove of diagnostic value.

Bacterial vaccines are powerful agents for good or harm, and as such, should be used intelligently, when

indicated, as an adjunct to other recognized methods of treatment, and in the interpretation of clinical results greater care than hitherto should be taken to avoid over-enthusiastic and unwarranted conclusions.

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ABSTRACT OF DISCUSSION

DR. JOHN B. DEEVER, Philadelphia: The ground has been covered so thoroughly by Dr. Irons that I cannot add anything more to the paper. My experience with the vaccine treatment has been considerable and my results harmonize with the indications which Dr. Irons has so plainly drawn in his paper. The question of the opsonic index I do not think is of great moment, because you have to judge entirely from the clinical features of the case. The various conditions which Dr. Irons brought out were verified in our work in the German Hospital, particularly in the cases of *Staphylococcus albus* and *Bacillus coli* infections of the pelvis, of the ureter, and of the bladder. In these cases we got splendid results. In the streptococcus infections, the acute conditions, such as peritonitis, if localized, we had fair results. In cases of infection with the *Staphylococcus pyogenes* in peritonitis, consequent on childbirth, we have had good results.

I believe that vaccine treatment must be considered as a double-edged sword, and should be carried out with great care. The clinician should be the one to decide on the manner and mode of administration of the vaccine. The vaccine, of course, must be prepared by a laboratory man. Since the experience of Dr. Murphy, I use tuberculin in bone tuberculosis, glandular and peritoneal tuberculosis and tuberculosis of the genitourinary organs quite extensively, and I have no hesitancy in saying that in many instances it is the *sine qua non*.

DR. A. W. CRANE, Kalamazoo, Mich.: The statement should not go unchallenged that there is nothing in the opsonic index and that the effect of the treatment can be judged by the clinical symptoms alone. The admirable work done by Wright has shown the value of the opsonic index, particularly as a guide in treatment. There is no symptom or combination of symptoms or signs which indicate the rise and fall of the opsonic index when a vaccine injection is made. The result depends on the accumulation in the serum of opsonins and the ability of the leukocytes to perform the work of the phagocytes. We can get a reaction following an injection of the serum similar to what we have in the beginning of any infectious disease, but we cannot judge from that what follows. We do not know whether we have a rise or fall of the opsonic index, and on that condition of the blood depends entirely the time for giving the next dose and the quantity to be given. I am not surprised at Dr. Deever's expression, because we all know that he is a sufferer from chronic laboratoryphobia. I remember his opinion with reference to the value of a general blood examination, and while he expressed himself rather forcibly, I think we are all agreed that the laboratory man has established his right to existence. It is possible to-day to estimate the opsonic index without resorting to the laborious and time-consuming procedure of Wright. It is possible to estimate it without a greater expenditure of time than is necessary to make a leukocyte count, and no instrument outside of an ordinary equipment is needed, except a bit of clock-work which will revolve a leukocyte pipette twice in one minute.

There is a relation between vaccine injections and x-ray treatments. When tuberculous glands of the neck are treated by the Roentgen method the result differs in no wise from the result obtained following the injection of tuberculin—not Koch's old tuberculin, but the bacillary emulsion. There is produced by the x-ray an autogenous vaccination. The opsonic index rises after the x-ray treatment, and we have a phenomenon which is precisely parallel to that obtained by the injection method. I think that when this is thoroughly understood and when the details are worked out we will have a valuable means in the x-ray of introducing autogenous vaccines into the circulation.

DR. W. W. GRANT, Denver: In Colorado we have a great deal of tuberculosis, of both a medical and surgical nature.

The stock vaccines and the autogenous vaccines are both used extensively. My medical friends in the sanatoriums of Colorado are using them more extensively every day, and they record some rather interesting results. They find that in many of these cases the pneumococcus is particularly conspicuous, and that following the use of autogenous vaccines expectoration rapidly diminishes. I have often been disappointed in the treatment of caseous tuberculous glands with vaccines, and yet it is very gratifying in some cases to have the discharge cease, although eventually the sinuses opened up again. In some cases I supplemented this treatment with the bismuth paste with good results. In one particular class of cases I have had very satisfactory success, that is, the colon bacillus infections of the bladder. I have had cases that I treated with drainage and irrigation without good results. I discontinued all local treatment and injected autogenous vaccines made from the colon bacillus, after it had been demonstrated that that was the principal germ present, and I have had these cases progress very satisfactorily under this treatment.

We often find in these cases a mixed infection, and I do not hesitate to have vaccines made, using them freely. I believe that substantial progress is being made in this direction, although we must remember that the vaccines should be made in a scientific way by competent men in the laboratory. The surgeon, however, should be the one to carry out the treatment.

DR. E. E. IRONS, Chicago: The study of opsonins in infectious processes has played an important part in the development of vaccine therapy. However, the opsonic curve is the expression of only one of the many changes which may take place in the body fluids in response to infections, and its determination requires laboratory facilities not available in many cases in which vaccines may profitably be used. In general, careful clinical observations furnish the most reliable indications for the regulation of the size and interval of the inoculations.

AUTOGENOUS VACCINE THERAPY IN ENDOCARDITIS*

E. C. ROSENOW, M. D.
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The therapeutic value of the injection of dead bacteria in certain localized infections, particularly those of long duration, can no longer be questioned. Their effect in the more generalized infections, particularly in endocarditis, is still very questionable. Wright,¹ Conder,² Barr and Bell,³ report one case each of recovery, while Thompson⁴ reports three recoveries out of a total of seven cases of endocarditis under vaccine treatment. Others have reported a few recoveries. A study of the cases of recovery shows that all were acute infections caused by more or less highly virulent organisms following a definite often severe local infection, and usually developing metastatic abscesses, the cases presenting a picture of pyemia; the type of endocarditis from which every now and then a patient recovers quite independently of the kind of treatment. Horder,⁵ Billings,⁶ Osler,⁷ Libman and others have had uniformly negative results. The cases studied by them were chiefly

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

* From the Memorial Institute for Infectious Diseases. This work was aided by a grant of the American Medical Association and by the Dane Billings Fellowship in Medicine in Rush Medical College, Chicago.

1. Wright: Studies on Immunity, Constable & Co., London, 1903.
2. Conder: Practitioner, August, 1909.
3. Barr and Bell: Lancet, London, Feb. 23, 1907, p. 493.
4. Thompson: Am. Jour. Med. Sc., 1909, new series, cxxviii, 169.
5. Horder: Quart. Jour. Med., 1909, ii, 289.
6. Billings: Arch. Int. Med., 1909, iv, 409.
7. Osler: Quart. Jour. Med., 1909, ii, 219.

those which show insidious outset, a prolonged course and which show a progressive anemia and from which organisms with a low grade of virulence are isolated—the type known as chronic septic or infectious endocarditis. In this form of endocarditis all observers report an invariably fatal termination, regardless of the form of treatment employed. All agree that the injection of large doses (200,000,000 and over) do harm. Most observers have noted temporary good effects from the injection of small doses (from 10,000,000 to 100,000,000).

In malignant endocarditis it is obviously difficult to judge, on purely clinical grounds, the effect of the injection of dead bacteria. The series of experiments reported by me recently⁸ were undertaken in order to throw more light on the mechanism involved; to determine more accurately the dosage, etc., and to determine why the patient who has an endocarditis of the chronic type in which bacteria of a very low grade of virulence are found dies, while in the more acute infections due to highly virulent organisms, the patient occasionally recovers.

In the first series of experiments it was shown that the injection of dead bacteria always raised the opsonic index when low and increased the leukocytes, but the cases studied went on uninterruptedly to a fatal termination regardless of the increase in leukocytes and opsonic index occasioned by the vaccinations. Very late, however, when the index had dropped far below normal, temporary good effects were noted. It was observed, too, that at times the bacteria behaved very peculiarly toward the patient's own blood. The second series of experiments consists largely of a daily study of the clinical picture and the temperature, the leukocytes, the phagocytic and, what is more important, the destructive power of the patient's blood as compared with normal blood, together with the number of bacteria in the circulating blood.

The more important results brought out by this study may be summarized briefly as follows:

The evidence seems conclusive that the continuation of the infection in chronic infectious endocarditis is due largely to a process of immunization or adaptation of the bacteria to the antibodies of the host. This is shown by the facts (1) that the bacteria grow much more rapidly in the patient's serum than in normal serum; (2) that when grown in the patient's blood or serum both *in vivo* and *in vitro* they acquire a resistance to phagocytosis and a resistance to intraleukocytic destruction; and (3) that they produce alterations in the serum of the patient which robs the leukocytes of something which they need to digest the bacteria when taken up. The destroying power of the patient's blood at these times was found far below that of comparable normal blood. This peculiar behavior of the patient's bacteria and blood was found particularly striking during the time when the number of bacteria are increasing in the circulating blood and for variable periods previous to the occurrence of embolism or arthritis. During the clinical reaction occasioned by a shower of emboli or joint involvement (auto-inoculation) or following the injection of dead bacteria, and especially of normal human serum (which was found to activate the patient's blood *in vitro*) or serum and dead bacteria combined, this peculiar relation of the patient's serum, leukocytes and bacteria disappears, the destructive power of the patient's blood returns and the number of bacteria in the blood shows a

corresponding drop. The patient is temporarily improved but weaker than before. The severity of the clinical reaction and the exhaustion of the patient seem to depend (within certain limits) more on the number of bacteria destroyed in the circulating blood than on the number or size of bacterial emboli (auto-inoculation) or the quantity of serum or dead bacteria injected. Thus on four occasions in one case when the bacterial count was high the injection of 20 c.c. of normal human serum produced a very severe clinical reaction and the number of bacteria showed a marked drop. Transfusion of blood at this time would seem to be dangerous.

The injection of the same amount of serum on fourteen other occasions when the bacteria were at a low point caused no demonstrable clinical reaction and seemed to keep the bacteria at a low point for a period of three weeks. The destroying power of the patient's blood during this time remained up to the normal point. Similar results have been obtained in two other cases. Another striking fact was noted which adds significance to the observations, viz., that often during the time when the bacteria in the blood are on the increase and the destroying power of the patient's blood is below normal the temperature and leukocyte count are lower and the patient seems better. The temperature, however, at once rises when the drop in bacteria begins. In other words, the destruction of bacteria liberates a toxic material which poisons the individual. Hence to combat endocarditis successfully it is necessary to inject, in addition to something which activates the patient's blood, a neutralizing substance which would prevent the intoxication of the already overwhelmed patient. The outlook for a specific serum, however, is very gloomy because the results of animal experiments show that the injection of organisms isolated from chronic infectious endocarditis (which appear to be modified pneumococci) produce an increased susceptibility to subsequent injections instead of an immunity. Moreover, when we bear in mind that in acute malignant endocarditis we are dealing with an overwhelming infection and that in chronic infectious endocarditis the reactions produced by vaccination and even by the injection of normal serum in no way differ from those occasioned by embolic processes (auto-inoculation) and that experimental evidence points strongly to a very early and profound alteration in the mechanism of immunity, it would certainly seem that injection of dead bacteria would be of very small therapeutic value if indeed not actually harmful.

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Tuberculin in Treatment of Detachment of the Retina.—L. Dor of Lyons, reports 5 cases of detachment of the retina in which a course of tuberculin treatment was followed by a complete cure in 3 cases, a cure in another case; with recurrence which in turn was cured; in the fifth case no benefit was apparent. Three of the patients were known to have tuberculous processes elsewhere and one of these was the patient who was not benefited. In one case the retina suddenly became detached in both eyes; the patient was a woman of 40, hypermetropic, on whom Lyons had operated 5 years before for chronic iritis in both eyes. He discovered tubercles in the iris and under the influence of 100 injections of tuberculin the tubercles subsided and the retina became reattached. Detachment has recurred twice since, but each time the retina became reattached and vision is as good as before. Four months have elapsed since the reattachment occurred last. His communication on the subject was published in the *Klin. therap. Wochenschrift*, 1910, xvii, 570.

8. Jour. Infect. Dis., Chicago, 1909, vi, 245; 1910, vii, 429, abstr.

THE SIGNIFICANCE OF TUBERCULIDES IN THE DIAGNOSIS OF TUBERCULOSIS IN INFANCY *

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During the past few years it has become more and more evident that tuberculosis in infancy is by no means as rare a disease as was formerly thought. The various tuberculin reactions have aided greatly in the diagnosis of tuberculosis in infancy. A positive tuberculin reaction in infancy generally means an active tuberculous focus. But before we scarify the skin of an infant, or rub an ointment into it, or inject fluid under or into its skin, there must be some sign or symptom that would lead us to suspect tuberculosis. It is a peculiarity of infancy, however, that most of the signs and symptoms are often absent.

In a typical case of tuberculosis in infancy the following symptom-complex is present: anemia, loss in weight, elevated and irregular temperature, "bronchial gland," cough, often expiratory dyspnea (Schiek), general glandular enlargement (and in this respect the enlargement of the supraclavicular and anterior axillary glands are of especial diagnostic importance), the physical signs from the lesions in the lungs and the bronchial glands, a large, hard spleen, and, at times, certain abdominal symptoms and bone changes. When an infant has the above-named signs and symptoms the disease is already advanced and death is only a question of time. On the other hand, the cases of tuberculosis in infants which have but few signs or symptoms of the disease if recognized in time and placed under appropriate treatment, have some fighting chance. It is in just this group of cases, however, that the disease is often unrecognized until it has extended so far that treatment is of no avail. But that is not all, for often these patients are a source of infection to others.

In the diagnosis of those cases in which most of the signs and symptoms of tuberculosis are absent the various skin lesions which occur in tuberculosis are of great importance. Among these skin lesions must be considered first the so-called actual tuberculous lesions, namely: (1) lupus vulgaris, (2) serofuloderma, and (3) tuberculosis verrucosa cutis. In infancy, however, these lesions are very rarely seen. More common and therefore of greater clinical significance is a second class of skin lesions, namely, the so-called tuberculides. This class of cases includes (1) lichen serofulosorum, (2) erythema induration (Bazin), and (3) the papulosquamous and papulonecrotic tuberculides (follicles). Various authors have ascribed various names to this group of lesions to distinguish them from the first-named class of cases, which alone were supposed to be due to the tubercle bacillus itself. Darier called them "tuberculides;"¹ Boeck, "Exantheme der Tuberculose," and Johnston called them "cutaneous paratuberculoses."²

According to earlier observers these lesions were not caused by tubercle bacilli themselves, but by their toxins. Modern researches, however, have demonstrated the presence of tubercle bacilli in all of these lesions (Leiner and Spieler, Tileston, etc.). In spite of this fact, however, the name tuberculide, suggested by Darier, became such a popular one that it is still in use by modern writers (Jadassohn).

Among these tuberculides one class plays an especially important rôle in the diagnosis of tuberculosis in infancy. This is the class of papulosquamous and papulonecrotic tuberculides. In this paper we shall confine ourselves exclusively to this form of tuberculides.

Barthelemy, in 1891, first described these papulosquamous tuberculides and Boeck first called attention to their practical importance as a diagnostic sign. Rensburg,¹ Leiner and Spieler,² and especially Hamburger,³ indicated the significance of these tuberculides in infancy. Hamburger has recently published a monograph on "The Pathology and Diagnosis of Tuberculosis in Childhood," in which he again emphasizes the great value of these tuberculides as a diagnostic sign. Hamburger, in a large number of cases, first demonstrated these lesions to one of us (Leopold). In America, Tileston⁴ and Shaw and Laird⁵ have also called attention to the importance of these tuberculides as a diagnostic sign. A short time ago (October, 1909) Pirquet demonstrated several cases of tuberculides before the Johns Hopkins Medical Society.

For ten months we paid especial attention to these tuberculides, making use of the abundant material of the Kinderasyl in Berlin. The purpose of this paper is to show how valuable a sign this lesion really is in the diagnosis of tuberculosis in infancy, a lesion which as yet is recognized by but few observers.

Concerning the *pathology* of these tuberculides Tileston says:

In spite of the very constant gross appearances, there is a wide range of variation in the histologic picture. The most acute type shows simply necrosis of the skin and adjacent subcutaneous tissues, entirely without inflammatory reaction of the surrounding area; there is no round-cell infiltration, no giant or epithelioid cells. In other cases there is a chronic inflammatory tissue with epithelioid, lymphoid and plasma cells, but no giant cells or tubercles. Here there is nothing to suggest tuberculosis except the presence of tubercle bacilli. And, lastly, there may be a typical tuberculous process with caseation and the formation of miliary tubercles and giant-cells.

Tubercle bacilli have been found in about 70 per cent. of the cases (Leiner and Spieler, and Tileston).

Clinically the papulosquamous and papulonecrotic tuberculides present the following characteristics: They consist of slightly raised, rounded papules which vary in size from a pin-head to a millet seed. At first they are of a red color, but later on they become brownish and show a scale or crust in the center. We can do no better than quote Hamburger's description of them, as follows:

If one scratches away this scale or crust, there remains behind a rounded depression which generally does not bleed, but presents a dry surface. On the delicate crust one often sees a small projection which fits into the rounded depression.

1. Rensburg: Jahrb. f. Kinderh., 1904, lix, 360.

2. Leiner and Spieler: M. Pfaundler und Schlossman's Handbuch der Kinderheilkunde.

3. Hamburger: München. med. Wchnschr., 1908, No. 3.

4. Tileston, W.: Disseminated Miliary Tuberculosis of Skin, An Important Sign in General Miliary Tuberculosis of Infancy, Arch. Int. Med., 1903, iv, 21.

5. Shaw and Laird: Arch. Pediat., July, 1909.

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

¹ From the Städtischen Kinderasyl in Berlin; chief of clinic, Prof. H. Finkelstein.

Often we see the efflorescence without a crust, because the crust has already fallen off. . . . The most characteristic points of these tuberculides are the absence of any tendency to ulceration, their central depression, their livid, brownish color, and their glistening appearance when the skin is stretched.

As to the *localization* of these tuberculides, they may appear on any part of the skin, but the seats of selection are the arms, the lower part of the back, and especially the extensor surface of the lower extremities.

According to our experience there are rarely very many tuberculides present in one case. Sometimes not more than four or five have been noticed, and at times even less than this number of lesions.

In regard to the *recognition* of these tuberculides we would call attention to a fact which Hamburger has pointed out, namely, that these skin lesions are so very small that they are easily overlooked. Time and time again we could convince ourselves that observers who knew about these tuberculides from description alone, and had never seen them, were unable to find them after a careful search, although they were present. Only after we had demonstrated the lesions to them were they able to discover the tuberculides. After having once been seen, these lesions can be easily recognized in subsequent cases.

The following shows the *frequency* of these tuberculides: In a period of ten months we saw thirty cases of tuberculosis in infancy in the Kinderasyl. Among these thirty cases we were able to demonstrate tuberculides twelve times, that is, in about 40 per cent. of the cases. It goes without saying that this high percentage will not be attained in dispensary material, for these tuberculides often lose their characteristic appearance in a few days, and the cases must, therefore, be under constant observation.

It may be well to mention that we have examined many hundreds of infants free from tuberculosis, some of whom presented other skin lesions, but we were never able to find any tuberculides among them. Whenever we found these tuberculides in cases which in other respects showed no signs of tuberculosis the tuberculin reaction and further observation of the case revealed the specific nature of these tuberculides.

Our cases of tuberculosis may be divided into three groups: the first embraces those cases in which the tuberculides were only one of the signs of a typical case of advanced tuberculosis; the second group is composed of those cases in which the history of the case or some one symptom caused us to suspect tuberculosis, and in which our diagnosis was confirmed by the presence of tuberculides; the third group consists of those cases which showed no signs or symptoms of tuberculosis, and in which only the presence of tuberculides indicated that tuberculosis was present.

REPORT OF CASES

FIRST CLASS—TUBERCULOSIS WITH TUBERCULIDES.

CASE 1.—A typical case was that of M. B., an infant, aged 7 months. Two other children had died of meningitis. Mother was ill in hospital with pneumonia. The child was pale, below normal in weight and had frequent attacks of coughing. Under the tip of the right mastoid was a gland the size of a bean and a left preauricular gland the size of a cherry. There was also slight general glandular enlargement. At the apex of the left lung and the base of the right lung, there was slight dulness, with a few moist râles. Dulness was present over sternum. The spleen was enlarged. On the outer

side of the left leg there were two typical tuberculides the size of a pin-head, of a brownish glistening color with central depression. (These tuberculides were just perceptible to the touch.) On the right cheek there were also two tuberculides. The Pirquet reaction was markedly positive. There was irregular fever and increasing weakness until death took place, seven weeks after admission to the hospital.

Autopsy.—This showed caseating tuberculous bronchial lymph-nodes; caseous mesenteric glands; tuberculous and cheesy pneumonia of the right lung, with beginning softening in the middle lobe.

CASE 2.—The patient, A. M., was an infant 13 months old, born Feb. 29, 1908, whose history was unknown. The weight was 5,500 gm. (12 pounds). The temperature ranged between 37.4 C. (99 F.) and 39 C. (102 F.). There was general glandular enlargement, spina ventosa and diffuse bronchitis, with dulness, bronchial breathing and fine râles over the left lower lobe. The spleen was enlarged. On the inner surface of the right lower leg there were a few pale red characteristic tuberculides. The Pirquet reaction was markedly positive. The patient died twenty days after admission.

Autopsy.—This showed caseous tuberculosis of the bronchial and mesenteric glands; tuberculous periostitis of the skull; caseous pneumonia of the left lower lobe.

CASE 3.—The patient, P. E., aged 4 months, was an anemic infant with general glandular enlargement. The temperature varied between 37 and 39.5 C. (98.6 and 103.1 F.) There was a typical bronchial gland cough and a hard splenic tumor, dulness over the left lower lobe, bronchial breathing and fine râles. Tuberculides in all stages were scattered over body, in greatest number on the lower extremities.

Autopsy.—Acute miliary tuberculosis.

CASE 4.—The patient, O. R., aged 9 months, is an infant whose history is unknown. The patient weighs 6,100 gm. (13 2/5 pounds). The temperature ranges from 37 C. to 38 C. (98.6 F. to 100.4 F.). Examination showed general glandular enlargement, lingua geographica, chronic conjunctivitis, keratitis, spina ventosa and diffuse bronchitis. Scrofuloderma was present on all four extremities and four typical tuberculides on the lower limbs. Pirquet reaction was positive and marked. The child is still in hospital under treatment.

SECOND CLASS—HISTORY OR SOME ONE SYMPTOM AROUSING SUSPICION OF TUBERCULOSIS

CASE 5.—E. T., an infant aged 10 months, entered the hospital June 3, 1909. The child's mother died of tuberculosis. The patient is a well-developed, healthy-looking child, with fresh, rosy color and good turgor. There are no signs or symptoms of disease, but on the left leg there are twelve tuberculides the size of a pin's head of pale, brownish color, some of which have a central depression. Pirquet reaction is markedly positive. The child is still in hospital under treatment.

CASE 6.—A. R., an infant, aged 11 months, whose history is unknown, is an anemic child, 6,300 gm. (13 4/5 pounds) in weight, with general glandular enlargement. Physical examination was negative except for the skin lesions. On the buttocks were many tuberculides in different stages of development. The smallest were the size of a pin-head, brown, slightly raised, with a small central depression. Near these were larger tuberculides about the size of a millet seed, some red, some brown, slightly elevated with a central depression. Pirquet reaction was positive and pronounced. Under observation the child's general condition gradually became worse; loss of weight, fever, vomiting and cough developed. After a few weeks the tuberculides had in part faded away.

Autopsy.—This showed caseous tuberculosis of the tracheal, bronchial and mesenteric glands; caseous pneumonia of the right lower lobe containing a small cavity the size of a cherry.

CASE 7.—The patient, E. D., was an infant, aged 9 months. The mother and one other child died of tuberculosis. The child weighed 5,100 gm. (11 1/5 pounds). With the exception of a slight enlargement of the cervical and inguinal glands no abnormal condition was found in the skin. On the face and back and on the extremities there are tuberculides, consisting of slightly raised papules, the size of a pin-head, of brownish

color, glistening and with central depressions. Pirquet reaction was strongly positive. The child is still in the hospital.

CASE 8.—K. G., an infant aged 5 months, whose history is unknown, was sent to hospital because of bronchitis. The patient is a poorly nourished, pale, undeveloped child. The child's temperature ranges from 37 C. to 39 C. (98.6 F. to 102.2 F.). The day after admission dulness was found over right lower lobe. Dyspeptic stools and vomiting were present. A diagnosis of gastro-enteritis and broncho-pneumonia was made. On the third day of the child's stay in the hospital two typical tuberculides were found on the back. Pirquet reaction was strongly positive. Child still under treatment in hospital.

THIRD CLASS—NO SIGNS OR SYMPTOMS OF TUBERCULOSIS EXCEPT THE TUBERCULIDES

CASE 9.—B. L., an infant, aged 3 months, was brought into the hospital by the mother, because it had frequent stools and had lost weight somewhat. Examinations showed a rather well-developed child with negative findings in every respect, except for the skin. Three typical tuberculides were found on the right leg. Pirquet reaction was markedly positive. The child was removed from hospital after a few days. Further course of disease is unknown, but the positive Pirquet reaction in a child of 3 months makes a positive diagnosis of tuberculosi.

CASE 10.—E. S., a child, aged 2½, showed bilateral otitis media. The patient's temperature ranged between 37 and 39.2 C. (98.6 F. to 102.4 F.). There were no signs or symptoms of tuberculosis. On the fifth day after admission examination showed a few brownish-red umbilicated papules, pin-head-sized, on buttocks and arms. Pirquet reaction was positive. The child was sent to the country.

CASE 11.—The patient, I. L., was an infant aged 3 weeks. The parents were healthy. The child was breast-fed for three weeks, and was then brought into the hospital. It weighed 2,000 gm. (4 2 5 pounds). It was placed on "allaitement mixte" and made very good progress. After two and a half months the child weighed 3,900 gm. (8 3 5 pounds). On admission there was a grayish discoloration of the skin, which, with a distinct saddle nose, a chronic coryza and an enlarged spleen, made us suspect syphilis. But there was no skin lesion. The Wassermann reaction was negative. Only after repeated examinations were there at last discovered on the lower extremities numerous flat papules, of pin-head size and with central depressions. These papules were light-brown in color and brightly glistening. A Pirquet reaction was then made. It was markedly positive. After a few days expiratory dyspnea developed, and later, a bronchopneumonia, with loss of weight and irregular fever. The child is still under observation.

CASE 12.—F. Z., an infant, aged 2 months, whose history is unknown, was an underdeveloped child, with yellowish, waxy color. There were two distinct axillary glands, a hard liver and spleen, but physical examination was otherwise negative. The temperature ranged from 37.8 C. to 39.2 C. (100 F. to 102 F.). Syphilis or tuberculosis was suspected. Pirquet reaction and *Nitch* reaction were negative. The child was not cachectic and a provisional diagnosis of syphilis was made. A Wassermann reaction gave doubtful result. A few days later three typical tuberculides were found on the left lower extremity and the diagnosis of tuberculosis was made. The Wassermann reaction was again made with a negative result. The child gradually grew worse. Dulness developed in the right upper lobe. Death followed about 4 weeks later.

Autopsy.—This showed caseous tuberculosis of the bronchial and mesenteric glands, caseous pneumonia of right upper lobe with a cavity the size of a hazel-nut, with no signs of syphilis.

CONCLUSIONS

1. Papulosquamous and papulonecrotic tuberculides are present in a large percentage (40 per cent. in our series) of cases of tuberculosis in infancy.

2. At times the tuberculides are the only evidences of tuberculosis that are present.

3. The tuberculides are, therefore, of great diagnostic value in tuberculosis in infancy.

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ABSTRACT OF DISCUSSION

DR. F. C. NEFF, Kansas City, Mo.: I had the pleasure of seeing a few of these cases with Dr. Leopold in Berlin and since then I have hoped to demonstrate some of these lesions on tuberculous children, but have not been successful. The cases are extremely interesting from the diagnostic standpoint and explain the positive Pirquet reaction we get in some children in whom an active tuberculous lesion is not demonstrable.

DR. FRANK GENGENBACH, Denver: I have had the same experience as Dr. Neff. I saw a number of these lesions in Berlin and Vienna. One must have them pointed out to him before he can appreciate their significance. Whether they are limited to the Germans and Austrians I cannot say. I have found but few in this country; but in the cases where they are present we can get the Pirquet reaction.

DR. WALTER D. HOSKINS, Indianapolis: How early may this observation be made in relation to fever, or demonstrable signs in the glands or lungs?

DR. WILLIAM J. BUTLER, Chicago: The question of the diagnosis of tuberculosis is getting to be quite a common topic and we are constantly seeking for some new sign or method of diagnosis. I saw cases presenting what were termed tuberculides about four years ago. I hardly think it can be looked on as of importance as a rule in so far as the early diagnosis of tuberculosis is concerned, as there are so many other points of importance in the diagnosis of tuberculosis that we can hardly lean on it with any confidence, for we see lesions similar, to all appearances, in children not affected with tuberculosis. They cannot be differentiated at all from the small papulo-pustules we often see in children. As to the Pirquet reaction, I think there is nothing that is more misunderstood to-day than the tuberculin reaction, especially the Pirquet reaction. I do not think any one looks upon the Pirquet reaction as a decisive aid in the diagnosis of tuberculosis in children beyond the second year. A positive Pirquet does not mean an active tuberculosis unless it is within the first two years of life, and even at that time it is not an absolutely positive differential aid.

DR. C. F. WAHRER, Fort Madison, Ia: Are those early diagnostic signs of tuberculosis in infancy or are they later signs?

DR. JEROME S. LEOPOLD, New York: As to the frequency of these tuberculides, Pollak, of Vienna, has recently reported about one hundred cases of tuberculosis in infancy from Hamburger's clinic. He found that the vast majority of these patients first showed symptoms referable to the bronchial glands or the lung, but in a very large number of cases he could find no symptoms or signs except these tuberculides. I have been on the lookout for this lesion in this country for six months and have seen but one case. In regard to Dr. Butler's statement, I would say that these papulo-necrotic tuberculides are specific. If you find a tuberculide in an infant you can be absolutely sure that there is some focus of tuberculosis in that infant. A positive Pirquet reaction in infancy almost invariably means an active tuberculosis. The tuberculide begins as a small papule, it is at first reddish in color. This redness lasts for a few days or a week or so. Sometimes there is a small vesicle on this papule that breaks down and leaves a central depression. Gradually the redness disappears and a typical tuberculide appears. This consists of a very small flat papule with a central depression. It is of a brownish color and glistens when the skin is stretched. These tuberculides usually appear on the lower extremity. The number of tuberculides is very small; often only one will appear. The largest number I have seen in one case was twelve. There is very slight induration. The duration varies from several days to a few weeks. That is why, if you observe these cases in dispensary practice only, you might not see the tuberculides, while if you have the case in the hospital under constant observation you will be more likely to observe them.

THYROID SECRETION AS A FACTOR IN ADRENAL ACTIVITY

R. G. HOSKINS, PH.D.

Professor of Physiology, Starling-Ohio Medical College
COLUMBUS, O.

For some time the idea has been growing that the activity of the adrenals is materially influenced by thyroid conditions. Various clinical writers have endeavored to explain obscure symptom-complexes on this assumption, but until recently there has been no clear-cut evidence supporting the idea. Within the last two years, however, the theory has received some support from the work of several German investigators. At present, the weight of the existing evidence, although it is not entirely concordant, is in favor of the theory that the thyroids stimulate the adrenals.

During the last year and a half I have made several series of studies in the physiologic laboratories of the Harvard Medical School in an attempt to throw some further light on the relationships among the thyroids and other endosecretory organs. Although these studies are as yet for the most part incomplete, sufficient progress has been made to justify a preliminary report of that part of the work bearing on the subject of this paper. The studies are purely morphologic in character; they are based on the supposition that increased or decreased activity of any organs in plastic, rapidly growing animals causes a corresponding hyperplasia or hypoplasia. The effects both of hyperthyroidism and hypothyroidism were tried in young and in fetal animals. The guinea-pig was used in practically all the experiments.

In each case the animals before autopsy were lightly etherized, and, in order to eliminate variability in gland weights due to differing blood content, were bled to death from the aorta. The organs under consideration were then carefully dissected out and weighed on a quick-acting balance. They were usually fixed for histologic study. With care in the manipulations it was found possible, as was shown by subsequent microscopic study, to reduce to negligible proportions the percentage of error due to the presence of extraneous tissue. The gland weights have all been expressed as percentages of the body weights.

CONGENITAL HYPERTHYROIDISM

The results obtained in the experiments on congenital thyroidism have recently been reported in detail in the *American Journal of Physiology*.¹

It is as yet largely unknown to what extent conditions in the mother produce demonstrable results in the organs of her offspring. Halsted,² and, later, Edmunds³ and Hunt⁴ have noted in the offspring of thyroidectomized animals a hypertrophy of the thyroids. Ceni⁵ has also noted that chicks hatched from the eggs of thyroidectomized hens usually show anomalies of development. In my experiments twenty-eight guinea-pigs were fed commercial desiccated thyroid in various doses and for various lengths of time. This led in most instances to death or abortion. There were obtained, however, twenty-one offspring from mothers that had ingested from 0.13 to 2.50 gm. of the drug. The weights of their adrenals at birth were compared with the aver-

age of twenty glands from normal animals. There was found a depression in weight roughly corresponding with the dosage. In case of the litter the mother of which had received the greatest dosage, the average weight of the adrenals was 0.014 per cent. of body weight, whereas the normal average was 0.030 per cent. The depression amounted to 53 per cent. No difference was detected histologically between the normal and the experimental glands, either in pigmentation, number of mitoses or proportions between cortex and medulla. The depression noted was interpreted as a reaction in the adrenals of the offspring to epinephrinemia caused by thyroidism in the mother.

CONGENITAL HYPOTHYROIDISM

In a second series there were obtained eighteen offspring from six mothers that had been thyroidectomized before conception. The adrenal weights at birth (expressed as percentages of the body weights) were 0.023, 0.035, 0.042, 0.036, 0.028, 0.046, 0.060, 0.024, 0.036, 0.042, 0.035, 0.031, 0.037, 0.048, 0.035, 0.035, 0.027, 0.030; average, 0.036. The normal average as previously mentioned was 0.030. There was, therefore, in the experimental series, an average hyperplasia of 20 per cent. This result is particularly significant because the guinea-pig is largely immune to the effects of thyroidectomy.

A few supplementary experiments were made on dogs, but in only one case was a litter secured. The mother had been deprived of about three-fourths of her thyroid tissue. The adrenal weights were 0.028 and 0.020, respectively, while the average weight of those of five normal animals of the same size was 0.017. In these two cases, therefore, there was an average hyperplasia of 40 per cent. Incidentally, Halsted's observation of thyroid hyperplasia in similar cases was confirmed.

These results are in harmony with those of the preceding series. The adrenal hyperplasia observed is probably to be similarly explained as a reaction to adrenal deficiency caused by hypothyroidism in the mother. It is hoped later to extend this series in animals more favorable than the guinea-pig to such studies, and to make a histologic study of the organs affected.

DIRECT HYPERTHYROIDISM

In correlation with the congenital series studies were made of the effects of hyperthyroidism and hypothyroidism in young guinea-pigs directly. In this animal the young at birth are sufficiently advanced in development to permit of their use at once for experimental purposes. This is an advantage, because their growth at this period is rapid and any morphologic effect of the experiment may be expected to appear within a short time. The experiments were begun on the day of birth and continued fifteen days. During this period the animals increased in weight about 50 per cent. In the "hyperthyroidism" series eighteen animals were fed desiccated gland, beginning with approximately 5 mg. and increasing to from 10 to 15 mg. a day at the end. The attempt at first was made to keep controls from the same litters, but this proved impracticable because the rate of growth in different members of a family was so variable that the gland weights at the end of the period were not comparable. Each experimental animal, therefore, was "paired" with the one of a normal series of twenty-seven that most nearly corresponded with it in weight and rate of growth. Two pairs were of different sex and in four cases, the sex of either the normal or the experimental animal had not been recorded. In the other twelve pairs

1. Hoskins: *Am. Jour. Physiol.*, 1910, xxvi, 426.
2. Halsted: *Johns Hopkins Hosp. Rep.*, 1896, 1, 373.
3. Edmunds: *Lancet*, London, 1901, 1, 1451.
4. Hunt, Reid: *The Relation of Iodine to the Thyroid Gland*, *The Journal A. M. A.*, Oct. 19, 1907, p. 1323.
5. Ceni: *Arch. Ital. d. Biol.*, 1905, xiii, 420.

the sex was the same. In two cases in which comparable controls were lacking, the same one was used twice and in another instance one was used three times. The accompanying table shows the results obtained.

WEIGHTS OF ADRENAL GLANDS OF YOUNG GUINEA-PIGS AFTER FIFTEEN DAYS' THYROID FEEDING, COMPARED WITH NORMALS *

Weights of animals.		Weights of adrenals.	
Experimental.	Normal.	Experimental.	Normal.
113	114	.065	.051
102	96	.072	.057
109	107	.067	.047
117	114	.058	.051
97	95	.048	.042
109	105	.082	.061
133	133	.041	.042
140	145	.057	.041
108	102	.094	.067
75	82	.030	.038
137	130	.052	.046
120	123	.063	.043
135	130	.059	.046
125	130	.061	.046
166	177	.049	.045
176	165	.046	.040
131	133	.052	.042
196	197	.047	.043
Av. 127	127	.059	.047

* Gland weights expressed as percentages of body weights

There was an average hypertrophy in the adrenals in this series of about 25 per cent. In one case only was the normal gland as large as the experimental. These results add considerable plausibility to the explanation proposed for the adrenal depression noted in the "congenital thyroidism" series. It is intended later to report this series also in greater detail, including histologic studies of the adrenals and other organs affected.

HYPOTHYROIDISM

A preliminary series of 11 thyroidectomies was made on new-born guinea-pigs. So far as could be determined, however, from such a small series, the operation had not at the end of fifteen days resulted in any effect on the adrenals. In view of the fact that in this animal the operation has in other respects so little effect, such a result was rather to be expected. It is hoped later to continue the experiments in more suitable animals.

The results of the experiments as a whole add some support to the theory that the thyroids normally stimulate the adrenals. The "congenital" experiments are of themselves inconclusive. They might be explained on two suppositions—either that the results noted were direct effects of the experimental procedures in the fetal organisms, *e. g.*, that hyperthyroidism depressed the adrenals or, that the effects were, as supposed, secondary reactions to effects in the homologous maternal organs. The two suppositions lead to diametrically opposed conclusions. But from the feeding experiments in the young animals themselves, there seems to be no escape from the conclusion that hyperthyroidism stimulated the adrenals to hyperplasia. It is probable, but does not necessarily follow, that, within physiologic limits, thyroid secretion would have a similar stimulating effect. It has been shown by Bernard and Bigart⁶ and others that various toxins cause adrenal hypertrophy, and the results secured from thyroid feeding might be due merely to the toxic effects of the drug. The toxins might be either the drug itself or endotoxins due to perverted metabolisms. This supposition is opposed, however, by the results of the congenital hypothyroidism experiments, for which no corresponding explanation can be offered.

My thanks are due to Prof. Walter B. Cannon for numerous helpful criticisms during the course of this work.

SUSPENDED RESPIRATION DURING OPERATION

JERE L. CROOK, A.M., M.D.
JACKSON, TENN.

The patient, a negro boy, aged 19, while walking over a trestle near Ripley, Tenn., fell about 30 feet, striking the back of his head on an iron drawhead. A temporary dressing, which checked the hemorrhage from the scalp, was applied by a neighboring physician, and the boy was brought to my sanatorium in Jackson fifty-four hours after the occurrence of the accident.

The patient was delirious and semiconscious on arrival. Operation was begun shortly afterward under ether anesthesia. After thorough exposure of the occipital region of the skull, an extensive depressed fracture was revealed, involving portions of the parietal and occipital bones. A trephine opening was quickly made and elevation of the depressed area was accomplished with difficulty, the ether cone meanwhile having been laid aside. Just as the last portion of the depressed bone was pried up, the patient's breathing stopped instantly. His tongue was seized with forceps, jaws elevated and chest depressed with no effect. Then in the face of apparent death, Sylvester's method of artificial respiration, with head lowered, was methodically and carefully practiced for seven minutes, the boy's father and brother, who were standing near, having given him up for dead. Our perseverance was finally rewarded by a gradual resumption of voluntary respiratory efforts. The operation was completed without anesthesia, physiologic saline solution being given per rectum and continued afterward. The patient reacted very slowly, but made an uneventful recovery.

At this date, seventeen days after the operation, he is in full possession of his faculties. The wound is healing slowly by granulation, as it was infected before operation. It is being dressed every other day.

THE DIAGNOSIS OF ULCER OF THE STOMACH AND DUODENUM BY THE ROENTGEN RAY

HARRY ADLER, M.D.
BALTIMORE

The recognition of ulcer of the stomach and duodenum is always so important and the diagnosis at times so difficult that any method must be welcomed which promises aid in those atypical cases where the absence of the cardinal symptoms permits only of a suspicion or, at most, of a presumption. The finding of blood in the stool, either visible or occult, has proved of great importance and constitutes a decided step in the forward direction; but when we remember that not infrequently in chronic ulcer even occult blood is absent for weeks at a time, this important means of diagnosis is often unavailable. Also, Murdock's orthoform test, being based on subjective symptoms, is usually untrustworthy. It is not my purpose to enter into the general subject of diagnosis of ulcer, but simply to call attention to the valuable aid the x-ray examination has furnished in a number of cases: some of otherwise uncertain diagnosis.

I have found little in the literature to guide me. The first idea was given me by Dr. Hemmeter in 1906 before the American Gastro-Enterological Association. He spoke of the diagnosis of gastric ulcer by means of the

6. Bernard and Bigart: Jour. de physiol. et de path. gén., 1902, iv, 1014.

x-ray, and referred to successful results in cases of artificial ulcer produced experimentally in dogs and cats. The fluoroscope was used mainly; at least no plates were exhibited at that time. Dr. Hemmeter states that the bismuth shadows he obtained were not sharply circumscribed and that the shadows produced by the ribs and spinal column might interfere with that of the ulcer. Matthes of Cologne, in his recent monograph on ulcer of the stomach, states that he has been at pains to localize the ulcer in undoubted cases as proved by hematemesis. Out of numerous attempts he was successful in but two cases. He gave bismuth by mouth for several days and then discontinued it for two days, after which the patient was radiographed. His method was based on the idea that a firm crust of bismuth was formed in the ulcer which should persist for several days after the bismuth was withheld. Had this idea been correct, he would have succeeded more frequently, for bismuth does not fail to give a dense shadow with the use of a good *x*-ray machine.

My method is to give a single dose of one and a half drams of bismuth subcarbonate in half a glass of water and wait a time sufficient for the stomach to get rid of it, having determined in advance the motility. In none of my cases was there any marked disturbance of the motor function. The picture was taken four to six hours after the bismuth, which was given on an empty stomach. This allows ample time for all bismuth to disappear from the stomach and duodenum except such as may be deposited in the crater of an ulcer. Numbers of observations were made in cases of normal stomachs and in cases of gastroparesis with intact gastric mucous membrane, and in every case the bismuth was found, on *x*-ray examination, to have left the stomach completely within four hours of giving it. Care should be taken, however, that the stomach is empty when the bismuth is taken. It is not improbable that the negative results obtained have been due to allowing too much time to elapse before the *x*-ray exposure and possibly to inferior apparatus. We have not found that the spinal column or ribs interfered with the demonstration, the bismuth shadow being denser than that of bone. Some training is necessary to interpret the plates properly. They frequently represent to the physician but vague shadows until delineated by the trained observer.

After this first *x*-ray examination one ounce of the bismuth subcarbonate is given in a glass of water and a second picture taken immediately thereafter. The bismuth rapidly spreads itself over the gastric mucosa. This can probably be facilitated by having the patient turn from side to side several times. This examination has for its purpose the obtaining of a shadow of the entire stomach, so that any shadow obtained in the first plate can be localized with reference to its relation to the stomach.

The use of the subnitrate of bismuth in large doses has recently been productive of considerable discussion. That its use in large amounts is not a matter of indifference was according to Dupert, first shown by Hildebrandt, who reported two cases of bismuth poisoning following colon injections in children. Benneke and Hoffman observed in a three-weeks-old infant cyanosis, collapse, and death occurring within fifteen hours after giving 3 to 4 gm. of bismuth in buttermilk. Meyer reported a fatal case of bismuth poisoning in an adult three hours after taking 50 gm. of the subnitrate. These cases

showed a marked methemoglobinemia. A large number of less serious cases have been published. In some the poisoning was attributed to a change from the nitrate to the nitrite of bismuth. Methemoglobinemia was noted in practically all cases, and it is very doubtful whether we have to deal here with a true nitrite poisoning in the sense of a sodium nitrite or nitroglycerin intoxication; but rather that the nitrite of bismuth is more soluble and more readily absorbed than the subnitrate; and that there occurs a true metallic poisoning similar to that of lead or antimony, metallic bismuth having been found in the internal organs and in the gums. Sufficient is now known to make one hesitate in giving large doses, such as an ounce or two of the subnitrate. I have been using the subcarbonate in large doses and have had no untoward results. In most of my cases no effort was made to get rid of it after the *x*-ray exposure. Other metallic substances have been recommended, notably the red oxid of iron by Taegle, and the magnetic oxid of iron by Lewin. Hemmeter has had some experience with calcium salts. Where there is a probability of stenosis of the stomach or marked ulceration of the alimentary tract, means should be taken to remove the bismuth after it has served its purpose.

I have the following cases to report briefly in connection with the plates, which were taken by Dr. Ashbury, radiographer to the Hebrew University Hospitals.

CASE 1.—S. W., male, aged 52, merchant, had syphilis at 18; previous history otherwise unimportant. The patient had suffered three to four years intermittently with pain in upper abdomen, localized about midway between xiphoid cartilage and umbilicus. Pain came on irregularly, apparently independently of food; caused nausea at times but no vomiting. The patient belched considerably and had waterbrash, heartburn and constipation. He was well nourished but rather pale. Physical examination was negative except for tenderness over the seat of maximum pain. The stomach area was normal. Free hydrochloric acid was 48; total acidity 76. The patient had been treated for several years for hyperacidity with indifferent result. The *x*-ray examination showed a definite shadow about the size of a dime in the pyloric region of the stomach. The patient was cured by six weeks' ulcer treatment; he has had no symptoms since treatment was discontinued, over one year ago.

CASE 2.—A. A., aged 40, was a cigarmaker; previous history unimportant. His chief complaint was pain in the stomach. He was accustomed to drink beer and whisky immoderately. He denied lies. His trouble, for which he was treated in a hospital in Russia with partial relief, began one year ago. Three weeks before entering Hebrew Hospital the pains became more severe and caused vomiting on one occasion. The patient was rather poorly nourished and frail; had marked aortic insufficiency; pain and tenderness immediately below the ensiform cartilage. On the fifth day in the hospital he had a profuse hemorrhage from the bowel accompanied by severe pain in epigastrium. These hemorrhages persisted for three days and the patient's condition became so precarious that transfusion was carried out with the happiest results. Several days later an *x*-ray plate showed a bismuth shadow near the pylorus about the size of a quarter dollar. The intestinal hemorrhages without hematemesis had caused me to think the case one of duodenal ulcer until the *x*-ray examination was made.

CASE 3.—J. E., aged 40, tailor, whose habits were good (no syphilis) and early history unimportant, had been troubled for seven years with spitting of blood. He suffered with anorexia, bad taste in mouth, belching of gas with rising of sour fluid in mouth; felt better after eating, but one hour later had a sense of oppression in the stomach region with above symptoms. He had attacks of diarrhea with fever. Occult blood was present on many occasions. Physical examination was quite negative. There was only diffuse and slight tenderness in upper abdomen. When the tube was introduced into the stomach, blood was ob-

tained. X-ray examination showed a small irregular bismuth shadow in pyloric region of stomach.

CASE 4.—Z. K., aged 43, merchant, had had diffuse pains in the abdomen for about nine years. The present trouble dated from an acute attack of intestinal trouble following the eating

by taking food. His appetite was good, he had no nausea, vomiting, belching or heartburn. The bowels were regular. On repeated examinations, no occult blood was found. The patient was well built and well nourished; had a florid complexion. The physical examination was absolutely negative. There was no abdominal tenderness. Free hydrochloric acid was 36, total acidity 68. The patient was treated for nervous indigestion with but temporary relief. He was suddenly seized with faintness while at stool, when subsequent examinations showed melena which persisted for weeks, producing marked anemia. X-ray examination showed ulcer of duodenum. This was substantiated by a laparotomy when a gastro-enterostomy was performed. Bismuth shadow was later shown in duodenal loop. Subsequent to this, transfusions of blood were necessary to relieve several violent attacks of hematemesis.



Fig. 1.—Bismuth shadow showing ulcer at pylorus (position indicated by arrow) in Case 1. Position of umbilicus indicated by light U-shaped mark.

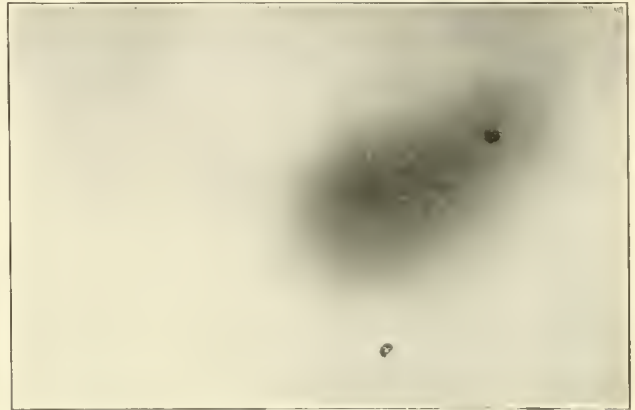


Fig. 3.—Bismuth shadow of globular stomach x-rayed immediately after taking bismuth subcarbonate to show position of stomach so as to locate bismuth shadow with reference to stomach (Case 2).



Fig. 2.—Bismuth shadow (indicated by arrow) corresponding with area of tenderness, just below ensiform cartilage (Case 2). Picture taken five hours after ingestion of bismuth. Small dark disk above to the right indicates painful area due to heart (aortic insufficiency). Position of umbilicus shown by small dark broken disk below.



Fig. 4.—Shadow of duodenal ulcer indicated by arrows (Case 6). Note in all pictures that spine does not interfere with bismuth shadow.

CASE 5.—S. L., aged 36, merchant, with good habits, had had pains in the epigastrium for three years. Attacks of pain in the epigastrium, which made him feel faint, came on daily about four hours after meals, and were relieved by taking food. Belching and heartburn, but no nausea or vomiting, were present. The bowels were constipated; no occult blood was found. The patient was well nourished, and had a florid complexion. Physical examination was negative except for a slight tenderness in epigastrium. The stomach was normal in size and position. Free hydrochloric acid was 38, total acidity 68. X-ray examination showed ulcer of the duodenum. Symptoms

of corn. The patient suffered with pain in lower abdomen coming on about three hours after eating, radiating at times upward to the chest, at other times to the scrotum, and relieved

disappeared completely after the patient had been for six weeks under treatment for ulcer. Occult blood was present several times during the first weeks of the treatment.

CASE 6.—H. H., aged 39, merchant, had had for five years a pain in the upper left abdomen, which came on three to four hours after meals, never at night. The patient usually felt well during the winter months. The trouble seemed to begin in spring and was worse in summer. Nausea, vomiting, belching and rising of sour fluid in the throat were present at times; no vomiting of blood. Bowels were constipated.



Figs. 10 and 11.—The steel skeleton of the building as it appeared after the first few beams were erected. The small picture shows another view of the electric crane which handled the heavy beams; as each one was swung into place it was temporarily secured by bolts and nuts. These were later replaced by rivets placed while hot and securely riveted by compressed-air machines.

No occult blood was found. The patient had lost fifteen pounds in the past month; he was frail and undernourished. There was tenderness in the epigastrium. Free hydrochloric acid 48, total acidity 80. X-ray examination showed ulcer of the duodenum. Bismuth shadow corresponded to location of tenderness.

Of these six cases, three were undoubted cases of ulcer clinically, and a fourth case was proved by operation. In two the diagnosis could be but presumptive without the X-ray examination. While the number of cases presented is small the results are, to my mind, of so definite and distinctive a nature as to lead me to believe that we have in radiocopy an extremely valuable aid to the diagnosis of gastric and duodenal ulcer, second in importance, probably, only to hematemesis or melena. Three of the patients were radiographed again, after carrying out the ulcer treatment. In two of them the ulcer shadow had disappeared; in one, it persisted. This agreed with the clinical findings. It is not unlikely that this method may also be used as an index of the result of treatment.

This is but in the nature of a preliminary report. Further observations will be made which, it is hoped, will substantiate the above.

1804 Madison Avenue.

Special Article

THE HOME OF THE ASSOCIATION A BRIEF HISTORY OF MATERIAL PROGRESS AND OF THE GROWTH OF THE ASSOCIATION BUILDING

CHAPTER III. THE STRUCTURE OF THE NEW BUILDING

The new building is supported entirely by the steel columns of the framework; the brick walls have no part in the support. There are twenty-four of these columns, each resting on a foundation of concrete and steel, and these foundations, or column footings, rest on the piles, nearly four hundred of which were used. Sixteen piles were required for each footing. After being driven they were sawed off square, covered with a platform of steel I-beams, frames built up and slush concrete thrown in. These concrete footings are pyramidal in shape, 10 feet square at the base, which rests on the piles, and 4 feet at the top, and are 5½ feet deep. On these the steel columns rest. This brief description gives but little idea of the solid substructure on which the steel columns rest.

A concrete wall was also built under the rear end of the building and a curb or retaining wall at the curb line under the sidewalk. These walls and the column footings required 30,000 cubic feet of concrete. About 800 tons of steel columns and heavy beams and girders make up the framework of the building.

FLOORS, ROOF AND WALLS

The floors and roof are made of 12-inch porous hollow tile arches of end

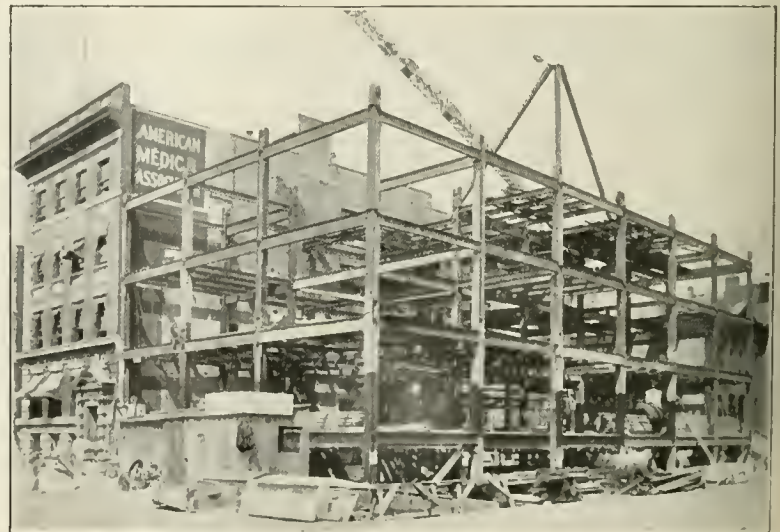


Fig. 12. The steel work of the first three stories above ground.

construction with skew-backs and keys. The partitions and vaults throughout are of the same material, 4 inches thick and plastered on both sides. The steel columns are also given additional protection throughout the building by being covered with brick or tile and plaster.

The outer walls are of 3-inch red paving brick laid in red mortar, about 60,000 brick being required. The lining walls

are of common brick and 600,000 of these were used. The main door frame is of steel with an ornamental grill above and the facing is of ornamental red terra cotta, with a tablet bearing the legend, "THE AMERICAN MEDICAL ASSOCIATION." The window ledges are also of red terra cotta and a band of terra cotta runs across the front and side of the building, beneath the windows. The upper cornice is also of terra cotta. The walls extend for a distance of 8 feet above the upper cornice and are capped with a coping of the same material.

Each window is 5 by 7 feet in dimension, with two sash, glazed with heavy polished plate glass, providing an abundance of light on every floor. Thus the building is splendidly lighted.

Although the building is strictly fire-proof, a fire escape is required by city ordinance for use in case of smoke or explosion or panic; so on the Indiana Street front a complete stairway and platform fire-escape has been built, with a ladder from the top platform to the roof, and a counter-balanced terminal section at the bottom which will connect the second story and the sidewalk on demand.

In a succeeding issue we shall take up further details concerning the building.

TOOTHPICKS AS FOREIGN BODIES

G. M. LIVINGSTON, M.D.
MANISTIQUE, MICH.

I wish to report a somewhat unique case occurring in my practice a short time ago.

The patient, H. B., hotel proprietor, is a strong-looking, rugged man, 35 years of age, of splendid physique, and up to the occurrence to be reported had been in excellent health.

Early one morning I was called to this patient

further inquiry into the probable cause of the trouble elicited the following interesting history of the case.

For a number of months previously, perhaps a year, the patient had been in the habit of chewing wooden toothpicks, until for the most part they were reduced to pulp; he often swallowed the pulp with occasional pieces of toothpicks not masticated. He always carried a supply of picks in a convenient pocket and almost constantly during the day had one

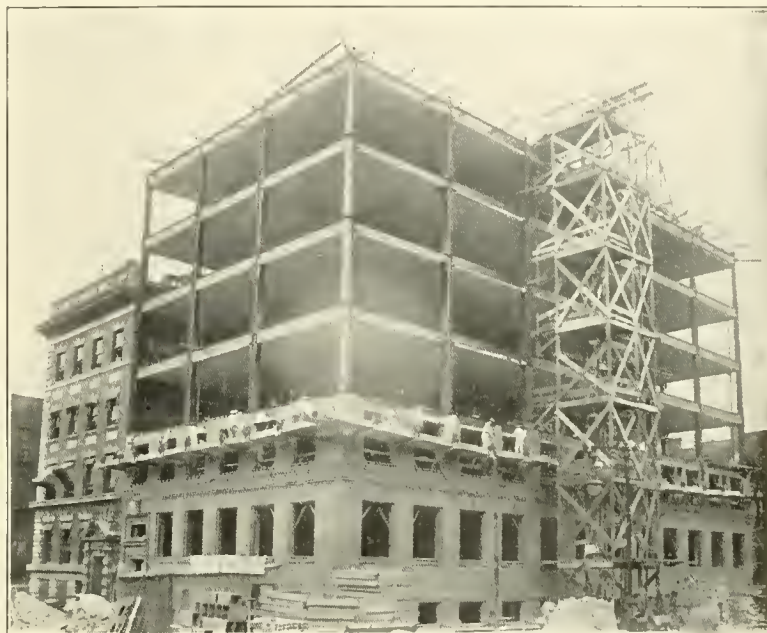


Fig. 13.—The completed steel work, the tile arches and the beginning brick work, giving an idea of what the future building will look like. (It will be noticed that the angle at which the camera was directed makes the building appear slightly on the bias. The reader is assured, however, that the architects are taking care to have the building erected on the square.)



Fig. 14.—View of the fronts of the old and new buildings, the brick work of the latter nearing completion.

and informed that he had suffered from most distressing abdominal pains during the past night. These he described as "cutting" or "stabbing," and while diffused somewhat over the greater part of the abdomen, they were localized for the most part in the lower gastric region, near the median line. At first glance one would think of a beginning gastro-enteritis or a possible nidus of infection in the right iliac fossa, but

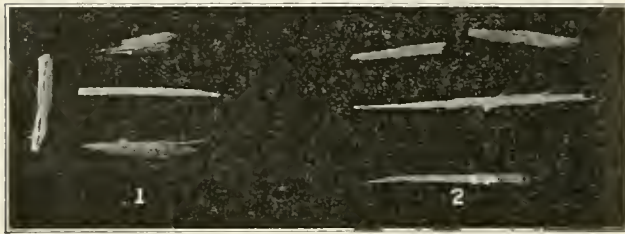
or more pieces in his mouth. This became such a fixed habit that he chewed and swallowed or ejected the masses of woody fiber unconsciously, replacing them from time to time with a fresh supply from his pocket.

I found that he was of decidedly nervous temperament, jerky in his movements, and of restless, uneasy disposition. When talking, especially if excited, he seemed wholly unconscious of the fact and indifferent as to the consequences of taking these foreign bodies into his stomach. On the occasion in question, he informed me that he had at 4 p. m. on the previous day, while talking and laughing with companions, swallowed a number of toothpicks that happened to be in his mouth at the time—three or four pieces, one of which was almost full length. He regretted this somewhat unusual occurrence and anticipated trouble from it, but felt no discomfort for about an hour and a half afterward. He was not able to sleep, and endeavored, but unsuccessfully, to control pain by the free use of *spiritus frumenti*, *aqua menthae piperitae*, etc. On my first visit I administered morphin hypodermically, repeating this procedure a number of times during the day and later the same evening. No food was permitted, and only a small quantity of spirits to counteract the condition of shock from which he suffered. On the following morning the patient expectorated small quantities of blood, at which time I administered a large dose of *oleum ricini*. During the day a second dose was prescribed, with the result that the patient vomited freely. Examination of the vomitus, which contained blood, showed the presence of one small pick. There was no abatement of symptoms, and, following the further administration of the oil, I prescribed high rectal enemas and continued morphin hypodermically to control the intense pain. The same evening he vomited freely, with considerable quantities of blood and other pieces of picks. The severe discomfort experienced in the upper abdomen now almost disappeared and he rested comfortably.

On the fourth day following this, the patient had a small hemorrhage from the bowel, accompanied by a large evacuation, and with the latter passed the picks shown at 1. On the fifth day he had a severe hemorrhage, passing twenty ounces of blood per rectum, and at the same time the picks shown at 2. This was followed by complete relaxation and cessation of all pain. Recovery from this time was prompt and uninterrupted. The stools were watched for a number of days without evidence of other of the foreign bodies having been passed.

I call attention to the following points:

1. The habit of toothpick chewing, which is not unusual, and the swallowing of the woody fiber.



Fragments of toothpicks. Those on the left were passed on the fourth day; those on the right, on the fifth day.

2. The manifestations which may be present when foreign bodies of this character are forced through the pyloric orifice and later through the ileocecal opening, in this instance resulting in laceration of tissue and consequent hemorrhage from stomach and bowel.

3. The ability of the bowel to carry easily arrested foreign bodies to expulsion per anus, with alarming symptoms and no serious sequelae.

108 South Cedar Street.

COCCIDIOIDAL MENINGITIS

WITH SECONDARY INTERNAL HYDROCEPHALUS AND DEATH
(ANAPHYLACTIC?) FOLLOWING A SECOND
INJECTION OF FLEXNER'S SERUM

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History.—Dec. 18, 1907, the patient, then a child of 2 years, was brought to me by his father. The child had been suffering for a time with numerous subcutaneous abscesses, concerning the nature of which he had consulted numerous medical advisers, the majority of whom considered tuberculosis or syphilis as the possible etiologic factor.

The father stated that, in October, 1907, when two years and two months old, the child began to walk lame and shortly afterward his right ankle became red and swollen.

A few days later an abscess was discovered on the back of the head. Within a few weeks many abscesses developed on the scalp, in the neighborhood of the joints of the knees, toes, shoulders, elbows and thumbs, and over both upper eyelids. These were opened from time to time by Dr. Kellogg of Bakersfield and the pus evacuated. The child now failed rapidly, had night sweats, and refused nourishment.

In December, when I saw him, he showed about twenty of these abscesses either actually suppurating or in various stages of healing. They all involved the subcutaneous tissue only and had usually developed in symmetrical pairs. In the various situations mentioned were either scars, wounds evidently showing healing, or unopened abscesses, which varied in size, but were never over one and one-half inches in diameter. The skin over the unopened abscesses was not reddened, nor

did the child complain of pain. At no place did the skin itself seem to be involved in the process. Certainly the characteristic coccidioidal skin lesions seen in the case reported by Drs. Montgomery, Morrow and Ryfkogel were absent throughout the child's illness.

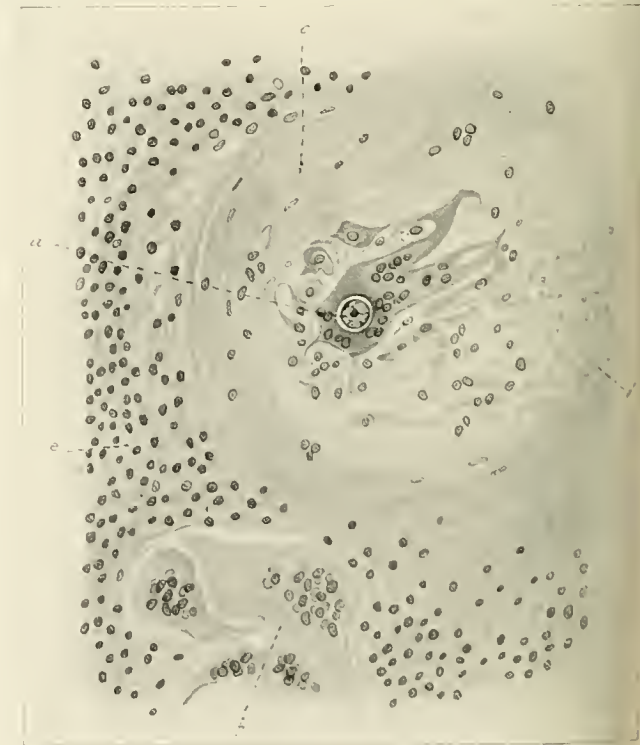
The abscesses that had been recently opened secreted a thin pus, and, on account of their overhanging edges and pale flabby granulations, greatly resembled tuberculous lesions. Their tendency to heal spontaneously, however slowly, was marked, and when curetted and swabbed out with pure liquor formaldehydi by Dr. Kellogg, they always healed very rapidly.

The number and character of the lesions, together with the boy's residence in the San Joaquin Valley, made me suspect an infection with the fungus *coccidioides*, and an immediate examination of the pus showed the characteristic round, doubled-contoured bodies.

The boy now returned to Bakersfield and Dr. Kellogg instituted more vigorous treatment of the abscesses as above outlined, and in addition administered syrup of hydriodic acid and formic acid, giving the latter because he had seen certain favorable results from it in the treatment of tuberculosis.

The boy now began to improve so rapidly that in July, 1908, Dr. Kellogg was able to write that the patient had no more visible lesions and that the forty or more abscesses that he had treated were now well. In August, a swelling appeared over the left elbow which soon spontaneously disappeared.

From August, 1908, until April, 1909, the boy remained apparently well. In this latter month, while playing one day, he suddenly ran to his mother saying that he had a severe headache. He was put to bed, had an attack of



From Dr. Ryfkogel's case of coccidioidal meningitis, showing meningial exudate; a, parasite in giant cell; b, giant cell; c, fibrous tissue; d, area of degeneration; e, area of active regenerative process.

vomiting, next day was unable to walk, and developed a high temperature, which was accompanied by delirium and rigidity of the limbs, and, after lasting a month, disappeared. His mentality now began slowly to deteriorate, and the rigidity of his legs, which had disappeared with his fever, returned.

In July, the patient was again taken to Bakersfield to consult Dr. Kellogg, who made a diagnosis of internal hydrocephalus and referred him to me for surgical treatment, if this offered any hope.

Examination.—At the time the patient was a well-developed boy of four years, showing all the signs of an internal hydrocephalus. His head had been growing rapidly in the past sixty days, and his parents had been under the necessity of constantly increasing the size of his caps. His forehead showed marked bulging. The child was evidently blind; his pupils were widely dilated; and an ophthalmoscopic examination revealed a double optic atrophy. The patient heard only slightly, because he paid not the least attention to any but loud and sudden noises, which caused him to start somewhat. The child was an absolute idiot, and made practically no spontaneous movements. Thus he would lie in any position in which he was placed, though when irritated he would move his arms and give forth a monotonous crying, and sometimes call "mamma," the only word remaining to him of his previous extensive vocabulary. He would also open his mouth when his chin was touched or food or drink put to his lips. The child could not, or at least would not, move his legs. His knees were more or less rigid continually, but became much more so when the limbs were suddenly moved. Pin-pricks were felt everywhere. The Babinski reaction was present bilaterally. His rectal temperature was 99.2 F., his pulse-rate 88, and his respiration 22.

Diagnosis.—The question to be now decided was whether the boy had a meningitis due to the fungus coccidioides, or whether he had completely recovered from his original infection with this mold, and in April had had an attack of epidemic cerebrospinal meningitis. On July 20, 1909, a spinal puncture was made, and examination of the fluid withdrawn showed 60 per cent. neutrophils and 40 per cent. lymphocytes. Cultures were negative. A few palely stained bodies were seen, which Dr. Brown, who saw the boy with me, and I thought might be degenerated diplococci.

Treatment and Course of Disease.—As Dr. Brown had seen some rather remarkable results in some chronic cases of epidemic meningitis following the administration of the serum of Flexner, we decided to give him a dose in the hope of putting a stop to any further advance of the disease. Accordingly, on July 21, 45 c.c. of the cerebrospinal fluid were withdrawn and replaced by 45 c.c. of anti-meningococcal serum. Quite a reaction followed and was accompanied by increased rigidity of the legs and spine and a rise in temperature to 102 F. Within twenty-four hours, however, the boy returned to his previous condition. No improvement was noted. From this time until August 20, about 30 c.c. of cerebrospinal fluid were withdrawn every other day by lumbar puncture in the hope of relieving to some degree the hydrocephalus. At times the spasmodic contractions of the muscles seemed to be relieved by this puncture and at no time were they intensified thereby.

On August 12, the patient's condition was practically the same as it had been when I first saw him, and Dr. Brown and I decided to give him another injection of the Flexner serum. At 7:30 a. m., 45 c.c. were given after the usual preliminary withdrawal of spinal fluid. At 9 a. m., the patient began to be very restless. His temperature at 12 m. had risen to 102, at 4 p. m. it was 104 F. I now withdrew 30 c.c. of spinal fluid and the patient was temporarily relieved, the temperature dropping to 103. It is worthy of note that the withdrawn fluid showed no trace of the pigment present in the serum injected, although only nine hours had elapsed. By midnight the temperature had risen to 105, the neck, back and legs had become very rigid, and the muscles of the right arm began to show frequent paroxysmal contractions. The patient began to perspire freely. By 8 a. m. of the second day the muscles of the back and all extremities were in a state of tonic contraction, there appeared a rapid nystagmus, the pupils, which had previously been dilated, became contracted to pin-head size, and the temperature had risen to 106. At 5 p. m. it was 107, and at 6 p. m., or 34 hours after the injection, the patient died.

The autopsy was limited to permission for the undertaker to remove the brain. This was badly torn during removal and further distorted by placing in a small jar.

Autopsy.—The specimen received from the undertaker consisted of 500 c.c. of cerebrospinal fluid and a more or less

distorted brain. The lateral ventricles, as well as the third and fourth, were all greatly dilated. The aqueduct of Sylvius was not obstructed, but greatly dilated, being funnel-shaped, with the apex pointed forward. The structures at the base of the brain were imbedded in a mass of exudate, which was slightly pinkish in color and varied in thickness, from 2 mm. over the medulla oblongata to 1 cm. at its anterior edge. The ependyma was everywhere thickened, but neither it nor the choroid plexuses seemed to be involved by the coccidioidal process.

Microscopic Examination.—Macroscopically the exudate showed numerous tubercles, microscopically very similar to those seen in tuberculosis, consisting of giant cells, endothelioid cells and lymphocytes. There was, however, a marked tendency to formation of fibrous tissue, and the giant cells were frequently surrounded by whorls of fibrils. Many of the giant cells contained young forms of the fungus coccidioides, and cultures made on agar showed the typical growth of the organism.

COMMENT

That the anaphylactic reaction of Richet was the immediate cause of death in this case seems probable. Rosenau and Anderson set the incubation period in which an animal becomes completely sensitized to the toxic action of a proteid by a preliminary dose of the same proteid as 10 to 12 days, and showed that once an animal was sensitized it became so indefinitely. In guinea-pigs the respiratory center seems to bear the brunt of the toxic action: in man, however, as Anderson has pointed out, the reaction is largely local and the heat-regulating mechanism is greatly disturbed.

In the case under discussion the signs of local irritation of the meninges and cerebrum, such as extreme restlessness, great contraction of the skeletal muscles, including those not previously affected, and extreme contraction of the pupils were evident. The abrupt rise of the rectal temperature from 99.2 to 107 F. in thirty-four hours certainly showed an unbalanced heat-center.

A review of four cases of death following the second injection of antimeningococcal serum has been reported by V. Hutinel.¹ Two of these cases probably suffered from a complicating tuberculous meningitis, and Hutinel ascribes the hypersensitiveness as due in part to this disease, and cites the well-known hypersusceptibility of tuberculous cases to a second injection of horse serum. The sensitiveness in my case thus bears some relation to these, and it is another evidence of similarity of the fungus granulomata to tuberculosis.

An excellent review of the eighteen cases of coccidioidal infection previously reported is that by P. K. Brown,² who discusses the very definite differences between the fungus coccidioides and other pathogenic oidia. He makes the statement that budding of the fungus bodies occurs in pus; but I have never seen this in any of the cases I have examined.

A very thorough study of the life history of the fungus and of certain cases has been made and the results published by W. Ophüls.³ I have also previously published a short review⁴ of the whole subject.

As in ten of the cases previously reported, my patient showed no lesions of the skin itself. As noted in some of the cases, there was present a tendency of the lesions to heal, and lesions of the meninges found at the autopsy were definitely regressive, no pus nor active inflamma-

1. Hutinel: Presse méd., July 2, 1910.

2. Brown, P. K.: Coccidioidal Granuloma: Review of the Eighteen Cases and Reports of Cases 15 and 16, THE JOURNAL A. M. A., March 2, 1907, p. 743.

3. Jour. Exper. Med., vi, Nos. 4, 5 and 6.

4. California State Jour. Med., vi, No. 6.

tory area being present. A study of this case shows that although all the patients died, except where early amputation of the limb showing an isolated lesion was done, nevertheless the disease is not necessarily fatal, and a cure can be hoped for. Treatment must be carried out probably along the lines of vaccine therapy.

162 Post Street.

HUMAN SARCOMA CULTIVATED OUTSIDE OF THE BODY

A THIRD NOTE *

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In our last note¹ we have shown that a fowl sarcoma could grow outside of the body. We expressed also the opinion that malignant tumors of the human organism could be caused to grow in the same manner. In the present note, we shall briefly describe a successful attempt to cultivate *in vitro* a sarcoma extirpated from a woman by Dr. Coley.

Through the kindness of Dr. Coley and of his assistants of the Memorial Hospital of New York, we were able to make a few cultures with fragments of a sarcomatous tumor taken from a woman 35 years old. The history of the patient given by Dr. Moore of Iowa, can be summarized as follows:

Thirteen years ago, after a traumatism, a tumor developed on the upper part of the right fibula. Last June the tumor was extirpated. It recurred soon and last September the new tumor and the fibula were removed. The growth presented then the anatomic characters of a sarcoma. It recurred again very soon and the patient was brought to the Memorial Hospital of New York.

On Oct. 27, 1910, at 4 p. m., Dr. Coley extirpated the tumor. During the operation some blood to be used as medium was taken from the arm of the patient. At 4:30 a few fragments of sarcomatous tissue were inoculated into the plasmatic medium. Twelve cultures were made and brought immediately to the Rockefeller Institute.

On October 28 at 8:30 a. m., that is, sixteen hours after the inoculation, the cultures were examined. In every culture the medium was very fragile. The main mass of the clot had been torn away from the tissues during the transportation of the slides. The sarcomatous fragments were held by a very thin layer of fibrin, which was closely adherent to the cover-glass. All the lower part of the medium was fluid. In spite of these unfavorable conditions, fusiform cells protruded in many points from the tissue. In several cultures, many spindle and round cells were observed to be wandering through the medium. Ten of the twelve cultures gave positive results. The growth was far less active than were the cultures of the fowl sarcoma. This was due probably to the fact that the cells were vegetating under difficult conditions on account of the partial liquefaction of the medium. Nevertheless a large number of fusiform cells radiated out and wandered into the very thin layer of plasma adherent to the glass. Their morphol-

ogy could be studied very easily with an oil immersion lens. The characters of these cells will be described in a later publication. The purpose of the present article is merely to show that all the details of the living cells can be observed at every instant of their evolution.

On October 29, large fusiform cells with long tails, round cells and a few multipolar cells were wandering from the tissue through to the medium. The plasma was clear and thin and the changes occurring in the cells could be observed without difficulty. For instance, one large fusiform cell, after having been slightly shaken, broke loose, while we observed it. It became immediately a small granular sphere. At 9 a. m., the cell had the appearance of a spherical mass composed of dense protoplasmic granulations. At 9:03 it became slightly oval. At 9:06 it was more oblong. Progressively the granulations became less densely packed in the anterior part of the cell. At 9:18 the posterior end was slightly pointed, and a clear spot appeared at the place where the granulations were less dense. At 9:20 there was a great activity among the protoplasmic granules of the posterior end. These granules were flowing into the medium and producing a short tail attached to the cell. At 9:22 the clear spot became a real nucleus with a sharp outline. A faintly opaque nucleolus appeared at the same time. At 9:25 the tail was longer. The cell also had increased very much in size. At 9:30 the posterior end developed a very long and pointed tail, while the anterior end was still blunt. The anterior end grew progressively. At 9:45 the cell had assumed the same appearance as before 9 o'clock. This observation shows how accurately the living cell can be studied in a culture.

On October 30, some of the cultures were vegetating very actively. Two of them were fixed and stained. Their examination confirmed the observations made on the living cultures. On November 1 most of the cultures were dead or had been fixed. Only one still lived on November 3.

We must conclude from this experiment that it is possible to cultivate outside of the organisms fragments of a human sarcoma in a manner similar to that of the animal sarcoma previously described. Therefore we will probably be able to study *in vitro* the growth of the various human malignant as well as benign tumors and to follow all the morphologic characters and changes of the cancerous and other cells during life.

We wish to thank Dr. Coley, his assistants and the staff of the Memorial Hospital of New York for having made possible the cultivation for the first time of a human tumor outside of the organism and thus to develop a new method for the study of human cancer.

ACUTE THYROIDITIS WITH EDEMA OF THE GLOTTIS

FOLLOWING EXPOSURE TO EPIZOOTIC OF HORSES

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History.—The patient, a man of 56, a hostler, had been taking care of six horses, suffering with the so-called epizootic, during the two weeks immediately preceding his illness. The symptoms observed in these horses were fever, thirst, anorexia, cough, sneezing, nasal discharge (at first watery, later of a "red gravy" character) and enlarged, tender glands in the neck. The patient is an alcoholic of careless habits, and had been accustomed to drinking from the same trough as the

* From the laboratories of the Rockefeller Institute for Medical Research.

1. The previous articles have appeared in THE JOURNAL A. M. A., Oct. 15, 1910, p. 1379, and Oct. 29, 1910, p. 1554.

horses, and at times the sick horses would sneeze or cough into his face. On the day before the onset of his trouble, the patient felt a slight soreness of the throat and some pain on swallowing, but this passed away before night and he was apparently well the next morning and went to work as usual. Late in the afternoon, while engaged in his usual work, intoxicated, but feeling no symptoms of any kind, the patient suddenly fell to the ground in a choking fit.

Examination.—He was hurried to our office, where examination showed him to be in a condition of extreme dyspnea and cyanosis, with his thyroid gland greatly enlarged, tense, elastic and quite tender. The skin over it was somewhat red and edematous. This swelling was so pronounced as to attract the immediate attention of all who saw him, though his fellow workmen, who had been close by him all the afternoon, had noticed nothing. The patient insists that the entire swelling developed within a few moments. No enlarged glands could be palpated at this time, the swelling being definitely limited to the thyroid. Further examination revealed a very slight pharyngitis and an edema of the glottis. A spray of adrenalin chlorid quickly relieved the more urgent dyspnea, though for a short time a tracheotomy seemed inevitable.

Treatment and Course.—The patient was removed to a hospital and put to bed with an ice-bag about his neck. Morphine was administered and the adrenalin spray repeated whenever the dyspnea became excessive. By the following morning the symptoms had been considerably lessened and the swelling in the gland had begun to subside, but the swelling now began to extend to the surrounding parts, including the lymph-glands, and the pharyngitis became more marked. At no time was the pain severe, nor did it radiate to the ears, teeth, etc. Dyspnea and hoarseness were the most marked symptoms and these disappeared within three days. At the onset the temperature was 99.6 F. and the pulse 98. Both became normal the next day. There was some dysphagia at the beginning; this became more marked later, and, together with the pharyngitis, persisted for about two weeks. On the fourth day the patient was able to leave the hospital and go back to work. At the end of a week a slight ecchymosis appeared over the manubrium. On the sixteenth day the patient was discharged and has had no further trouble.

No examination of the blood was made.

The noticeable features were:

1. The evident infection from the horses suffering with "epizootic." No history of trauma or other etiologic factor could be elicited.
2. The edema of the glottis at the onset.
3. The seemingly very rapid development of the swelling of the thyroid gland.
4. The lack of involvement of the lymph-glands until some hours later.
5. The rapid recovery.

Therapeutics

CHRONIC HYPERTROPHY OF THE PROSTATE

This condition should be distinguished from enlargement of the prostate due to a subacute prostatitis, which is an inflammation that affects the ducts and is generally due to an infection that has come from the urethra. Although this enlargement of the prostate may persist for some time, proper local applications and massage will generally effect a complete cure.

True chronic hypertrophy of the prostate develops insidiously and is of frequent occurrence, as it is present, in various grades, in about 65 per cent. of all men after the age of 50. The treatment of this condition is well discussed under three heads: prophylactic, palliative, and operative.

As the etiology of chronic hypertrophy is not clearly understood, it is difficult to lay down a definite rule

for prophylaxis. While it is probable that this is a normal accompaniment of old age, the reason that it occurs so frequently at an earlier age, from 50 to 60, is probably because of excessive or abnormal sexual activity. Investigations seem to show that benign hypertrophy occurs very much more frequently in the married man than in the single man: in fact, some statistics seem to show that it occurs ten times more frequently in married men. It would seem, then, that it should be the duty of the family physician to warn the young husband against unnatural or excessive stimulation of the sexual function, and thus perhaps prevent a future prostatic hypertrophy.

There seems to be no question that frequent, and especially abnormal sexual excitement does congest the prostate, and repeated prostatic congestions lead to a slow hypertrophy. It is also probable that a bad heart which allows venous congestions, especially when the veins of the pelvis (and the hemorrhoidal veins especially) are dilated, would become an impetus to passive congestion and later to hypertrophy of the prostate. Persistent constipation would be another added cause of this passive congestion. Bladder irritation and irritability, if frequently repeated and never completely cured, could be another cause; while varicocele could be another cause for prostatic congestion. In other words, anything that tends to repeated pelvic acute congestion or chronic pelvic passive congestion may well be an exciting cause to the enlargement of the prostate, which organ is always apparently ready to enlarge after the age of 50. Consequently, any treatment that removes or prevents these congestions would be prophylactic treatment against hypertrophy of this gland.

The early symptoms of an enlarging prostate are increasing frequency of urination, especially at night; slight delay in starting urination, especially early in the morning or when the bladder is full; and a slight diminution in the expulsive force of the stream. These symptoms have usually been present many weeks, and even months, before the physician is consulted. By this time the hypertrophy, as can be readily understood, has advanced to a considerable degree, and enlargement of the prostate, as shown by examination, is generally positive, and the question immediately arises as to whether palliative treatment should be advised or an immediate operation performed.

It would seem unwise, even with the very low mortality when the operation is done at this period, from the fact that there is a mortality, to urge immediate operation. Neither the condition itself nor the operation is really the cause of the mortality, but it is due to the concomitant or coincident insufficiency of the kidneys, possibly to an arteriosclerosis. The fact, however, should never be lost sight of that when a man is suffering from chronic hypertrophy of the prostate he also has probably used his circulatory system to excess, the arterial tension is generally high, the heart may be in perfect condition but undoubtedly the left ventricle has become hypertrophied to combat normally increased tension of the man's life and the increased tension of the arterial system due to advanced years. Also, although the urine apparently may be perfectly normal, the kidneys are often imperfect at this age, as would be evidenced by repeated examinations of the twenty-four hours' urine on different diets and under different irritations or exertions. In other words, kidneys, that are perfect during the ordinary daily life, when the patient is subjected to an etherization or to the slight shock or

disturbance of an operation, become insufficient, and uremic symptoms readily develop. Therefore, the treatment of the above condition should at first be palliative.

The great source of danger is residual urine, *i. e.*, the urine which remains in the bladder after the patient has urinated and which he cannot evacuate by voluntary effort. That there is residual urine can be determined only by the passage of a catheter. A soft rubber catheter properly sterilized can generally be passed without difficulty, this after the patient has urinated and after the parts are thoroughly cleansed and rendered aseptic. A study of the urine that the patient passed (and best a study of it in the two-glass test), and a study of the urine which may be drawn by catheterization, *i. e.*, the residual urine, will not only determine the character of the urine, but also the condition in the bladder. An acid urine, clear, without pus, without much mucus, without blood caused by the catheter rubbing over the prostatic urethra, shows that temporizing and palliative treatment should be the treatment elected. The evacuation of clear urine by the patient does not positively preclude the possibility of even a large amount of residual urine, as absolutely clear urine may be passed on repeated days and yet catheterization remove a large quantity of turbid residual urine. If there is no residual urine, good, sensible tonic treatment, a proper amount of rest, a properly regulated diet, good management of the bowels, prevention of chilling, and the happy medium of never attempting to hold the urine too long or on the other hand answering every frequent flitting desire to urinate, may hold the patient in the same condition for months or even years. It is undesirable to allow the patient to urinate too frequently, because it prevents the bladder from becoming normally distended, and the viscus becomes smaller and smaller until life becomes a misery.

If there is much mucus from the bladder, or if there is prostatic irritation sufficient to give local aching or a pain in the penis, the first treatment should be to draw the residual urine, then gently wash the bladder with a warm 2 or 3 per cent. boric acid solution. When the bladder washings are clean, the bladder should once more be filled with the warm solution and then the catheter removed and the patient allowed to pass the liquid. Care should be taken not to over-distend the bladder with these solutions. This washing may be done every day for a few times and then infrequently, or absolutely stopped if the symptoms subside.

If there is but little mucus in the urine, but vesical irritability, especially at the neck of the bladder or perhaps slight referred pain at the penis, the instillation into the bladder of 1 c.c. (15 minims) of a 1 per cent. solution of nitrate of silver, once in 5 days for a few times, or injection into the bladder of 60 c.c. (2 ounces) of a 1 to 5,000 solution of nitrate of silver and then withdrawing the catheter and allowing the patient to pass the solution, will frequently effect a temporary cure, and may give the patient relief for months.

If pus is present in the urine and the condition is acute cystitis, the usual treatment of this condition must be given, *viz.*, daily bladder washings with warm boric acid solution. If a chronic cystitis has already developed, the bladder-washing must be with some of the various silver solutions, either an organic silver solution or a very weak nitrate of silver solution. The silver solution must not be used too frequently. One would hardly advise an operation during an acute cystitis, and would not urge it in chronic cystitis until the bladder was as

surgically clean as possible; in other words, prolonged, proper treatment, with the patient at rest. It is unnecessary to state that an operation when chronic cystitis is present, *i. e.*, when an infection is present, is of much more serious prognosis. It is impossible to tell how much the ureters may have become infected or whether the kidneys have been injured from the infection in the bladder, to say nothing of their secretory ability.

Whenever there is cystic irritability or genitourinary inflammation the diet should be just as carefully regulated as is so well understood in specific urethritis, *viz.*, in acute cystitis or in acute irritability of the bladder a milk and cereal diet should be given with rest and hot general baths. In chronic inflammation of the bladder or of the prostatic region daily hot sitz baths are of great benefit, and the diet should be of simple meats, ordinary vegetables, cereals, and fruit. Highly spiced foods should be forbidden, coffee and tea should be forbidden, and generally tobacco also, excessive use of alcohol should be interdicted, and no drugs should be given that could irritate the genitourinary tract. As above urged the bowels should be carefully regulated. Constipation does harm in all pelvic inflammations.

Acute irritability of the bladder may be partially relieved by the judicious use of drugs that render the urine alkaline, but when there is an enlarged prostate and any tendency whatever to residual urine, the urine should not be rendered long alkaline. The simplest prescription for this purpose is:

R	Gm. or c.c.	
Potassii eitratis	40	3ix
Aque gaultheriæ.....	200	or fl. ʒvi

M. et Sig.: Two teaspoonfuls, in water, three times a day, after meals.

It is often inadvisable to have the patient drink a great deal of water as it will over-fill the blood-vessels (the age of this patient must not be forgotten), raise the arterial tension, increase the frequency of urination, and may precipitate the occurrence of residual urine.

If there is chronic cystitis, no drug is probably more valuable than hexamethylenamin, which may be given as follows:

R	Gm.	
Hexamethylenaminæ	10	or ʒiiss
Fac chartulas 20.		

Sig.: A powder in half a glass of water, three times a day, between meals.

If there is residual urine and this (which may vary in amount from day to day) persists from day to day, it is only a question of time when the patient will have a sudden stoppage and be unable to empty the bladder and must send for a surgeon for immediate catheterization on account of distention of the bladder with resulting paralysis. This having once occurred, some surgeons advise the use of a catheter continuously. It is possible in such an instance that if a proper attendant with the most careful cleanliness uses the catheter at least three times in twenty-four hours, and perhaps better four times, in a few days the bladder may return to its proper tone and may be as good or better than it has been before for a number of months, *i. e.*, may not contain so much residual urine. This should be tried. If, on the other hand, the bladder does retain residual urine, and the urine tends to be alkaline and turbid, the man must be given a catheter to use himself, either once in twenty-four hours to remove all residual urine, or three

times in twenty-four hours if he cannot at any time well evacuate his bladder. This kind of treatment is sometimes necessary on account of the inadvisability of operating, but is generally inexcusable, as it is only a question of time when such a bladder will become seriously infected and chronic cystitis, incurable, will be the result, and cause the death of the patient. Therefore, unless there is some positive reason why a man can not be operated on, operation should be advised, and advised before infection has occurred.

Some patients develop a chill after the passage of even a soft rubber catheter, or even have what has been called the urethral fever, with considerable rise of temperature for some hours. This is not of frequent occurrence, and may never be seen by an individual practitioner. Other surgeons have seen it so frequently that they recommend the administration of some drug to prevent this hyperirritability of the urethra, such as bromids, and even quinin has been recommended. If such a reaction occurs, the patient should be kept in bed for twenty-four or thirty-six hours and treated symptomatically. No harm seems to come from the disturbance.

Simple palliative treatment of the condition being unsatisfactory, reflex pain in the penis or irritability of the bladder persisting, cystoscopy should be carefully done, and the possibility of a stone in the bladder should be considered. It must, however, be urged that a mild subacute condition is often precipitated into an acute one by such instrumentation. However, it is a means to an end, *i. e.*, positive diagnosis of the conditions, and must often be done, but not done without due and careful consideration. To save repeated instrumentation, at the same time the bladder is cystoscoped, it is well to pass a catheter into each ureter to examine the urine from each kidney separately. The results of this examination will aid in the decision as to whether or not an operation should be performed.

It is the object of the careful physician and surgeon to aim to determine, when palliative treatment is useless or in any given patient is becoming useless, to advise operation if the kidneys and circulation are in good condition before the patient becomes miserable, before the bladder has become infected, before the bladder has become seriously thickened, and before it has become paralyzed from over-distention or has become badly contracted from protracted and frequent efforts to expel urine over the obstacle of the enlarged prostate. As above stated, infection of the bladder may creep up toward the kidneys, and with infection of the bladder, and even without it, continued pain and irritation in this region may cause a general debility, loss of appetite, emaciation and feebleness. Of course, any of these conditions being present when the patient first comes to the physician would demand first rest, careful preparation of the bladder and the pushing of nutrition, and second operation: but the patient having been under a physician's care the operation should be advised and done before he reaches this sad condition.

Which particular operation is best for a given individual, or the technic of the operation are questions of surgery; it is enough for the physician to decide that an operation is necessary. The results of perineal prostatectomy are surprisingly good when one takes into account the advanced age of many who submit to the operation, the frequent coincident cystitis, the history of prolonged pain and often debility of the patients, and the impairment of circulatory and excretory organs

concomitant to their age. Many patients over 80 years of age are operated on with good results and their lives greatly prolonged by the operation, and the mortality has been placed even below 4 per cent.

The differential diagnosis between tumors of the prostate and simple hypertrophy of the prostate can not well be described. The greater amount of pain in most tumors of this age (the most frequent being cancer), with the greater rapidity of growth, with the nodular feel and enlargement in all directions as well as into the bladder, generally quickly shows that the enlargement is malignant and not benign.

GLYCOGEN

This substance has for some time been suggested, then advised, then lauded, advertised and sampled as "an antitoxic and bactericidal agent" on account of its "stimulating the natural resistance of the organism to pathogenic invasions." The indications have been stated to be "tuberculosis, typhoid fever, scarlatina, furunculosis, diphtheria, influenza, neurasthenic conditions, weak heart, migraine, morphinism, tobaccoism, etc." For these processes the substance has been offered in various capsules for administration by the mouth. In spite of favorable articles written on the subject the question is: Can these assertions be sustained?

As glycogen is a physiologic product it is well to refer briefly to the physiology connected with its production. In the first place, glycogen is the ultimate liver product of starch and sugar. Its object seems to be for a storage product for the production of dextrose. It is less soluble than sugars, and is stored in the liver for re-metabolism into dextrose to be circulated in the blood, which dextrose is taken up by the muscle-cells and re-converted into glycogen for muscle health and activity. Taking cane sugar as a sample of sugar ingestion, it is soon converted into simpler sugars, is then absorbed, reaches the liver, and in part is converted into glycogen for storage purposes as above described. If glycogen is administered it is apparently digested and absorbed as sugar, and it can be of no value until taken up by the liver cells and there converted into dextrose for circulation in the blood to reach the muscles and there form muscle glycogen. In other words, there seems to be no apparent physiologic reason why glycogen administered by the mouth can be of any more value than cane sugar, milk sugar, grape sugar, malt sugar or starch, so far as glycogen production or sugar stimulation is concerned.

If glycogen is given subcutaneously it may share the property of many other substances of causing a temporary increase in the number of leukocytes. Such increase of the leukocytes has been found to be only temporary and of little phagocytic value in infection.

Physiologically and clinically there seems to be no excuse for administering glycogen or considering it in any way a drug or product of therapeutic value. If glycogen were of value, the amount contained in scallops, which is a valuable and cheap food, would make this method the best and cheapest method of administering it.

Differential Diagnosis Between Specific and Non-Specific Sores.—The following points must be borne in mind: (1) the diagnosis between the more common sores which may occur on the male and the female genital organs and syphilitic chancre; (2) the diagnosis between certain of these sores and the lesions of secondary and tertiary syphilis; (3) the diagnosis between extragenital syphilitic chancres and other lesions with which they may be confounded.—C. F. Marshall, in the *Practitioner*.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 DEARBORN AVENUE . . . CHICAGO, ILL.

Cable Address "Medic, Chicago"

Subscription price Five dollars per annum in advance

[For other information see second page following reading matter]

SATURDAY, NOVEMBER 12, 1910

NEW SOURCES OF MEDICAL HISTORY

During the past twenty or thirty years the field for medico-historical investigation gradually has expanded so that its bounds are now far beyond the medical texts of the early and middle ages. The medical historian in his search for new materials has entered the territories of anthropology, ethnology and archeology, and there discovered much that is of tremendous importance for the growth of his science. As illustrations must be mentioned especially the results of recent archeologic exploration in Asia Minor in their bearing on the history of ancient medicine. Discoveries in the last decennium by Assyriologists have moved the beginnings of things medical much farther backward than indicated by the papyrus Ebers and other papyri. Indeed, traces of Assyrio-Babylonian medicine have been followed as far back as four or five thousand years before Christ. During the reign of King Hammurabi, about 2,300 years B. C., medical laws were codified¹ and they give a rather clear insight into some aspects of medicine in those days. We learn that fixed fees were established for certain operations and that the lens was depressed in operating for cataract. These laws probably served as the models for the medical laws of Moses. Of fundamental bearing is the demonstration that the writings of Hippocrates ("Corpus Hippocraticum") present evidences of having been directly influenced by the Assyrian and Egyptian writings. Indeed, by means of the "deadly parallel" it has been shown (Lüning) that a statement of several lines in length has been copied verbatim into the Hippocratic books. Evidences of continuity have been found also between ancient Indian medicine and the Assyrio-Babylonian. Consequently we shall be forced to give up the idea that medicine takes its real start with Hippocrates; Hippocratic medicine undoubtedly is the outgrowth of a long development which extended from the Orient and concerning which we surely shall learn still more. And yet, while Hippocrates may not be the father of medicine in the sense that it sprang fully formed from his head, he remains the central figure in ancient medicine.

From various sources facts have been secured toward the building up of what we may call an exact historical pathology. We have known for some time that trepanation was performed in the neolithic period—this trace of the earliest surgery being found by the study of skeletons of prehistoric age. Quite recently prehistoric skeletons have been found that show caries as well as gibbus (Bartels), indicating the existence of tuberculosis at very remote periods. The examination of nearly two thousand Nubian mummies by Elliot Smith and Wood Jones has yielded interesting results: they found no sure signs of tuberculosis, but the occurrence of appendicitis, of trachoma, of renal biliary calculi, and of simple and deforming arthritis was established. It is said that evidences of arthritis are abundant in old skeletons from various parts. Great difficulties have developed in the interpretation of the nature of caries, exostoses and hyperostoses in old skeletons, and naturally the opinions vary so that in many instances the question whether the changes are owing to syphilis, to tuberculosis, to leprosy, or to other conditions has not been settled. But the syphilitic nature of the lesions in an old Peruvian skull (von Hansemann) has now been accepted by so many experts that the occurrence of pre-Columbian syphilis seems to be settled. The American origin of syphilis, however, is not necessarily indicated thereby, because in 1908 terra-cotta figures from the second century B. C. were found in Smyrna, which Sudhoff asserts show the existence of syphilis in ancient times and in the old world; these figures are said to show saddle-nose, Hutchinson's teeth and other indications of congenital syphilis. It may be recalled that Ashmead discussed the possibility that leprosy might be identified in human figures on certain Peruvian vessels; others lean to the view that here also syphilis is concerned.

Numerous other examples might be given of the medico-historical value of the representations of the human body found on old objects of various kinds. It may be remarked that the study of old paintings from a medical standpoint is of great interest, and it is believed that results of real historical value may be obtained therefrom.

BETTER INSTRUCTION FOR ARMY MEDICAL OFFICERS

As Napoleon once said, war is a business which requires study like any other business. Of late years this principle has been more and more clearly realized and acted on by all the great armies of the civilized world. Prior to 1898 the education of our army for modern warfare was chiefly conspicuous by its absence. Since then, however, a serious interest in the profession of arms has been manifested throughout the service. This awakening has been no less marked in the medical corps than in the line of the army, nor has it been less

¹ I. Holmes, Bayard. The Most Ancient Medical Practice Laws. THE JOURNAL A. M. A., Jan. 28, 1905, p. 293.

necessary. It is now generally realized that a good medical education, with experience in the professional treatment of ill and injured and sanitation, valuable as they are, do not qualify the army medical officer as such. He must in addition have a clear conception of his military duties. This does not mean that he is to ape the line officer. The line officer and the medical officer have each a distinct and well-defined place in the military establishment. A modern army is not made up of independent units but is aggregated into divisions, corps and higher units. The strength of the whole depends on the strength of the component branches, of which the medical is not the least important. The primary object of all is of course to inflict the maximum damage on the enemy and one of the most effectual ways of doing this is by conserving one's own strength. It is here that the medical department plays the most important part.

It is now realized that an unhealthy army is a weak army. Moreover, in war an army must be promptly relieved of wounded or its morale will suffer, while at the same time it must be preserved from unnecessary losses at the front by slightly wounded and sick men gravitating to the rear, which will inevitably be the case unless proper organization and administration obtain. The whole question resolves itself into getting into contact with the wounded at the earliest possible moment and so disposing of them that the strength of the army will be maintained at the maximum and the individual sufferers will have the professional care to which they are justly entitled.

This does not seem such a difficult problem to solve, but the elaborate system of medical relief which obtains in modern armies proves the contrary. While our medical officers have had an extremely complicated organization to learn, the instruction given them was not systematized, and little thoroughly practical was accomplished till within the past few years. This is not strange. It is only within a comparatively short time that there has been anything to build on, so far as the medical department is concerned. There was only a small regular establishment scattered at various small posts from which medical officers could not be spared, while they have been overwhelmed with such pressing and immediate duties that little time was available for the study of the larger problems which would confront them in war.

The National Guard was in even worse case so far as the personnel was concerned. The material of neither was adapted for war. There was little association or community of interest. Now this has all been changed. There is a larger regular medical corps fairly well equipped, a much better-organized militia and a medical reserve corps which includes many of the leaders of the profession in America. Nor should the reorganized Red Cross be forgotten, which, if not yet in the efficient condition attained by the same association in other countries, is now so organized that it is capable of

being developed into a thoroughly competent volunteer supplement to the medical corps.

Moreover, until the first "Field Service Regulations" were published about five years ago, no definite plan or which to work was prescribed for the medical department. Since that time there has been a general awakening in reference to that tactical knowledge which is indispensable to every medical officer. This has been manifested in various ways, of which one of the most important has been the establishment of off-year medical camps.

It had been found that we were surprisingly lacking so far as practical instruction was concerned. At this time the only opportunity for such instruction in the field was presented by the maneuver camps. These were necessarily of brief duration so far as the organized militia was concerned. Medical officers at these camps were so fully occupied with other important duties that little time was afforded for the study of medical department organization, administration and tactics. The medical department equipment, too, always left a great deal to be desired, as it universally fell far short of the regulation allowance.

In 1909, the Surgeon-General recommended the establishment of these purely medical department camps. One was opened at Antietam, Maryland, one at Fort Benjamin Harrison, Indiana, and one at the Presidio of San Francisco, California. For these camps the best-qualified medical officers of the regular establishment were selected as instructors and 167 medical officers of the organized militia were in attendance. The equipment, besides certain field sanitary apparatus, consisted of a complete field hospital with an ambulance company, the first time, by the way, that this had ever existed except on paper. All who had anything to do with the camps were enthusiastic in their praise. The opinion expressed by a number of officers was that they had learned more from the camps than from years of previous experience. Nor was the lesson lost on other branches of the service; the engineer and signal corps established similar camps at a later date.

This year, on account of the large camps of instruction, no special camps were established. In the off years, however, it is anticipated that these camps will again come into existence. Of course this is only a beginning; the camps should be bigger and better each year. Not only will they constitute a practical school for the regular establishment and the organized militia, but also for those officers of the medical reserve corps who would take the field in the event of war. Later, too, the field personnel of the American Red Cross will find a place in such camps. They must always, of course, show deficiencies in medical department equipment as was the case at the first camp—deficiencies which must continue to exist year after year if medical department organizations completely equipped according to regulation are not actually exercised in the field.

IS CANCER CONTAGIOUS?

When the public fears contagion from a dangerous disease, all unselfish considerations and regard for anything except personal safety are often forgotten. If this fear is unwarranted, the hardships inflicted on the victim of the dreaded disease are often particularly distressing, as seen, for example, in the abuse suffered by many leprosy patients in this country. Such misdirected efforts are plainly to be combated by the medical profession, for they add much unnecessary suffering to that naturally in store for the victims of disease; but, on the other hand, we need to be very sure of our grounds before we let down the bars which may be needed to prevent the spread of disease.

There has long existed a fear that cancer possesses contagious properties, for we find that in the health regulations of Prussia in 1797 cancer is included among the contagious diseases. While the experience and the teaching of most physicians have led them to harbor no personal fear of infection with cancer, yet they are frequently consulted concerning this possibility by members of the immediate family of a cancer patient, and certain statements which have appeared from time to time in medical literature are sufficient to make the practitioner somewhat uncertain as to just what stand he is really warranted in taking on such an important subject. On this account a brief review of the best available evidence may be undertaken with profit.

In favor of the idea that cancer may be transmitted from one individual to another are numerous cases of conjugal cancer, and cancer occurring in persons who have had charge of or who have been in close association with cancer patients. Behla¹ some years ago collected a rather formidable list of such cases, including 118 cases in which man and wife both had cancer; and other writers have collected similar statistics which, to them, have seemed strong evidence of a possible transmission by contagion. But if we study the cases included in these lists with any fair degree of critical judgment we find that the evidence is far from convincing. Following the rules laid down by Butlin² in his excellent lecture on this subject, which demand that to be acceptable for demonstrating contagion it must be shown that the supposedly acquired growth is located in a part that has come in contact with the first tumor either directly or indirectly, that the second growth has appeared within a reasonable time after the first, and that the two growths have the same histologic structure, we find that hardly any of the recorded cases can be looked on as proving a case of contagion. There is no reason for assuming, if a man dies of cancer of the stomach and his widow ten or fifteen years later has a cancer of the breast, that the latter is the result of an infection from the gastric cancer; and yet many similar examples are cited by Behla and others as supporting

the doctrine of contagion. We must remember that 9.3 per cent. of all persons passing the thirtieth year of life die of cancer,³ hence on the grounds of probability an example of conjugal cancer may be expected in one of every 116 couples over thirty years of age.⁴ Speaking strongly against the existence of any considerable degree of frequency of cancer in closely associated persons is the result of a *questionnaire* conducted by a medical society in Paris,⁵ which received replies from sixty-two of its members. Only one knew of a case of marital cancer, and three reported cases in persons who had attended cancer patients; certainly not more than the laws of probability would lead us to expect. Again, we have the experience of surgeons who are forever acquiring bacterial infections of all sorts during operations, yet without ever developing, so far as the literature records, a single well-authenticated instance of actual infection with a malignant growth from operation on a cancer patient. Senn, indeed, deliberately inoculated himself with cancer tissue freshly removed from a patient, but without any growth resulting.

Certain real or apparent epidemics of cancer in lower animals have been reported in recent years, and these have undoubtedly caused many to wonder whether it is justifiable to assure inquiring patients that there is no reason to fear contagion from cancer. One of the most striking of these was reported in 1900 by Leo Loeb and Jobson⁶ and concerned the cattle on a certain ranch in Wyoming, which were frequently attacked by carcinoma of the eye. Other observers have described the development of cancer with unusual frequency in mice and rats kept in cages which previously have held animals with cancer, and several epidemics of thyroid enlargement of supposedly malignant nature have been described in trout in hatcheries. In all these cases there are so many other factors present besides possible contagion, including especially heredity and common environment which may be favorable to cancer formation, that some of the best investigators of experimental tumors do not consider that these epidemics have been shown to depend on contagion. In fact, much of the evidence which the study of transplantable tumors has furnished us is distinctly opposed to the view that there is any serious danger of cancer being communicated from one person to another. First and foremost comes the fact that very exceptionally indeed can a malignant tumor arising spontaneously in an animal be transplanted successfully to other animals, even under the most favorable laboratory conditions. Certain tumors, such as the mammary gland carcinomas of mice and round-cell sarcomas in dogs, give a fair percentage of takes, but hundreds of malignant tumors of animals have been inoculated into other animals of the same species without success. Secondly, when tumors are ulcerating they can seldom be success-

1. Deutsch. med. Wchnschr., June 27, 1901.
2. Butlin: Lancet, London, Aug. 3, 1907.

3. Croner: Klinisches Jahrbuch, II Ergänzungsband.
4. Neuditsch: Inaug. Diss., Berlin, 1910.
5. Jour. de méd. de Paris, April 9, 1905.
6. Loeb and Jobson: Medicine, April, 1900.

fully transplanted, and it is only the open ulcerated tumor which in man can be a source of contagion. Thirdly, close association of cancer animals, in spite of their relatively unprotected condition and uncleanly habits, rarely if ever causes contact infection, and even feeding of cancer tissue fails to cause cancer. There is not the slightest reason to believe that cancer can be communicated through the medium of clothes, secretions and excretions, or in any way but by direct inoculation. In man himself we find that even when an ulcerating cancer is in contact with an opposing healthy surface a cancer infection of the latter rarely occurs, although there are occasional well-demonstrated examples of such a transplantation; and this in spite of the fact that the opposed tissue is part of an individual already cancerous and therefore presumably predisposed to inoculation with his own cancer, as shown by metastatic growths by way of blood and lymph. If a cancerous lower lip rarely, indeed almost never, infects the upper lip with which it is in such intimate contact, what likelihood can there be of a person with cancer ever transmitting his disease to a healthy individual, no matter how closely associated he may be with the latter?

Current Comment

A NEW WORK FOR COUNTY SOCIETIES

Under the leadership of the president of the Missouri State Medical Association, the county societies in that state are engaging in active work for the improvement of public health. A new feature is the cooperation with the state teachers' association. Each county in Missouri has a teachers' reading circle that meets from one to four times a month and which adopts, each year, a book for study. This year, the teachers have taken up "Civics and Health," and at the suggestion of Dr. Herman E. Pearse, the president of the state medical association, the members of the county societies have also secured copies of this book and are studying it with the teachers of the county schools. The possibilities of close cooperation between the county medical society and the county teachers' organization are practically unlimited. If, in addition to the common course of study, joint meetings could be held and mutual helpfulness and cooperation secured, marked improvement of both the public schools and the public health will inevitably result. The plan inaugurated in Missouri is worthy of imitation in other states.

There was a steady increase in both injuries and deaths from this time until 1907, when 76,286 injuries and 5,000 deaths were recorded. This was the high point of the fatalities, falling to 3,764 in 1908 and to 2,791 in 1909, the lowest point reached. The injuries in those years were 68,989 and 63,920, respectively, while in the year ending June 30, 1910, the injuries amounted to 82,374 and the deaths to 3,804, the latter being about the average number for the eight years recorded. The deaths of passengers numbered 321 in 1903 and 421 in 1910. The highest number of fatalities to passengers occurred in 1907 when the number was 647 out of a total of 5,000 deaths, as previously stated. Thus it will be seen that while the injuries almost doubled from 1903 to 1910, the total fatalities in those two years are separated by a difference of only 350, while the fatalities to passengers amounts to only 100 more in 1910 than in 1903. Considering the increase in the trackage of railroads and the tremendous increase in traffic in those eight years, the figures of which we have not at hand, the number of fatalities to both passengers and employees shows a marked improvement. While the number of injuries seems to have practically doubled in spite of the adoption of safety appliances, yet this can no doubt be accounted for by increased trackage, increased business and consequent increase in the number of employees. The number is still vastly beyond what it should be, however, and the killing and maiming of such a vast army of men each year, with the tremendous economic loss entailed, to say nothing of humanitarian considerations, should call forth the most energetic efforts in the way of prevention.

THE INCONSISTENCY OF THE BRITISH MEDICAL JOURNAL

With Crippen, the American quack and convicted murderer, as a text, the *British Medical Journal* discusses editorially the anomalous position which discredited American physicians occupy when they attempt to practice in the British Isles. While such individuals would in many cases be unable to practice medicine legally in any state in the Union, they are permitted to carry on their illegitimate work unmolested in Great Britain. As our English contemporary says: "It is quite time that this free trade in medical practice came to an end..." With this sentiment all right-minded American physicians will agree. The British public should be protected against the dishonesty and malpractice of all quacks, American and others. But quacks are not the only product which we export to the detriment of the British. American nostrums are daily gaining a firmer footing in Great Britain, where the laxity of the laws governing such products allows them to be sold with a reckless disregard for truth that would not be tolerated in the land of their origin. This evil, too, the *British Medical Journal* has recognized, and within the past one or two years it has exposed many medicinal fakes that hail from this side of the Atlantic. All of these, however, have been of the "patent medicine" type; the more insidious "ethical proprietary" frauds have not been dealt with. Nor, in fact, have all of the American "patent medicines" been given their due. In the same

DEATHS AND INJURIES FROM RAILWAY ACCIDENTS

An examination of the statistics of railway accidents in the United States from 1903 to June 30, 1910, as set out in Accident Bulletin 36 of the Interstate Commerce Commission, affords only a moderate degree of satisfaction concerning the progress made in the prevention of deaths and injuries from such accidents. In 1903 the total number of persons injured, including both passengers and employees, was 45,917, and 3,554 were killed.

issue of the *British Medical Journal* in which the protest against American irregular practitioners appears, we find a display advertisement of Duffy's Malt Whisky! This nostrum, which in this country has been fraudulently advertised to "cure" consumption, which has been exploited by means of "faked" testimonials, which has been seized by government officials on the charge of being misbranded, which is not advertised in any American medical journal that has any regard for its standing, and which, in fact, is looked on by most self-respecting American physicians as a typical "patent medicine"—this cheap alcoholic nostrum is now to be found in the advertising pages of the *British Medical Journal*, the official organ of one of the most scholarly and dignified medical bodies in the world! The most charitable view to take of this glaring inconsistency is that the deep and abiding ignorance which the average Englishman has of all things American, is neither confined to the uneducated nor restricted to the laity.

A HEALTH CAR CARAVAN

According to the *Journal of the Indiana State Medical Association*, a health car caravan is being organized in Indianapolis, by the father of a tuberculous child. Two automobiles and twelve vans are to make up the caravan, which will accommodate from forty to fifty persons. Nurses, cooks and a physician are to accompany the party. A trip is to be made through Kentucky, Tennessee, Virginia, the Carolinas, Georgia, Alabama and Mississippi. It is the intention of the manager of the enterprise to start from Indianapolis in the late fall and to return in the spring, thus giving the party the benefit of a winter passed in the south and almost entirely out of doors. This plan apparently possesses the advantages of constant outdoor life, without the tedium and monotony of sanatorium existence. The idea is certainly a novel one, but whether or not it is practical remains to be seen.

Medical News

ALABAMA

Hospital News.—The Tuscaloosa Infirmary has been leased by Drs. William G. Somerville and George R. Rau to Drs. J. Hester Ward, Sydney Leach, Daniel W. Ward, Cottondale, Llewellyn L. Duggar, Fairfield, J. E. Shirley, Surry F. Mayfield, Harvey B. Searey, George R. Rau and Artemus D. Killian, Holt.—The Tallegeda Cottage Hospital is now open for patients. It has private rooms and three small wards.

Personal.—Dr. Robert Nelson has been elected city physician of Birmingham, vice Dr. Robert B. Harkness, resigned. Dr. John W. Watts has been reelected assistant city health officer, and Dr. A. M. Duncan, city bacteriologist.—Dr. William H. Oates, Mobile, has assumed charge of the office of state inspector of jails and cotton mills.—Dr. William L. Dinsmore, Decatur, has been elected city health officer, vice Dr. William W. Dinsmore, resigned to accept the position of chief of the Rockefeller Hookworm Commission in Alabama.—Dr. Rhett Goode has been reelected health officer of Mobile.—The Jefferson County Medical Society at its recent meeting, passed resolutions appreciative of the good work done by Dr. Robert Harkness, health officer of Birmingham for nearly 8 years.

CALIFORNIA

Leper in Stockton.—The State Board of Health, after examination is said to have decided that E. D. Fickert of Stockton, now confined in the Veteran's Home at Yountville, is afflicted with a typical case of mixed leprosy.

Hospital Notes.—Maricopa Hospital, which has been closed for several weeks, has been reopened.—The Sisters of Mercy have rented the Strachan Cottage, Brawley, and will use it as a hospital until their own site has been secured.—The High Court of the Independent Order of Foresters, in session at San José, October 11, appropriated \$5,000 for the purchase of a site for a tuberculosis sanatorium in Los Angeles.

Personal.—Dr. Rupert L. Blue, San Francisco, has returned from a trip to South America.—Dr. Robert S. Reid has been appointed a member of the board of health of Oceanside.—Dr. Joseph E. Yates, Lemoore, is reported to be ill with typhoid fever at a Coalinga sanitarium.—Dr. Frederick W. Browning, Haywards, has been elected high physician of the Independent Order of Foresters.—Dr. Floyd L. R. Burks has been selected assistant city health officer of Fresno.

CONNECTICUT

New Dean for Medical School.—Dr. George Blumer, professor of theory and practice of medicine in the medical department of Yale University, has been made dean of the school, vice Dr. Herbert E. Smith, retired.

Sanatorium Opened.—The Hartford County Tuberculosis Sanatorium, Cedar Mountain, Newington, was opened October 3, when twelve female patients were removed to the institution from the Hartford Hospital. On the following day the male patients were removed, so that the new sanatorium opens with a population of thirty-four.

DISTRICT OF COLUMBIA

The Milk Question in the District of Columbia.—The Secretary of Agriculture, October 14, issued an order to prevent milk containing extraneous matter, raw milk from cows not known to be free of tuberculosis, or milk of unknown origin, from being sold in buildings occupied by the Department of Agriculture in Washington, D. C. The agreement adopted by Dr. Woodward and the milk producers, October 27, whereby all cows supplying milk for the district must be tested for tuberculosis, was ratified October 31. The agreement embodies three proposed amendments to the regulations for the government of dairy farms. The health commissioner says that producers will be given reasonable time to comply with the new regulations.

ILLINOIS

Convicted.—J. A. Ray, posing as a mechanic-therapist in Lewistown and vicinity, is said to have been found guilty of practicing medicine without a license and to have been fined \$100 in the Fulton County court.

Mandel Cottage Opened.—The Emanuel Mandel Memorial Cottage at the Chicago-Winfield Tuberculosis Sanatorium was formally dedicated October 30. The cottage is the gift of Mrs. Emanuel Mandel in memory of her husband, will accommodate twenty patients, and cost about \$10,000.

Personal.—Dr. Otto M. Kuehn, New Design, announces his retirement from active practice.—Dr. William S. Wiatt, East St. Louis, had his right leg and three ribs fractured in a collision between his buggy and an automobile in East St. Louis, October 28.—Dr. Harry H. Whitten, Peoria, has gone abroad for study.

Chicago

Gift to Medical School.—James A. Patten, Evanston, has given \$200,000 to Northwestern University Medical School to endow and maintain a chair of medical research.

Clinical Week.—Many practitioners from outside have been in Chicago this week to attend the clinics held by physicians and surgeons of Chicago and other cities in various hospitals. The series is announced to continue until November 19. All branches of practice are represented.

Personal.—Dr. Harry S. Gradle, late assistant at Elschmig's eye clinic at Prague, has returned to Chicago and will practice with his father, Dr. Henry Gradle.—Dr. Fred C. Zapffe has resigned as manager of the Chicago Hospital, a position which he has held for several years.—Dr. Aloys Heinen has returned from abroad.

Dances for Hospitals.—The sixth annual charity ball of the Jewish Consumptives' Relief Society netted more than \$4,500 toward the establishment of a hospital for advanced cases of tuberculosis.—The charity ball given for the benefit of the Mary Thompson Hospital, at the Blackstone, October 31, netted more than \$7,000.

New Hospital for Children.—The Sarah Morris Hospital for Children, endowed with \$300,000 given by the executors of the

late Mrs. Nelson Morris to the president of Michael Reese Hospital, soon will be under construction. The institution will be one of the largest for this purpose in the middle west and will be ready for occupancy in a little more than a year.

MARYLAND

Incinerating Plant.—A model incinerating plant was opened October 17, in Baltimore, by the health department. A fumigation plant will soon be in operation in the same building.

Hospital Notes.—The Sisters of Mercy of Mercy Hospital, Baltimore, have purchased the three-story building adjoining the new addition to the hospital for \$10,000. It is understood that this building will be torn down to give more light and air to the hospital.—The hospital committee of the Havrele-Grace Hospital has purchased a residence in that town for \$10,500, situated on a lot 300 by 200 feet.

Personal.—Dr. G. C. Keller, Grantsville, has been elected president of the First State Bank at that place.—Dr. J. Wesley Cole, Baltimore, is reported convalescent after typhoid fever.—Dr. William L. Smith, Sherwood, who has been seriously ill with pneumonia, is reported to be improving.—Dr. Richard S. Hill, Upper Marlboro, has been appointed a member of the faculty of the Maryland Agriculture College, and Dr. William A. Griffith has been appointed attending physician.—Dr. Christopher Johnston, Baltimore, has received a bequest of \$500 by the will of Miss Elizabeth M. Morris.

MASSACHUSETTS

Medical Club Meets.—The Brookfield Medical Club held its regular meeting October 19, and elected the following officers: president, Dr. William J. Heffner, Gilbertville; vice-president, Dr. Ephraim W. Norwood, Spencer; secretary-treasurer, Dr. Idelle L. Edmands, North Brookfield; and executive committee, Drs. Harry D. Gaffney, Ware; Charles A. Deland, Warren, and William F. Hayward, East Brookfield.

Hospitals Enlarged.—Mayor Fitzgerald of Boston has approved the order passed by the city council authorizing the purchase of the Robert Treat Paine property on Southampton Street for the south department of the Boston City Hospital.—The health authorities of Chelsea have opened a tuberculosis clinic in the Frost Hospital, which is to be open every Wednesday afternoon.—Governor Eben S. Draper announces that on account of the overcrowded condition of the Milford Hospital, which he gave to the town several years ago, he will erect a large addition to the institution.

MICHIGAN

County Tuberculosis Hospitals.—The supervisors of Chippewa County have voted an appropriation of \$1,700 for the establishment of a county tuberculosis hospital.—The board of supervisors of Wexford County have voted to build a hospital for consumptives on the county farm.

Tuberculosis Societies Conflict.—The Detroit Society for the Study and Prevention of Tuberculosis has split into two factions and a dispute as to which is legal successor of the old society and so entitled to the funds has been brought into court. Judge Hosmer has handed down the opinion that the recently incorporated faction has no right to the name, books, or the \$13,500 collected on last tag day.

Order Jails Closed.—As the result of the inspection made by Sanitary Expert T. S. Ainge, of the State Board of Health, the secretary of the board issued an order October 16 closing the jails in Manistee and Lake Counties before October 24, and ordering the authorities of Cheboygan County to clean its county jail and to limit the number of prisoners, and directing the officials of Grand Traverse County to close its present county infirmary.

Social Purity Campaign.—A mammoth campaign for the extension of social purity among children began in Detroit, November 4, by the combination of five influential city organizations. Meetings are being held in schools, factories and theaters. Dr. Rollin H. Stevens is chairman of the citizens' committee for the promotion of social purity. Among the prominent physicians of Detroit taking active interest in this crusade are Adolph G. Studer, David Inglis, Mary T. Stevens and Guy L. Kiefer.

Personal.—Dr. James H. Sanderson, Detroit, returned October 31 from a trip to Havana and the interior of Cuba.—Dr. George C. Young, Jackson, fell four stories down an elevator shaft, November 1, suffering a compound fracture of the skull and internal injuries.—Dr. Dugald A. Galbraith,

Lansing, has been elected physician of Ingham County.—Dr. Martha L. Longstreet, Saginaw, was injured in a collision between her buggy and an automobile, October 27.—Dr. Flemming Carrow, Detroit, denies the published report that he is about to retire from practice.

Society Meetings.—The annual meeting of the Genesee County Medical Society was held in Flint, October 25. Dr. Noah Bates was elected president; Dr. Mark S. Knapp, vice-president; Dr. Clifford P. Clark, secretary-treasurer; Dr. Frederick B. Miner, assistant secretary-treasurer; Dr. Herbert E. Randall, delegate to the state medical society; Dr. John W. Handy, alternate, all of Flint; and Dr. Abram J. Goodfellow, member of the board of directors.—At the meeting of the Owosso City Physicians' Association, October 24, Dr. Jesse O. Parker was elected president; Dr. Dryden H. Lamb, vice-president, and Dr. W. A. Watts, secretary-treasurer.

Certified Milk.—Lansing recently passed an ordinance creating a milk commission consisting of five licensed physicians "to supervise the production of milk intended for sick-room purposes, infant feeding, and for use in hospitals" in the city. This commission is given power to enter into agreements with dairymen for the production of "certified milk" for the purposes above named and to prescribe the conditions under which such milk is to be produced and distributed, the tests to which it shall conform, and the price at which it shall be sold. The standard shall not be below that established by the American Association of Milk Commissions, but the price may be below that provided by the local commission. Each container containing the certified milk shall bear the seal of the commission, with the date and time of its production. This should insure a safe milk for the purposes named, and if largely used should diminish the death rate from infantile diseases in Lansing. It also is an excellent example for other cities to follow.

NEW YORK

Contract for Sanatorium Awarded.—Plans have been accepted and contracts awarded for the construction of the J. N. Adam Memorial Municipal Hospital for Tuberculosis, Perysburg. The initial cost of the hospital will be about \$250,000, and the ultimate accommodation is expected to be for 150 patients.

Automobile Injuries.—Dr. Charles Bernstein, superintendent of the State Custodial Asylum at Rome, met with an automobile accident on October 29 and is in a grave condition.—Dr. Robert Irvine, for many years prison physician at Sing Sing, was found unconscious in the road near Ossining as the result of an automobile accident.

New York Alumni of Baltimore College Meet.—At the first annual banquet of the New York State Alumni of the Baltimore Medical College, held in Syracuse, October 19, the following officers were elected: Dr. Milton E. Gregg, Elbridge, president; Dr. Morley B. Lewis, Sag Harbor, vice-president; Dr. William J. R. McFarland, Syracuse, secretary-treasurer; and Drs. William D. Peckham, and Leon P. Jankiewicz, Utica, and the vice-president and secretary, as members of the executive committee.

NORTH CAROLINA

Case Against Physician Dismissed.—The warrant against Dr. Bartlett J. Witherspoon, Charlotte, charged with issuing a prescription for liquor to one not a *bona fide* patient under his care, was dismissed by the recorder, October 8.

Personal.—Dr. William W. McKenzie, Salisbury, a member of the State Board of Medical Examiners, after having been incapacitated for the past 8 months as the result of an automobile accident, has regained his health and resumed practice.—Dr. David A. Stanton, High Point, secretary of the Medical Society of the State of North Carolina, has been nominated for the legislature by the republican party of Guilford County.—Dr. Charles L. Minor, Asheville, has returned from a trip abroad.

PENNSYLVANIA

Personal.—Dr. George W. Burket, Tyrone, has been added to the staff of Mercy Hospital, Altoona.—Dr. John W. Goodsell, New Kensington, has received a letter from the president of the Peary Arctic Club, New York City, commending the physician for his work during the Peary expedition and enclosing a check as a substantial evidence of the appreciation of the club.—On October 31, Governor Stuart appointed Dr. Americus R. Allen, Carlisle, a member of the Board of Medical Examiners, representing the Medical Society of Pennsylvania, vice Dr. James B. Walker, Philadelphia, deceased.

Philadelphia

Personal.—Dr. Ottavio Monticelli has recently returned from a trip abroad in which he made a study of the European hospital systems.—Dr. Charles M. Burk was operated on in the German Hospital, October 26, for abdominal disease.—Dr. Harry C. Deaver has been appointed surgeon in chief to the Kensington Hospital for women.—Dr. S. Weir Mitchell has been elected president of the St. Andrew Society.

Home for Convalescent Workers.—Having terminated a successful summer season, in which it cared for more than 6,000 mothers and children, the Country Nursery of Germantown has opened for the winter as a Convalescent Home for Wage Earners. It will care for working persons who have been discharged from hospitals, but are unable to return to their employment.

Pneumonia Campaign Planned.—With a view to reducing the mortality from pneumonia, Dr. Joseph S. Neff, director of health and charities, is planning an educational campaign on the subject of ventilation. Scientific tests of the impurity of the air in places over which the department has any jurisdiction will be made and the results announced. Tests will be made in theaters, large stores, schoolrooms and other places where people congregate.

Census of Defective Children.—The Board of Education has just completed a census of defective children, which shows that there are 573 defective children unable to attend school, said to be about 50 per cent. of the actual number in the city, owing to the reluctance of parents to tell of afflictions. The board is advocating a special institution for the care and education of such children. An analysis of the report shows that the largest number of defectives are crippled, the number of cripples being 167.

Graduate Courses in Internal Medicine.—During the period from September to May, 1910-11, six courses in internal medicine, each of six weeks' duration, will be given at the Philadelphia General Hospital. The series of classes begins work September 26, November 7, December 19, January 30, March 13 and April 24. The courses will cover various phases of internal medicine as best illustrated by the cases in the ward in a given period, and will take the form of a series of informal clinical conferences rather than a study of diseases of any one organ. Those interested should apply at 1708 Locust Street. No fee will be charged and the membership in the classes will be limited to those willing to attend regularly and to benefit in full measure from the wealth of clinical and laboratory material.

Jail for Rotten Egg Sellers.—Judge Barrett, November 3, not only imposed the first two jail sentences in "rots and spots" cases made under the pure food law passed by the last legislature, but he also warned all those engaged in the rotten egg business that if convicted they should not expect mercy from the courts. T. T. Ellis & Son were convicted a week ago and Abraham Staples, November 3. Judge Barrett is said to have imposed a fine of \$500 for T. T. Ellis and a sentence of three months in jail for George Ellis, the son, and of three months in jail for Abraham Staples. Other sentences in pure food cases in Judge Barrett's court were: William Snowden, who pleaded guilty to selling oleo for butter, \$100 and costs; Morris Levin, who pleaded guilty to selling butter containing foreign fat and excess moisture, \$60 and costs, and Louis Feingold, who pleaded guilty of selling cake colored with yellow coal tar dye, \$60 and costs.

VIRGINIA

Health Officers Organize.—The Virginia Health Officers' Association, composed of county health officers of the state, was organized in Norfolk, October 27. Dr. Lucien Lofton, North Emporia, acting as temporary chairman, and Dr. Robert E. Booker, Lottsburg, as secretary. The following officers were elected: president, Dr. Rawley W. Martin, Lynchburg; vice-presidents, Drs. Ernest C. Levy, Richmond, and Jesse M. Shackelford, Martinsville, and treasurer, Dr. Lucien Lofton, North Emporia.

State Medical Society Meeting.—The forty-first annual meeting of the Medical Society of Virginia was held at Norfolk, October 25-28, and the following officers were elected: president, Dr. Otho C. Wright, Jarratt; vice-presidents, Drs. Joseph F. Buxton, Newport News, Robert Wiley, Salem, and McGuire Newton, Richmond; secretary, Dr. Landon B. Edwards, Richmond (reelected); and treasurer, Dr. Robert M. Slaughter, Theological Seminary (reelected). Richmond was selected as place of meeting for next year.

WISCONSIN

Tuberculosis Campaign.—The Milwaukee Central Council of Tuberculosis has begun a thorough placarding campaign directed at the spitting evil, and 6,000 placards are being distributed in factories and workshops in Milwaukee.

Physician Wins Suit.—The case of Martin V. Murray, Aikins, against Drs. E. J. and Michael J. Donohue and Fred V. Watson, Antigo, for \$10,000, in which malpractice was charged, was dismissed October 5, in the circuit court at Rhinelander, the court nonsuiting the plaintiff because he was unable to show that the defendants had been negligent or guilty of malpractice in any way.

GENERAL NEWS

Trachoma in School Children.—An extensive epidemic of trachoma has been discovered in school children of Santiago de Las Vegas, Havana Province, Cuba, where about 1,000 cases have been observed.

Yellow Fever in Hawaii.—Press dispatches announce the first case of yellow fever ever reported or known to have been present in Honolulu was discovered aboard a Japanese cruiser which arrived in port from Manzanillo, Mexico, October 30. The warship is being held in quarantine.

Glanders in Cuba.—A focus of glanders has been found in the large stables of the Rural Guards, at Santiago de Cuba. Six horses were killed on account of the disease, forty-six others suspected of having glanders were isolated, and 177 were vaccinated with mallein to protect them from infection.

Address Translated.—The address of Surgeon-General Walter Wyman, U. S. P. H. and M. H. Service, on "The Present Organization and Work for the Protection of the People in the United States," delivered at the meeting of the American Public Health Association, at Milwaukee, has been translated into Spanish by Dr. A. M. Fernandez de Ybarra, Havana, and published in the *Diario de la Marina*.

Railway Surgeons Organize.—The Association of Railroad Surgeons of the Southwest was organized at the session of the International Medical Association of Mexico, October 28, with the following officers: president, Dr. George K. Angle, Silver City, N. Mex.; vice-presidents, Drs. Carl H. Lund, Douglas, Ariz., John W. Colbert, Albuquerque, N. Mex., Robert L. Ramey, El Paso, Texas, and Carlos E. Huast, Santa Barbara, Mexico, and secretary-treasurer, Dr. William L. Brown, El Paso.

Railway Surgeons' Meeting.—The twentieth annual meeting of the New York and New England Association of Railway Surgeons was held in New York City, November 3 and 4, under the presidency of Dr. Leroy M. Bingham, Burlington, Vt. The following officers were elected: president, Dr. Frederick A. Goodwin, Binghamton, N. Y.; vice-presidents, Drs. Walter Lathrop, Hazelton, Pa., and John W. Le Seur, Batavia, N. Y.; corresponding secretary, Dr. George Chaffee, Brooklyn; recording secretary, Dr. Clifford A. Pease, Burlington, Vt., and treasurer, Dr. James K. Stockwell, Oswego, N. Y. The time and place of the next meeting were left to the executive committee.

Report of the Surgeon-General.—The annual report of the Surgeon-General of the Army shows that during the fiscal year, eighteen officers died and 115.7 were constantly non-effective from all causes, the rate being a little higher than for 1908. During the year 51 officers were retired on account of disability, equivalent to an annual rate of 11.91 per 1,000. The constantly non-effective rate among enlisted men was 41.48 per 1,000. During the year 370 deaths occurred, 228 of which were from disease. Of the deaths of enlisted men, 25 were from suicide by gunshot wound, 2 were killed in action, 28 by drowning, and 11 by acute poisoning. There were no deaths from sunstroke, freezing, or lightning stroke. The admission rate for venereal disease was 196.99 as compared with 194.13 for the preceding year, showing that the campaign of education in this regard is not yet showing results. The admission for tuberculosis was 4.70, a little higher than for the preceding year. The admission rate for malarial infection has decreased from 46.33 in 1909 to 38.42 this year. During the year there were 173 cases of typhoid fever with 16 deaths. Since March, 1909, 10,941 persons have been vaccinated against typhoid fever. Cerebrospinal meningitis was responsible for 7 deaths out of 13 cases which were reported. The admission rate for tuberculosis was higher than in any foreign army excepting the Spanish, French and Dutch, which have rates of 5.92, 7.44, and 5.32 respectively. The surgeon-general requests the favorable consideration of the Secretary of War for the new bill organizing a corps of dental surgeons.

MANILA LETTER

(From Our Regular Correspondent)

MANILA, Oct. 4, 1910.

Personal

Mr. Moses T. Clegg has resigned from the Bureau of Science to accept the assistant directorship of the leper colony at Honolulu, for which place he has just sailed. For several years Mr. Clegg has been interested in leprosy and has recently succeeded in cultivating the leprosy bacillus on artificial media.

The Medical and Pharmaceutical Students' Strike Off

The strike of the students of medicine and pharmacy of Santo Tomas University, which threatened to leave the Philippine Islands with only one medical school, has been declared at an end. About three months ago an order was received here from the Vatican at Rome for the transfer of the University of Santo Tomas from the Dominican to the Jesuit order. A large proportion of the students protested and the students of medicine and pharmacy asked that some assurance be given them of the continuation of these departments till the present classes graduate. These requests were lightly received and the university authorities declared that it would be impossible to continue the departments of medicine and pharmacy for more than about one year, but urged these professional students to remain in school. A strike of the medical and pharmacy students was declared, which was followed by a sympathetic strike (of two weeks' duration) of practically the entire student body. Acting on the advice from their representative in Rome, the students of medicine and pharmacy recently have returned to their classes after an absence of two months. The Vatican has promised to continue these professions indefinitely. The following cablegram was received: "Tell students of Santo Tomas that the university will continue forever in all its departments. A papal decree to this effect will be issued in November. This statement is made with due authority." It looks like a victory for the students.

Extermination of the Mosquito

Manila and its people are just embarking upon another crusade in preventive medicine. This time it is the war on the mosquito. Betwixt the popular agitations for sound meat, fresh eggs, sanitary barrios, pure water, extermination of the mosquito, prevention of beriberi, reduction of infant mortality, and the cure and prevention of tuberculosis, the medical man has, of late, scarcely been able to collect his thoughts fast enough to give expert advice on so many subjects. But good account has been given in several of these movements. This is notably true of the antituberculosis movement.

The extermination of the mosquito, however, has perhaps less to do with the health of Manila than its extermination from most other places, there being little malaria and no yellow fever in Manila or in the Philippine Islands. The vital statistics of the Bureau of Health for the second quarter, 1910, show, in a total of 1,962 deaths, 25 deaths due to "intermittent fever and malarial cachexia" and 2 deaths from "malarial cachexia." This relatively small amount of malaria, at first sight, is a little difficult to understand. The topography of the country and the climate are those which we usually associate with a marked prevalence of malaria, yet most Americans on coming to the islands, whether to Manila or the provinces, seldom have occasion to take their brown bottle of sugar-coated quinin tablets from the trunk. Despite the fact that the valley surrounding Manila is to a great extent given up to marshy rice-paddies and fish-ponds, the anopheles mosquito is decidedly in the minority. The entomologist of the Bureau of Science tells us that this genus of mosquito is represented in the Philippine Islands by seventeen species but that none of them flourishes. The reason for this is not clear, but the propagation of the anopheles seems to be associated with several forms of green algae which are scarce in these islands.

The above is in marked contrast to the situation in most tropical countries where the rains are as heavy as they are here. Particularly is this the case in British India, where for the past several years the incidence of malaria has shown no tendency to decrease. Indeed, during the fiscal year 1909, the number of cases of malaria has shown a decided increase. This has brought the attention of the medical profession and the government to the gravity of the situation. In a total of 8,653,007 deaths, registered in the annual report of the Sanitary Commissioner, something over two million are estimated as due to malaria. This occasioned the Imperial

Malarial Conference which was held at Simla in October of last year; numerous resolutions and recommendations were adopted looking toward the alleviation of the malady. These included a scheme and schedule of treatment for those already infected, an outline of a campaign for the extermination of the anopheles mosquito, prophylaxis through general sanitation and quinin, free distribution of quinin (only in severe epidemics) and a general plan of education of the masses of the people in relation to the spread and cure of the disease. The great poverty of the people and the vast amount of marsh land, however, would seem to make the campaign almost a hopeless one. Judging from the reports of the Imperial Malarial Conference and from the annual report of the Sanitary Commissioner of the Government of India, the malaria situation in British India is well depicted in the opening address of His Excellency the Viceroy and Governor-General of India at Simla in October, 1909, from which the following is taken:

"Malaria has been a terrible scourge in many parts of India. I have no wish to weary you with a repetition of statistics which are no doubt well known to all of you, but speaking generally, the number of deaths ascribed to fever in the whole of India has varied during the last ten years from about four millions to four and a half millions per annum; and though it is admitted that only a portion of these are due to malaria and though we cannot say with precision what that proportion is, it has been estimated to be from one-fourth to one-fifth of the total number of deaths entered in our returns as due to fever. We may therefore take it that malaria is answerable in an ordinary season for about a million deaths in the year. But last year the number of deaths ascribed to fever was one million more than the normal, and there are grounds for belief that this additional million was due to malaria, and not to the other diseases which go to swell the total returns under the heading of fever. We may therefore assume that the number of deaths from malaria in India are ordinarily one million, but that in an exceptional season they have risen to two millions. If we admit such a conclusion, as I am afraid we must, we cannot disguise from ourselves the magnitude of the evil with which we have to deal. And the loss by death is by no means the whole of that evil. There are the cases of those who contract the disease, but do not die, and the ratio of the number of such cases to the number of deaths is very high. I believe one estimate has placed it as high as 133 cases of sickness to one death. If therefore we take it only in the proportion of 50 to 1, we have to admit one hundred million cases of fever for the last year which were not fatal. It is appalling to think of the suffering and economic loss that such conditions imply—not only direct and immediate loss by the death and sickness of adults, but potential loss in the case of the children. And yet much of this wide-spread suffering scientists assure us is preventable.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Oct. 29, 1910.

Small-Pox Infection in Cotton

From time to time sporadic cases of small-pox have occurred among the operatives in Lancashire. This has suggested the idea that the cotton was the source of infection. At the recent International Conference on Diseases of Occupation held at Brussels, Dr. Corbin, health officer for Stockport, raised the question whether such cases did not come under the head of "accidental injuries" of the Workmen's Compensation Act. Of course there would be great difficulty in proving the source of infection in an individual case. However, since the possibility of cotton being the source of infection was first mooted, a chain of evidence connecting cases of small-pox in Lancashire with cases among the native gatherers of Egypt and the United States has been followed out very completely, and every care is taken to guard against those suffering from the disease having anything to do with cotton. Dr. Corbin points out that even if a native suffering from the disease gathered the cotton the probability of the conveyance of infection is very slight. In the first place there must be considerable attenuation of the virus before the material reaches the hands of the workers in England. Further, there would be little chance of infection unless the virus were inhaled or carried directly to the mouth. Operatives engaged in "piecing" use the saliva only occasionally as a means of facilitating the process and the possibility of the strands requiring to be pieced just at the point where the virus was is very small. Finally, the operator is usually protected by vaccination against infection.

Damages for Nervous Shock

As stated in previous letters, the Workmen's Compensation Act has been drawn in such a wide and all-embracing manner as to include under the term "accident" everything which can befall a workman in the course of his employment, even though it has only the most remote connection with his work. Introduced by a liberal government with the most benign intentions toward labor and with a strong labor party on its flank making the utmost demands, the act may be described as passed solely in the interests of labor. Compensation has been successfully claimed for the death of a workman from the bursting of an aneurism while making only a slight effort in tightening a screw. The latest form of injury to be recognized under the term accident is nervous shock. In a recent case the judge ruled that in assessing the amount of compensation the nervous and mental as well as the physical condition of the injured workman must be considered in estimating the extent of his recovery and consequent earning capacity. Still more recently mere nervous shock causing no physical injury has been held to be an accident. A collier, aged 46, while working heard a cry for help from a fellow workman. He ran to the latter and found him lying on the ground, bleeding from the head, ears and eyes, having been knocked down by a fallen timber prop and coal. He picked up the injured man and with assistance carried him away. The man died in quarter of an hour. After the accident the collier suffered from nervous shock which incapacitated him from work at the coal face. The Court of Appeal has decided that the collier was the victim of an accident arising out of his employment and that he was entitled to compensation. The Master of the Rolls (the presiding judge) said: "I think the decisions of this court do show that when a man in the course of his employment sustains a nervous shock producing physiologic injury, not a mere emotional impulse, he meets accident arising out of and in the course of his employment. I can see no real difference in principle, when once you get rid of the danger of malingering, between what happened to the man who was killed and in this case in which physiologic damage was done."

Fatal Cycling Accident to a Doctor

Fatal cycling accidents to doctors unfortunately occur from time to time. Not long ago a leading physician of Birmingham, Professor Foxwell, was killed while descending a hill on his cycle. Now the death is reported from Ireland of Dr. P. J. Smyth of Stamullen, who was cycling home in the dark after attending a call. Apparently he mistook the way at the corner of a by-road and ran into a wall. He sustained a fracture-dislocation of the neck which was instantly fatal.

The Crippen Case

The most sensational murder trial of this generation has no doubt been fully reported in the American lay press, but probably its medical aspects have not been completely dealt with, and a note on them may be of interest. Evidence was given that Mrs. Crippen had a scar in the middle line of the abdomen about 6 inches long below the umbilicus. Remains of a human adult, probably in early or middle life, consisting of heart, lungs, liver, kidneys, stomach and intestines and portions of skin and muscles, mixed with quicklime and remarkably free from putrefaction, were found beneath the floor of the coal-cellar of Crippen's house. A considerable amount of adipocere had been formed. The medical experts for the prosecution—Mr. Pepper, Dr. Marshall and Dr. Willcox—gave evidence that the lime would retard putrefaction, but accelerate the formation of adipocere, and that the remains must have been buried from four to eight months. Among the pieces of skin was one 7 by 6 inches, with a piece of subjacent muscle 4 inches long, which corresponded exactly to the left rectus abdominis. On the left portion of the skin were hairs arranged in a transverse horizontal line and corresponding to human pubic hairs. These and other characters led to the conclusion that the skin came from the lower part of the anterior abdominal wall. On the anterior surface of the skin extending from half an inch above the line of hairs was a triangular mark with the base below, which, Mr. Pepper emphatically stated, was an old stretched scar. For the defense Dr. Turnbull and Dr. Wall of the London Hospital said that the mark might be due to folding of skin and subsequent pressure. But folding would not account for the triangular appearance of the scar, which was presumably due to stretching. The portion described as a scar was microscopically examined by Dr. Spilsbury of St. Mary's Hospital, who confirmed this view. All the medical evidence was that there

were no anatomic signs of sex in the remains. The removal of the whole of the viscera of chest and abdomen, excepting the pelvic viscera, was considered to indicate some anatomic knowledge.

In the viscera Dr. Willcox found an alkaloid which produced complete paralysis of the pupil for several days in cats. By the Stas-Otto process he obtained a mydriatic alkaloid which gave a purple violet color by Vitali's test, which he held to show that a vegetable mydriatic alkaloid was present. By purification he found that the alkaloid was not crystalline, but gummy, and with bromid in hydrobromic acid gave brown spheres. He therefore concluded that hyoscin was present, the quantities found in the various viscera amounting in all to two-fifths of a grain of hyoscin hydrobromid. The lungs contained only the merest trace—much less than the other organs. The distribution pointed conclusively to administration by the mouth and excluded the possibility of the alkaloid being due to putrefaction, as the best-preserved organs yielded the greatest percentage. It was proved that in January Crippen bought 5 grains of hyoscin hydrobromid, which he then alleged was for the purpose of making up preparations for Munyon, and, at the trial, for homeopathic preparations of his own. For the defense Mr. Winter Glyth, a well-known toxicologist, was called, and disputed the reliability of the test for hyoscin. But it was pointed out to him that he had given a contrary opinion in his well-known book on poisons. He stated, however, that on looking up the literature he was inclined to recant that opinion. A most damning piece of evidence was the finding with the remains of a pajama jacket identical in pattern with pajama trousers admitted to belong to the prisoner. Moreover, it was proved that these trousers were bought subsequent to 1906, and must therefore have been put beneath the cellar during the time of the prisoner's tenancy of his house.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Oct. 28, 1910.

Black-Listing of Physicians by a Medical Society.

The Syndicat des médecins de Toulouse came into conflict with the Fédération des sociétés de secours mutuels in regard to the contracts with important societies. Three physicians accepted positions with one of these societies, replacing physicians who had withdrawn. The *syndicat* put these three physicians on the "index" or black list; that is to say, it forbade all of the members of the *syndicat* to have any professional relations with those physicians under penalty of a fine of from \$4 to \$20 (20 to 100 francs), doubled in case of a second offense. One of the black-listed physicians entered suit against the president and secretary of the *syndicat* before the civil court of Toulouse for \$20,000 damages (100,000 francs). The court sustained the *syndicat* on the ground that "the defendants were acting with no other motive than to prevent, by a useful, necessary and legitimate measure, defection in the ranks of physicians and to sustain the moral authority of the *syndicats*, guardians of professional rules."

Death of Dr. Lancereaux

Dr. Etienne Lancereaux, former *agrégé* professor of the Paris medical college, has just died, aged 85. He became a doctor of medicine in 1862, physician of the hospitals in 1869, and *agrégé* in 1872. He was elected a member of the Académie de médecine in 1877, in the section of pathologic anatomy, and was named president of that association in 1903. Dr. Lancereaux's scientific work is considerable. He published lessons on clinical medicine which are highly valued, but the greater part of his work consists of special researches into pathologic anatomy, especially that of syphilis and intoxications, particularly alcoholic intoxication. His studies on the lesions of the liver produced by the abuse of wine have been much noticed, although Dr. Lancereaux's opinion has not been unanimously accepted by pathologists. Lancereaux thought that from the point of view of the rôle of alcohol in the etiology of alterations of the liver, it was necessary to make distinctions among the various alcoholic drinks, which he classified from this point of view in three groups: (1) cider and beer; (2) wine; (3) alcohols, especially from grain, potatoes, molasses and beets. He considered the drinks of the first class incapable of producing alcoholic lesions, and as being without harmful action on the liver. On the contrary, wine, containing a much larger proportion of alcohol, tannin, tartaric acid and calcium salts, he thought, exerted a specific action on the interstitial tissue of the liver; and its immoderate use provoked the atrophic cirrhosis of Laennee. As for alcohols

from grain and beets, they act especially on the nervous system. Their action on the liver is undeniable, but it manifests itself principally by an alteration of the hepatic cellule, contrary to wine, which irritates especially the conjunctivo-vascular stroma. Therefore, most fatty cirrhoses are caused by abuses of these varieties of alcohol.

Dr. Lancereaux published many works, especially an "Atlas of Pathologic Anatomy" (1871), a "Treatise on Herpetism" (1883), and a "Treatise on the Diseases of the Liver and the Pancreas" (1899). In spite of his advanced age he was always very active, and had recently published a "Treatise on Gout," and was making a series of reports to the Académie de médecine on the treatment of aneurisms.

Fire at Toulouse Medical College

Fire at the College of Medicine and Pharmacy of Toulouse, caused by a broken electric wire on the roof, did \$200,000 damage. The whole library was destroyed. As the fire spared most of the amphitheaters and laboratories, it is hoped that the college may be reopened at the date set, November 3.

Vacation Colonies

Although entirely unknown in France 10 years ago, vacation colonies have undergone a considerable development lately. There are now 706 institutions of the kind. While in 1900 there were no more than 8,000 children in such colonies, in 1905 there were 26,000, and, during the summer of 1910, 72,800. Even the latter figures are unsatisfactory in comparison with the entire school population. In Paris, no more than 5 per cent. of the children who attend the municipal schools partake of the benefits of the vacation colonies, although the aid granted by the municipal council of Paris has increased in 20 years from about \$9,000 (45,000 francs) in 1889 to about \$45,000 in 1908. To this sum is added the contributions of twenty school funds, about \$28,000, the fees of families, and various gifts. The cost of maintenance at these colonies, which was about 75 cents (3.83 francs) a day for each child during the first year for a 3-weeks' vacation, has fallen to about 57 cents (2.86 francs). The children are sent sometimes to the mountains, sometimes to the sea, sometimes merely to the country. Some institutions, like the municipal schools of Paris, have adopted the plan of placing the children collectively, while children from other parts of France have generally been placed in families. Our communal schools ordinarily give an outing of 21 days. Some consider this length of time insufficient, but the medical records of weight, height and thoracic measurements show that the child receives appreciable benefit from it; nineteen times out of twenty the thorax has increased markedly in all dimensions. In order to coordinate better the efforts of the various institutions devoted to this end, the first Congrès national des colonies de vacances was held in Paris from September 30 to October 2, taking up the questions of price and material conditions of transportation, hygiene, medical questions, etc.

Prohibition of Absinthe

The question of the prohibition of absinthe is still pending in France. The present taxes on alcoholic products, such as the 1907 surtax of about \$10 (50 francs) on absinthe and similar products, are by no means prohibitive. They are purely fiscal measures with no hygienic purpose. Bills intended to further the campaign against absinthe have been numerous within the last 10 years, but none has been adopted. Most of the bills have merely demanded the limitation of the number of wine shops. This would be in itself an excellent reform, since there are at present nearly 500,000 of these shops, 23,000 in Paris alone. Switzerland meanwhile has absolutely prohibited absinthe in all its territory. The federal assembly, following a referendum, has passed a law which comes into effect on October 7, and which prohibits in the whole extent of the Helvetic confederation, the manufacture, the importation, the transportation and the storing for sale of the drink known as absinthe and all imitations thereof. The use of the absinthe plant as a remedy is permitted, likewise the use of the pharmaceutical products made from this plant, but the cantons are to see that these products are used only for medicinal purposes.

Mortality in the Army

According to *France militaire*, the mortality of the army has increased from 3.14 per 1,000 in 1905 to 1.95 per 1,000 in 1908. The soldiers of the first year are those who pay the heaviest tribute.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Oct. 20, 1910.

Personal

Professor Gerhardt of Basel, son of the distinguished clinician, has been nominated for director of the Marburg medical clinic as the successor of Professor Brauer who, as already announced, has been called to the position of director of the Hamburg-Eppendorf hospital.

Professor Forster, director of the hygienic institute at Strasburg, died October 12, aged 68. He had filled the chair of hygiene in Strasburg since 1896. He was a distinguished pupil of Pettenkofer and Voit. In 1874 he joined the faculty at Munich, in 1877 he became professor of hygiene at the veterinary college at that place, in 1878 he was called to Amsterdam as director of the hygienic institute. His works belong not only to the field of hygiene but also that of nutrition. He demonstrated that marine phosphorescent phenomena are produced by bacteria. He took a prominent part in the campaign against typhoid, which was unusually widespread in Alsace and Lorraine. Together with Pettenkofer he founded the *Archiv für Hygiene*.

Professor H. Fischer, formerly director of the surgical clinic at Breslau, celebrated his 80th birthday October 14.

Memorial for Robert Koch

As already announced the general memorial service for Robert Koch will occur December 11, on which day Robert Koch would have been 67 years old. It will be held in the new university hall in which the centennial jubilee has been held. Among the invited participants will be all the officials with whom Robert Koch had official relations. The memorial address will be delivered by Privy Councillor Gaffky. In addition only brief remarks from the domestic and foreign delegates are provided for.

The University Centennial

Your readers are already acquainted through the daily press with the ceremonies that have taken place in connection with the centennial of the Berlin university. The medical faculty nominated a number of persons for the honorary title of doctor, who for the most part had very slight if any relations to medicine, as for instance, a renowned composer, on the theory that his compositions serve to refresh the spirits of the sick. Such an honor might be looked on as ridiculous if it were not in accordance with an old custom to distinguish an honored man on such a ceremonial occasion by the bestowal of an academic degree. The honorary promotion which the philosophical faculty has bestowed on Professor Ziehen and Surgeon-General Kern is founded on real worth, as both investigators have published valuable treatises in the field of psychology and philosophy. The director of the Berlin skin clinic, Professor Lesser, was on the same occasion appointed as a regular honorary professor.

International Congress for the Care of the Insane

At this congress the following resolutions of general interest were passed. First, a motion of Kraepelin (Munich) to secure by means of statistics of population of a limited district, extending over decades, the necessary data to answer the question of the increase of mental and nervous diseases and the social phenomena connected with them. Second, a motion of Schüle (Hlenau) to discuss at the next congress the question of the statistical treatment of hereditary relations and to appoint Professor Tamburini (of Rome) and Rüdin (of Munich) to report on the question. Third, a motion of Morel (of Ghent) and Ferrari (of Bologna) to secure uniform international education of attendants for the insane and to determine the minimum requirements, and further to secure in the national publications concerted agitation for furthering the study of the origin and prevention of mental diseases.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Oct. 26, 1910.

An Accident in a Laboratory and its Consequences

Some time ago, Dr. Luksch, of the Czernowitz laboratory for examination of food, made experiments with malleus bacilli which, as he believed, had been killed. While they were in the centrifuge, one of the glass tubes burst, and the contents were scattered over the room. Two assistants and Dr. Luksch himself, who at once proceeded to put the apparatus in order, became infected with the disease, and of the three

men only Dr. Luksch escaped death, the other two succumbing after a short illness, a very short incubation period having intervened. Dr. Luksch was afterward accused of negligence and had to fight in court for his reputation and liberty. Professor Weichselbaum, who appeared as an expert, declared that the accused was entitled to regard the bacilli as dead, because the notes of the experiment proved that a 5 per cent. phenol solution was allowed to act for an hour on the contents of the centrifuge glass tubes. Also the behavior of the unlucky scientist after the accident proved that he was convinced of the innocuousness of the spilled liquid. He played with his babies there and shared the rooms with his family. The explanation of the fatal result lies in the fact that sometimes the disinfectant is not strong enough, although all scientific publications dealing with malleus show that a 5 per cent. solution has a safe bactericidal action. Dr. Luksch was exonerated and the case was dismissed. The incident showed that incalculable occurrences must be taken into consideration in all such experiments. The accident, which gave rise to very much public comment, has had the consequence that experiments with highly virulent micro-organisms are now restricted to special institutes under extraordinary precautions.

A New Water-Supply in Vienna

The constantly and quickly increasing population of Vienna requires enormous quantities of pure drinking-water, and the existing supply of the liquid has been severely taxed, especially a year or two ago, when a continuous absence of rainfall for several months in the district where the water was drawn caused an actual water famine in Vienna. The population of Vienna numbered 800,000 in 1892, and 1,500,000 in 1900, owing to the union of several suburbs with the city. Even at that time Vienna boasted of the best water among all European cities. It was brought in grand aqueducts and subterranean pipes from the district of Schneeberg, a mountain group some 6,000 feet high, 85 miles to the south of the city. The introduction of this water in 1872 at once put a stop to all gastro-intestinal infective disease; typhoid fever in particular, formerly a constant occurrence in Vienna hospitals, was nearly suppressed. The quantity of water was calculated to be sufficient for a million and a half of people; but the increase of use of water called for an earlier search for a new supply. This has been found a little to the northwest of the first well district. The new water is also derived from mountainous districts. There are six powerful wells in the Austro-Styrian Alps, giving a daily quantity of 200,000 tons of water, even in the dry season of the year. The water has a low degree of hardness. It comes from the central group of the Alps, where only little lime and chalk is present, more granite and gneiss, and its temperature is constant all the year round, showing at the common reservoir 120 miles from Vienna 6° C. (43° F.) while in Vienna itself it has risen to 7° or 10° C. (45° or 50° F.) according to the season of the year. The cost of the new supply is estimated at 100,000,000 kronen (\$20,000,000). Twenty per cent. of all the canals are open; the rest are protected from pollution, being either underground or running in special huge iron pipes or cement pipes. In order to supply the highest points of our hill-climbing city, six reservoirs have been erected, of which only one requires water-lifting machines. The distributors are at the same time also pressure regulators, for the water arrives under a pressure sufficient to reach parts of the city situated 1,000 feet above sea level. From the medical point of view, the nature and quality of the water are first-class. It is practically germ-free; it is soft enough to give splendid cosmetic effect. It will have to be determined by experience, however, whether it has also the effect of causing hypertrophy of the thyroid gland, which has been put to the credit of the water used hitherto in Vienna. The fact is undeniable that since 1873 the number of goiters in this city has increased 200 per cent. and popular belief always pointed to the water as a cause. Modern researches of Swiss investigators seem to justify this belief, for water coming from certain parts of the Alps proved capable of producing such a condition in dogs. This water came from lime districts, like the old Vienna water. The quantity of water at disposal in this city after the opening of the new waterworks will be sufficient for 4,000,000 people at a liberal daily allowance (125 liters or 250 pints) per head. It is intended to distribute the new water on December 2, the jubilee of the Austrian Emperor. At any rate, until the year 1940 we need not fear another water famine, for at that time only 3,500,000 are calculated as the population of Vienna.

Marriages

OTTO J. RABE, M.D., to Miss Mildred C. Smith, both of Chicago, October 20.

ALEXANDER AARON, M.D., to Miss Mettie Lemish, both of Philadelphia, October 16.

STEPHEN RUSHMORE, M.D., Boston, to Miss Alice Dammann, at Baltimore, October 29.

BERNAYS KENNEDY, M.D., to Mrs. Elizabeth McKeen, both of Indianapolis, October 26.

ARTHUR JOHNSON, M.D., Clanton, Ala., to Miss Mabel Hall of Owensville, Ind., October 18.

EDWIN E. GAMBEE, M.D., Chewelah, Wash., to Miss Clara Waddock of Lebanon, Ore., October 21.

R. E. FERNEYHOUGH, M.D., Warrenton, Va., to Miss Margaret Hutton, at Warrenton, October 19.

JAMES ANDERSON WORK, JR., M.D., Elkhart, Ind., to Miss Bess Middleton of St. Louis, October 29.

JESSEE ULLMAN REAVES, M.D., Mobile, Ala., and NELL LECOMPTÉ, M.D., Corydon, Iowa, October 19.

MILTON BYRNE LENNON, M.D., San Francisco, to Miss Aimee Marie Auzeais of San Jose, Cal., October 25.

WILLIAM WADE OLIVE, M.D., Durham, S. C., to Miss Agnes Janet Makely of Edenton, N. C., October 26.

EMILE BONNIWELL QUILEN, M.D., Wilmington, N. C., to Miss Lelia Griffith Owings, at Baltimore, October 18.

ROBERT P. CARR, M.D., Norton, Va., to Miss Bessie McClung, formerly of Botetourt County, Va., November 3.

HENRY WARD RANDOLPH, M.D., Richmond, Va., to Miss Agnes Rebecca Reed, at Reelville, Va., October 24.

RAYMOND A. BUTLER, M.D., Lafayette, Ind., to Miss Amy Carter of Elizabethtown, Ind., at Indianapolis, October 27.

THADDEUS GLASS PORTER, M.D., Palestine, Ark., to Miss Emma Pringle Radley of Jeffersonville, Ind., at Louisville, Ky., October 25.

Deaths

Nathaniel Pendleton Dandridge, M.D. College of Physicians and Surgeons, New York City, 1870; a member of the American Medical Association; fellow of the American Surgical Association, and member of the Cincinnati Academy of Medicine; formerly dean and professor of practice of surgery and clinical surgery in Miami Medical College; a director of the Cincinnati Hospital Board; surgeon to the Cincinnati Hospital and Episcopal Hospital for Children; died at his home, November 6, from heart disease, aged 64.

John Henry Nesbitt, M.D. College of Physicians and Surgeons, New York City, 1875; a member of the Medical Society of the State of New York, and the New York Medical and Surgical Society; of New York City; is said to have committed suicide by gunshot wound in his stateroom on board the steamship *Arabic*, October 27, while on his way to England, aged 56.

Charles C. Davidson, M.D. Jefferson Medical College, Philadelphia, 1880; a member of the Medical Society of the State of Pennsylvania; the Medical Club of Philadelphia, the Medical-Legal Society, and the Jefferson Medical College Association; a prominent specialist in orthopedic surgery; died at his home in Philadelphia, October 18, from heart disease, aged 61.

Charles Ballard Cook, M.D. Western Pennsylvania Medical College, Pittsburg, 1903; a member of the American Medical Association; resident physician at the Shenango Valley Hospital for one year; died at his home in (Carrick) Pittsburg, Pa., October 17, from pernicious anemia, aged 31.

James Gray Carr (license, years of practice, Ohio, 1896); surgeon and assistant surgeon of Ohio Volunteer Infantry during the Civil War; president of the local U. S. Board of Pension Examining Surgeons; died at his home in Coshocton, Ohio, October 21, from angina pectoris, aged 85.

Jay Stephen Stone, M.D. College of Physicians and Surgeons, New York City, 1865; a member of the Connecticut State Medical Society; a member of the board of health of New Britain and city physician in 1894; died in the Archer Home, Windsor, Conn., October 8, aged 68.

Thomas B. Lane, M.D. Medical College of Virginia, Richmond, 1860; of Port Haywood, Va.; a member of the Medical Society of Virginia; a Confederate veteran; superintendent of public schools of Mathews County; died in the Norfolk Protestant Hospital, October 19, aged 70.

LeRoy Lewis, M.D. Jefferson Medical College, Philadelphia, 1878; a member of the American Medical Association; for twenty years surgeon in charge of Lewis Hospital, Bay City, Mich.; died at his home in South Bend, Ind., October 27, from cancer of the neck, aged 55.

James Cowan, M.D. Victoria University, Medical Department, Toronto, Ont., 1861; coroner for a number of years, and for seven years a member of the legislature; a pioneer physician of Manitoba; died at his home in Portage la Prairie, Man., September 1, aged 79.

John W. Hammond, M.D. Jefferson Medical College, 1856; a member of the Ohio State Medical Association; assistant surgeon of the One Hundred and Twentieth Ohio Volunteer Infantry during the Civil War; died at his home in Wellsville, October 15, aged 79.

Astley Cooper Wright, M.D. Jefferson Medical College, 1858; a member of the Kentucky State Medical Association; formerly president of the Warren County Medical Society; died at his home in Bowling Green, October 29 from cancer of the prostate, aged 73.

Leonard M. Johnson, M.D. Albany (N. Y.) Medical College, 1855; surgeon of the Third New York Volunteer Infantry during the Civil War; a practitioner of medicine in Greene, N. Y., since the war; died at his home in that place, October 19, aged 80.

Harry B. Searles, M.D. Syracuse (N. Y.) University College of Medicine, 1904; a member of the Medical Society of the State of Pennsylvania; coroner of Wayne County; died at his home in Honesdale, October 31, from nephritis, aged 34.

John I. Wilkins, M.D. L.R.C.S. & L.M., Ireland, 1852; Illinois Army Board, 1863; assistant surgeon of the Fourteenth Illinois Volunteer during the Civil War; died at his home in Tiskilwa, Ill., October 19, following a fracture of the hip, aged 83.

John C. D. Davis, M.D. Baltimore Medical College, 1889; surgeon in the Army during the Spanish-American War, and stationed in the Philippines; died at his home in St. Michaels, Md., October 27, from cancer of the stomach, aged 49.

Giuseppe Scarnecchia, M.D. University of Naples, 1890; a member of the American Medical Association; surgeon for ten years in the Italian Army; died at his home in Youngstown, Ohio, October 25, from heart disease, aged 44.

Adam Wenger, M.D. University of Pennsylvania, Philadelphia, 1866; surgeon of the One Hundred and Fifth Pennsylvania Volunteer Infantry during the Civil War; died at his home in Concord, Ill., October 10, aged 68.

Felix O. Neptune (license, Ohio, 1896); a member of the Ohio State Medical Association; for more than quarter of a century a practitioner in that state, died at his home in Caldwell, October 21, from diabetes, aged 58.

Lennox Gresham Walling, M.D. College of Physicians and Surgeons, New York City, 1906; a member of the Providence Medical Society; died at his home in Harrisville, Providence, R. I., October 24, from nephritis, aged 29.

J. Dorsey Sponogle, M.D. Long Island College Hospital, Brooklyn, 1886; formerly coroner of Kitsap County, Wash.; of Port Orchard; died in Providence Hospital, Seattle, October 7, from disease of the stomach, aged 68.

Henry Ustick Onderdonk, M.D. University of Maryland School of Medicine, 1873; a member of the Wyoming State Medical Society; died at his home in Buffalo, Wyo., May 11, from angina pectoris, aged 60.

Joseph L. Romero, M.D. University of Maryland, School of Medicine, 1879; a member of the Florida Medical Association; health officer of Jacksonville for two terms; died at his home in that city, October 14, aged 57.

Timothy Dwight Stowe, M.D. Western College of Homeopathic Medicine, Cleveland, Ohio, 1854; a veteran of the Civil War; died at his home in Mexico, N. Y., October 15, from cardiac dropsy, aged 81.

Jonathan Wilson Shull (years of practice, Ill., 1878); for fifty years a practitioner of Greenup; a veteran of the Civil War; died at his home in Johnstown, Ill., October 4, from cancer of the liver, aged 77.

George Washington More, M.D. University of Michigan, Ann Arbor, 1906; a member of the American Medical Association; died at his home in Ionia, Mich., October 13, from typhoid fever, aged 28.

John Lamar Jarvis, M.D. Vanderbilt University, Nashville, Tenn., 1900; a member of the Medical Association of Georgia; of Atlanta; died at the home of his father in Rome, Ga., October 20, aged 40.

Francis W. Watson, M.D. Rush Medical College, Chicago, 1866; formerly of Eureka, Kan.; died at Kansas City, Kan., March 29, from the effects of strychnin and arsenic, taken by mistake, aged 67.

William Cornelius Bice, M.D. University of Louisville, 1859; for many years a practitioner of Paradise Valley, Nev.; died at his home in Winterhaven, Fla., Nov. 21, 1909, from heart disease, aged 72.

Joseph Nathaniel Birch, M.D. Howard University, Medical Department, Washington, D. C., 1899; died at his home in Kansas City, Mo., October 27, from typhoid fever, aged 35.

William Francis Leonard, M.D. Atlanta (Ga.) Medical College, 1885; a member of the South Carolina Medical Association; died at his home in Reidville, August 9, aged 49.

Edgar R. Knapp, M.D. University of Michigan, 1856; surgeon in the Federal service during the Civil War; died at his home in Saginaw, Mich., October 19, from epilepsy, aged 76.

S. Montis de Haslea, M.D. Shelby Medical College, Nashville, 1859; a resident of the city of Mexico from 1884 to 1893; died at his home in Reno, Nev., October 8, aged 73.

T. D. Fletcher, M.D. University of the South, Medical Department, Sewanee, Tenn., 1906; died at his home in Jenkinsburg, Ga., October 19, from fever, aged 33.

Alfred E. Reinichen, M.D. University of Leipzig, Germany, 1888; died October 26, from the effects of morphin, believed to have been taken with suicidal intent, aged 48.

Edgar Evans Doty, M.D. Medical College of Ohio, 1896; of Lewistown, Mont., was found dead from a gunshot wound of the head, near Windham, Mont., October 16.

John A. Rawls, M.D. Medical College of Ohio, Cincinnati, 1875; formerly of Creston, Iowa; died at his office in Keut, Wash., October 25, from heart disease, aged 62.

Mortimer C. Sandifer, M.D. Louisville (Ky.) Medical College, 1872; died at his home in Geneva, Ky., October 31, from chronic bronchitis and asthma, aged 69.

George C. Worthington, M.D. University of Maryland School of Medicine, 1866; died at his home in Alberton, Md., October 23, from cirrhosis of the liver, aged 66.

David Rogers (license, Michigan, 16 years practice, 1900); for over forty years a practitioner of Millington, Mich.; died October 28, from cancer, aged 77.

Paul S. Cox, M.D. Vanderbilt University, Nashville, Tenn., 1898; of Belton, S. C.; died at the home of his sister in Greenville, October 6, aged 35.

Charles Dix Eichelberger, M.D. University of Maryland School of Medicine, 1868; died at his home in Emmitsburg, Md., October 19, aged about 75.

Shelton Law, M.D. Baltimore University School of Medicine, 1897; died at his home in Springfield, Ill., October 22, from sciatic rheumatism, aged 38.

Daniel Burton Wood, a practitioner of North Carolina for many years; died at Elmwood, September 14, from cerebral hemorrhage, aged 89.

William Camochan Gilday, M.D. Toronto University, 1905; M.R.C.S. and L.R.C.P.; died in Toronto, October 19, from septic endocarditis, aged 28.

Joseph F. Williams, M.D. University of Alabama, Mobile, 1902; of Citronelle, Ala.; died in Mobile, July 30, from typhoid fever, aged 29.

Joseph Norman Guy, M.D. Kentucky School of Medicine, Louisville, 1907; died at his home in Lapine, Ala., October 20, aged 30.

Isaac C. Johnson, M.D. (license, West Virginia, 1881); died at his home in Franklin, W. Va., October 23, from paralysis, aged 63.

John Gilchrist, M.D. Bellevue Hospital Medical College, 1868; of St. John, N. B., died in Central Norton, N. B., June 4.

Correspondence

The St. Louis Vaccination Situation

[The occurrence of tetanus in three school children in St. Louis who had recently been vaccinated, and the death of two of these children, has given rise to considerable discussion in the newspapers in regard to compulsory vaccination. It has given opportunity, also, for the condemnation of vaccination by the antivaccinationists. The health authorities have made a thorough investigation of the three cases and have expressed it as their unanimous opinion that the infection was not the result of the vaccination. In order to get a statement of the situation we wrote for the facts concerning the matter, and are glad to publish the following statement from Dr. G. A. Jordan, Assistant Health Commissioner of St. Louis.]

HEALTH DEPARTMENT, ST. LOUIS, Oct. 29, 1910.

To the Editor:—In accordance with the request for a history of the development of tetanus in vaccinated children in this city, I have the honor to submit the following:

On September 15 R. S. was vaccinated at the Franklin School; September 25 the site of vaccination was injured by a rock, the crust being knocked off, leaving a raw surface. The wound was dressed at the Central Dispensary September 25 and daily thereafter until October 5, at which time he manifested symptoms of tetanus. This department was consulted October 7, the boy was removed to the hospital on that date and died October 9.

On October 4 W. K. was vaccinated at the Carondelet School. On October 16 he developed tetanus and the parents asserted that no injury to the vaccinal site had occurred. Dr. M. C. Woodruff of this department and Dr. M. C. Starkloff, who saw the boy in consultation, are both of the opinion that there had been an injury which had resulted in the removal of the crust. He died October 18.

On September 30 J. M. was vaccinated at the Coté Brillante School and on October 14 the crust came off and the wound was dressed by the mother by the application of a bandage. On October 22 the patient developed symptoms of tetanus. A careful examination of the boy for wounds of any kind showed a wound of the right hand which had the appearance of having been made by two punctures separated about 1 inch and connected by a line which had the appearance of a scratch. The parents were unable to give any history of this wound, what had caused it or when it occurred, and the patient was not able to do so. This boy is at present under treatment and we believe will recover.

A careful investigation of these cases fails to show how these patients came to develop tetanus. At the time the first-mentioned boy (R. S.) was vaccinated, fifty-six other vaccinations were done at his school on the same day with the same virus, eight others in the same room with him. At the time the second boy (W. K.) was vaccinated, eighty-two other children were vaccinated at the same school, with the same virus. The third boy (J. M.) was vaccinated at the same time with eighty-four other children.

All of these children, you will notice, were vaccinated in widely different sections of the city. They were vaccinated by different physicians with the same manufacturer's product. None of the other children who were vaccinated with the material out of the same box showed any untoward symptoms.

The city bacteriologist has examined the remaining lot of the virus used in these cases and fails to find any pathogenic organisms. We are forced, therefore, to conclude that the development of tetanus in these cases was a coincidence due to some local condition probably subsequent to the time of operation.

The fact that tetanus followed a vaccination has been made much of by the antivaccinationists, in spite of the fact that no connecting link between the vaccination and the tetanus can be shown on the most exhaustive examination. Cases of tetanus develop not uncommonly, and following any

other injury would simply be regarded as an unfortunate infection. As an instance, we had within the past two weeks a woman dying from tetanus, the infection following childbirth; and as an indication of the anxiety of the antivaccinationists to discredit vaccination in every possible way, we had yesterday a case of tetanus reported in a child who recently had been vaccinated and the physician positively asserted that the tetanus was due to the vaccination. Examination of this case showed that it was positively not tetanus but a mastoid abscess following a suppuration of the middle ear. Two eminent physicians of this city, who are not connected with the health department, are authority for this statement. The patient has been bacteriologically examined, diagnosis confirmed and the patient operated on, which operation also confirmed the diagnosis.

G. A. JORDAN, St. Louis,
Assistant Health Commissioner.

Electric Treatment of Poliomyelitis—A Comment

To the Editor:—Everyone must agree with Dr. Diller (*Tire Journal*, November 5, p. 1663) that electrical currents which produce pain and nervousness are harmful to children with poliomyelitis. But there is a difference of opinion as to whether or not any benefit is to be derived by passing electrical currents through the muscles which have ceased to respond on account of atrophy. Many observers believe that a galvanic current stimulates muscle growth. As to this, lacking precise data, my personal practice is dependent on such authorities as Duchenne, Bergonie, Zimmern and Erb, who recommend the daily use of the current even when there is no response to stimulation.

Be this as it may, the main advantage of galvanic stimulation of the muscles after poliomyelitis is the excitation of their physiologic contractility, a function otherwise unprovokable in muscles of which the nerve supply is destroyed. It should be obvious enough that the excitation of this function is possible only *before* the structures on which it depends have disappeared. These are the muscle elements. As degeneration of these is well under way in three weeks, it should be equally obvious that the use of galvanic stimulation should not be delayed beyond that period. To postpone it for four months, as some advocate, is to dispense with it at the very time when it is most urgently required. It is to this unscientific delay that must be attributed the difficulties due to the need of such powerful currents as are required in order to produce a visible contraction when only a few fibers remain in the muscle stimulated.

Again, when the therapist omits the elementary precaution of gradually accustoming a child to an electrical application, and alarms the child by suddenly making and breaking the current before the little patient is accustomed even to the sight of the battery, there is created another source of discredit of the only means we know of to prevent muscular atrophy of peripheral-neuron type.

In the Washington epidemic this year, electricity has been extensively used immediately after the acute stage of the disease; and I have cognizance of only one instance of trouble of the kind alluded to by Dr. Diller. This was in the case of a girl aged 11, and was due to the injudicious suggestions of the mother, whose whole attitude expressed dread of the power of electricity. She derived this, in part, I believe, from previous advice that electricity was likely to do harm it used within four months of the commencement of the disease. The child herself was willing to bear the discomfort of the application, and the serious perturbation did not occur until some time after I had left the house. Hence the electricity itself cannot be blamed for an outbreak which was clearly suggested to the child.

It is unfortunate that the exaggerated claims of electricians as to some of their powers should prejudice one of the few clearly established medical uses of an electrical current, viz., the keeping alive, by maintaining its contractile function, a

muscle which can no longer be stimulated either reflexly or by the will. Massage and stimulants of reflex activity like strychnin and brucin are equally unable to accomplish this. The faradic current is entirely inefficacious, acting as it does only mediately through nerve.

The galvanic current itself should not be applied where the nerve enters its muscle, but near the insertion of the muscle; for at the motor point it acts only by stimulating that portion of nerve which is not destroyed. The stimulation of this is the very thing we wish to avoid; for galvanism's only use is in supplying an impulse to those muscle-fibers which are no longer connected with a functioning peripheral motor-neuron. On reintegration of the neuron, after subsidence of myelitis—a matter of some months—the need for electrical stimulation ceases as regards that particular muscle fiber; for then contractility is once more obtainable by means of the will. The devices for stimulating this, where small children are concerned, have been well laid down in the report of the New York Committee of 1907.

TOM A. WILLIAMS, Washington, D. C.

Cholera Serum for Hogs but No Antitoxin for Man

To the Editor:—I was greatly interested in what you said in a recent issue of THE JOURNAL (Sept. 3, 1910, p. 863) about hog cholera in Mississippi. Two years ago, I asked the Iowa legislature for money to allow us to distribute diphtheria antitoxin at cost in this state. The chairman of the Public Health Committee of the House of Representatives (who, by the way, is a physician) told me when I presented the subject to him that the state had no money to spend for such a purpose, yet this same physician voted for an appropriation for the manufacture and distribution by the state of hog cholera serum to farmers. The National League for Medical Freedom desires freedom only for the human being and not for the hog. If it insisted on the same degree of freedom for quacks to practice on hogs which they are allowed in their practice on human beings, the hogs in Iowa would not last long. We have practically no registration of births in this state, but every blooded animal is carefully registered. I believe we would get better sanitary laws if human beings were sold for cash.

A. C. MOERKE, Burlington, Ia.
President Iowa State Board of Health.

Historical Note on Acute Infective Paralysis (Poliomyelitis)

To the Editor:—The first description of this disease is generally credited to Jacob Heine, of Stuttgart, who, in 1840, published his first monograph on the subject. While Heine did give the first accurate and complete description, and established it as a recognized disease, it has been generally overlooked that an English physician, Michael Underwood, called attention to it 66 years earlier (1774). For the benefit of those who have not access to Underwood's "Treatise on the Diseases of Children," the following extract is made from the second edition of that work, published in 1789:

"DEBILITY OF THE LOWER EXTREMITIES"

"The disorder intended here is not noticed by any medical writer within the compass of my reading, or is not so described as to ascertain the disease. It is not a common disorder, I believe, and seems to occur seldomer in London than in some other parts. Nor am I enough acquainted with it to be fully satisfied, either in regard to the true cause, or seat of the disease, either from my own observation, or that of others; and I have myself never had opportunity of examining the body of any child who has died of this complaint. I shall therefore only describe its symptoms, and mention the several means attempted for its cure, in order to induce other practitioners to pay attention to it.

"It seems to arise from debility, and usually attacks children previously reduced by fever; seldom those under 1, or

more than 5 years old. It is a chronic complaint, and not attended with any affection of the urinary bladder, nor with pain, fever, nor with any manifest disease; so that the first thing observed is a debility of the lower extremities, which gradually become more infirm, and after a few weeks are unable to support the body. There are no signs of worms or other foulness of the bowels; therefore mercurial purges have not been of any use, neither has the bark, nor hot, nor cold bathing. Blisters, or caustics on the os sacrum and the greater trochanter, and volatile and stimulating applications to the legs and thighs have been chiefly depended on. . . . There is no appearance of an enlargement of any of the vertebrae, or joints of the back, nor suppuration in the external parts, and therefore no resemblance to the inflammation of the intervertebral cartilages, the psoas abscess, or the morbus coxaris. . . .

"When only one of the lower extremities has been affected, the above means, in two instances out of five or six, entirely removed the complaint; but when both have been paralytic, nothing has seemed to do any good but irons to the legs, for the support of the limbs, and enabling the patient to walk."

It is interesting to note that Underwood's work on the diseases of children went through ten English editions, five American, two French and one German. The German translation was not made until 1848, that is, 8 years after Heine's publication. Heine refers to other English authors (Abercrombie, Badham), but makes no mention of Underwood.

For the reference which led me to the above extract I am indebted to Baumann, of Breslau, who mentions Underwood in his doctorate thesis.

B. M. RANDOLPH, Washington, D. C.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

IDIOSYCRASY TO ASPIRIN

To the Editor:—I gave to a man, aged 39, suffering from trigeminal neuralgia, due to exposure, a prescription in capsules, each containing five grains of aspirin with codein and acetphenetid. to be taken one every three hours. One-half hour after taking one of the above capsules the patient complained of intense itching and tingling of the mucous membrane of the eyelids, lips and nose. One hour later these mucous membranes were so edematous that the eyelids and lips were everted and breathing through the nose practically impossible. The patient was slightly nauseated and regurgitated several mouthfuls of a frothy liquid. The pulse was slightly accelerated—rate 80—but the respiratory rate was not affected. The edema and subjective symptoms subsided very gradually, some edema being noticeable for ninety-six hours. Examination of the urine showed no albumin or casts.

About five months after this occurrence my patient returned with an attack of neuralgia and I gave him five grains of aspirin in capsule form every three hours. Twelve of these capsules were taken without the least discomfort. A few days ago I again had occasion to prescribe aspirin for my patient, and he returned to my office in a few hours with edema of the mucous membranes of the eyes, nose and lips. The aspirin used on this last occasion was a portion of that used on the second occasion. The patient gave the history of an idiosyncrasy to quinin, two grains of which produced vomiting. Please answer the following questions:

1. Is this a common drug idiosyncrasy?
2. Is edema of the mucous membrane of the head its usual manifestation?
3. Why should one specimen of aspirin cause these symptoms at one time and not at another?
4. What literature exists on drug idiosyncrasy?

H. E. W.

ANSWER.—1. The symptoms exhibited in this case appear to be related to angioneurotic edema and to the nervous type of bronchial asthma. Many drugs produce in susceptible patients symptoms of urticaria and occasionally asthmatic paroxysms. The symptoms described were probably due to the salicylic acid component of the aspirin (acetylsalicylic acid).

2. We find no reference to such symptoms produced by salicylic acid in the ordinary works on pharmacology.

3. Such symptoms are occasionally produced by various articles of food also, and it would seem a reasonable hypothesis that they are reflexes from the gastrointestinal tract or that perhaps they may be due to some toxic matter absorbed from the intestinal canal. If this explanation is correct the condition of the stomach and

Intestine might determine whether or not the drug would produce sufficient irritation to set up this train of symptoms. Again, the symptoms may be due to the decomposition of aspirin in the stomach, which, experience shows, may occasionally occur. A difference in the character of the stomach contents might therefore determine whether or not the synthetic would be decomposed, yielding free salicylic acid, or would pass through the stomach unchanged.

4. We are unable to find any references to recent articles on the general subject of idiosyncrasy to drugs. Works on pharmacology generally treat of such symptoms under the individual drugs.

BLOOD-STAINS

To the Editor:—Please answer the following questions regarding blood-stains:

1. Is the Hastings' stain a modification of Jenner's or is it one of the Romanowsky group depending on methylene azure for its action?
2. How are the following stains made up: (a) Hastings', (b) Jenner's, (c) Wright's, (d) Giemsa's blood-film stain?
3. What is the technic of staining with each? L. D. M.

ANSWER.—1. Hastings' stain is a modification of Romanowsky's. 2. Too much space would be required to give here the technic of making up these stains, especially as the details have been given in THE JOURNAL and may be found by referring to the following articles:

Technic of Hastings' Blood-Stain, THE JOURNAL, Dec. 26, 1908, p. 2230.
 Fisher, E. W.: The Staining of Blood-Films, Med. Record, Oct. 2, 1909, abstr. in THE JOURNAL, Oct. 16, 1909, p. 1331 (Jenner's stain).
 Hayburst, E. R.: A Satisfactory Method for Staining Blood-Smears, THE JOURNAL, April 3, 1909, p. 1100.
 Cooke, J. E.: A Simple Stain for Blood-Smears (Tiedemann), THE JOURNAL, May 8, 1909, p. 1492.
 Stains Described by Giemsa and Levaditi, THE JOURNAL, Sept. 24, 1910, p. 1131.
 Wright's Stain is described by Simon, in Clinical Diagnosis, p. 135.

3. The technic is also given in these articles. The technic of Giemsa's stain is the same as described for spirochetes in THE JOURNAL, Sept. 24, 1910, p. 1130, except that a staining of the blood-film for only five minutes is recommended. The composition of these stains and the technic of their use are described in works on clinical diagnosis, such as Emerson, Clinical Diagnosis, second edition; Simon, Clinical Diagnosis, sixth edition; and Cabot, Clinical Examination of the Blood, fifth edition.

SODIUM CACODYLATE AND ATOXYL

To the Editor:—Please give me some information about sodium cacodylate, the dose, mode of administering, etc. I have read Dr. Murphy's article in regard to the arsenical treatment of syphilis in the issue of Sept. 24, 1910, and have run over my file of THE JOURNAL, which dates back about a year, for information in regard to sodium cacodylate, atoxyl, etc., but do not find what I need.

P. L. M.

ANSWER.—Sodium cacodylate is given in doses of 1/4 to 2 grains, either in pills, hypodermically or by enema. Sodium arsaniolate (atoxyl, or soamin) is usually given hypodermically in doses of 1/2 to 3 grains, gradually increasing, if necessary, until the single dose reaches 10 grains (0.65 gm.) and until a total of 100 grains (6.5 gm.) have been given. The drug should not be given by the mouth, as it is decomposed by the acid contents of the stomach, and toxic symptoms may result. These remedies are asserted to be superior to ordinary preparations of arsenic, because of the slow liberation of arsenous acid in the body. The fact that blindness is occasionally caused by them should not be forgotten. These preparations are described in full in Now and Nonofficial Remedies, 1910, pages 35 and 187, and in THE JOURNAL, Nov. 24, 1906, p. 1741, and Sept. 21, 1907, p. 1029. An article by Dr. M. W. Hartzell, on their use in various diseases of the skin, appeared in THE JOURNAL Oct. 31, 1908, p. 1482.

SERUM FOR EXOPHTHALMIC GOITER

To the Editor:—Kindly inform me where I may obtain Beebe's serum and literature bearing on its use in the treatment of goiter. Have you published anything on this subject in THE JOURNAL? I have looked through several index numbers and have failed to find anything under this head.

H. A. VENNEMA, Menard, Mich.

ANSWER.—There are two reasons why you may not have found references to Beebe's serum in the index: one is that eponymic names are avoided as much as possible; the other is that perhaps you

did not look back far enough. You will find articles of Dr. S. P. Beebe concerning the serum for exophthalmic goiter in THE JOURNAL Feb. 17 and Sept. 1, 1906, and Oct. 5, 1907. More recently, however, the subject was taken up in this department July 9, 1910, page 143. It was there stated that the serum could be obtained from Dr. Beebe at 414 East Twenty-fifth Street, New York City, and it was pointed out that the serum was furnished only after a case history had been given so that those in charge of its manufacture could be sure that the case was a suitable one for the treatment.

INFORMATION ON CARBON DIOXID PENCILS

To the Editor:—Kindly refer me to the article or articles which have appeared in THE JOURNAL on the use of carbon dioxid pencils in removal of facial blemishes. I do not seem to find them.

L. A. WALKER, Rochester, N. Y.

ANSWER.—THE JOURNAL has published a number of good articles on this subject. One of them was in the Department of Therapeutics, July 23, 1910. This article includes references to a number of other articles previously published.

The Public Service

Medical Department, U. S. Army

Changes for the week ended Nov. 5, 1910.

- King, Charles T., and Weed, Mark D., first lieutenants, and Roberts, Ernest E., Medical Reserve Corps, ordered to the Philippine Islands, for duty on transport sailing from San Francisco about January 5.
- Woodson, Thomas D., Kramer, Floyd, and Davis, W. Cole, first lieutenants, and Hereford, John R., and Loeper, John F., Medical Reserve Corps, ordered to the Philippine Islands, for duty on transport sailing from San Francisco February 5.
- Crum, Wayne H., first lieutenant, and Harris, Herbert L., and Wells, Francis M., Medical Reserve Corps, ordered to the Philippine Islands, for duty on transport sailing from San Francisco about March 5.
- Barber, John R., first lieutenant, appointed member of the board for the study of tropical diseases as they exist in the Philippine Islands.
- Miller, Albert L., Medical Reserve Corps, ordered to proceed from Fort Meade, S. Dak., to Fort Mackenzie, Wyo., for temporary duty.
- Gnackel, George I., dental surgeon, granted thirty days' leave of absence.
- Bonrke, James, Captain, granted thirty days' leave of absence.
- Eastman, William R., captain, ordered to Walter Reed General Hospital, Takoma Park, D. C., for observation and treatment.
- Nelson, Kent, captain, granted leave of absence for four months.
- Lowe, Thomas S., M.R.C., ordered to Whipple Barracks, Ariz., for temporary duty.
- Willeox, Charles, major, granted leave of absence for two months, with permission to go beyond the seas.
- Cullen, Charles W., M.R.C., leave of absence extended one month.
- Dougherty, James C., Medical Reserve Corps, ordered to Ft. Huachuca, Ariz., for temporary duty.
- Campbell, George F., Medical Reserve Corps, ordered to Army and Navy General Hospital, Hot Springs, Ark., for observation and treatment.
- Hullin, Charles T., Medical Reserve Corps, November 1, now at Army General Hospital, Fort Bayard, N. M., will report to the commanding officer of that hospital for duty.

Medical Corps, U. S. Navy

Changes for the week ended Nov. 5, 1910.

- Bodge, A. H., asst.-surgeon, unexpired portion of sick leave revoked; ordered to the naval hospital, Las Animas, Colo., for treatment.
- Fauntleroy, A. M., surgeon, commissioned surgeon from Oct. 8, 1910.
- Smith, H. L., passed asst.-surgeon, commissioned passed asst.-surgeon from July 12, 1910.
- Sheehan, R. F., and O'Malley, J. J., asst.-surgeons, ordered to instruction at the Naval Medical School, Washington, D. C.
- Munson, F. M., passed asst.-surgeon, detached from the Monterey and ordered to the Buffalo.
- Minter, J. M., passed asst.-surgeon, detached from the Buffalo and ordered to the Monterey.

U. S. Public Health and Marine-Hospital Service

Changes for the seven days ended Nov. 2, 1910:

- Glenman, A. H., asst. surgeon general, granted thirty days' leave of absence from Oct. 1, 1910, on account of sickness.
- Pettus, W. J., asst.-surgeon general, leave of absence granted for one month and fifteen days from Aug. 29, 1910, amended to read one month and five days.
- White, J. H., surgeon, detailed to represent the service at the next meeting of the Southern Medical Association, to be held at Nashville, Tenn., November 8-10.

Young, G. B., surgeon, order of October 9 to represent service at the annual meeting of military surgeons revoked.

Lavinder, C. H., passed asst.-surgeon, detailed to represent the service at the annual meeting of the Ohio Valley Medical Association to be held at Evansville, Ind., November 9-10.

McLaughlin, A. J., and Rucker, W. C., passed asst.-surgeons, detailed to attend the annual meeting of the Association of Military Surgeons to be held in Richmond, Va., November 1-4.

Creel, N. H., passed asst.-surgeon, relieved from duty on United States Revenue Cutter *Tahoma* and directed to proceed to Chicago and report to the medical officer in command for duty and assignment to quarters.

Turnpseed, D. C., asst.-surgeon, relieved from duty on United States Revenue Cutter *Perry* and directed to proceed to San Francisco and report to Passed Asst.-Surgeon M. W. Glover for duty.

Bell, Charles, acting asst.-surgeon, granted thirty days' leave of absence from Nov. 26, 1910.

Stevenson, J. W., acting asst.-surgeon, granted two months' leave of absence without pay from Nov. 1, 1910.

Board of medical officers convened to meet at the call of the chairman at Port Townsend, Wash., for the purpose of conducting a physical examination of an officer of the Revenue-Cutter Service. Detailed for board: Surgeon J. B. Stoner, chairman; Surgeon J. H. Oakley, recorder.

Board of medical officers convened to meet at the Marine Hospital, Honolulu, Hawaii, Nov. 21, 1910, for the purpose of conducting a physical examination of an officer of the Revenue-Cutter Service. Detail for the board: Passed Asst.-Surgeon Carl Ramus, chairman; Asst.-Surgeon E. R. Marshall, recorder.

Board of medical officers convened to meet at the Marine Hospital, Baltimore, Nov. 21, 1910, for the purpose of conducting a physical examination of an officer of the Revenue-Cutter Service. Detail for the board: Surgeon W. P. McIntosh, chairman; Passed Asst.-Surgeon Dunlop Moore, recorder.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

THE DISPOSITION OF CASUALTY CLAIMS BY AN ILLINOIS CORPORATION CARRYING ITS OWN RISKS

W. H. Allport, M.D.

Member Illinois Industrial Diseases Commission

CHICAGO

The following outline of the methods and policies pursued for many years by a certain Illinois company¹ in dealing with employees injured in service, or with their families, when killed, furnishes an opportunity to compare some of the systems of compensation for industrial injury now in operation or under discussion in the United States. The corporation in question does not shelter itself behind liability insurance, nor does it maintain a mutual relief department, but itself carries the burdens of surgical expense for industrial casualties and of such contributions as may be made to the injured workman for settlement or relief. The policy consistently pursued by this company, and developed under the guidance of a well-known jurist and statesman, perhaps touches an unexpected high-water mark; but I have close personal knowledge not only that the facts and citations are exactly as stated, but that the results herein set forth can be duplicated by a number of other corporations operating under Illinois laws. The settlements to be referred to were made out of court and without litigation. Although it may be too much to say that the injured employees were unadvised by counsel and in some cases did not even commence suit, it is conceded that the employer in question is served by an unusually intelligent and superior body of workers, thoroughly unionized and vitally aware of their rights and advantages, and that it is advised by a liberal and enlightened legal department deeply animated with the spirit of compromise and not altogether lacking in politic philanthropy. Not for a moment can the compensation sheet of this company be compared with that maintained in states without safety appliance acts and with an unmodified common law, or with the indemnities paid by many other corporations employing foreign, ignorant, and non-unionized labor, who can be taken advantage of at every turn by unscrupulous casualty managers. The findings of the Pittsburg survey of the Sage Foundation² represent the

outrageous status of industry and its wounded in Pennsylvania; but such a report would hardly hold good for Illinois and the Middle West, where the courts are showing the indirect but insistent pressure of public opinion against the common law, or for corporations coming under Federal and interstate influence.

A large company engaged in a hazardous business, and undertaking to carry itself the burden of casualties to employees, finds it necessary to maintain in its service three agencies for this purpose, viz., surgical, claim, and legal departments.

The duty of the surgical department is to treat injured employees at the expense of the company, such treatment to be irrespective of the question of liability. The surgical department is and should be in no way subordinated to or controlled by the claim department, except as both are cooperating members of the same family. Officers of the company are directed to call company surgeons for the treatment of all injured employees, who are to receive such care, either at their homes or at hospitals designated by the company for that purpose, as the surgical department thinks best, the latter rendering frequent reports to the claim department of the condition of such injured persons. Note that there is here no question of mutuality, either of obligation or of expense, between master and servant; the company without question or complaint assumes that it is both duty and policy to bear the cost and responsibility of surgical service to its injured employees. This is not the case with companies maintaining "relief departments;" such corporations shift the burden of relief on "the fund," and a close analysis shows beyond question that an overwhelming proportion of this fund is made up of the monthly cash contribution collected by the company from the employees.

The surgical department is not expected or required to take any active part in the adjustment of claims. The same amount of attention is given the injured employee when the facts indicate no liability resting upon the employer as when legal liability is clear. The only open interference with the surgical department in the care of such cases by the claim department is when the latter, if it sees fit, may direct that medical attention be discontinued.³

To determine liability, investigation is necessary; it is the province and duty of the claim department to make such investigation, and it is a rule of the employing company that no injured employee may return to the service after injuries until he has executed a release.

The claim department does not on its own responsibility undertake to pass on questions of liability, but submits its investigation to a law department and is guided by its opinion in arriving at a conclusion as to which of three classes a given case belongs. Cases are not turned over to the legal department unless actually in suit.

DIVISION OF CASES

The law department divides cases with reference to the company's legal liability to respond in damages to injured employees or to their families, into those showing:

1. Clear non-liability.
2. Doubtful liability.
3. Clear liability.

From the standpoint of injury, cases are naturally divided into three classes:

- a. Death cases.
- b. Those involving permanent injuries.
- c. Those involving but temporary injuries and disability.

1. *Non-Liability Cases*.—When the circumstances indicate that the company is free of legal blame and is not as a matter of law required to reimburse the injured employee or his family, and when the injury is but temporary, it is the policy to allow such an employee, when he has sufficiently recovered to return to his work and when he was not grossly at fault, a sum approximating half time lost. When the injury con-

3. I prefer to say nothing about occasional dictation by claim and legal departments in the appointments of medical officers.

1. Neither the United States Steel Corporation nor the International Harvester Company.

2. Eastman, Crystal: Work Accidents and the Law, 1910.

sists of loss of leg or arm or is of such a nature as to incapacitate the employee from continuing in the same line of service as that in which he was engaged at the time the injury was sustained, a sum varying from \$200 to \$500 is paid. While there is not much latitude between the amounts mentioned, attention is given the length and quality of service of the injured employee, his financial condition, and the number of persons depending on him, in arriving at the compensation. Approximately the same amount, arrived at in the same way, is allowed the families of those killed in service when non-liability of the company is apparent.

EXAMPLES: 1a. Brakeman stepped back from engine immediately in front of engine on adjoining track; struck and killed. No contention of liability; \$500 paid.

1b. Brakeman lining up drawbar with boot, portion of foot amputated. Positive and repeated instructions, both oral and written, in bulletins issued and brought to his attention, forbidding practice of using the foot for this purpose. \$300.

1c. Brakeman falling from running board of car account foot slipping; arm fractured. Amount paid equivalent to half time lost.

2. *Cases of Doubtful Liability.*—When injury is not permanent, employee is allowed from half to full time. When injury is permanent and disqualifies the employee from the same line of service, the adjustment is based on as close a determination as possible, in the light of experience and precedent established by the trials of such cases in the various courts, of what would be the probable net recovery if suit were brought and liability established; and under the doctrine of chances, what percentage of such cases would probably be won or lost by the employer if litigated. As amounts allowed in different states and sections of the same state vary, no table or settlements can be established, but each case is handled on its own merits and with a view toward what might be recovered in the locality where suit would be brought. Roughly estimated, for death cases in a state where the maximum recovery allowed by statute is \$10,000, from \$500 to \$5,000 would be paid, according to the earning capacity of the deceased, time in service, life-expectancy, and chances of liability being established. Non-fatal cases in which the injury is more or less permanent are handled in the same way.

EXAMPLES: 2a. Switchman tripping over long piece of iron left near track in yard, run over and killed; \$2,500 paid. There would have been dispute as to notice company had of obstruction or time they had to remove it, also as to deceased's knowledge of its existence.

2b. Brakeman riding on foot-board, struck by piece of iron, account of breakage of engine, leg amputated. Amount paid \$2,500. Injured person free of blame in any way, controverted question being whether defect causing breakage was discoverable by reasonable inspection, employer's contention being that it was a latent defect.

2c. Switchman, arm fractured coupling cars. Amount paid \$500, equivalent to time lost. Question as to application of Federal Safety Appliance Act, man going between cars to open knuckle.

3. *Cases of Clear Liability.*—When the injury involves only temporary disability, full time is allowed.

When injuries are permanent or result fatally, the amount tendered in settlement is such sum as can best be determined would probably be the net recovery to the injured employee or his next of kin, were the case litigated. A position in the service is never made a part consideration of the settlement, but when amicably adjusted, efforts are always made to locate the injured employee, if he so desires, in some branch of the service which he is capable of filling, his tenure of the position depending solely on the proper discharge of his duties.

EXAMPLES: 3a. Fireman struck and killed by overhead bridge; \$3,500 paid. Only possible defense that of assumed risk, and it being his first trip over road this could not well avail on account of lack of knowledge the decedent had of the danger.

3b. Switchman, riding on footboard of engine which collided with truck left too close to track. Accident due to exces-

sive speed of engine, supporting claim of negligence on part of engineer; also, dangerous proximity of truck to track, due to negligence of station employees; state statutes (Iowa) denied fellow servant defense; hence, clear case of liability. Permanently stiff knee; \$5,500 paid.

3c. Passenger engineer injured in collision with freight train, due to negligence of freight crew. Fellow-servant defense not available on account of interstate traffic. Amount paid \$1,000, equivalent to time lost.

The quoted cases illustrate typical phases of a system of voluntary payments as worked out by one company. Of course—and herein will always lie the especial merit of this system of unfixed compensation—the amounts paid in cases in which there is a strong element of liability vary not alone with the visible injury and with the danger of liability, but also with other factors still more important and equitable to both parties. While an injury may be permanent, there are fine degrees of extent of permanent disability; again, the loss of earning capacity of the injured person may depend on adaptability to other kinds of work; the degree of doubt as to permanence of injury is an important controlling element; and the extent to which the employee contributed toward the accident should be and is considered in the adjustment. As all these elements would vary greatly in different cases, it is hard to lay down an absolute rule as to what is to be paid in any concrete case of doubtful or clear liability.

For instance, the amount paid under Example 3b was unusually liberal. In another settlement coming under 3b, and closer to the averages under this company's system, a freight conductor was paid \$2,800 for the loss of his right hand while repairing a defective coupler. There were two engines attached to the head of his train which moved back unexpectedly for a cause not definitely determined. This was clear liability, both on account of defective coupler and movement of the engines. The Illinois Safety Appliance Act denied the company the defense of assumed risk, and as the traffic was interstate, the Federal Employer's Liability Act denied it the fellow-servant defense. Ordinarily, loss of the right hand as in this case is a more serious injury than the permanently stiff knee in the case of the switchman. But the effect on the conductor's earning capacity was not so great, as he was an educated man and able to go into other lines of business where he could make as much as or more than in railroading; whereas the switchman was scarcely able to read and write his own name, had been long in the service, and by his injury was totally incapacitated for railroad work, which was the only work he could possibly do to bring him in anything like the wages he received at the time of the accident.

We may advantageously compare the financial results under this schedule with those under any proposed compensation act. A compensation plan would have benefited Classes 1a and 1b, since all the proposed schemes provide for death on the basis of three or four years' pay, and for permanent injuries on about the same scale. The plan would have reduced the benefits for 1c.

In 2a perhaps 20 per cent. more would be paid under a compensation act; somewhat less than was actually paid would be allowed in 2b; whereas in 2c not more than half the amount would be allowed, or in other words, half time for temporary injuries in all cases and not to exceed \$10 a week.

In the third classification, larger amounts were paid than would have been allowed under any reasonable compensation plan thus far adopted or seriously considered. Possibly, in 3a, almost as much would have been allowed under a compensation act—probably \$3,000; but in 3b and 3c not more than half the amount.

This direct method of dealing with injured employees and with the families of those killed in service, when carried out on a politic and fair-minded basis, results in more liberal payments and better feeling than when liability insurance

4. The "Illinois plan"—of blessed memory—proposed half time, but not to exceed \$10 a week. A switchman averages \$110 a month in Illinois.

is carried, as it brings the injured employee into closer contact with his employer and his normal representatives. When the insurance adjuster intervenes, no allowance whatever is made in cases of clear non-liability, nor is any surgical attendance given beyond first aid, and no consideration is given by the insurance company in any event to the length of service of the employee, his record, or his disposition toward the employer as regards loyalty and fairness; the sole end sought is an adjustment at the lowest possible figure. Without question, the intervention of liability insurance operates directly as a bar to the establishment and continuance of that friendly relation between master and servant which is one of industry's most valuable assets. It is equally unquestioned that liability insurance tends to diminish that sense of prudence on the part of the employer which leads him to throw every possible safeguard around the person of his workman. Employer's liability insurance has absolutely nothing to recommend it to the industrial world except that it rids the employer of the nuisance of troubling himself over the wounds of labor.

On the other hand, when the injured employee deals direct with the employer, much consideration is given to the former's length of service, disposition, record, financial condition, etc., and the master on his part is deprived of no incentive to give his servant at work the best that money can procure in the way of appliances, surroundings and coemployees. And what is often of more value than the sum actually paid, the injured workman, when his record is good, is assisted in procuring any position which his disabled condition will allow him to fill.

There are both advantages and disadvantages to the employee of the type of company we are considering, in this method, as compared with a compensation plan providing a stipulated allowance in case of injury, irrespective of legal liability of the employer. As we have just seen, under the proposed plan non-liability cases would be more or just as liberally adjusted, and this would also apply to certain cases of very doubtful liability. But cases of probable or clear liability are certainly more liberally handled under the method and by the company which is the subject of this note than they would be under any compensation plan. I may also add that under the compensation plan, the basis of allowance is merely the earnings of the employee and his length of disability, and no consideration is given length of service or exceptionally good record; the injured employee, who may be a foreigner and employed but a week, is to be treated the same as the American citizen who has spent a lifetime in the service of one employer.

It is only in cases which involve fatal or permanently disabling injuries and which also occur under clear non-liability conditions, that the employee and his family suffer materially under this company's system of carrying its own risks, and are worse off than they would be under any scheme of enforced compensation which would be acceptable and reasonable to the employer.

Of course there are many so-called injustices and unfortunate situations arising among cases in which legal liability is the controlling factor in arriving at the compensation. In the first place, the present informal system depends on the temper and disposition of the employer altogether too much; what one employer concedes as not only humane but expedient, another considers crazy extravagance and not for a moment to be considered amidst the stern exigencies of trade. The temptation to overreach the ignorant or helpless victim is often altogether too much for the commercial instinct of the average employer. Secondly, there is obviously much difficulty in settling the question of liability, as not only are the employer and his employee likely to differ on this subject, but so the jurors, lawyers and courts. If the workman resorts to litigation, he is subjected in some localities to great delays and expense, and these features may be and often are taken advantage of by the employer and the insurance company to induce or trick the employee into accepting a smaller sum than would be paid if he were situated so that he could stand up under the burden of litigation. Thirdly, under a system based on negligence and liability a premium is unfortunately placed on dis-

honesty. A— is a loyal, fair, honest and honorable man, and not even for his own or his family's welfare will he deviate from the truth concerning the facts connected with his injury, and his statement as to such facts clearly stamps the case as one of non-liability. Hence he receives a very small amount. B— is untruthful, misrepresents the facts, makes a case of at least doubtful liability; hence, receives a much larger amount than A—. Finally, it must be conceded that the abuse of common-law defenses by employers is a flagrant one and has reached a stage where labor calls loudly for its remedy, and capital—so far as the common law is concerned—is preparing to capitulate on the best possible terms.

But if an employer is denied by statute the fellow-servant and assumed risk defenses, as well as the defense of contributory negligence when the injury is sustained while using defective or improper machinery in violation of federal or state law, and is thus left only with the defenses of comparative negligence and "pure accident,"⁵ it would not seem that any employe would have much of which to complain in dealing with any reasonably discreet and honest employing company carrying its own risks. In fact, the valued employee who has been long and closely in touch with his employer would have every reason to expect more liberal treatment under the old system modified as just indicated, than under a fixed and universally applicable compensation scheme.

It is but too true that not all employing companies carrying their own casualty risks deal with their employes in the liberal manner outlined in this paper.⁶ When federal law steps in to protect the employe of the interstate carrier the conscience of the employer is soon sharpened, even in non-liability cases. But the cheaper and smaller employers, engaged in a local business within one state, and unsupplied with high-class legal advice, are prone to follow the insurance practice of refusing absolutely to make any allowance whatever in non-liability cases.⁷ They pay no gratuities, and never pay at all until constrained by fear lest resort to the courts by the injured employee would result in a judgment for damages. Such a phase of the system is of course constantly provocative of bickering and hard feeling, and is one of the legitimate sources of the discontent of labor with many of the present methods of compensation for industrial injuries.

Negligence is of many kinds and degrees, and while no one would seriously defend the employer who, from any short-sighted standpoint of economy, risks the welfare of employees by requiring them to use wornout and dangerous appliances, or fails to obey the laws with reference to safeguards, such negligence produces less than 15 per cent. of the total number of casualties and may be easily reached by employer's liability and safety appliance acts. By far the greater number of accidents occurring where many employees are brought together are due to the momentary negligence of the worker and his fellows—negligence which no amount of care in the selection of machinery or of employees by the employer can obviate, but for much of which we have come to think the industry is morally, and should be legally, responsible. It is an easy matter to bring these cases also within the scope of an employers' liability act.

Under any proposed *optional* compensation act, the employer, through the option allowed the employee, would continue in most liability cases just as frequently as at present to be mulcted in large damages by law suits. Fully one-half of such damages now go, and would still go, under an optional act, to "ambulance-chasing" lawyers and their representatives; and this where there could be no possible excuse for excepting the case from the compensation scheme on the ground that the employer should be punished for his own negligence. This is manifestly unfair and one-sided. If

5. Under a somewhat similar law, enforced in Austria and Hungary by rigid investigation and severe penalties, the added caution entailed on master and servant has reduced the percentage of casualties formerly assigned to causes other than "pure accident" almost to the vanishing point.

6. Report of the Employers' Liability Commission of the State of Illinois, 1910.

7. See the writer's article in Illinois Medical Journal, June, 1910. Employers' Liability Insurance.

the employee is to be compensated by his employer for losses which heretofore have gone unadjusted because the employer was not at fault, then the latter should have the compensatory right to know at once where he stands after every accident, whether he was at fault or not; and should be allowed to hire by contract, and without other recourse, except for gross negligence, such employees as will take the compensation prescribed by the terms of the law.

If there is any choice to be permitted the employee as to whether he will accept the terms of a compensation act or will take his chances at law, it should be only in cases in which the employer is guilty of gross and wilful—not ordinary—negligence. In no event should the opportunity be left open for an employee, who sues and fails after subjecting the employer to the expense and annoyance of litigation, to demand the benefits of compensation. The neglect to provide such a bar against dual liability in the workman's compensation act of 1906 furnishes the British employer with very just grounds for complaint against the excessive severity of that law.

It is the opinion of an observer who has recently been in a position to know the attitude of several employing companies toward the compensation question, that they fear such an act, not because it is unjust or on account of the additional expense entailed, but because they feel the tendency would presently develop to raise the rate of compensation from time to time, and that at every legislature and congress a lobby would be maintained by labor organizations for that purpose. If the past is any criterion these attacks would be so persistent that after a number of years the increase would constitute a very formidable expense. Furthermore, employers are preparing to oppose any compensation act which leaves it optional with the injured employee either to make settlements under the terms provided by the act or to resort to the courts. As already indicated, the effect of such a faultily constructed law would simply be to require the employer to pay the fixed compensation in clear cases of non-liability, in which the negligence of the employee or his fellows was the sole cause of the misfortune, and to leave the employer to the mercy of tribunals swayed by prejudice in cases in which his liability for the negligence could be proved.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Fourth Month—First Weekly Meeting

General Subject for the Month: Surgery of the Spine

ANATOMY OF THE SPINE

SPINAL COLUMN: Location, length, shape, curves, surfaces, regions, movements, landmarks, outline of cord and dural sac. Spinal canal.

VERTEBRÆ: General characteristics; body, pedicles, spinous processes, articular processes, transverse processes, laminae, intervertebral foramina. Atypical vertebræ in cervical, dorsal and lumbar regions. Intervertebral fibrocartilage, shape, size, structure, attachments. Ligaments, connecting bodies, laminae, spinous and transverse processes. Muscles of back.

CONGENITAL DEFORMITIES OF THE SPINE: SPINA BIFIDA

VARIETIES: Myelocele, myelomeningocele, syringomyelocele, meningocele, spina bifida occulta.

DIAGNOSIS OF EACH.

TREATMENT OF SPINA BIFIDA: Aspiration, injections. Indications for radical operation. Technique; results of operation.

REFERENCE BOOKS FOR THE FOURTH MONTH

- Bryant and Buck: American Practice of Surgery.
- Bradford and Lovell: Orthopedic Surgery.
- Bull and von Bergman: System of Surgery.
- Whitman: Orthopedic Surgery.
- Young: Orthopedic Surgery.
- Text Books on Surgery.

State Boards of Registration

COMING EXAMINATIONS

CALIFORNIA: Los Angeles, December 6-9. Sec., Dr. Charles L. Tisdale, 929 Butler Bldg., San Francisco.

DELAWARE: Regular, Dover, December 13-15; Homeopathic, Wilmington, December 13-15. Secretary of the Medical Council, Dr. H. W. Briggs, Wilmington.

KENTUCKY: Louisville, December 15-17. Sec., Dr. J. N. McCormack, Bowling Green.

MARYLAND: 1211 Cathedral St., Baltimore, December 13-16. Sec., Dr. J. McPherson Scott, Hagerstown.

OHIO: Cincinnati, December 6-8. Sec., Dr. George H. Matson, State House, Columbus.

PENNSYLVANIA: Regular and Homeopathic, Philadelphia, December 6-9; Eclectic, Harrisburg, December 6-9. Secretary of the Medical Council, Dr. Nathan C. Schaeffer, Harrisburg.

TEXAS: Palestine, November 22-24. Sec., Dr. R. H. McLeod.

VIRGINIA: Lynchburg, Dec. 20-23. Sec., Dr. R. S. Martin, Stuart.

WEST VIRGINIA: Morgantown, November 14-16. Sec., Dr. H. A. Barbee, Point Pleasant.

Ohio July Examination and October Reciprocity Reports

Dr. George H. Matson, secretary of the State Medical Board of Ohio, reports the written examination held at Cincinnati, July 19-21, 1910. The number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 22, of whom 17 passed and 5 failed. The following colleges were represented:

College.	PASSED	Year Grad.	Per Cent.
Indiana University, School of Medicine.....		(1910)	75
Ohio-Miami Medical College, (1910).....	75, 75.2, 76.5, 76.8, 76.8, 78.1, 78.2, 80.8, 81, 81.9, 82, 83.1, 83.3, 84.3, 85.5, 88.7.		

College.	FAILED	Year Grad.	Per Cent.
Ohio-Miami Medical College, (1910).....	65.3, 70.9, 74.4, 74.		
Miami Medical College.....	(1909)		*62.7

LICENSED THROUGH RECIPROCIITY, OCT. 4, 1910.

College.	Year Grad.	Reciprocity with
Northwestern University Medical School.....	(1910)	Illinois
Hahnemann Med. College and Hospital, Chicago.....	(1878)	Michigan
College of Physicians and Surgeons, Baltimore.....	(1910)	W. Virginia
Tufts College Medical School.....	(1909)	Maine
Univ. of Michigan, Homeopathic College.....	(1889) (1909)	Michigan
Detroit College of Medicine.....	(1910)	Michigan
Medical College of Ohio.....	(1896)	Indiana
Cleveland Homeopathic Medical College.....	(1906)	Kansas
University of Pennsylvania.....	(1909)	New Jersey
Royal University of Messina, Italy.....	(1905)	Vermont

* Second examination.

North Dakota October Report

Dr. H. M. Wheeler, secretary of the North Dakota State Board of Medical Examiners, reports the written examination held at Grand Forks, October 4-6, 1910. The number of subjects examined in was 14; percentage required to pass, 75. The total number of candidates examined was 9, of whom 8 passed and 1 failed. Six candidates were licensed through reciprocity. The following colleges were represented:

College.	PASSED	Year Grad.	Per Cent.
Rush Medical College.....	(1910)		88
Chicago College of Medicine and Surgery.....	(1910)	82,	83
Univ. of Michigan, Dept. of Medicine and Surgery.....	(1910)		81
Minneapolis College of Physicians and Surgeons.....	(1909)		81
St. Louis College of Physicians and Surgeons.....	(1898)		76
Milwaukee Medical College.....	(1910)		85
Laval University, Quebec.....	(1908)		75

Bennett College of Eclectic Medicine and Surgery... (1884)*

LICENSED THROUGH RECIPROCIITY

College.	Year Grad.	Reciprocity with
College of Phys. and Surgeons, Chicago.....	(1902)	(1909) Illinois
Rush Medical College.....	(1904)	Illinois
Northwestern University Medical School.....	(1905)	Illinois
University of Minnesota, Coll. of Med. and Surg.	(1909)	Minnesota
Milwaukee Medical College.....	(1905)	Wisconsin

* No grade given.

Book Notices

GENERAL SURGERY. Edited by John B. Murphy, A.M., M.D., LL.D., Professor of Surgery in the Northwestern University. Vol. II, The Practical Medicine Series. Cloth. Pp. 615, with illustrations. Chicago: The Year-Book Publishers, 1910.

A review of this volume shows that the surgery of the nerves, of the heart and arteries, the thyroid and some of the other ductless glands, the brain, the stomach and intestines, together with the treatment of peritonitis and hernia, are the subjects which loom large in the year's work in surgery. The editor calls attention to the fact that accuracy in surgical diagnosis is advancing each year, and that the production of prophylactic immunity, as in tetanus, rabies, and, he hopes, in tuberculous surgical affections, is attaining the status of a fixed practice in every surgical hospital. He also insists that the chronic infections, as of the antrum, the various sinuses, the tonsils, urethra, gall-bladder, etc., as etiologic factors in nephritis, endocarditis and myocarditis and in other secondary disease with which the surgeon has to deal, have not been sufficiently appreciated. The voluminous literature of surgery each year makes this number of the Year-Book series considerably larger than those on other topics. The book is well illustrated, as usual, and barring the use of figures in the text, where any recognized usage either of language or printer's style would require words, together with some other minor shortcomings in the editing, it is a very satisfactory number of the series.

A MANUAL OF TOXICOLOGY. A Concise Presentation of the Principal Facts Relating to Poisons, with Detailed Directions for the Treatment of Poisoning. Also a Table of Doses of the Principal and Many New Remedies. By Albert H. Brundage, M.D., Professor of Toxicology and Physiology in the Department of Medicines, Dentistry and Pharmacy of Marquette University. Seventh Edition. Price, \$1.50. Pp. 428, with illustrations. Brooklyn: The Henry Harrison Co., 1910.

This comprehensive work on toxicology contains descriptions, definitions, classifications of and identity tests for many substances, together with instructions for the treatment of different kinds of poisonings. Methods of detecting poisons under various conditions are detailed, considerable space being devoted to the technic of post-mortem work. The book is supplemented by colored plates illustrating the effects of various poisons on the stomach. There are also several pages of cuts illustrating the more common poisonous plants. A table of doses and a series of questions for the review of the work are given. The material is well arranged, making it available for quick review. It is a handy reference book as well as a practical guide for the actual examination for poisons.

PRACTICAL OBSTETRICS. By E. Hastings Tweedy, F.R.C.P.L., Master of the Rotunda Hospital, and G. T. Wrench, M.D., Late Assistant Master. Second Edition. Cloth. Price, \$5.50. Pp. 491, with 159 illustrations. New York: Oxford University Press, 1910.

This book has been revised and new subjects added. Among the additions are pubiotomy, hysterotomy and infant digestion. There are still many things in its teachings, however, that do not conform to accepted practice in this country. The method of giving saline infusions directly into the breast and the giving of ergot when there is delay in the coming away of the membranes and allowing them to come away with the lochia, were referred to in our review of the first edition. In the latter instance only has the original counsel been modified to the extent that the authors say that if much of the membrane remains it is likely to cause trouble and that it would perhaps be better practice to remove it at once. The authors' views on uterine inertia, contracted pelvis and rupture of the uterus have been modified somewhat.

PRACTICAL NURSING FOR MALE NURSES IN THE R. A. M. C. AND OTHER FORCES. By Major E. M. Hassard, R.A.M.C., and A. R. Hassard. Cloth. Price, \$1.50. Pp. 334, with illustrations. New York: Oxford University Press, 1910.

This is a valuable treatise on nursing from a practical standpoint, giving the technic of the manifold duties in the care of the sick, injured, and of those operated on which fall to the lot of the nurse. It not only describes clearly what should be done, but as clearly indicates what should be avoided.

Medicolegal

Michigan Law With Regard to Physicians Prescribing Liquor

The Supreme Court of Michigan says, in the case of *People vs. Rice* (126 N. W. 981) that the general purpose of the law of that state (section 26 of Act 107, Laws of 1909) is to prevent the manufacture of liquors and all traffic in liquors, as beverages, in certain counties. Druggists may traffic in liquors for medicinal or scientific purposes. The purposes for which liquors are desired must be certified to the druggist either by a regular practicing physician or by a superintendent of a hospital, medical, or educational institution. If the certificate is a prescription, it must be written, must name the person for whom the liquor is prescribed, the kind and quantity prescribed, must be dated, and signed with the full name of the physician.

The lawfulness of the sale does not necessarily depend on the good faith of the physician. It does depend on the good faith of the druggist. The good faith of the physician may not always be a protection to the druggist because the druggist may know of facts and circumstances indicating clearly, to him, that the liquor called for will be used as a beverage. In short, there is no necessary connection as affecting the good faith of either, between the conduct of the physician prescribing, and the conduct of the druggist in selling liquor.

The court does not find in the statute an intention to punish physicians for issuing prescriptions for liquor in bad faith. It means by this that apt terms are not found to create a substantive offense, the elements of which are writing and delivering carelessly or dishonestly, prescriptions for liquor. If physicians are amenable to the pains and penalties of the act, it is because they have indirectly, but intentionally, brought about a sale of liquor to be used as a beverage. They do not, in issuing prescriptions in bad faith, occupy the position of merely practicing subterfuge or telling untruths in order to secure liquor. The law intends that sales may be made on prescriptions. It intends that no sale shall be made otherwise than on prescriptions. It has made the prescription, and therefore the physician, potential in securing liquor. In this way a physician becomes a party to every sale made on his certificate. Nevertheless the court is constrained to say that, unless there is open or tacit collusion between the druggist and the physician, so that the actual sale is unlawful because, though made on a certificate proper in form, it is made in bad faith, the law is not so written as to make the conduct of the physician unlawful. It is not so written that an intention can be found to make a particular sale lawful as to the druggist and unlawful as to the physician.

Board of Health Records Not Evidence Between Private Parties

The Appellate Court of Indiana, Division No. 2, holds in *Brotherhood of Painters, Decorators and Paperhangers of America vs. Barton* (92 N. E. R. 64), that the record of the board of health of a city is not made admissible evidence of the cause of death in a suit for insurance by the Indiana act of 1907, entitled, "An act to collect accurate records of deaths, births, contagious diseases and marriages, prescribing the duties of the state board of health and of all health officers in relation thereto," etc. The court says that the title of the act discloses its purpose. It was enacted in the exercise of the police power of the state to prevent the spread of contagious diseases and generally to promote the public health. It does not purport to interfere with private rights of citizens, nor to create a new rule of evidence. Within its legitimate objects and purposes the record in question was proper evidence. But whether evidence of the character in question is required to be kept by virtue of a municipal ordinance authorized by statute, or by statutes, can make no difference in principle. In the absence of positive declaration on the part of the legislature, it will not be presumed that the right of private citizens are to be foreclosed by the opinion of a public health

officer contrary to the general rule of evidence, however learned or conscientious that officer may be. The public is interested in vital tabulated statistics, which as a rule may be approximately correct. The rights of the public by this wholesome law are subserved when they have the benefit of the facts collected under its provisions, but no public interest is promoted in the use of such data to prevent or retard (contrary to established rules of evidence) the assertion of private rights between individuals and in which the public have no concern.

Competency of Physicians to Give Opinions as to Blood-Stains, Hairs, etc.

The Supreme Court of Arkansas says, in *Miller vs. State* (128 S. W. R. 353), a homicide case, that it was urged that error was committed in permitting certain witnesses to testify that the parts of a body found were parts of a human body; that certain stains on the floor were blood-stains, and that hairs found were human hairs. This contention was made on the ground that this testimony was but the opinions of the witnesses, and for that reason was inadmissible. But the court is of the opinion that no error was committed in allowing the introduction of the testimony complained of. This testimony was given by two physicians, who had been educated at medical schools and who had had extensive experience in their practice of medicine and surgery, as well as by other witnesses. The physicians actually saw these objects themselves, and they, as well as the other witnesses, first named and described these objects to the jury as well as they could. The two physicians were presumed to understand the questions pertaining to their profession, and to be expert on those questions, and were competent to give their opinions relative thereto. The objects observed by them, and about which they testified, were within the line of their professional experience, and as to these they enjoyed a means of special knowledge. When a witness has, by experience and education, gained special knowledge and skill relative to matters involving medical science he is entitled to give his opinions thereon. Furthermore, the opinions of ordinary witnesses, derived from observation, may be given in evidence in cases where, from the nature of the subject, the facts cannot be otherwise properly presented to the jury. Thus it has been held that a witness may testify that spots and spatters on a thong were blood; that blood seen by the witness was fresh blood; and that certain hairs were human.

Society Proceedings

COMING MEETINGS

Hawaiian Territorial Med. Assn., Honolulu, Nov. 26-28.
Southern Surg. and Gyn. Assn., Nashville, Dec. 13-15.
Western Surg. and Gyn. Assn., Chicago, Dec. 19-20.

COLLEGE OF PHYSICIANS OF PHILADELPHIA

Special Meeting Held Oct. 14, 1910

The President, DR. GEORGE E. DE SCHWEINITZ, in the Chair

SYMPOSIUM ON ACUTE AND EPIDEMIC POLIOMYELITIS

DR. P. A. LEWIS of the Rockefeller Institute read a paper on the etiology.

The Lesions of Acute Poliomyelitis

DR. A. J. SMITH: Much of the study of this subject has been fragmentary because of the difficulty in obtaining specimens from the living child and opportunity for necropsies. The disease has been looked on as a nervous affection, but last year the feeling of the profession changed and the view has been taken that it is a general infection with local involvements of the central nervous system, leaving behind serious alterations of the central nervous system with sequels extending out into the muscles. More careful examinations

should be made, and we need to have more data in connection with the rest of the body.

Anterior Poliomyelitis

DR. JOSEPH S. NEFF, director of the Department of Public Health and Charities, Philadelphia: The results of a careful study of the reported cases of anterior poliomyelitis in Philadelphia during the last summer demonstrate very little, with possibly two exceptions, and become of value only by adding to statistics for further deductions. The two exceptions are the parts played in the etiology by feeding, and general housing conditions. Of 99 cases in Philadelphia, 6 children were breast-fed alone; 11 were bottle-fed; 43 were mixed-fed, and 38 partook of ordinary table food. The disease was practically absent in the wards of the city with the highest congestion of population, and the only location showing apparent grouping of cases has the lowest ratio (except suburban wards) of population to the acre. The study tends to show that general sanitation, crowding and housing conditions do not play a part, at least in Philadelphia, in the etiology of the disease. From observation of all the cases reported it is evident that poliomyelitis is mildly contagious and much less so than other so-called children's diseases. Especial attention is called to the fact that the weeks ending July 23 and August 6, in which the greatest number of cases occurred, followed the hottest weeks of the summer. The main point to be taken into consideration by health officials, until more definite knowledge of the cause and spread of the disease is obtained, is the means of prevention. Their duty is to prevent the spread of disease, but at the same time the welfare and comfort of the community must be considered. The questions involved are as to isolation, quarantine, exclusion from school of other children in the family, placarding, etc. Up to the present time, and in view of the approaching cold weather, the health authorities of Philadelphia have done nothing further than to order isolation of the patient and disinfection of all discharges. My own thought is to await developments next spring. Should we have isolated cases only, no further action will be needed. Should the disease become epidemic my present idea is to compel isolation of the patient, exclude from school other children in the family for a period slightly beyond the period of incubation of the disease, and give written instructions as to the disinfection of all discharges; but I do not believe that it will be necessary to placard the house. There seems to be as many secondary cases in which isolation has been maintained as in which it was not attempted.

Symptomatology and Treatment of Poliomyelitis

DR. CHARLES K. MILLS: This paper is based chiefly on studies made during the recent epidemic. In my opinion the probable cause of acute poliomyelitis is some form of protozoon, which is perhaps carried by an insect to be found in the neighborhood of the prevailing epidemic. In the fulminant cases, meningitis is commonly present and may be severe; in other cases it is transient, and often absent. In several cases which have come under my observation death has occurred with evidences of involvement of the bulb. Paralysis involving one or two of the ocular muscles has been present in some instances. In one case a moderate degree of facial paralysis was the only residual palsy. A second recrudescence of the acute symptoms was seen in several cases. My investigations show the period of incubation to be usually from one to two weeks. Prognosis as to residual paralysis in the cases I have seen has been relatively bad. In treatment I would advise the use of hexamethylenamin in the acute stage; febrifuges, fluid extract of ergot, the large Bier's cups, calomel with salines and rest, when possible on the side or in the prone position. Massage or electricity should not be used for several weeks after onset and such treatment should be conservative in character. As a rule operative procedures should not be carried out for several months. Occasionally some kind of support to prevent possible deformity is advisable.

Discussion on Poliomyelitis

DR. B. FRANKLIN ROYER, Harrisburg: The studies made by the Department of Health suggest that the disease is a systemic one, showing only occasionally paralysis as a symptom. Some of the patients show fever and the disease goes no further. From the standpoint of some observers many die in cases in which the disease is given as bronchopneumonia and in which the fever has been high.

DR. F. X. DERGUM: Holt and others have come to the conclusion that the contagion is spread by human carriers not in themselves infected. The mucous membranes and the digestive tract should receive special attention, and certainly the close contact of children who are ill should be avoided.

DR. J. P. CROZER GRIFFITH: Danger comes from the abortive cases because of the inability to recognize them. There should be some test devised for abortive cases.

DR. HOBART A. HARE: I believe that if the physician will simply attend to the ordinary hygienic measures the recoveries will be far greater in number than with the active medication of the patient. After the sharpness of the attack attention may be paid to strengthening the partially destroyed cells.

DR. JOHN K. MITCHELL: I believe that damage is done by too early and too severe treatment. Physicians should not yield to demands of parents that something be done, but should insist that six weeks or two months be allowed before special measures are used. He should particularly avoid the ordinary mistake of allowing the child to sit up too soon. I have seen lateral curvature as the result of this mistake. Electricity should not be used under six or eight weeks, and there should not be discouragement from getting no result in the early treatment. The only satisfactory rule about the use of electricity is that the current that will produce the result is the one we want to use.

DR. JOHN B. ROBERTS: I understand that this disease is believed to be transmitted usually by infection through the nasal and facial mucous membrane. If this theory is correct, is it not a physiologic error to encourage or adopt the prevalent practice of total extirpation of the faucial and pharyngeal tonsils in children in whom there is inflammation and hypertrophy of these organs? The glossal, faucial and pharyngeal tonsils are adenoid structures apparently placed as sieves or guardians of the alimentary and respiratory tracts to arrest the entrance of micro-organisms into the general circulation. The occurrence of poliomyelitis more frequently in children of the well-to-do than in those in the lower walks of life may, perhaps, be due to the fact that such well-born children are nowadays deprived by operation of these organs more commonly than the children of the poor.

DR. WILLIAM G. SPILLER: I have seen one case in which a lumbar puncture with the removal of an ounce and a half of fluid relieved the intense pain and the difficult breathing.

DR. HENRY W. CATTELL: The treatment which is carried out abroad to a very large extent is the application of a plaster-of-Paris cast to maintain a proper position of the child in bed.

DR. ALFRED GORDON: The manner of transmission of the disease and the resistance of the virus to cold are important factors in prophylaxis.

DR. DAVID RIESMAN: One cannot escape the view that infantile paralysis is one of the transmissible diseases. Even though the contagion may be slight, in view of the terrible nature of the disease, all possible precautions against its transmission should be taken. It has occurred to me that some of the cases of polioencephalitis occurring sporadically in children and in adults, may have the same etiology as anterior poliomyelitis. A short time ago I saw with Dr. Hland a man, also seen by Dr. Mills and Dr. Spiller, who seemed to be suffering from a hyperacute attack of polioencephalitis, the first symptom having been facial paralysis. I have also in mind another case of polioencephalitis, in a little boy of 8, who, after a desperate illness, made an almost complete recovery. Nothing remained except diplopia, due to a weakness of the external rectus. From an epidemiologic standpoint, it may be very important to trace the relation of these cases to epidemic anterior poliomyelitis.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

Sixtieth Annual Meeting, held at Pittsburg, Oct. 3-6, 1910

(Continued from page 1753)

Fracture of the Shaft of the Femur; End-Results

DR. W. L. ESTES, South Bethlehem: One must make a sharp distinction between good functional results, and satisfactory, cosmetic and functional end-results, in estimating his success in the treatment of a fracture. One must divide his results into two classes: (1) patients who immediately after union are able to use the affected member properly, and (2) patients who acquire good use of the member after comparatively long periods. I think less than a dozen cases have ever left my hands with an ideal result, namely, no appreciable callus, no shortening, no deformity, and perfect function. The open method of treatment of fractures is far best for most cases of adults who are treated in a clean and well-conducted hospital.

DISCUSSION

DR. G. W. GUTHRIE, Wilkes-Barre: There is no doubt in my mind that the future will justify the open method of treatment of fractures of the femur as well as other fractures of the bony structure. I have never regretted treating an open compound fracture in which perfect adjustment and perfect fixation of the fragment was possible.

DR. D. H. STRICKLAND, Erie: A majority of fractures occur in laboring men who can ill afford to be confined to bed; they have a family dependent on them and consequently the more quickly they are restored to usefulness and to support of their families the better our reputation will be. I do not believe that we ought to pay much attention in this class of cases to cosmetic surgery. If we get a good limb that enables a man to perform his work as he did previous to his fracture, it is much better that we return him to duty as early as possible than that we should return him with a beautiful limb.

DR. C. E. THOMSON, Scranton: I want to make a plea for better and repeated attempts to reduce fractures without cutting. Two years ago, I had two physicians with fractured thighs under my care. I reduced one of these cases twice, each time the fracture having slipped. The second one also slipped three times.

DR. J. T. RUGH, Philadelphia: As regards the measurements of the lower extremities, its accuracy will depend entirely on the relationship of the pelvis to the spine. When the pelvis is put at right angles to the spine, and the two anterior superior spines are put in direct right angles to the center of the body and the legs placed in the same degree of abduction, one is in a position to measure the exact length of the legs. The slight abduction or adduction of the leg as the patient lies on the table will alter very materially the results of measurements.

DR. G. G. DAVIS, Philadelphia: The open operation for fracture is a difficult one and a big one, and, if undertaken extensively by surgeons generally, I believe it will have a very extensive mortality.

DR. J. B. ROBERTS, Philadelphia: There are three kinds of fractures: those which cannot be treated well if they are opened, a middle class, and a class which can be treated best by opening. The whole question depends on the fact that the man who undertakes to reconstruct that portion of the bone must know his anatomy. He must know something of the displacing causes, and he must be a mechanic as well as a surgeon in order to treat a fracture. I would say: Don't open a fracture unless you know something of aseptic surgery; don't treat a fracture unless you know the anatomy of the part and its relationship with surrounding parts, and be careful not to believe all that the skiagraph appears to show. There is nothing that lies so much as a skiagraph taken by a man who knows nothing of anatomy.

An Operation for Ankylosis of the Hip-Joint in Which Baer's Membrane Was Used

DR. G. G. DAVIS, Philadelphia: The patient was a girl of 10, with bony ankylosis of hip in a somewhat flexed position, due to a previous rheumatic attack. Incision was made below

the anterior superior spine of the ilium. The head of the femur was solidly united by bone to the pelvis. Bone was cut away in the line of union. The end of the femur was enveloped by a sheet of Baer's membrane (chromicized pig's bladder), held in place by chromicized catgut; the wound was closed and drain left for 24 hours. The position of the limb is good, about 5 months after the operation. There is no pain on walking, though there is slight shortening and about 45 degrees of flexion.

DISCUSSION

DR. J. T. RUGH, Philadelphia: The method proposed by Dr. Baer is a very decided advance over any method previously employed in selected cases. In those cases in which there still remains some of the articular structures, there is no doubt of the value of chromicized pig's bladder. In cases with absolutely bony fixation, the method of fixation has not proved the success hoped for it.

Spina Bifida and Its Surgical Treatment; With a Description of an Osteoplastic Operation

DR. W. W. BABCOCK, Philadelphia: The features of the operation which I perform are: a vertical suspension of the patient with the head dependent to limit shock and the leakage of cerebro-spinal fluid; local anesthesia; the return of the distended inner layers of the sac to the canal without extensive isolation or injury to adherent nerve trunks. If no semblance of a canal is present, a sufficient groove is cut into the spine or sacrum; the edges of the dura are isolated and accurately sutured over the cord, and a ribbon of bone on either side of the defect is mobilized and left attached above and below. For this purpose the rudimentary laminae or bases of the spinous processes are divided by Satterlee's bone forceps. The two osseous double pedicled flaps are united in the midline. The two broad double-pedicled flaps consisting of the outer layers of the erector spinae muscle and their over-lying aponeurosis, which are slid inward over the bone flaps and united in the median line by buried chromic catgut, are isolated. The everted edges are united with skin by means of mattress and interrupted sutures without drainage.

DISCUSSION

DR. S. L. McCURDY, Pittsburg: One of the most difficult things, especially in the surgery of children born with defects, is spina bifida. There is no other condition that has called forth the ingenuity of the surgeon as this has. As many different methods have been used to close the defect as operators almost. The one presented by Dr. Babcock is admirable.

(To be continued)

INDIANA STATE MEDICAL ASSOCIATION

Annual Meeting, held at Fort Wayne, Sept. 28-30, 1910

(Continued from page 1671)

Migraine

DR. C. F. NEV, Indianapolis: Migraine is a functional neurosis characterized by sudden attacks of pain on one side of the head, often preceded by evidences of irritation of the brain, followed by digestive disturbances. The active cause is believed to be sudden development of a poison of undetermined nature which first stimulates and excites the brain and then causes pain and a suspension of brain functions, and which is eliminated by the gastro-intestinal tract or the kidneys, the principal symptoms being headache, nausea, vomiting, disturbance of vision, disturbance of speech, disturbance of sensation in the limbs, vasomotor disturbances, motor disturbances in the limbs and mental disturbances. It is difficult to say whether migraine is vasomotor spasm or vasodilatation. The treatment may be summed up under the following heads: (1) correction of errors in the mode of life; (2) correction of errors and care in diet, ventilation and sanitation; (3) correction of defects in general health; (4) correction of constitutional diatheses.

DISCUSSION

DR. G. W. McCASKEY, Fort Wayne: I agree with Dr. Neu that if this disease can last a lifetime, some as yet unknown anatomic condition must be responsible. It must be admitted that there are many points of resemblance between migraine and epilepsy, but I think that the most careful investigation along this line has tended to show that there is no essential relationship between them. In a few cases on record there has apparently been a transition from migraine to epilepsy, or vice versa. On the other hand, I believe that it can be shown that migraine is no more common among epileptics as a class than among those who are not. In regard to the real pathology of migraine, we do not know enough yet to form a theory, but certain facts seem to me to account for a great many of the manifestations, and these are particularly the vasomotor changes. A theory enunciated by Spitzgen assumes that the essential, underlying anatomic condition is sudden instability in the vascular condition of the chorioid plexus. We must look to the nervous system itself for explanation of the peculiar changes of the character of the chorioid plexus which result in migraine. The ophthalmic changes are very important, and this seems to me to support the theory of vasomotor changes being one of the manifestations of migraine.

Whether these theories are correct or not, we are face to face with a very common malady concerning which we know very little; but we are not quite helpless. We cannot cure many of these patients, but we can do for them what we can do with epilepsy—we can make the attacks lighter and farther apart. Treatment should lie along the lines indicated by Dr. Neu, and it seems to me it should lie in one of three or four directions, with exceptions in regard to what might be called the auxiliary etiology. In the first place, there is a group of cases in which the patients are incurable; in these cases the attacks are due to reflex disturbances of some sort. Second, are those cases the result of toxic disturbances. Whether the average case is the result of toxin, is a different question. An auto-intoxication resulting from intestinal trouble may lead up to this disturbance of the nervous system and precipitate an attack. Then there is the overstrain of the nervous system.

DR. C. S. BOND, Richmond: It has been maintained for a long time that these cases of migraine are largely due—barring infections, tumors, etc.—to auto-infection. I believe that not enough attention is given to this part of the subject. As a rule, these patients do not consult a physician for a mere slight headache, but wait till the disturbance has gone on for 5 or 6 or maybe 20 years. In that case some more or less submerged factor has operated on the patient all that time, but which comes more to the front, often on Monday. On Sunday the patient has eaten more and as a rule works less than on any other day. Auto-infection may be due to constipation; the patient may eat too much food or too much of one kind. I had a woman patient who had had migraine for twenty years. I merely put her on a restricted diet. She has not had an attack of migraine for ten years.

DR. ALBERT STERNE, Indianapolis: Every case of migraine is a law unto itself. This condition—I am not treating it as a disease *per se*—is one of metabolism largely. It is, in addition to that, a catabolic phenomena, now this, now that, in a person who has a fundamental nervous instability. The paroxysmal attacks of migraine are to a degree like epilepsy; there is the same fundamental instability. We have a momentary factor and a fundamental factor. The former can be reached in various ways; but the fundamental trouble in migraines of congenital type, is practically out of reach. At the same time, we must admit that there is an anatomic condition in these cases. We must treat these patients so as not to mask the symptoms; not during the attacks, but between them; and every patient must be studied individually. I believe that the physician, the patient and the patient's family fail to realize that we are dealing with the most difficult problem that confronts us in medicine.

DR. C. F. NEV, Indianapolis: It is necessary to regulate the habits and diet of these patients. I believe with Dr. Bond that these cases are dependent on auto-intoxication of intestinal origin. We must begin treatment during the two or

three days of well-being at the onset of the attack, and not after the attack has begun. The benefit of the treatment depends on its beginning before the onset of the attack. Those who have investigated the transitional cases of migraine into epilepsy say that we must bear in mind that in epilepsy the minor attacks may be present for a long time before the immediate seizure occurs, and that in most cases of transition of migraine into epilepsy there has been present evidences of these minor attacks.

The Laboratory vs. Clinical Methods

DR. DWIGHT M. GREEN, Muncie: I am not a laboratory man. The title of this paper, chosen with malice aforethought, is a deliberate misnomer.

Progressive medicine has proved conclusively in recent years that the imaginary strife between laboratory and clinical methods of diagnosis is as needless and unreasonable as the war which raged a few decades ago between science and religion. The man who would practice medicine by the aid of the microscope and the test-tube alone would be a colossal fool; he would fail in his profession, and deservedly. Yet serious as such an arraignment may be, can less be said of him who depends for his diagnosis solely on the subjective clinical evidence which his senses present him at the bedside, or on the problematical value of the patient's word, and on his own experience recalled from out of the past? None of us, no matter how clear-sighted we may be as clinicians, can afford to neglect or ignore any assistance to diagnosis which may be secured within the bounds of reason; but least of all that assistance which a few minutes spent in the examination of urine or sputum or blood will give—the assistance of the laboratory.

DISCUSSION

DR. R. H. RITTER, Indianapolis: We are seeing the spread of specialists and specialism. Every town of any size has now its specialists for ear, nose and throat, and eye. If there is one thing which to my mind indicates the need of a specialist, it is the necessity for this so-called mechanical means of diagnosis. And it should be said to the credit of Fort Wayne that it supports a man—gives him a living salary—to do these things; and it is to the discredit of any other town of any size in this state that no such opportunity is afforded.

DR. G. W. McCASKEY, Fort Wayne: The time is past when it is necessary to go before any medical society and laud the value of laboratory methods. It may be difficult for me, after some fifteen or twenty years' absence from the ranks of the general practitioner, to put myself in his place, but with all the classes of cases I see, I do not think any patient passes my hands in examination without a more or less complete urine and blood examination. I feel that I want the data that can be obtained from these two sources in every case that comes before me for attention. By laboratory diagnosis we can see the breakers that are ahead of them—months and years ahead, and frequently, by complete laboratory methods which carry us beyond the immediate necessities of the case, we may be able to see years ahead. I have two or three patients under observation in whom I found, probably two years ago, a relative lymphatic cytosis with leukemia. I found some glandular enlargement, the spleen barely palpable. These patients are likely in the future to suffer from lymphatic leukemia. There is no conflict between laboratory and clinical methods. I would no more attempt to make a diagnosis without the aid of laboratory methods than I would without the history of the case. This examination may be along the line of complete fecal examination or stomach examination, but it should always be a fairly complete urine and blood examination. In my satchel in which I carry my ordinary appliances I invariably carry bouillon and an outfit for making cultures, which I often find of very great benefit in making diagnosis.

DR. D. W. GREEN, Muncie: Men of ability who are placed in a position to have all their laboratory work done for them are fortunate indeed; they are able to give their patients the best that any man can give. Those of us who are not so placed can only attempt to do both lines of work ourselves.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

October 29

- 1 Pernicious Anemia; Its Definition and Treatment. E. Grawitz, Berlin.
- 2 Suppuration of the Antrum of Highmore. W. A. Wells, Washington, D. C.
- 3 Twentieth Anniversary of the Electrotherapeutic Association. A. D. Rockwell, New York.
- 4 A Case of Typhoid Meningitis. B. Schwartz, New York.
- 5 The Saw and Crushing Instruments in Surgery of the Nasal Septum. B. DeF. Sheedy, New York.
- 6 *The Bedside Widal Test. G. Gillman, San Francisco.
- 7 *Exophthalmic Goiter Simulating Typhoid Fever. L. Dlugasch, New York.

6. **Bedside Widal Test.**—The test, described by Gillman, requires no laboratory facilities or special technical skill and consumes so little time that it enables the practitioner to make the test at the patient's bedside and to know the result within a few hours. Into a very small test tube (5mm. by 3 cm.) or homeopathic vial, place 48 drops of formalized culture of typhoid bacillus and to this add 2 drops of the patient's blood obtained in the usual manner from the lobe of the ear or tip of the finger. The tube is next corked, shaken and set aside. After having set for from 3 to 5 hours, the tube is examined and the reaction noted, care being taken not to disturb the fluid. The formalized culture before use is always turbid, due to the suspension of bacilli. Now, if the added blood should give a positive reaction, the bacilli are agglutinated (clumped) and with the blood-cells fall to the bottom of the tube, leaving the supernatant fluid clear. A clear supernatant fluid therefore indicates a positive reaction; a turbid supernatant fluid, a negative reaction.

When noting the reaction, it is of material advantage to compare the supernatant fluid with some of the formalized culture contained in a similar tube as a control. In a positive reaction the fluid will be decidedly clear as compared with the control, which is always turbid, while in a negative reaction the fluid will be as turbid as the control. During the early part of a positive reaction with a serum of low titre (agglutinating strength) the blood-cells will first settle and then a flocculent precipitate (clumps) of bacilli will appear which later settle to the bottom, leaving the supernatant fluid clear. For agglutination tests, other than typhoid, the same technic can be employed, replacing the typhoid culture by a formalized culture of the required micro-organism. Gillman suggests that it would be of great advantage to all concerned if some laboratory should furnish the practitioner with suitable vials containing the proper quantity of the formalized culture, ready for use, or the culture contained in a larger bottle accompanied by one or more suitable empty vials in which the test could be made any number of times, the vials being cleaned by simply washing before each new test.

7. **Exophthalmic Goiter.**—The insidious onset, in Dlugasch's case, with general malaise, headache, nausea, a tongue that looked like typhoid, sordes on tongue, enlarged spleen, suggested typhoid. When first seen the patient had been running a temperature of from 102 to 103.5 F. for about eleven days, but the Widal tests were negative, and on the 12th day the temperature came down to 98.6 F. In exophthalmic goiter there sometimes is a rise of temperature with enlarged spleen, and it behooves one to make a careful physical examination.

New York Medical Journal

October 29

- 8 *Two Cases of Revolver Shot Wound of the Brain. J. C. DaCosta, Philadelphia.
- 9 A Simplified Technic for Roentgen-Ray Localization of Bullets in the Thicker Portions of the Body. S. Tousey, New York.
- 10 A Scientific Interpretation of Knatsu, or the Japanese Method of Restoring Life. A. Abrams, San Francisco.
- 11 Circinate Syphilides. J. Kingsbury, New York.
- 12 *Fulguration Treatment of Papillomata of the Bladder. L. Buerger and A. L. Wolbarst, New York.
- 13 Surgical Treatment of Chronic Gastric and Duodenal Ulcer, and of Cancer of the Stomach. W. D. Hamilton, Columbus, O.
- 14 *Variability of the Gastric Juice. E. L. Eggleston, Battle Creek, Mich.
- 15 Shakespeare's Knowledge of Medicine. M. Kahn, New York.
- 16 Anemic Ulcers of the Throat. A. G. Pohly, New York.

8. Gunshot Wound of Brain.—In the first case cited by DaCosta a No. .22 bullet was lodged in the brain for eight months, producing amnesia and convulsions. It was removed successfully. Convulsions were arrested but the amnesia was not improved. In this patient the shock caused partial amnesia; the bullet, encysted just beneath the cortex, caused convulsions, and DaCosta suggests that in all probability, when the tearing loose of the bullet from the wall which encysted it took place, the bullet moved about and the irritation led to the development of status epilepticus. An interesting fact is that a No. .22 bullet should have pierced an ordinary thick skull and reached the opposite side of the head. In the second case, a bullet of .32 caliber, in the brain for over four weeks, caused violent headache and was successfully removed with complete recovery. The bullet was lodged in the falx and against the superior surface of the straight sinus. The whirr of the blood in that sinus was very distinct as the finger pushed against the bullet. The falx was incised, the bullet was exposed and removed with bullet forceps. On its removal there was a great gush of blood, presumably from the sinus. The bleeding was arrested by gauze packing which made much pressure on the falx and tentorium. Because of the large amount of gauze employed, the fear of further hemorrhage, and the apprehension as to the results of compression, the bone flap was removed and the scalp sutured about the protruding gauze. The man reacted quickly from the ether and a few hours after the operation was perfectly conscious and free from pain. The packing was not removed for nine days. On its removal there was no bleeding. The patient at present is in excellent health.

12. Fulguration of Papillomata.—The authors found that the de Keating-Hart method of fulguration of tissues when applied to bladder papillomata, in the manner suggested by Beer, offers an easy and reliable mode of treatment. Local anesthesia applied to the bladder is sufficient to eliminate pain. Three cases of bladder papilloma, in this series, responded excellently to this method of treatment. Apparently a cure has followed in each case.

14. Variability of Gastric Juice.—From Eggleston's experimental studies it would seem that with the same food materials there may be a marked variation in the percentage of composition of the gastric juice which may result from psychic influences. Iced foods or beverages have only a slight inhibitory action on gastric secretions. Foods containing free fats in any quantity when taken either at ordinary temperature or frozen have a decided inhibitory effect on gastric secretions. Fruit juices either frozen or at ordinary temperature quite markedly increase the secretion. Compound tincture of gentian seems to have but little effect as a gastric stimulant.

Boston Medical and Surgical Journal

October 27

- 17 Cholelithiasis. R. F. Chase, Boston.
- 18 Wassermann Reaction for Syphilis. W. F. Boardman, Boston.
- 19 *Technic of Arthrotoomy. C. F. Painter and A. P. Cornwall, Boston.
- 20 Extreme Blood Picture in a Case of Pernicious Anemia. W. C. Speidel, Chicago.

19. Arthrotoomy.—The fifty cases cited by Painter and Cornwall, belonging to the group of lipomata, show forty-four restorations to normal function without infection and without any very protracted convalescence. Six cases were infected; two of the patients died. Of these one was doubtless infected from another patient operated on unadvisedly at the same time and in the same room. The other was a patient who had both knees operated on at the same time, which is now regarded as a technical error. The four other septic cases were not explained, except in one case, and this patient now has a normal joint. The authors hold that this should not be classed strictly as a sepsis, for the joint was sealed by water used to check synovial hemorrhage and the larger part of the synovial membrane sloughed out. One of the patients, in whom both joints were also operated on at one sitting, lost her leg above the knee. There is a good deal of evidence that this was a syphilitic subject, but this is not offered in extenuation of the results. If it was, it was just as much an error to have operated it as it was to have infected it. A better showing might be made if the double cases were

counted as separate operations, but they have not been so counted. The authors regard it a serious error to do both knees at one sitting. The next largest group of cases for which arthrotoomies have been performed at this clinic has been that in which the removal of tuberculous disease has been undertaken. The technic of these operations is described and a brief report of the cases is begun. The article is to be concluded in a subsequent issue of the journal.

Lancet-Clinic, Cincinnati

October 22

- 21 Psychotherapy Minus the Mystery. I. O. Allen, Richmond, Ind.
 - 22 Role of the Physician, Philanthropist, Publicist and Politician Regarding a Federal Department of Health. L. H. Montgomery, Chicago.
 - 23 Albinism in its Relation to Medical Research. B. Holmes, Chicago.
- October 29
- 24 *Responsibility of the Physician in Traumatic Neuroses. H. H. Drysdale, Cleveland.
 - 25 Foods in Tuberculosis. P. Paquin, Asheville, N. C.

24. Abstracted in THE JOURNAL, Sept. 24, 1910, p. 1134.

Ohio State Medical Journal

October 15

- 26 Circulatory Changes in Exophthalmic Goiter. A. W. Hewlett, Ann Arbor, Mich.
- 27 Radical Treatment of Internal Hemorrhoids. J. A. Duncan, Toledo.
- 28 Vaccine Treatment of Tuberculous Cervical Adenitis in Children. O. Berghausen, Cincinnati.
- 29 Infantile Paralysis from the Standpoint of the Orthopedist. A. M. Steinfeld, Columbus.
- 30 *Exudative Erythemas and Their Visceral Manifestations. M. A. Brown, Cincinnati.
- 31 Hematuria. W. E. Lower, Cleveland.
- 32 Non-Operative Treatment of Otitis Media. W. L. Carroll, Youngstown.

30. Abstracted in THE JOURNAL, July 16, 1910, p. 246.

Journal of Infectious Diseases, Chicago

October 25

- 33 *Balantidium Coli Infection in Man. G. S. Bel and M. Couret, New Orleans.
- 34 *Influence of Extracts of *Anchylostoma Caninum* on the Coagulation of the Blood and on Hemolysis. L. Loeb and M. S. Fleisher, Philadelphia.
- 35 *Determination of the Number of Body Cells in Milk by a Direct Method. S. C. Prescott and R. S. Breed.
- 36 Formaldehyd Disinfection with Special Reference to the Comparative Value of Some of the Proprietary Products. M. L. Holm and E. A. Gardner, Lansing, Mich.
- 37 *Bacterial Integrity of Collodion Sacs. C. A. Fuller, Madison, Wis.
- 38 *Value of Collodion Membranes as Filters. E. Steinhardt, Ann Arbor, Mich.
- 39 Non-Inheritance of Impressed Variations in *Streptococcus Lacticus*. R. E. Buchanan and R. Truax, Ames, Ia.
- 40 *The Anti-Infectious Power of the Blood of Infants. R. Tunnicliff, Chicago.

33. Balantidium Coli Infection.—Bel and Couret have repeatedly found *Balantidium coli* in large numbers in the stools of patients during life; they have found them active and very numerous about the lesions at necropsy. They have found *Balantidium coli* in sections of the glands of the large intestine and interglandular supporting tissue, the submucous coat, and in the blood vessels, and, wherever the parasites were present, lymphoid and plasma cells and eosinophils were constantly in evidence, whereas the absence of such cellular infiltration foretold a negative finding of the parasite. They believe that ulcerations are due to terminal invading bacteria, as evidenced by their acute character, and while they do not doubt that *Balantidium coli* is primarily responsible for their presence by producing avenues for the entrance of these bacteria, the absence of parasites from the walls of these ulcers is sufficient evidence that they play no further part in their production.

From their study of the intestinal flora and the negative blood-reactions for specific agglutinations, the authors are satisfied that any of the bacteria normally present in the intestine of man may produce the ulcerations after *Balantidium coli* has opened the avenues for infection. They believe that *Balantidia* produce these definite lesions (hyperplasia and cell infiltration) either mechanically or through the liberation of cytolytic ferments. The presence of the parasite in blood-vessels and lymph-spaces leaves no doubt that infection of the liver and lung may occur through these channels in a manner similar to that described by Gage in an invasion of the lungs by *Strongyloides intestinalis*, or as frequently hap-

ens in intestinal amebiasis. Finally, from the definite and microscopic findings and negative blood and culture results for other intestinal invaders, the logical conclusion seems to be that *Balantidium coli* is not a harmless commensal, as some authors suppose, but an organism able to invade the human tissues and cause a serious disease. Death may follow through compression of the intestinal glands by a hyperplasia of interglandular tissue produced by the parasites and through glandular necrosis and absorption of toxins from any terminal bacterial invasion.

34. Influence of *Anchylostoma Caninum* on Hemolysis.—Loeb and Fleisher found that in the anterior part of anchylostoma a substance is present that inhibits the coagulation of the blood; it can be preserved for a long time in a dried condition. It is not analogous to hirudin, but it seems to show some similarity to the substance inhibiting the coagulation of the blood which is present in cobra-venom. It will, however, be necessary to make additional comparative tests, they state, before such a relationship can be considered proved. The powder of anchylostoma which Loeb and Fleisher used did not contain a direct hemolytic substance, nor a substance which can be activated through a combination with lecithin.

35. Determination of the Number of Body Cells in Milk.—By the method described by Prescott and Breed, the number of cells present is determined by a direct examination of the milk without recourse to the centrifuge. The sample is well shaken to distribute the cream equally through the milk. A measured drop (0.01 c.c.) is then withdrawn by means of a specially constructed capillary pipette with a rubber bulb. This drop is then spread evenly over an area of 1 square cm. on an ordinary glass slide. The milk is then dried with gentle heat, the fat dissolved out with xylol or other fat solvent, the smear fixed to the slide by immersion in alcohol for a few minutes, dried, overstained with methylene blue, and decolorized with alcohol. The slide is then ready for examination. When well done the smear presents an even appearance and the cells show up clearly on a bluish field. This background is the dried casein and other milk solids, and shows holes where the fat drops have been removed. The determination of the number of cells present is made with the microscope, using the oil-immersion lens. If the diameter of the field is so arranged that it equals 0.16 mm., then each field covers approximately 0.005 of a square centimeter. This adjustment may be made by the use of the draw tube of the microscope. On this basis each cell seen in a field taken at random represents 500,000 cells per c.c. If 100 fields are counted and the total number of cells seen be obtained, then each cell represents 5,000 cells per c.c. This reduces the probable error to a smaller amount than would be necessary for routine work. A series of thirty-one tests done in duplicate where 100 fields of the oil-immersion lens were counted on each smear shows a variation of 14.5 per cent. These tests showed that the average number of cells present in milk is approximately 1,500,000 per cubic centimeter. Very few samples contained less than 100,000 cells per cubic centimeter. One test of milk having a normal appearance and sold as market milk showed 10,690,000 cells per cubic centimeter.

37. Bacterial Integrity of Collodion Sacs.—In Fuller's hands, the collodion sac method has given uniformly good results. Sacs filled with sterile water and immersed in water or sewage showed no passage of bacteria through the sac membrane for a week or more. With a view of proving that collodion sacs can be made so that they will remain unbroken for a period many times longer than that required to carry out the experiment cited, the following tests were made: Sacs were exposed to conditions most favorable to the passage of bacteria through the membrane, either by "growth" or "direct passage." The organisms tested were *B. typhosus*, *B. coli*, *B. prodigiosus*, and *B. pyocyaneus* and the bacteria of crude sewage and septic-tank effluent. Sacs were made by the method recommended by Frost. The majority of collodion sacs tested retained their bacterial integrity for 60 days or longer. Six sacs were inoculated with *B. pyocyaneus*. Growth in the medium surrounding one of these developed in 6 days; the organism escaped from another in

8 days. The four remaining sacs held perfectly for 60 days, three of them were discontinued but the fourth was allowed to run on and held germ-tight for 127 days. Subcultures from this sac showed actively motile bacilli, developing the deep-green pigment characteristic of *B. pyocyaneus*. *B. prodigiosus* is also retained by collodion sacs for a considerable time. Of the four tests made, one sac held for 41 days and three over 60. Up to the time of writing one sac had held 174 days. Pure cultures of *B. prodigiosus* were obtained from this sac 170 days after inoculation.

Four out of five sacs, inoculated with different strains of *B. coli*, held for 60 days, and two sacs which were kept under observation longer retained the organism for 174 days. Pure cultures of *B. coli* were recovered from both of these sacs. Fifteen sacs were inoculated with *B. typhosus* in pure culture. Of these one held 49 days, two held 59 days, and twelve held over 60 days; eight of these sacs were kept under observation and still retain the organism with which they were inoculated at the time of writing (137-270 days). In addition to the pure cultures used in these experiments, five sacs were filled with sewage and heavily seeded with suspension of typhoid organisms; three sacs were filled with crude sewage, and two with septic-tank effluent. All five sacs held 60 days and one (septic-tank effluent plus typhoid) retained its bacterial integrity 140 days after inoculation.

38. Value of Collodion Membranes as Filters.—In the experiment made by Steinhardt dilute diphtheria toxin was retained by the collodion membrane, while the undiluted toxin passed through freely. When dilute cobra venom was filtered, all toxicity was lost. On filtering successive quantities through the same collodion membrane, the filtrate gradually became toxic, until the fourth filtrate was practically of the same strength as the control. This result is in accord with the work of Marbe on the successive filtration of agglutinins through collodion sacs, and also with the gradual passage complement through a Berkefeld filter as shown by Steinhardt and later found by Muir and Browning working on the same subject. Evidently filtration through collodion sacs, as through Berkefeld filters, is a phenomenon of absorption, the substances in solution passing through when absorption has reached a certain degree. Formed particles, however, if able to pass through at all, would pass through more rapidly in the beginning of filtration, and later, as the pores become clogged, they would be retained, while the opposite would occur with soluble substances, which appear in the filtrate only after absorption has become more or less complete. Thus, by changing the concentration, the quantity to be filtered, or the thickness of the sac, results may be obtained varying from total retention to complete passage of the active substances through the collodion membrane.

40. Anti-Infectious Power of Blood of Infants.—The results of Tunncliffe's experiments would indicate that at birth the opsonic power of the blood-serum toward streptococci, pneumococci, and staphylococci is a little less than that of the adult serum. It falls still lower during the first months of life and does not equal the opsonic power of adult serum until about the second year. The phagocytic activity of the leukocytes of infants toward streptococci, pneumococci, and staphylococci follows a course similar to that of the opsonic indices. The leukocytes at birth are a little less active than adult leukocytes. Their activity diminishes considerably during the first months of life and does not reach that of adult leukocytes until about the third year. The phagocytic power of the whole blood of infants drops decidedly during the first and second months of life and does not reach that of adult blood until about the third year. During the first and second years of life the anti-infectious power of the blood, as measured by the opsonic power of the serum and the phagocytic power of the leukocytes, is far below that of adult blood.

Colorado Medicine, Denver
October

41 Medical Centers. L. Freeman, Denver.

42 Injuries to the Cornea. M. Black, Denver.

43 Lumbar Anesthesia and Rhachi-Anesthesia. Z. v. Dworzak, Denver.

Southern California Practitioner, Los Angeles

October

- 44 Ehrlich-Hata "606." L. Fischer.
45 Lambert Treatment for Narcotic Addiction. E. H. Sawyer, Banning, Cal.
46 Public Health Administration in Arizona. E. S. Godfrey, Phoenix, Ariz.
47 Animal Experimentation In Relation to Modern Medicine. H. Sherry, Pasadena, Cal.

Journal of the Minnesota State Medical Association and the Northwestern Lancet

October 15

- 48 The State Medical Association and its Relation to the Problems of the Day. W. A. Jones, Minneapolis.
49 A Case of Triplets. H. McGuigan, Mazoppa, Minn.
50 Medical Treatment of Exophthalmic Goiter. J. E. Crewe, Rochester, Minn.
51 *Fracture of the Clavicle. J. B. Brimhall, St. Paul.

51. **Fracture of the Clavicle.** The comfort of the patient demands that these injuries be treated by a method which insures a perfect result, and at the same time is comfortable during the 3 or 4 weeks of repair. This is sought by the use of a figure-of-eight plaster of Paris dressing, which Brimhall applies as follows: The patient is dressed in a gauze or cotton undershirt and placed either in the standing posture or sitting on a chair facing the back of the chair. Sufficient sheet-cotton wadding is placed over the shoulders and both scapulae, and a few turns are carried around the shoulders and through the axillae. Plaster-of-Paris bandages, 2½ or 3 inches in width, are applied in a manner as suits the operator in accomplishing the purpose, a simple way being to apply the bandages in the form of an X, letting the upper poles extend over the top of the shoulder and well down on the anterior aspect of the same, the lower poles of the X reaching the lower angles of the scapulae. The scapulae will be well covered by the plasters as the bandage is alternated from one side of the X to the other. Brimhall says that it is advisable to drop the dressing lower on the side of the injury that this scapulae may be well grasped. About every fourth layer of the bandage may be carried down the anterior surface of the shoulder and back through the axilla, thus molding the plaster dressing about the shoulder. Use sufficient bandages to make a strong dressing, there being little objection to a heavy dressing as the weight is so distributed that it is not noticed. The shoulders may be held by an assistant, although this is not really necessary as the application of the figure-of-eight turns of the bandage will keep the position, after being first properly placed by the operator, and some member of the family usually assists by supporting the arm of the injured side. Both arms are allowed to come to the patient's sides while the plaster is hardening, keeping both shoulders held in the desired position. If there seems to be too much plaster applied in front and through the axillae this can easily be removed with a sharp pen-knife after the cast has hardened and while it is still moist. This fixed dressing practically prevents movements of the fragments. Both arms are left free and useful. Clothing can be worn as usual. By opening the shirt in front, perfect hygiene of the axilla may be maintained.

New Mexico Medical Journal, East Las Vegas

October

- 52 Hereditary Influences of Tuberculosis and Syphilis. J. W. Tinder, Roswell.
53 *The Family Physician in Relation to the Specialist. T. S. Dabney, New Orleans.
53. Published also in *New Orleans Medical and Surgical Journal*, October, 1910.

Iowa Medical Journal, Des Moines

October 15

- 54 What Next in the Campaign Against Tuberculosis in Iowa? J. W. Klime, Fort Dodge.
55 Myocarditis. M. Bannister, Ottumwa.
56 The Profession of Medicine. W. Woodbridge, Central City.
57 Treatment of Chronic Heart Disease. W. L. Blerring, Des Moines.

Surgery, Gynecology and Obstetrics, Chicago

October

- 58 *Appendiceal Intussusception. W. L. Wallace, Syracuse, N. Y.
59 Diagnostic Possibilities of Skiagraphy of the Vas Deferens. L. E. Schmidt and H. L. Kretschmer, Chicago.
60 Surgery of the Esophagus. W. Lerche, St. Paul, Minn.
61 Periodic Intermenstrual Pain. N. S. Heaney, Chicago.

- 62 *Intestinal Perforation in Typhoid, and Treatment. C. Bagley, Baltimore.
63 Care of the Puerperal Woman. I. H. Eddy, Chicago.
64 *Cesarean Section for Impassable Contraction Ring. R. L. Dickinson, Brooklyn, N. Y.
65 *Malignant Rhabdomyoma of the Vagina in Children. C. J. Miller and F. B. Gurd, New Orleans.
66 *Conservative Surgery of the Pelvic Organs in Cases of Pelvic Peritonitis and of Uterine Myomata. J. G. Clark and C. C. Norris, Philadelphia.
67 Total Congenital Absence of the Appendix. U. G. Daily, Chicago.
68 Cholecystitis Complicating Typhoid. E. M. Prince, Birmingham, Ala.
69 *New Technic for Operations on the Liver. J. Frank, Chicago.
70 Cesarean Section Under Local Anesthesia. R. K. Smith and J. Schwarz, San Francisco.
71 Abdominal Palpation and Auscultatory Percussion. T. J. Watkins, Chicago.

58. **Appendiceal Intussusception.**—Wallace's patient had his first attack of lower right abdominal inflammation in October, 1909, lasting 3 days and occurring after an unreasonably hearty, indigestible meal. One month later he had a second attack lasting a week, much harder than the first, with severe pain and tympany. The third attack commenced suddenly December 23, 1909, 5 weeks before coming to the hospital, with very severe pain and rapid distention. A bunch, which would rise up when he had pain, was soon noticed in the right side. Each pain was hard, lasting from 2 to 4 minutes, and recurring with short intermissions, often waking him up in the night. These attacks had been frequent for 5 weeks, the last severe attack beginning 4 days before coming to the hospital, and lasting 2 days. He had been very constipated during his attacks, but had never had vomiting, tenesmus, piles, or blood in the stools. Jan. 31, 1910, temperature was 99; pulse, 88; white blood count, 10,200, 86 per cent. polymorphs. Examination of the urine showed specific gravity 1021, no albumin, sugar, casts, blood or pus. The abdomen was not rigid or distended. A bunch which seemed about the size of a lemon was evident in the right inguinal and lumbar regions about 1 inch internal to the anterior superior spine of the ilium, movable back and forth and not very tender. This mass seemed probably a growth in the cecal region, possibly an inflammatory mass from an old appendicitis.

Wallace opened the abdomen externally to the right rectus and found an intussusception in the ileocecal region extending to the middle of the transverse colon, dragging in the cecum and ileum. There was no strangulation of the large or small bowel and there were no adhesions. The ileum was easily squeezed back out of the colon, leaving the much thickened and inflamed cecum tightly inverted into the colon, with the appendix buried in the pit at the end of the cecum. The colon was contracted on the cecum and the cecum on the appendix. Wallace could not withdraw the appendix from the cecum and had to cut out the end of the cecum with the appendix. Then it was seen that there was a mass within. This was the base of the appendix inverted into the cecum. The piece of cecum cut out around the appendix formed a collar, distal to which was a large inflamed appendix invaginated into the inverted cecum, and proximally to which was a large, black, almost gangrenous inversion of the base of the appendix into the cecum. The appendix did not lie loosely as in a bag, but both the invaginated and inverted portions were tightly grasped. The mesentery of the appendix was very narrow and not badly damaged. The cecum and ascending colon had a very long mesentery and were very movable.

62. **Intestinal Perforation in Typhoid Fever.**—In Bagley's series of seven cases, three patients died without surgical interference. The remaining four were operated on, with but one death, giving a recovery rate of 75 per cent. in patients operated on.

64. Abstracted in THE JOURNAL, June 11, 1910, p. 1994.

65. **Malignant Rhabdomyoma of the Vagina.**—A tumor is occasionally encountered in the vagina in female infants, characterized by rapid growth and the development of polypoidal masses projecting into the lumen of the vagina. Histologically this tumor is found to be composed of embryonic striped muscle tissue; hence, it is a rhabdomyoma. Growth is by expansion and the neoplasm does not metastasize; as a result the author believes that complete removal

locally ought to result in cure, although only two such cases are now on record. He reports one fatal case.

66. Surgery of the Pelvic Organs.—Clark and Norris consider that it is advisable that almost all patients with inflammatory pelvic conditions be subjected to a course of preliminary treatment before operation. By this method, some patients will escape operation entirely while the others can be operated on more easily, more quickly, and with less mortality. A greater number will also be found suitable for conservative operation. If possible from 4 to 6 weeks of normal temperature and blood counts should precede each operation. If pus be present which can be easily reached without traversing the peritoneal cavity it should be evacuated at once. The end-results of salpingostomies are disappointing. Pregnancy rarely takes place, as the newly formed ostia quickly become occluded and cause a recurrence of symptoms. Conservation of a grossly normal tube in the presence of diseased appendages on the opposite side offers good results, especially if a course of preliminary treatment has been followed out prior to operation.

Conservatism of macroscopically diseased tubes is unsatisfactory. Conservative ovarian surgery offers excellent results, provided that the ovarian circulation be not impaired and that the organ be left in good position. In selected cases, ovarian resection offers excellent results. A small amount of ovarian tissue left behind will usually avert the sudden onset of the menopause. When it is found necessary to remove both ovaries a hysterectomy should also be performed. Such uteri are useless and often cause subsequent trouble. If it is necessary to remove the uterus, and one or both ovaries can be spared, their preservation will prevent the unpleasant symptoms of the artificial menopause. For although menstruation will cease, the neuroses, which are the worst symptoms of the menopause, will be absent. In cases of uterine myomata, hysteromyectomy is the operation of choice in the majority of cases. Whenever performing this operation on menstruating women both ovaries should, if possible, be spared. By performing a hysteromyectomy and leaving one or both ovaries, the severe symptoms of the artificial menopause will be averted. Myomectomy is the operation of choice for young women. Its chief advantage over hysteromyectomy is that the possibility of pregnancy is preserved. Its relative danger as compared with hysterectomy depends on the individual case.

69. Operations on the Liver.—Frank's original article on this subject was published in THE JOURNAL, Aug. 12, 1905, p. 446.

Proctologist, St. Louis

September

- 72 *Undergraduate Proctology. D. H. Murray, Syracuse, N. Y.
- 73 Proctologic Literature from March, 1909, to March, 1910. S. T. Earle, Baltimore.
- 74 *Malformations of the Anus and Rectum. A. B. Graham, Indianapolis.
- 75 *Quinin and Urea Hydrochlorid as a Local Anesthetic in Anorectal Surgery. L. J. Hirschman, Detroit.
- 76 *Atony of the Rectum. W. M. Beach, Pittsburg, Pa.
- 77 *Villous Tumor of the Rectum. T. C. Hill, Boston.
- 78 *Significance of Rectal Hemorrhage. L. J. Krouse, Cincinnati.
- 79 *Anorectal Affections of Infancy and Childhood. A. J. Zobel, San Francisco.
- 80 Treatment of Rectal Fistula. J. R. Pennington, Chicago.
- 81 *Tuberculin Reaction in Perirectal Infection. C. F. Martin, Philadelphia.
- 82 *Lane's Conception of Chronic Constipation and Its Management. A. B. Cooke, Nashville, Tenn.
- 83 Laceration of the Sphincter Ani. A. B. Cooke, Nashville, Tenn.
- 84 Multiple Adenomata. G. W. Combs, Indianapolis.
- 85 Pathology of Multiple Adenomata of the Rectum. J. M. Lynch, New York.
- 86 *Skin Manifestations of Ameblasis. J. L. Jelks, Memphis, Tenn.
- 87 *Incontinence Following Rectal Operations. G. B. Evans, Dayton, O.
- 88 *Irritable Ulcer of the Rectum in Pregnant Women and the Part it Plays as a Factor in Abortion. L. Straus, St. Louis.
- 89 Localized Dermatitis Following the Use of Quinin and Urea as a Local Anesthetic. A. Hebb, Baltimore.
- 90 Review of the History of the American Proctologic Society From its Organization in 1899 to date. L. H. Adler, Philadelphia.
- 91 Cecostomy and Appendicostomy. S. G. Gant, New York.
- 92 *A Case of Postoperative Delirium. S. T. Earle, Baltimore.
- 93 *Appendicostomy: A Consideration of the Preservation of the Blood Supply of the Appendix in the Technic of the Operation. F. C. Yeomans, New York.
- 94 Fibrosis of the Rectum. J. A. MacMillan, Detroit.

72, 74, 76, 77, 78, 79, 81, 82, 87, 88, 92 and 93.—Abstracted in THE JOURNAL, July 30, 1910, pp. 430, 431 and 432.

75. Published in the *Lancet-Clinic*, July 9, 1910.

86. Published in the *Journal of the Tennessee State Medical Association*, July, 1910.

University of Pennsylvania Medical Bulletin, Philadelphia

October

- 95 *Treatment of Leg Ulcers. B. A. Thomas, Philadelphia.
- 96 Treatment of Various Skin Lesions with Carbon-Dioxid Snow. F. Prime, Philadelphia.
- 97 Fractures of the Metacarpal Bones. J. Speese, Philadelphia.
- 98 *Mixed Tumors of the Kidneys. D. B. Pfeiffer, Philadelphia.
- 99 The Medical Side of Benjamin Franklin. W. Pepper, Philadelphia.

95. Treatment of Leg Ulcers.—From an experience of several years in hospital out-patient services, Thomas is convinced that the gelatin-glycerin-zinc-oxid paste dressing is infinitely superior to any other known form of treatment for the cure of leg ulcer. The paste is prepared in the following manner: Two parts of the purest gelatin are dissolved by means of a hot-water bath in 5 parts of water. While the mixture is still hot, 5 parts of glycerin and 2 parts of powdered white oxid of zinc are energetically stirred in until the whole is cool. At room temperature the paste assumes the consistency of ordinary table gelatin or soft rubber. It may be preserved from time to time in this state. Just prior to its application the paste is liquefied in a hot-water bath; then cooled sufficiently that it will not injure the skin. In the meantime the leg and foot of the patient are thoroughly cleansed with water and soap (preferably tincture of green soap), alcohol, bichlorid of mercury 1 to 2,000 to 1 to 4,000, or a solution of carbolic acid 1 to 100. The ulcer is likewise disinfected with peroxid of hydrogen and a solution of bichlorid or carbolic acid. The surface must then be thoroughly dried before the paste is applied. The paste is then made to cover the entire surface from the metatarsophalangeal articulations to the tubercle of the tibia. A layer of gauze is then applied, most satisfactorily from a 3-inch roller cut at intervals to avoid excessive overlapping and wrinkles. This is supplemented by another layer of paste, then a second thickness of gauze, until three or four layers of the bandage have been applied, finishing with the gelatin-glycerin-zinc-oxid paste mixture. Inasmuch as the paste is rather gummy or sticky, making it disagreeable to the fastidious patient, Thomas has been in the habit of applying a coating of shellac, as soon as the dressing has solidified. The application of a very thin layer of non-absorbent cotton, talcum powder or bandage, temporarily, will answer the same purpose.

In not a few cases this dressing may be allowed to remain *in situ* for from 2 to 8 weeks, and when removed the ulcer will be found to have healed. The safer procedure to adopt, however, is to have the patient report again in 2 days. If in that time there is evidence of suppuration or discharge at the ulcer site, manifested by a saturation of the overlying dressing, as is frequently the case, the dressing must be fenestrated, the ulcer cleansed, and a dry dusting powder, such as salicylic and boric acid, talcum, bismuth oxyiodid, methylene digallate, or thymolis iodidum, supplemented by a simple gauze dressing, applied. In such a case it is essential that the patient return two or three times weekly for renewal of the gauze dressing. Should the paste dressing become loose, by virtue of the subsidence of the swelling of the leg, it must be removed and a fresh one applied. Thomas has never found it necessary to scarify, curette, or excise the bed or edges of a so-called indolent ulcer, nor to apply any stimulant or cauterant of any description in order to effect healing.

98. Mixed Tumors of the Kidney.—Pfeiffer reports two cases of mixed tumor, one (rhabdomyoma) springing from the kidney itself, the other (embryoma) in immediate relation to it. He reviews the literature on the subject, analyzing seventy-eight cases.

Annals of Ophthalmology, St. Louis

October

- 100 Congenital Pigmentation of the Cornea. T. B. Holloway, Philadelphia.
- 101 Acute Glaucoma Treated with Subconjunctival Injections of Sodium Citrate. I. M. Heller, New York City.
- 102 Traumatic Enophthalmos. A. C. Sautter, Philadelphia.

- 103 Bitemporal Hemianopsia with an Unusual Clinical History. W. Zentmayer, Philadelphia.
104 Medical Advertising in Remote Times. S. H. Brown, Philadelphia.

New Orleans Medical and Surgical Journal

October

- 105 Early Recognition and Treatment of Tuberculosis. J. Kilbourne, Ethel, La.
106 *The Family Physician in Relation to the Specialist. T. S. Jahney, New Orleans.
107 Examination of the Female Genital Organs. P. B. Salatieh, New Orleans.
108 Distribution of Uncinariasis in Louisiana. A. Eustis, Abbeville, La.
109 Symptoms and Diagnosis of Uncinariasis. C. C. Bass, New Orleans.
110 Ancylostomiasis. A. Delcourt, Houma, La.
111 Treatment of Uncinariasis. W. E. Sistrunk, Lake Charles, La.
112 Relation of Corn Products to Pellagra. J. N. Thomas, Pineville, La.

106. Published also in *New Mexico Medical Journal*, October, 1910.

Archives of Pediatrics, New York

October

- 113 Factors in the Conservation of Child Life. H. L. Coit, Newark, N. J.
114 *Pediatrics and Otiatrics. E. Grueuing, New York City.
115 *Temperature Changes in Infants as an Indication for the Mastoid Operation. F. Whiting, New York City.
116 Management of Poliomyelitis and its Sequelae. H. L. Taylor, New York.
117 *Acute Pericarditis in Children. D. Bovard, Jr., New York.
118 Psychasthenia in a Child Aged Two Years, Due to Drinking Coffee. T. A. Williams, Washington, D. C.

114. Published also in the *Laryngoscope*, August, 1910, p. 801.

115. **Indication for the Mastoid Operation.**—Although Whiting does not advocate delay in operating for mastoiditis in children after convincing signs of the disease have manifested themselves at the fundus of the ear, he deprecates the attitude of the surgeon who with injudicious haste proceeds to operation simply because high temperature is present and it cannot be demonstrated that mastoiditis does not exist. He says that to operate for mastoiditis in infants on temperature manifestations supported only by blood-counts and without corroborative evidence in the form of inflammatory changes at the fundus of the ear displays not only a lack of conservation but a selfish disregard for the welfare of the patient.

117. Abstracted in THE JOURNAL, June 11, 1910, p. 1998.

Memphis Medical Monthly

September

- 119 Diagnosis of Typhoid. W. Krauss, Memphis.
120 Treatment of Typhoid, with Special Reference to Diet. W. T. Pride, Memphis.
121 Plea for the Education of the Public to the Seriousness of Gonorrhoea. G. R. Livermore, Memphis.
122 Acute Inflammatory Rheumatism. D. A. Walker, Trenton, Tenn.
123 Bisection of the Uterus. F. D. Smythe, Memphis.

Therapeutic Gazette, Philadelphia

October 15

- 124 Treatment of Ocular Tuberculosis and of Corneal Infections with Vaccines or Bacterins. G. E. de Schweinitz, Philadelphia.
125 *A Fatal Case of Postpartum Hemorrhage of Obscure Origin. W. H. Wells, Philadelphia.
126 Clinical Importance of Occult Blood in the Separate Urines Obtained by Ureteral Catheterization. T. C. Stellwagen, Philadelphia.
127 Etiology and Rational Treatment of Chronic Constipation. B. Kohn, Philadelphia.

125. **Postpartum Hemorrhage.**—The patient whose history is under consideration went into labor Dec. 16, 1907—11 days after her calculated date. It was a case of breech presentation. The breech entered the pelvic inlet with the greatest ease, the membranes being as yet unruptured. The only peculiarity noticed about her during her labor was that she seemed to be abnormally drowsy. There was no enlargement of the thyroid. The body of the child came down easily and was born without the slightest difficulty, but for some reason, probably from the rapidity with which the body was born, the head did not flex very well. There was some slight difficulty in delivering the after-coming head, although not very much. The child, which was a large female, weighing about 9 pounds, was living and in good condition. Following the expulsion of the placenta—which occurred soon after the

birth of the child—there was a rather sharp postpartum hemorrhage. This Wells controlled by the administration of ergot, an intrauterine douche of a gallon of a 2 per cent. lysol solution and packing with gauze. The delivery of the child occurred at 1:30 p. m.

About 3 p. m. the patient was becoming pale and the uterus was rapidly relaxing. Wells removed the packing and this was followed by a tremendous flow of blood. The blood was unusually dark in color, and did not clot at all. It seemed to be absolutely deficient in clotting power. Notwithstanding the fact that every method usually employed to combat postpartum hemorrhage was used, the patient died about 5 o'clock. During all the efforts in the patient's behalf the uterus could not be made to contract at all. If it was compressed by the hand in one portion it simply relaxed in another. The only method of treatment not employed was the ligation of the uterine and ovarian arteries, and for that there was no time because the hemorrhage occurred so rapidly that by the time the usual methods had been used the patient was too far gone to admit of operation, either through the abdominal or vaginal route. Wells examined the patient after delivery most carefully for lacerations, and there were none either in the perineum, vagina, cervix, or body of the uterus. Indeed, there would have been no cause for laceration, as the external parts had been well dilated by a previous delivery and the birth canal was so large that the child came down with the greatest ease, the only trouble being a slight extension of the head, which was easily corrected.

Chicago Medical Recorder

October 15

- 128 Rectal Feeding. C. J. Drueck, Chicago.
129 Duties of the Individual Physician in Extinguishing Typhoid. W. F. Waugh, Chicago.

American Journal of Urology, New York

October

- 130 Embryoma of the Kidney with Interesting Features: Fibrinuria; and Disappearance of Vesical Tumor. G. C. Crandall and B. Lewis, St. Louis.
131 Postoperative Treatment in Perineal Prostatectomy. W. N. Wishard, Indianapolis.
132 Urologic Atrocities. V. G. Veckl, San Francisco.
133 Urethral and Peri-Urethral Complications of Gonorrhoea and Their Sequelae. J. F. McCarthy, New York City.
134 A Perineal Belt for Retention of Dressings *in Situ*. G. S. Peterkin, Seattle, Wash.

Ophthalmology, Seattle, Wash.

October

- 135 Recurrent Tuberculous Chorioiditis. C. Koller, New York.
136 Sarcoma of the Optic Disc. G. D. Murray, Scranton, Pa.
137 Diagnosis of Subretinal Mass. R. L. Randolph, Baltimore.
138 Congenital Dislocation of the Lacrimal Gland. L. W. Jones, Rochester, N. Y.
139 Orbital Edema, with Proptosis, Resulting from Autointoxication. H. M. Becker, Sunbury, Pa.
140 Prism Tests with Presentation of a Series of Prisms Arranged on a Circular Disc. L. Howe, Buffalo, N. Y.
141 *The Art of Writing Without the Use of Eyes. J. N. Rhoads, Philadelphia.
142 Ocular Asymmetry of the Formosan Savage. C. A. Oliver, Philadelphia.
143 Eye Affections of the Negro, as Compared with the White Man. J. L. Minor, Memphis, Tenn.
144 Vision and the Menopause. F. A. Kiehle, Portland, Ore.
145 Ocular Signs Frequently Associated with Vasomotor Disturbances. H. F. Hansell, Philadelphia.
146 Three Hundred and Forty-Eight Cases of Injury to the Eyes. G. C. Hall, Louisville.

141. **Writing Without the Use of Eyes.**—Rhoads uses a device which enables him to write without the use of his eyes. The writing device is 10 inches wide and 8 inches long. It has two rollers, one in each end, and on them a long sheet of paper is rolled which is 15 to 20 feet long and 9 inches wide. The paper is fast, of course, to both rollers, but on the start is nearly all wound on the back roller, so that the paper may be rolled on the front roller line by line as it is written. Common screw eyes are screwed into one end of each roller, and are used to roll or unroll the paper. A slot $\frac{1}{4}$ by 1 inch runs across the box, and is the platform on which the writing is done, and over which the paper slips. A wire runs across the front of the lid or hand-rest and guides the pencil in the dark. The lid is hinged to facilitate changing the paper or for copying on the typewriter. To the underside of the lid is attached a loop in which is kept a pencil so that the machine is always ready. By using a

short pencil with this device Rhoads is able to write while lying flat on his back in bed with everything completely under the bed clothing, and therefore, is not at the mercy of a cold room when he wants to write. He has made for his own use a small pocket scroll on the same plan, which he uses in the cars. It may be used while it is still in the pocket when no eye strain can occur, or it can be used on the knee, with or without the use of the eyes. Besides stopping the deterioration of eyes, this machine will be a benefit to those who have become blind late in life, and who have not the opportunity to learn to write on a blind-man's typewriter. Rhoads suggests that high myopes, very high hyperopes, nicotin and alcoholic degenerates, and in fact all amblyopes, could be taught to attend to their business and be more useful by learning the art of writing without the use of the eyes.

Gulf States Journal of Medicine and Surgery, Mobile, Ala.

October

- 147 Prevention and Treatment of Postoperative Shock. C. A. Poellnitz, Greensboro, Ala.
- 148 Physicians and Their Business Methods. O. Dowling, Shreveport, La.
- 149 Aerophagia Nervosa. J. A. Storek, New Orleans.
- 150 Principal Causes of Death in Manila During 1909. I. W. Brewer, U. S. Army.
- 151 New Plan of Treatment for Delirium Tremens. G. E. Pettet, Memphis, Tenn.
- 152 Diseases of the Responsible. J. R. Oswalt, Pensacola, Fla.
- 153 Neglected Things in the Child's Development. M. McEl, Hull, Atlanta, Ga.

Journal of Ophthalmology and Oto-Laryngology, Chicago

October

- 154 Choice of a Cataract Operation. W. A. Fischer, Chicago.
- 155 Surgery of the Middle Turbinate Body. A. H. Andrews, Chicago.

Virginia Medical Semi-Monthly, Richmond

October 21

- 156 Tuberculosis and Pregnancy. L. M. Allen, Winchester.
- 157 Value of Animal Experimentation with Reference to Operative Technic. C. C. Coleman, Richmond.
- 158 Mechanism of Speech and Some Speech Defects. E. B. McCready, Pittsburg, Pa.
- 159 A Brief Home-Office View of Life-Insurance Examinations. J. W. Carroll, Lynchburg, Va.
- 160 Amebiasis Without Dysentery. A. G. Brown, Richmond.

Kentucky Medical Journal, Bowling Green

October 1

- 161 Pharmacologic Consideration of Suprarenal Gland. V. E. Simpson, Louisville.
- 162 Occipito-Posterior Presentations. E. Speidel, Louisville.
- 163 Treatment of Gastric Ulcer. J. A. Sweeney, Louisville.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

Oct. 15

- 1 *Education of the Medical Student. H. Marsh
- 2 *Acute Arthritis of Doubtful Origin. H. D. Rolleston.
- 3 Experiment and Observation in Medicine. J. A. Codd.
- 4 *Fever Caused by the Bite of the Sandfly. T. G. Wakeling.
- 5 Skiagrams of Multiple Renal Calculi and of Fractures Due to Muscular Violence. O. L. Rhys.
- 6 Diagnosis and Treatment of Non-Tuberculous Joint Diseases in Children. J. A. Coultts and E. M. Corner.
- 7 Conservative Treatment of Tuberculous Cripples. H. J. Gauvain.
- 8 Spinal Caries and Hip Disease. W. B. Parsons.
- 9 Infections of the Urinary Tract by *B. Coli* in Infancy and Childhood. C. R. Box, J. Pardee and J. P. Parkinson.
- 10 *Combined Quinin and Hydropathic Treatment of Whooping-Cough. T. Zangger.
- 11 Early Diagnosis of Tuberculous Bronchial Adenopathy in the Child. A. D'Espine.
- 12 Acute Attack of Acetonemia in a Young Child. J. McCaw.
- 13 *Human Milk and Breast Feeding. O. M. Elgood.
- 14 Lesions of the Isolated Appendix in the Hæmal Sac. H. T. Gray.
- 15 Banana Flour as a Food for Infants. E. Pritchard.
- 16 Radical Treatment of Tuberculosis of the Tarsus and Ankle-Joint. J. K. Murphy.
- 17 The Pharyngeal Tonsil. J. Symington.
- 18 Early Development of the Eustachian Tube and Naso-Pharynx. J. E. Frazer.
- 19 Size of the Antrum and Position of the Permanent Teeth. A. C. Geddes.
- 20 *Six Abnormalities from the Dissecting Room. A. C. Geddes.
- 21 Anatomy of the Trigonum Vesicæ. W. Wright and T. C. Benians.
- 22 Emanuel Swedenborg as an Anatomist. M. Raastrom.
- 23 An Anencephalic Fetus, with a Meningocele and Facial Cleft. R. J. Gladstone.

- 24 Muscle of Treitz and the Plica Duodeno-Tejmoalis. P. T. Crymble.
- 25 A Cyclops and Agnathous Lamb. R. J. Gladstone.
- 26 Congenital Absence of the Transverse Mesocolon. N. C. Rutherford.
- 27 Recent Researches on the Anatomy of the Bird's Heart. I. McKenzie and J. I. Robertson.

1. See Abstract 28.

2. **Acute Arthritis of Doubtful Origin.**—Rolleston cites cases to show that acute arthritis may be a manifestation of various diseases; but while some fevers are so constantly characterized by obvious cutaneous changes as to be grouped together as exanthemata, the occurrence of arthritic changes are less constant in well-recognized diseases. He does not know if it has ever been suggested from a teleologic point of view that the object of cutaneous rashes is to give warning that the individual is infectious; but the same spirit of final causes might urge that the reason why certain diseases, such as acute rheumatism and in some instances scarlet fever, affect the joints is that, by limiting movement, rest for the heart may be ensured. Teleologic explanations though attractive are dangerous, and this one will not stand much criticism. The other point on which Rolleston insists, is that a weakness in resistance on the part of the joints, whether inherited or acquired, may determine inflammation in the joints in certain persons when attacked by an infection or disease which in ordinary persons is not characterized by arthritic manifestations. This probably accounts for the rare form of arthritis exceptionally seen in hemiplegia and paraplegia.

4. **Sandfly Fever.**—Wakeling describes a non-fatal, 3-days' fever, with a week's convalescence and certain sequelæ, due to the bite of the *Phlebotomus papatasi*. It is known to exist in Egypt, part of Austria, Malta, and in Italy; and, he thinks, it will probably be found widely distributed. The symptoms are local and general. The bite is followed by intense itching and irritation of the part, which persists, and which is followed by the formation of a raised lump with a small watery head, and with a surrounding zone of inflammation. As the flies bite at night, sleep may be prevented for some hours. The illness begins with a feeling of tiredness, loss of appetite, malaise, headache, aching in limbs, chilliness, and disinclination to do things; rigors are uncommon; vomiting sometimes occurs. The temperature rises sharply to 101 or 104 F. (less in recurrent attacks). There is a disordered digestion, furred tongue; constipation is marked, occasionally there may be diarrhea; the hands and feet are hot, the pulse is bounding and increased in rapidity. Blood-pressure is probably raised from the beginning. Later there is well-marked anemia and rapid loss of weight. There is a tendency to inflammation of synovial and pleural cavities, and to neuritis and headache. The micro-organism is probably not got rid of easily, and months after an attack, chill or exposure to wet may bring on another attack of fever, accompanied by effusion into synovial or pleural cavities, or by neuritis. Wakeling has failed to find any organism in the blood. Newcomers are more affected by the bite of these insects, both immediately and more remotely, than old residents.

10. **Treatment of Whooping-Cough.**—To combat the infective factor in whooping-cough Zangger has returned to the old quinin treatment advocated by Ruiz in 1868. He uses quinin in the form of a 1 to 2 per cent. solution of quinin hydrochlorate in doses of 2½ fluid drams, administered at 8 a. m., 2 p. m., and 6 p. m., in severe cases, also at 11 a. m. The 1 per cent. solution can easily be administered, diluted with milk or water, to children under 1 year of age. To influence the neurotic element of the disease, Zangger gives simple hydropathic packs. The convulsive stage of whooping-cough is shortened to 10 to 20 days in medium and severe cases. The number of attacks in 24 hours rarely exceeds 20, and is rapidly reduced to 16, 12, 10, 8, etc. The intensity of the separate attacks diminishes at the same time, as does also the disposition to vomit. He continues the quinin treatment in half doses for several weeks after the cessation of the convulsive stages in order to avoid relapses and also as a general tonic. The patients were almost without exception then greatly improved in their general health. Of course, hygienic factors received all possible attention.

13. **Human Milk and Breast Feeding.**—The chief points elucidated by Elgood in her practical examinations are the following: The constituent of human milk most important to the healthy growth of the child is the fat. To maintain the healthy growth the percentage of fat content in the milk must be kept at a constant level and not be allowed to fluctuate. Therefore, in any given case the examinations must be made frequently to ensure that this constancy is present. To maintain both the necessary constancy of fat percentage, and a good quantity of milk in the breast, the nursing mother must be fed regularly. Lastly—a point of physiologic interest—the variations of fat are not dependent on increasing concentrations of the milk as lactation proceeds, but are actual variations in the secretion dependent on some accidental and temporary variation in the physical condition of the mother.

20. **Six Abnormalities.**—The abnormalities seen by Geddes were:

1. **Clavicles with epiphyses at their acromial ends:** Both of these had epiphyseal plates not only at their sternal but also at their acromial ends. The epiphyseal plate at the acromial end of the right clavicle was a right-angled triangular plate of bone, which was placed with its base superiorly and the right angle at the anterior end of the base. It was 9 mm. in anteroposterior length, 7 mm. in vertical height, and 15 mm. in thickness at its superior border. The corresponding epiphysis of the left clavicle was oval in shape. Its long axis measured 8 mm., its short 4 mm., and it was slightly over 1 mm. in thickness.

2. **A case of third occipital condyle of unusual form:** On the basi-occipital just to the left of the mesial plane there was a third occipital condyle. It was separated from the normal left condyle by a distinct interval of 3.5 mm. in breadth. Its transverse diameter was 7.5 mm., its anteroposterior not less than 6 mm. The inferior surface was smooth and articular. The structure that articulated with this condyle was a small pyramidal bone 9 mm. in height by 7 mm. broad. This little pyramid lay base up and apex down. To its apex was attached the suspensory ligament of the odontoid process (lig. apicis dentis). The presence of the small mass of bone had caused some slight distortion of the anterior arch of the atlas.

3. **A case of bicipital rib of unusual form:** All the ribs and cartilages on the left side were normal, as were the first to third and sixth to twelfth on the right side. The fourth right rib was normal in its cartilage and shaft, but from the neck midway between the tubercle and head a descending branch was given off at right angles. This descended vertically, and articulated with an abnormal bracket-like process, which projected forward from the neck of the fifth rib. Through the foramen enclosed by the abnormal process and the body of the fourth dorsal vertebra both rami communicantes, a small branch of the intercostal artery, and some veins passed.

4. **A case of os tibiale from the right tarsus.**

5. **The position of the bronchus of supply to Wrisberg's lobe:** This lay immediately subjacent to the pleura forming the floor of the groove for the vena azygos major, to which level it descended about $\frac{1}{4}$ inch from its point of origin as an internal branch of the bronchus of supply to the apex of the lung.

6. **The significance of the vasa aberrantia superior and inferior:** The superior vas aberrans arose, as usual, from the right superior intercostal, the inferior from the aorta by a short stem common to it and the intercostal artery of the third left intercostal space.

Lancet, London

Oct. 15

28 *Education of the Medical Student. F. H. Marsh.

29 Industrial Tuberculosis. T. D. Lister.

30 Mineral Waters as Artificial Serums. C. Fiedg.

31 *Ulcerating Granuloma of the Pudenda a Protozoal Disease. R. M. Carter.

32 *Tumor of the Hypophysis Cerebri. W. Boyd.

33 Carcinoma of the Cecum Removed After a Preliminary Evacuation of a Pecal Abscess and an Heesigmoidostomy. J. D. Malcolm

- 34 Treatment of a Uterine Fibroid by Roentgen Rays. A. F. Savill.
35 Uremia with Facial Paralysis and Intestinal Ulceration. G. Parker.

28. **Education of the Medical Student.**—Marsh advocates the appointment of a ward tutor. This appointment has already been made in some British hospitals. The ward tutor is a junior teacher. He has a class limited to ten. These he instructs in a suitable number of cases, in note-taking, surgical anatomy, symptoms, methods of examination, special appliances, and so forth. His aim is to be thorough, and to work out the case he selects with deliberation and completeness. Such work as this would not only interest but educate a man, while there can be no doubt it would be valued highly by every intelligent student. The work of the tutor when properly and loyally performed would not interfere with cases in which the visiting surgeon was interested, or with his authority. Such cases as he desired would be left entirely alone. The tutor would take only cases in which the surgeon, for teaching purposes, did not concern himself; nor would this be any drawback, for the simplest cases, after all, are the most suitable for the instruction of beginners.

31. **Ulcerating Granuloma of the Pudenda.**—Ulcerating granuloma of the pudenda, Carter claims, is not a venereal disease, though, as a rule, the genitals and contiguous parts are the seat of infection. It is contagious and is auto-inoculated by the host on other parts of the body. The disease has been seen on the surface of the cheek, the buttock, etc. It is usually seen in adults, and race plays no essential part in its etiology. The distribution of the disease is extensive: British Guiana, the South Pacific Islands, Northern Australia and New Guinea have given typical examples. It occurs in India perhaps more frequently than in other countries. According to former histologic researches this disease has up to date always been classified among the infectious granulomatous tumors. However, if sections are stained as described by Carter, he says it will be found that the disease is due to a protozoal infection.

Thin sections fixed to a slide are stained in a solution of Giemsa stain diluted 12 drops to 10 c.c. of distilled water. After this stain has acted for 20 minutes each section is washed in tap water for about 30 seconds, then dipped in eosin solution, 1 in 50,000, for 45 seconds, dehydrated, and brought up through xylol into Canada balsam. The second method is to stain a fixed section with a saturated solution of eosin in alcohol (95 per cent.) for 5 minutes; the solution must be 3 months old. The stained section is then washed in distilled water, and counter-stained with watery methylene blue, 1 to 1,000, until the nuclei are stained deep blue. The slide is then washed in absolute alcohol for a few seconds and taken up through xylol into Canada balsam. The first thing that strikes the eye will be that in certain areas lie masses of very large mononuclear cells, their cytoplasm distended with from fifteen to fifty bean-shaped bodies resembling the gregariniform stage of a herpetomonas or erithidium. On using the higher powers of the microscope these bean-shaped parasites are seen to contain the usual cytologic elements. The parasite, though slightly smaller than that seen in sections of Oriental sore, is very similar. Carter considers that the parasite of ulcerating granuloma is of the same class, and will be found similarly to develop monadine and gregariniform phases in suitable culture media. For the present he proposes, therefore, to consider ulcerating granuloma of the pudenda as due to a localized protozoal infection of man with either a herpetomonas or erithidium.

32. **Tumor of the Hypophysis Cerebri.**—The chief points of interest in Boyd's case were: (1) the long duration (8 years); (2) absence of wasting and of any symptoms of acromegaly; (3) the sudden termination; (4) the nasal discharge of cerebrospinal fluid; (5) the enormous amount of albumin and extraordinary lymphocytosis in the fluid from a case of non-syphilitic tumor; and (6) the remarkable destruction to the floor of the skull. The sella turcica had developed into a huge cavern 6.5 cm. long and 4 cm. wide. Opening out of it on either side was an oval aperture, than on the left side on investigation proving to communicate with the antrum

of Highmore of that side. Thus the discharge from the left nostril, observed during life, was in reality an escape of cerebrospinal fluid from the cranial cavity. The fossa had no bony floor, but merely a membranous partition separating it from the cavity of the pharynx. Microscopic examination of the tumor showed it to consist chiefly of large round and oval cells containing a large and distinct nucleus; there were numerous large thin-walled blood spaces, and here and there fibrous trabeculae running through the tissue; the whole bore a close resemblance to a mixed-celled sarcoma.

British Journal of Children's Diseases, London

October

- 36 *At What Age Should the Education of the Deaf Child Commence? M. Yearsley.
- 37 *Idiopathic Acidosis in Children. J. G. Sharp.
- 38 Treatment of Congenital Syphilis with Ehrlich's "606." J. E. R. McDonagh.
- 39 Third International Congress on School Hygiene. M. D. Eder.

36. **Education of the Deaf Child.**—Briefly, Yearsley holds that the oral education of the deaf child should commence at the age of 3 years.

37. **Idiopathic Acidosis in Children.**—Three types of cases are cited by Sharp:

Mild case: A boy, aged 6, is somewhat suddenly seized with sickness and vomiting of small quantities of white-of-egg-like substance, thirst, slight headache, and drowsiness. The bowels are not unduly constipated. Very little urine is passed. There is the characteristic sweet odor of the breath. The urine is acid, contains neither albumin nor sugar, but gives the reaction for acetone. He has no desire for food, but craves for cold water and soda-water. These are given freely, and a magnesium and sodium carbonate mixture is prescribed. In 24 hours he is better, vomiting is less frequent, and the drowsiness is not so pronounced. In 48 hours after being first seen he is on the way toward convalescence.

Severe case: Girl, aged 4½. When she was 2, or a little over, she had her first attack, and from that time until now she has had something like four seizures, or rather less than two on the average yearly. All have been severe. In one attack she was semicomatose for 56 hours, only waking up at intervals to ask for a drink. At the end of one of these attacks, lasting, perhaps, only 3 days, the child was left with soft, flabby, wasted muscles, far in excess of that usually experienced in an illness of such short duration. From the age of 12 months she had suffered from severe urticaria without abdominal pain, but in none of the attacks of acidosis was there accompanying urticaria.

Fatal case: Girl, aged 7, who had previously been in good health. There was no tendency to any complaint. Child was vomiting everything ingested and had a sweet odor of the breath. The temperature was 99 F. in the axilla. The tongue was not particularly coated. There was some slight tenderness high up in the abdomen on pressure, but no muscular resistance. No swelling nor peristalsis suggestive of pus or obstruction was to be found. The mother said that the patient wished to lie quiet and not be bothered with anything. The urine contained acetone. Sharp ordered a simple mixture containing magnesium carbonate, sodium bicarbonate, and salines, and plenty of cold water freshly drawn. The patient died.

Australasian Medical Gazette, Sydney

September 20

- 40 Peritonitis and Its Treatment. W. Trethowan.
- 41 Dystocia Caused by Polycystic Disease of the Fetal Kidneys. R. Worrall.
- 42 Missed Labor, with Central Placenta Prævia. J. C. Windeyer.
- 43 *Medical Treatment of Exophthalmic Goiter. S. Gillies.
- 44 *Pathology and Surgical Treatment of Exophthalmic Goiter. W. J. S. McKay.
- 45 Exophthalmic Goiter. J. Flynn.
- 46 Ulcerative Endocarditis. H. Mayo.
- 47 Two Cases of Malignant Endocarditis. J. E. McGlashen.
- 48 A Case of Malignant Endocarditis. R. Magarey.
- 49 Id. P. Bollen.

43. **Medical Treatment of Exophthalmic Goiter.**—Gillies summarizes his views as follows:

1. The thyroid is an organ whose secretion is essential to life. Too free removal results in myxedema.
2. In the majority of slight and early cases of exophthalmic goiter the patients recover if treated promptly and rigidly. Cases with apparently acute onset are generally simply exacerbations of unrecognized mild cases.

3. The essentials of treatment are absolute rest and regulated diet.
4. Hydrotherapy and electricity are of use as adjuvants; so, too, are certain drugs.
5. While animal extracts and serums have so far been of doubtful value, they are worthy of further trial.
6. No case should be submitted to operation till it has had rigid medical treatment for at least 3 months.
7. Patients who show no signs of improvement after 3 months strict treatment should be offered operation. If improvement is occurring, wait.
8. Complete recovery cannot be expected in advanced cases, with badly damaged hearts, by either medical or surgical means.
9. Advance is to be sought along the line of discovery, and elimination of the cause of hypersecretion rather than by the ablation of part of an essential gland.

44. **Surgical Treatment of Exophthalmic Goiter.**—McKay is convinced that no case of this disease should ever be operated on until the patient has rested in bed, and has undergone a preliminary treatment extending over 2 weeks or more. During this period, the patient is allowed plenty of milk, butter, rice, meat, eggs and fish; but should not be given salt, except in small quantities, and all fluids, except milk, should be much reduced. McKay always gives his patient atropin (gr. 1-100) twice a day. The patient is not informed until the day before when she is to be operated on, and she should be given a hypodermic of morphin so as to insure sleep, and also an hour before the operation she should have another injection (gr. 1/8). He prefers general anesthesia using the drop method of open ether. McKay believes that the removal of half the gland in the mild cases, the tying of the opposite superior thyroid only in the more severe cases, and the removal of half of the other side of the gland in the most severe cases, in addition to the complete removal of one side of the gland, insures practically a cure in 75 per cent. of all cases. The patients who do not do well are those whose hearts have been ruined by the prolonged use of drugs. McKay has had three deaths in forty operations. The first patient died some 12 years ago, 3 days after the operation, from hyperthyroidism. The second patient died 2 years ago on the fourth day after the administration of 10 m. of adrenalin chlorid. The third patient died on the day of the operation from exhaustion.

Clinical Journal, London

October 12

- 50 Ocular Pain. P. Dunn.
- 51 Malignant Disease of the Testis. R. Howard.
- 52 Notes from a Foreign Spa. J. H. Barnard.

Medical Press and Circular, London

October 12

- 53 Eclampsia and the Principles of Treatment. H. O. Nicholson.
- 54 Acute Non-Suppurative Encephalitis in Children. N. P. Marsh.
- 55 *Senile Epilepsy. H. R. Hurter.

55. **Senile Epilepsy.**—Hurter draws attention to the association of periodic fits with the vascular changes and rising blood-pressure of later life, and connects gout with the etiology of senile epilepsy in men. He says that in so-called cardiovascular epilepsy, temporary cessation of the major circulation produces the fits, and that (conversely) in some cases of idiopathic epilepsy the fits are ushered in by a transient ebb in the general circulation. Some few people who have for years suffered from faints, begin to have their faints replaced by fits. It is interesting, he continues, in connection with the question of the relationship of syncope and epilepsy, to notice how frequent the fainting and other minor manifestations of vasomotor instability in the non-epileptic members of an epileptic family. This "vasomotor ataxia" is well illustrated in a family in which the second girl is a pronounced epileptic. Another girl, the eldest, has for many years suffered from so-called renal epistaxis, while the third sister is troubled with morbid blushing and frequent epistaxis. In Hurter's cases of epilepsy commencing in septuagenarians, gout and arterial degeneration, with the rise of blood-pressure of later life, seem to be important etiologic factors. He believes that gout may, of course, cause uremic convulsions, but indirectly through gouty renal disease. Similarly, he believes that gout may cause senile epilepsy through gouty arterial disease. The histories of two of his cases show that the fits dated from or from shortly after the first attack of acute gout.

Annales de Gynécologie et d'Obstétrique, Paris*September, XXXVII, No. 9, pp. 513-575*

- 56 Placenta Marginata. (Placenta Marginé.) C. Funck.
57 Origin of the Lutein Cells of the Corpus Luteum in the Cow. M. Delestre.
58 Pathologic Anatomy of Vaginal Cystocele. H. Violet and P. Bonnet.

Annales de l'Institut Pasteur, Paris*August, XXIV, No. 8, pp. 609-672*

- 59 Research on Anaphylaxis and Immunity. (Nouvelle expérience sur la crépitine et l'actino-congestine.) C. Richot.
60 Temperature Fatal to Plant Tyrosinase. G. Bertrand and Rosenblatt.
61 Transmission of Trypanosomes by the Glossian Species. G. Bouet and E. Roubaud.
62 Influence of Reaction of Media on Diastasic Oxidation of Melanin. H. Algulhon.

Annales des Maladies des Org. Génito-urinaires, Paris*September 1, XXVIII, No. 17, pp. 1537-1632*

- 63 Mode of Propagation of Tuberculosis of the Fallopian Tubes and Rectum to the Bladder. F. Cuturi.
64 Electrolysis in Treatment of Urethral Stricture. (L'ionisation dans les affections des voies urinaires.) D. Courtade.
65 *Inflammatory Stricture of the Prostatic Urethra. L. V. Girolamo.
September 15, No. 18, pp. 1633-1728
66 Catheterization of the Urethra and Intravesical Segregation of Urine. J. Heitz-Boyer, G. Luys and G. Marion.
67 Douche Massage of the Urethra. E. Jeanbrau.

65. Inflammatory Stricture of the Prostatic Urethra.—Girolamo states that the tissues here are so hard to dilate that treatment can be only by circular electrolysis. He has been uniformly successful with this method, as he describes in detail. The anterior urethra may have to be dilated as a preliminary to exploration of the stricture proper.

Archives des Maladies du Cœur, Etc., Paris*October, III, No. 10, pp. 577-640*

- 68 Pernicious Anemia in Girl of 11. L. Babonneix and G. Paiseau.
69 Mechanical Conditions in Development of Sclerosis and Atheroma of the Pulmonary Artery. L. Gironx.
70 *The Ultimate Outcome in Fifty-One Cases of Exophthalmic Goiter. (Sur la marche de la maladie de Basedow.) L. Syllaba.

70. The Ultimate Outcome of Exophthalmic Goiter.—Syllaba has traced to date the history of 51 patients with exophthalmic goiter, 1895-1907, all but one of whom were treated by medical measures. In 5 of the 17 patients who may be regarded as entirely cured, the affection commenced with a stormy onset. After a few weeks the gastrointestinal and psychic disturbances improved but the exophthalmic syndrome persisted unmodified for from several months to a year and then subsided entirely, with no recurrence to date from 3 to 12 years since. In another group of patients the exophthalmic goiter symptoms did not disappear completely but became much modified, the weight increased, the patients felt well and resumed their usual occupations, and have continued in this condition for from 3 to 15 years to the present time. Recurrence of severe exophthalmic goiter was observed in 5 patients last year, proving fatal in 1, and 7 others are developing a tendency to recurrence, while others have persisted in a condition of chronic illness. The recurrences developed after an interval of 3, 6 and 7 years, and have been known even after 6 or 9 years. In 3 of the total 51 cases he noticed an aggravation of symptoms and of the course of the disease under internal iodid medication. In 11 cases the disease progressed to a fatal termination; in 3 others the patients succumbed to arteriosclerosis, progressive paralysis or typhoid. In the chronic fatal cases the disease continued a progressive course for a period up to 10 years, but in the subacute cases with a duration of from 6 to 24 months, there were profound cachexia and irritability of the nervous system, sometimes amounting to loss of mental balance, and some patients presented vomiting and diarrhea and notable weakness of the heart. Removal of the thyroid in one case after 15 months of the disease did not ward off the fatal termination; it was preceded by tetany and recurrent paralysis. The symptoms indicate intense intoxication in the subacute cases; in the chronic cases the intoxication is less intense but it seems to affect particularly the heart and kidneys. Patients with exophthalmic goiter which does not promptly show a turn for the better, must be instructed to regulate their lives to spare the heart and kidneys as much as possible; special attention should be paid to

these organs in case of intercurrent disease. The experiences related confirm further the importance of watching over the nervous system and maintaining the psychic balance during convalescence and afterward to prevent recurrence. The iodids should be prescribed very cautiously.

Archives de Médecine des Enfants, Paris*October, XIII, No. 10, pp. 721-800*

- 71 *Infantile Scorbutus. J. Comby.
72 Symmetrical Nodular Osteoperiostitis of the Bones of the Skull in Tuberculous Infants. H. Triboulet and L. Ribadeau-Dumas.
73 *Tuberculin Treatment of Children. F. X. Gouraud.
74 Exercises and Apparatus in Treatment of Scoliosis. C. Roederer.

71. Infantile Scorbutus.—Comby has encountered only 15 cases of scorbutus in a dozen years of pediatric practice at Paris; the disease is comparatively rare in France.

73. Tuberculin Treatment of Children.—Gouraud concludes from his experience that tuberculin may render great service in treatment of tuberculous children but that the best results may be anticipated in the scrofulous, the children with enlarged glands, in those with inherited taint, and in those with tuberculosis of the bones or glands. He declares that tuberculin should be absolutely rejected when there is any involvement of the lung. The technic should be about the same as for adults except that the doses may be increased more rapidly; frequent intermissions are of advantage. The benefit is most apparent in the weight and general development; the local processes show the benefit more slowly.

Lyon Médical, Lyons*September 18, XLII, No. 38, pp. 441-480*

- 75 Patient with Severe Exophthalmic Goiter Cured by Serum of Thyroidectomized Sheep. Devic and C. Gardère. Commenced in No. 37.
October 2, No. 40, pp. 537-584
76 Value of Operative Treatment of Exophthalmic Goiter. A. Poncet.
77 The Koplik Spots in Measles. (Les taches jugo-labiales dans la rougeole.) M. Péhu and C. Rey. Commenced in No. 39.

Obstétrique, Paris*September, III, N. 8, No. 9, pp. 721-768*

- 78 Radium Treatment of Inoperable Cancer of the Cervix Uteri and Vagina. H. Chéron and H. Rubens-Duval.
79 Artificial Feeding of Infants Without Milk. (De l'alimentation non lactée chez le nourrisson.) E. Terrien.

Presse Médicale, Paris*October 12, XVIII, No. 82, pp. 761-768*

- 80 Case of Tuberculous Anemia and Hemolytic Jaundice. L. Landouzy.
81 Radiotherapy of Venereal Vegetations. M. Chicotot.

Revue de Gynécologie, Paris*September, XV, No. 3, pp. 193-303*

- 82 Two Cases of Axial Torsion of the Fibromatous Uterus. Vautrin.
83 Contusion and Traumatic Ruptures of the Duodenum. M. Gaibé.
84 Stone in the Ureter. (Deux cas de calculs de la portion lomboliquie de l'uretère.) R. Proust and Inffroit.

Revue de Médecine, Paris*September, XXX, No. 9, pp. 697-784*

- 85 *Treatment of Sciatica and Senile Hip-Joint Disease. K. Petren.
86 The Nervous System in Children with an Inherited Morbid Nervous Taint. G. G. Catola.
87 The Serodiagnosis of Tuberculosis and the Etiology of Mental Disease. A. Marle and P. Beaussart.
88 Inherited Syphilis and the Wassermann Reaction. II. Bertin and Gayet.
89 Pathologic Sleep. (L'hypersomnie.) A. Salmon.

85. Treatment of Sciatica and Senile Hip-Joint Disease.—Petren states that he has cured 37 patients out of 50 with sciatica in the last 5 years and the 13 others were materially improved. He denies the existence of chronic sciatica, although a chronic affection in the sciatic may develop secondarily. In many of the cases diagnosed as sciatica, the trouble is really senile hip-joint disease. The mistake is due in part to the frequent complication of the latter with sciatica. He treats sciatica by bed rest and heat, the salicylates internally and externally, and massage later. Massage is useful in acute and subacute cases but in very severe cases it may be well to wait for the influence of drugs before commencing. He has recently observed cases in which there was no painful point

along the sciatic nerve; the trouble is a myositis of the gluteus medius and pyramidalis, with compression of the nerve. Massage in this case may be restricted to the muscles involved. He makes it a principle to stretch the nerve in every case of sciatica. The patient lies on the back with the knee extended and the leg is raised until a slight pain is induced. This stretches the nerve, but Petren never carries the stretching far enough to induce much pain, stopping always with the slight painfulness. This stretching procedure is repeated every day at the time the massage is done. If the sciatica is very severe he does not stretch the nerve in this way until after massage has been applied for a few days. But the nerve can be stretched farther and farther each day without pain, and the other symptoms improve at the same time. Petren never applies revulsion as the results have been satisfactory without. The average duration of treatment in the cured cases was about a month. The same therapeutic principles, he says, give good results in senile hip-joint disease, and he cites cases from his practice to prove it. This affection should be suspected when the patient has suffered for some time from pains in the hip or leg even if the hip joint is fairly movable. The joint normally can be flexed to 130 degrees and this may still be possible when the hip affection has lasted for several years. Frequently the pain is more intense as the patient starts to walk and it improves afterward, the reverse of what is observed with sciatica, and certain movements alone are painful while every movement is liable to be painful with sciatica. The course is progressive but great improvement may be realized by passive exercise of the joint, the movements continued to distinct but transient pain; the aim should be to exercise as vigorously as can be done without causing persistent pain after the sitting. The joint should be flexed, rotated inward and outward, abducted and adducted in turn, avoiding only circumduction, that is, making the femur describe a cone. The aim with the exercises is to increase the movability of the joint; this improves the gait and reduces the painfulness.

Semaine Médicale, Paris

October 12, XXV, No. 41, pp. 481-492

90 *Tongue Pulse with Aortic Insufficiency. (Le pouls de la langue.) L. Minervini.

90. The Tongue Pulse with Aortic Insufficiency.—Minervini has never noted pulsation in the tongue with any form of valvular disease except aortic insufficiency but he has encountered it frequently with the latter. The patient sits with his head a little thrown back, the mouth open and the tongue resting on the floor of the mouth can be seen to jerk upward rhythmically and synchronously with the heart beat. The vigorous impulse from the heart in case of aortic defect sends an unusually strong wave into the lingual artery; it is powerful enough in some cases to lift at each beat a tongue depressor laid lightly on the tongue to arrest involuntary trembling or fibrillary movements. No other morbid condition seems to be able to produce this tongue pulse as none affects the peripheral circulation to such an extent as aortic insufficiency. At no other point, he says, is the effect so marked and unmistakable and so easily controlled as in the tongue. The intensity of the tongue pulse varies with changes in the arterial pressure. It is most pronounced naturally with considerable hypertrophy of the left ventricle, and it diminishes as the excessive sensibility of the vessels becomes reduced under the influence of heart tonics and diuretics.

Archiv für Kinderheilkunde, Stuttgart

LIV, Nos. 1-3, pp. 1-240. Last indexed Sept. 3, p. 893

- 91 Experimental Research on Tetany in Children. V. Pexa.
92 Earthy Alkalies in Blood of Dyspeptic Infants. (Erdalkaligehalt des Säuglingsblutes bei Ernährungsstörungen.) F. Proskauer.
93 Influence of Physiologic Salt Solution in Raising the Temperature and Inducing Edema. (Pyrogene und hydrophile Eigenschaften der physiologischen Salzlösung; Bedeutung und Behandlung der Exsiccation.) P. Heim and K. John.
94 Lime in Pathology of Rachitis. (Phosphorstoffwechsel bei Rachitis. IV.) J. A. Schabad.
95 *Contagiousness of Scarlet Fever. F. v. Szontagh.
96 Sepsis after Variella. O. Retzlaff.
97 Advantages of Institutional Care for Infants. (Erfolge der Anstaltspflege von gesunden und kranken Säuglingen.) T. Hoffa.

95. Contagiousness of Scarlet Fever.—It has been Szontagh's experience at Budapest that suppurative sore throat occurs in epidemic form much more commonly than the text-books recognize, and also that epidemics of suppurative tonsillitis frequently coincide with scarlet fever epidemics. The features of various epidemics of the latter have convinced him that the same germ or associated germs are responsible for both the angina and scarlet fever. Trousseau used to call tonsillitis "scarlatine fruste," and Szontagh exclaims that we have not made any progress in our knowledge of scarlet fever since his day. Szontagh is inclined to believe that the causal agents of scarlet fever are with us at all times and that infection from them depends on the predisposition. The conditions with scarlet fever are much like those with puerperal fever, he states, and the outlook for prophylaxis is not very encouraging. Scarlet fever may develop at isolated points without known contagion, but yet the number of cases may be large in the aggregate, while puerperal fever is comparatively rare, but the analogous features of these infectious render it improbable, he states, that this great danger that threatens children will ever be materially reduced by external means, much less entirely eradicated. The predisposition on the part of the organism and the enhancing of the virulence of the germs under certain special conditions are the decisive factors in scarlet fever infection.

Archiv für Verdauungs-Krankheiten, Berlin

October, XVI, No. 5, pp. 627-626

- 98 Double Carcinoma of the Gall-Bladder. E. Buchmann.
99 Dilatation of the Stomach and Chronic Benign Isochychymia. M. Einhorn.
100 Interpretation of Roentgen-Ray Gastric Findings. (Einige Streitfragen aus der Röntgenologie des Magens.) F. M. Groedel and B. Stiller.
101 Membranous Enteritis. E. v. Czychlarz.
102 *Gastric Hyperacidity and Ulcer Diets. (Ulenskuren und Diät bei Hyperaciditas ventriculi.) A. Schüle.

102. Diet in Gastric Ulcer.—Schüle discusses the special features of the Leube and Lenhartz methods of dieting for gastric ulcer, and describes various comparative tests. He found for example that 100 gm. of milk, of boiled rice, raw meat, casein or zwieback required respectively 125, 125, 440, 800 and 145 c.c. of one-tenth normal hydrochloric acid to render the Congo paper reaction negative, that is, to saturate all the affinities. This shows that the Leube diet requires no less and even a little more hydrochloric acid for its digestion than the Lenhartz diet. Lenhartz aimed to bind the free hydrochloric acid, but this is accomplished just as well or even better by the milk diet than by the meat-egg Lenhartz diet. The latter makes more demands on the secretory function so that the Leube diet spares the stomach better. Of the 40 patients weighed repeatedly during a Leube course of dieting for gastric ulcer only 12 lost weight and these lost only from 2 to 5 pounds, with a single exception; 7 patients regained their former weight, and 20 others increased in weight from nearly 5 to 10 pounds, demonstrating that the Leube diet cannot be regarded as insufficient nourishment.

Berliner klinische Wochenschrift

October 3, XLVII, No. 40, pp. 1813-1860

- 103 Pupil Disturbances in Dementia Præcox. E. Meyer.
104 *Nervous Anorexia and Other Disturbances in Young Children and Nervous Inability to Chew. (Ernährungsneurosen im frühen Kindesalter und nervöse Kauunfähigkeit der Kinder.) K. Hochsinger.
105 Importance of the v. Pirquet Tuberculin Reaction for Diagnosis and Prognosis of Tuberculosis in Infants. L. Cohn.
106 The Rise in Temperature in Syphilis after Mercurial Injection Not a Sign of Active Syphilis. G. Stimpke.
107 Injections of Metallic Mercury. P. Fürbringer.
108 Vaccine Treatment of Gonorrhœa. (Neuere Methoden der Gonorrhœobehandlung.) C. Schindler.
109 Route of Tuberculous Infection of the Lungs; Its Clinical and Therapeutic Importance. E. Aufrecht. Commenced in No. 39.
110 Sensitiveness of the Organism to Its Own Albuminoids. (Die Empfindlichkeit des Organismus gegen die körpereigenen Eiweisskörper; Homästhesie.) J. Sellof.
111 Action of Atoxyl on the Eye. K. Steindorff.
112 The Preliminary History of Ehrlich's "606." K. Alt and P. Ehrlich.

104. Neuroses in Children in Connection with Eating.—Hochsinger had opportunity to observe the development of the neurosis from the beginning in five cases. The mothers were

all hysterics and the environment was neuropathic. The children developed well during the first few months but were constantly overfed, the mother or nurse or both constantly urging the infant to eat, with the natural dyspeptic and dystrophic consequences and loss of appetite. The overfeeding resulted in actual distaste for all food. The nervous anorexia is particularly liable to develop when the child is weaned, a fixed psychic trauma being the consequence of the ill-judged methods of feeding. This psychic trauma is liable to leave traces for many years—persisting anorexia with a tendency to vomit readily and inability to chew solid food. The only help in such a condition, Hochsinger asserts, is to remove the child for a time from the home environment and allow food only when he is actually hungry. In one such case a boy of 7 vomited at every meal during the first week after a change of environment, although no one paid any attention to this habit and no one coaxed him to eat. He found it almost impossible to chew his food, having been fed constantly with soft foods hitherto, and he did not learn to chew properly for 2 months. He is still a nervous dystrophic child, lazy about chewing and a poor eater. The main point emphasized is the necessity for preventing the development of these neuroses. With the children of neuropathic parents special stress must be laid on the necessity of proper intervals between feedings. Above all, when the child is weaned, food should not be forced on him until he is hungry. Nervous dyspeptic children in neuropathic families sometimes owe much of their abnormal condition to a psychic trauma in infancy that might easily have been avoided.

Deutsches Archiv für klinische Medizin, Leipzig

C, Nos. 3-4, pp. 221-428. Last indexed October 8, p. 1329

- 113 Studies of the Pulse. E. Edens.
- 114 Behavior of the Chromaffin Tissue of the Suprarenals under the Influence of Experimental and Natural Diphtheria Infection. B. Haues.
- 115 The Mode of Action of Kidney and Heart Tonics on Diseased Kidneys. (Wirkungsweise von Nieren- und Herzmitteln.) M. Hedinger.
- 116 Influence of Higher Temperatures on Concentration of the Blood. I. Sandelowsky.
- 117 The Liver with Necrosis of the Pancreas. (Auftreten akuter schwerster Leberdegenerationen an Tieren mit Eck'scher Fistel bei komplizierender Pankreasfettgewebnekrose. Beziehungen zwischen Leber und Pankreas.) F. Fischer.
- 118 Duration of Contraction of the Heart. (Anspannungszeit des Herzens.) G. C. Robinson and G. Draper.
- 119 Levulose and Elimination of Urobilin in Functional Testing of the Liver, in Infectious Diseases. W. Schmidt.
- 120 Synthetic Suprarenin in Internal Medicine. J. Kauert.
- 121 The Blood-Pressure-Raising Substance of the Kidney. (Weitere Untersuchungen über die blutdrucksteigernde Substanz der Niere.) A. Bingel and R. Claus.
- 122 Determination of Iron Content of the Blood. (Zur Methodik der Eisenbestimmung im Blute.) A. Jolles.

Deutsche medizinische Wochenschrift, Berlin

October 6, XXXVI, No. 40, pp. 1833-1888

- 123 A Century of the Berlin Medical Faculty. J. Pagel.
- 124 Achievements in the Science of Anatomy at the University of Berlin During its Century of Existence. W. Waldyer.
- 125 The Medical Share in the Foundation of the Berlin University. J. Schwalbe.
- 126 What German Medicine Has Contributed to the Progress of Civilization During the Nineteenth Century. (Was hat die deutsche Heilkunde im 19. Jahrhundert zum allgemeinen Kulturfortschritt beigetragen?) W. A. Freund.
- 127 The Limitations of the Natural Sciences. (Grenzen der Naturwissenschaft.) E. Haackel.
- 128 Disease. (Krankheit.) H. Ribbert.
- 129 The Influence on Modern Medicine of the Conception of Specific Action. A. Wassermann.
- 130 Disturbances in Development. (Entwicklungsstörungen.) A. Hegar.
- 131 Difficulties in the Diagnosis of Progressive Muscular Dystrophy. (Klinische Kasuistik aus der Praxis. III.) W. Erb.
- 132 *Nasal Reflex Neuroses. G. Killian.
- 133 The Celebration of the Fiftieth Anniversary of the University of Berlin in 1860. G. Mamlock.

132. Nasal Reflex Neuroses.—Killian states that nasal reflex neuroses are becoming more and more frequent in city dwellers and that the whole subject needs revision as treatment is successful only when applied strictly according to indications in the individual cases. These indications are determined by the sensitiveness of the nasal mucosa, and this he tests by the reaction to the contact of a piece of fine thread (No. 100), held in a slit cut in the end of a fine sound, so that the thread projects about 7 mm. from the tip of the sound. Drawing

this thread along the forehead, cheek, outside or inside of the nose for about 3 mm. causes a tickling sensation. With normal sensibility tickling does not induce any reflex action but with an ultrasensitive mucosa the tickling is followed by sneezing, lacrimation, etc. Certain points in the nose are more sensitive than others, especially the processes on the septum and points in front just above the anterior end of the inferior turbinated bones. The reflex action occurs more easily, as the mucosa grows more sensitive under the prolonged influence of irritating dust, etc. By the thread test it is possible to localize the areas of ultrasensitive mucosa and put an end to the neurosis emanating therefrom by cauterizing the nerve terminals or slicing off the mucosa. It is important to determine the special nerve involved in the morbid area. E. Jonge has been successful in curing the anterior type of nasal neurosis by resecting the internal branch of the nasal nerve by way of the orbit, and Neumeier, Bloss and Killian himself have also performed successful operations of this kind. Zuckerlandl advocated this technic in treatment of neuralgia of this division of the fifth nerve. Killian has accomplished the same result by an intranasal operation, dividing the branch innervating the septum with a small right-angled lancet and the side branches above the anterior end of the inferior turbinated bone. The branch of the sphenopalatine in the septum can be severed with scissors above the upper margin of the posterior nares. The branches of the palatine nerve passing upward to the inferior turbinated bone can also be severed in the same way, but it is simpler and easier here to remove the mucosa. Pure olfactory nerve neuroses cannot be so readily treated as direct cauterization is out of the question. The first division of the fifth nerve sends branches to the lacrimal gland, the side of the eyelid and the conjunctiva, to the skin of the forehead and to the nose and all these regions participate in the reflex reaction to a tickling irritation in the ultrasensitive areas in the nasal mucosa. Tickling, local hyperemia and increased secretion occur not only in the nose but in the eye and possibly in the frontal sinus and there may be photophobia and frontal headache. The heart action may even be influenced. Sneezing is the most characteristic manifestation of this form of nasal neurosis while swelling of the turbinates and hypersecretion are more pronounced with the sphenopalatine neurosis. The latter may induce certain forms of neuralgia and headache and vasomotor pseudoerysipelatous redness and swelling of the cheek, the latter being due to radiation into the infraorbital domain. The sphenopalatine neuroses may also involve the respiration and heart action. He explains the mechanism in detail, calling attention to the special connection with attacks of coughing and asthma, in particular to the nasal form of asthma which may develop without much sneezing, rhinitis or hay fever. Rosenberg found that irritation of a point far back on the septum always brought on a severe attack of coughing in one asthmatic patient, and cauterization of this point cured the asthma. Hartmann also reported a similar case only that the ultrasensitive point in his case was at the posterior end of the inferior turbinated bone. Irritation of a point backward and high up on the septum slowed the heart beat and made it irregular in Koblanek's experiments on dogs, and clinical experience is confirming the existence of this special "heart point." The thread test enables the ultrasensitive areas of the nasal mucosa to be readily localized and points the way to effectual treatment of the special nerve responsible for the local regional and remote reflex phenomena which, untreated, are liable to develop into an actual chronic neurosis.

Fortschritte der Medizin, Leipzig

September 29, XXIX, No. 39, pp. 1217-1248.

- 134 Diagnosis of Anemia. G. Rheiner.
- 135 Hypertrophy of the Prostate. G. Axhausen. (Commenced in No. 38.)

Medizinische Klinik, Berlin

October 2, VI, No. 40, pp. 1559-1598

- 136 *Cherry-Stone Heus. (Kirschkernilleus.) H. Elehorst.
- 137 Influence of Accelerated Heart Action on the Resisting Power of the Organ. (Einfluss beschleunigter Herzthätigkeit auf die Resistenz des Herzens.) M. Heltler.
- 138 Bierneck's Ulnar Symptom. K. Singer.
- 139 *Rond's Gastric Ulcer at Innsbruck. R. Latzel.
- 140 *Diagnosis of Epidemic Meningitis in Young Children. E. Levy.

- 141 Influencing of the Symptoms of an Infant with Inherited Syphilis by Serum from Patients Treated with Ehrlich's "606." E. Meitrowsky and Hartmann.
142 Technique of Administration of Ehrlich's "606" in Syphilis. K. Junkermann and E. Kromayer.
143 Progress in Aerology. A. Wegeuer.
144 The Medical Institutions of Berlin before the Founding of the University. P. Richter.

October 9, No. 41, pp. 1599-1642

- 145 Normal and Pathologic Shape of the Heart Valves. (Entstehung und Erhaltung der normalen und krankhaften Herzklappenformen.) K. Lenke.
146 Principles of Pathology and Treatment of Disturbances in Speech. (Sprachstörungen.) H. Stern.
147 Chronic Influenza. P. M. Walcha.
148 Ulceration after Injections of Ethereal Camphor Solution. (Seltene Art von Geschwüren nach Kampherätherinjektionen.) G. Frank.
149 Treatment of Fibrous Osteitis of the Tibia. A. Schanz.
150 *Chronic Dilatation of the Large Intestine in the Elderly. (Chronische Dilatation des Dickdarms im höheren Alter.) F. Erkes.
151 Question Blank Symposium on Ehrlich's "606." Commenced in No. 37.
152 Cell Inclusions in the Genital Secretions. H. Sowade.

136. **Cherry-Stone Ileus.**—Eichhorst recently operated on a woman of 47 with the presumptive diagnosis of cancerous obstruction of the ascending colon. When the bowel was opened, the lower part of the ileum and the entire ascending colon were found packed with cherry stones, 909 being removed. The intestinal mucosa was red but otherwise apparently unmodified. The patient succumbed the next day. She denied having been in the habit of swallowing cherry stones and her husband was not aware that she had eaten many. This is Eichhorst's second case of the kind. The patient in the other case was a man of 49 and the cherry stones were accumulated in the rectum; the outlet of the bladder had been compressed by the foreign bodies. There are only a few cases on record of ileus from obstruction by cherry stones without preceding stenosis, but Madelung has reported a case in which concretions developed around the stones.

139. **Gastric Ulcer at Innsbruck.**—Latzel comments on the comparative frequency of hypo-acidity and anacidity with gastric ulcer in his region. The food is mainly a vegetable diet and the ulcers seem to be connected with some mechanical injury of the mucosa and secondary infection with streptococci or staphylococci. Another feature of his cases was the normal or unusually high proportion of antipepsin in the blood serum.

140. **Diagnosis of Epidemic Meningitis.**—Levy emphasizes the importance of bacteriologic examination of the cerebrospinal fluid obtained by lumbar puncture. The naked-eye aspect is frequently misleading; the fluid may be turbid with tuberculous meningitis and only slightly turbid with the epidemic form or even quite limpid in chronic cases. In case of doubt an injection of antiserum is always advisable. After the hydrocephalus is once established, treatment is powerless. This confirms the importance of puncturing at once on suspicion of hydrocephalus. The meningococci may vanish early from the fluid. They may be found in the spinal fluid and be absent in the fluid in the ventricle, the communication between the different cavities being so often obstructed. In one case the cocci were destroyed in one lateral ventricle by injection of serum, although they persisted unmodified in the other.

150. **Chronic Dilatation of the Large Intestine in the Elderly.**—Erkes reports a case of chronic dilatation of the large intestine in a man of 71. It had apparently caused no disturbances except for a tendency to constipation and protruding abdomen until after lifting a heavy weight violent pain suddenly developed in the abdomen with signs of obstruction. A similar attack a year before had subsided under a purge and rest in bed, but this time the patient suddenly collapsed and died. Necropsy revealed the entire large intestine enormously distended. Versé has recently reported two similar cases in men of 65 and 72; the left lobe of the liver in the latter case had atrophied from the effect of pressure from the dilated colon.

Münchener medizinische Wochenschrift

October 1, LVII, No. 40, pp. 2073-2120

- 153 Roentgen-Ray Diagnosis of Callous Gastric Ulcer. M. Faulhaber.
154 *The Parathyroids and Sudden Death in Children. (Mors subita infantum und Epithelkörperchen.) P. Grosser and R. Betke.

- 155 Elimination of Arsenic after Taking Ehrlich's "606." (Beginn und Dauer der Arsenausscheidung im Urin nach Anwendung des Ehrlich-Hataschen Präparates Dioxidiamfloarsenbenzol.) K. Greven.
156 Ehrlich's "606" in 156 Cases of Syphilis. Favento.
157 Deafmutism. (Zur Aetiologie der Taubstummheit.) K. Beck.
158 Progressive Pernicious Anemia. M. Gioseff.
159 Influence on Toxic Action of Chloroform of Fat (Circulating in the Blood. L. Lattes.
160 Commercial Diabetic Foods. (Untersuchung einiger Diabetikergebäckes des Handels.) N. Janney.
161 Application of Cystoscopy for Examination of Serous Cavities in General. H. C. Jacobaeus.
162 Therapeutic Lavage of Kidney Pelvis. (Zur Behandlung der Kolipyelitis mit Nierenbeckenspülungen.) H. Hohlweg.
163 Non-Operative Treatment of Phimosis under the Age of Three. F. Hamburger.

154. **The Parathyroids in Connection with Sudden Death.**—Grosser and Betke state that when no other explanation for the sudden death of a child can be discovered, the parathyroids should be examined with the microscope. It may be possible to discover in them traces of a destructive process involving the larger part of their substance and this alone is sufficient to account for the fatality, as he shows by reports of three cases and a case previously reported by Yanase. The children were only 2 or 3 months old and death occurred suddenly in apparent health except for a mild bronchitis in one case. Aside from the destructive process in the parathyroids, the necropsy findings were normal.

Zeitschrift für Geburtshilfe und Gynäkologie, Stuttgart

LXVII, No. 1, pp. 1-265. Last indexed Sept. 17, p. 1063

- 164 Cesarean Section Versus Pabiotomy. (Kaiserschnitt oder Beckenspalting.) O. Pankov.
165 *Three Rare Genital Tumors. (Drei seltene Geschwülste.) A. Sitzenfrey.
166 Primary Adenocarcinoma of the Vagina. O. Hoehne.
167 Operative Treatment of Benign and Malignant Ovarian Tumors. (Eierstockgeschwülste.) A. Vanvolxem.
168 Toxicology of the Placenta. Guggisberg.
169 Importance of Determination of Antitrypsin in Gynecology. A. von der Heide and E. Krosing.
170 *Eclampsia. V. Albeck.

165. **Uncommon Gynecologic Tumors.**—The first of the three cases reported by Sitzenfrey was an intramural lipomyosarcoma of the anterior wall of the uterus; the second was an adenoma of the right ovarian ligament, and the third was an epidermoid proliferating from the pelvic connective tissue in front of the cervix. They were all successfully removed.

170. **Eclampsia.**—Albeck states that at the Copenhagen maternity in charge of L. Meyer it was found that the prognosis both for mother and child was graver the longer the interval between the first convulsion and the expulsion or extraction of the fetus. About 14 per cent. of the women and 16 per cent. of the children died in the twenty-eight cases in which delivery followed at once after the first attack; the mortality increased to over 16 per cent. for the mothers and 44 per cent. for the children in the fifty-four cases in which from 3 to 10 attacks had occurred before delivery. Over 44 per cent. of the mothers and 68 per cent. of the children succumbed in twenty-nine cases in which delivery was late. He comments that the mortality is considerable even when the women are delivered early. His experience further shows that severe cases of eclampsia can develop without convulsions and that several attacks of convulsions may occur in the milder cases and that they may be absent in the more serious. The question now is to learn to distinguish the inherently mild cases so that expectant treatment may be justified in them. In the six fatal cases in which delivery followed at once after the first one or two attacks of convulsions, all the patients had long presented prodromal symptoms before convulsions developed. He advises therefore not to wait for the convulsions when there is a long phase of these prodromal symptoms, but to deliver the woman at once. His material embraces further eight cases in which convulsions did not come on until after delivery; two of the women died. Also twelve cases of eclampsia without convulsions at any time; with a mortality of one of the mothers and two of the children. Among the prodromal symptoms he mentions edema of the legs and thighs, trunk, back of the hands and in the face. In three of his cases the family had noticed the puffiness of the face 3 or 4 weeks before the convulsions, in ten cases for a week or two and quite commonly for a few days before the convulsions. Frontal headache is one of the most important pro-

dromal symptoms; in forty-nine cases the headache had been noticed for more than 24 hours before the convulsion, in one case for 2 months, in two cases for 1 month and in three for 10 to 18 days. In thirty cases there had been prodromal symptoms on the part of the stomach, nausea and vomiting; in six cases there had been pain in the stomach region for a few days. Visual disturbances are the most instructive of the prodromal symptoms; they were noted in twenty-six of his total cases. The women complained of blurring of print and objects, colored rings surrounded objects or there was actual blindness. These disturbances in vision accompanied the other severer symptoms. In seven cases the visual disturbances had been observed for some time before the convulsions. In four cases total blindness developed from 4 to 12 hours before the convulsions; in three of these cases it had been preceded by blurring for several days. In the other case the blindness came on suddenly, 4 hours before the convulsion, together with intense headache, vomiting and nosebleed. In six of the cases there had been a tendency to vertigo for a few days or weeks. Drowsiness was observed in five cases for a few days or hours before the convulsions; in one case accompanied by involuntary urination. Insomnia and restlessness were observed in two cases for 24 hours before the convulsions and another patient showed marked depression. One patient was semidelirious for 2 hours before the first convulsion and another lay in coma for 2 hours. On the whole, Albeck asserts, the convulsions must be regarded merely as an additional symptom in the clinical picture of eclampsia, following other cerebral symptoms.

Zentralblatt für Chirurgie, Leipsic

October 8, XXXVII, No. 41, pp. 1337-1360

- 171 The Catgut Question. O. v. Herff.
172 Autoplastic Use of the Sac for Necrosis of the Intestine from Incarceration of a Hernia. (Die sakkuläre Autoplastik bei Darmnekrosen infolge Brucheingklemmung. Ein neues Verfahren.) G. Lerda.

Zentralblatt für Gynäkologie, Leipsic

October 8, XXXIV, No. 41, pp. 1321-1344

- 173 Question of Immunization against Puerperal Infection. A. Czyzewicz.
174 The Momburg Belt Constriction after Rupture of Tubal Pregnancy. (Momburg'sche Umschnürung bei geborstener Eileiterschwangerschaft.) M. Stolz.
175 Abdominal Cesarean Section with Facial Presentation and Menacing Rupture of the Uterus. (Sectio caesarea abdominalis inferior transperitonealis bei Gesichtslage und drohender Uterusruptur.) E. Gerstenberg.

Zentralblatt für innere Medizin, Leipsic

October 8, XXXI, No. 41, pp. 1017-1040

- 176 Value of the Camidge Pancreatic Reaction. L. D'Amato and G. Cuomo.

Gazzetta degli Ospedali e delle Cliniche, Milan

September 29, XXXI, No. 117, pp. 1233-1240

- 177 Three Cases of Pseudoappendicitis Related to Ptosis of the Liver. R. Mosti.

October 2, No. 118, pp. 1251-1256

- 178 Latent Tuberculosis and Its Specific Treatment. F. Mottola.
179 Chloroform Anesthesia for Children. (Narcosi chloroformica nei bambini.) V. Brun.

October 3, No. 119, pp. 1257-1264

- 180 Erosive and Gangrenous Balanitis. P. Romeo.

Policlinico, Rome

October 2, XVII, No. 30, pp. 1251-1282

- 181 Experimental Research on Pathogenesis of Acquired Diverticula in the Bladder. F. Cuturi.
182 Prophylaxis of Cholera. L. Verney.

Riforma Medica, Naples

October 3, XXX, No. 40, pp. 1093-1120

- 183 Gastric Disturbances with Hypersecretion. (Gastropatie dinamiche secretorie per eccesso. V.) G. Rummo.
184 Behavior of the Wassermann Reaction Under the Influence of Various Drugs. T. Casoli.
185 Fixation of Complement in Diagnosis of Echinococcus Cyst. L. De Gaetano.

Hygica, Stockholm

September, LXXII, No. 9, pp. 913-1040

- 186 Diphtheria and Phlegmons Sore Throat. T. Hellström.
187 Blowing Out the Pleural Effusion Instead of Aspirating it. (Utblåsning af pleuraxsudat i stället för aspiration.) I. Holmgren.

- 188 Technic of Artificial Immobilization of the Tuberculous Lung. (Bidrag till tekniken vid kompressionsbehandling af lungtuberkulos.) I. Holmgren.

- 189 The v. Virquet Tuberculin Reaction and Prognosis of Pulmonary Tuberculosis. A. Lichtenstein.

- 190 Ehrlich's "606" in Syphilis. H. Marcus.

Nordiskt medicinskt Arkiv, Stockholm

XLII, Surgical Section, No. 3. Last indexed August 6, p. 546

- 191 Diagnosis and Treatment of Kidney Stones. (Nephrolithiasis.) B. Floderus. Continued.

- 192 Uterine Myoma in Relation to Conception, Pregnancy, Delivery and the Puerperium. A. Troell. Continued.

XLIII, Internal Medicine Section, No. 1

- 193 Influence of Exophthalmic Goiter and Allied Conditions on the Stature and Ossification. I. Holmgren. Continued.

Ugeskrift for Læger, Copenhagen

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- 194 Development of the Theory of Therapia sterilisans Magna. V. Ellermann.

Upsala Läkareförenings Förhandlingar, Upsala

New Series XV, No. 8, pp. 495-600. Last indexed Oct. 1, p. 1240

- 195 O. Rudbeck (1630-1702). (Aftäckningen af Olof Rudbecks Prvst.) E. Clason.

- 196 Fatigue and Recuperation in the Sartorius Muscle of the Frog. (Några undersökningar öfver uttröttning och restitution hos den öfverlevande M. Sartorius hos grodan.) E. Berg.

- 197 Operations for Cancer of the Vagina, Especially the Primary. S. Lindqvist.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

A MANUAL OF CHEMISTRY. Theoretical and Practical, Inorganic and Organic. Adapted to the Requirements of Students of Medicine. By Arthur P. Luff, M.D., Physician to St. Mary's Hospital, and Hugh C. H. Candy, B.A., Lecturer on Chemistry in the London Hospital Medical College. Cloth. Price, \$1.75. Pp. 622, with 46 illustrations. Chicago: Chicago Medical Book Co., 1910.

PRACTICAL POINTS IN NURSING. For Nurses in Private Practice. With Appendix Containing Rules for Feeding the Sick, Recipes for Invalid Foods and Beverages, etc. By Emily A. M. Stoney, Graduate of the Training School for Nurses, Lawrence, Mass. Fourth Edition. Cloth. Price, \$1.75 net. Pp. 495, with 97 illustrations. Philadelphia: W. B. Saunders Co., 1910.

THE EXPERIMENTELLE CHEMOTHERAPIE DER SPIRILLOSEN (SYPHILIS, RÜCKFALLFIEBER, HUNTERSPIRILLOSE, FRAMBÖSIE). Von Paul Ehrlich und S. Hata. Mit Beiträgen von H. J. Nichols, New York; J. Iversen, St. Petersburg; Bitter, Kairo, und Dreyer, Kairo. Paper. Price, 6 marks. Pp. 164, with 59 illustrations. Berlin: Julius Springer, 1910.

INSECTS AND DISEASE. A Popular Account of the Way in Which Insects May Spread or Cause Some of Our Common Diseases. By Rennie W. Doane, A.B., Assistant Professor of Entomology, Leland Stanford Junior University. Cloth. Price, \$1.50 net. Pp. 221, with 112 illustrations. New York: Henry Holt & Co., 1910.

CHILDREN'S DIET IN HOME AND SCHOOL. With Classified Recipes and Menus. A Reference Book for Parents, Nurses, Teachers, Women's Clubs and Physicians. By Louise E. Hogan, Editor of "The Children's Library." Cloth. Price, 75 cents net. Pp. 128. New York: Doubleday, Page & Co., 1910.

GRAPPE-SÄRMISCH HANDBUCH DER GESAMTEN AUGENHEILKUNDE. By Various Authors. Second Edition. Vol. IX, Part II, installment 106 to 197. Basedow'sche Krankheit von H. Sattler, Professor in Leipzig. Paper. Price, 4 marks. Pp. 513 to 667. Leipzig: Wilhelm Engelmann, 1910.

ÉLÉMENTS D'ANATOMIE PATHOLOGIQUE. Par le Dr. L. Bérrol, Chef des travaux d'anatomie pathologique à la Faculté de Lyon. Médecin des hôpitaux. Cloth. Price, 10 francs. Pp. 563, with 232 illustrations. Paris: G. Steinheil, 2 rue Casimir-Delavigne, 1910.

EINFÜHRUNG IN DIE MODERNE KINDERHEILKUNDE. Ein Lehrbuch für Studierende und Aerzte. Von Dr. B. Salge, Professor der Kinderheilkunde in Freiburg i. B. Second Edition. Cloth. Price, 9 marks. Pp. 384, with 15 illustrations. Berlin: Julius Springer, 1910.

PSYCHE. A Concise and Easily Comprehensible Treatise on the Elements of Psychiatry and Psychology. For Students of Medicine and Law. By Dr. Max Talmeijer. Cloth. Price, \$2.50. Pp. 282. New York: Medico-Legal Publishing Company, 1910.

OSTEOLOGY AND SYNDROMOLOGY. By Howard A. Sutton, M.D., Assistant in the Department of Anatomy of the University of Pennsylvania, and Ceell K. Drinker, B.S. Cloth. Price, \$1.50 net. Pp. 225. Philadelphia: P. Blakiston's Son & Co., 1910.

HERNIA. Its Cause and Treatment. By R. W. Murray, F.R.C.S., Surgeon, David Lewis Northern Hospital. Second Edition. Cloth. Price, \$1.75 net. Pp. 184, with 62 illustrations. Philadelphia: P. Blakiston's Son & Co., 1910.

TRANSACTIONS OF THE MEDICAL ASSOCIATION OF THE STATE OF ALABAMA (THE STATE BOARD OF HEALTH). Organized 1847. Meeting of 1910 (J. Norment Baker, Secretary, Montgomery), Mobile, April 19-22. Cloth. Pp. 754.

CONFIDENCES. Talks With a Young Girl Concerning Herself. By Edith B. Lowry, M.D. Cloth. Price, 50 cents. Pp. 94. Chicago: Forbes & Co., 1910.

The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOL. LV, No. 21

CHICAGO, ILLINOIS

NOVEMBER 19, 1910

THE OPERATIVE TREATMENT OF SIMPLE FRACTURES*

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OMAHA, NEB.

The treatment of simple fractures by the open operative procedure has gained much in favor during the last few years. In spite of the fact that surgeons have occupied themselves much in the study of this branch of surgery, perfection has not been attained and the controversy still continues. Among practical surgeons of large experience direct fixation appliances in compound fractures, where the bones are exposed, when they cannot be kept in position by splints, have come into general use. There seems to be a general unanimity of opinion that such is the best practice. But when the matter of simple fractures is presented for consideration there is a lack of uniform opinion.

In this connection I shall draw from my own personal experience, gathered from a rather extensive service of accident surgery, extending over a period of upwards of twenty-five years. There will be no tabulation of cases and no review of the literature, but in a brief and general way there will be a summary of observations and experiences regarding the management of simple fractures with special reference to the open operation and direct fixation.

CONSIDERATIONS IN REGARD TO THE OPEN METHOD

When we consider the extreme difficulty, and, in many cases, the absolute impossibility of effecting an accurate adjustment of fractured bones by manipulation, and the uncertainty of fixing and maintaining the broken ends in perfect alignment, it would seem that we must instantly and unhesitatingly decide in favor of open treatment and the employment of such mechanical devices as will positively hold in perfect position any fractured bone. That this is the ideal method is beyond dispute. All are agreed that, while this method is ideal, it also becomes necessary that the work be done under ideal conditions, which means a perfect control of asepsis, and unusual mechanical and operative skill on the part of the surgeon. Any lapse in aseptic detail is more fatal to perfect union and perfect final results than a similar error in technic in abdominal surgery, for here the lymphatics are less able to cope with ordinary infections than in the peritoneal cavity. In no other domain of surgery are errors in asepsis so often punished by failure. To accomplish these results, trained assistants and a faultless operating equipment are essential.

It at once becomes evident that it is necessary to divide our simple fracture cases requiring treatment

into two groups: first, those that can be treated in a hospital, which comprises a small group; second, those that must be treated outside the hospital, and comprises by far the larger group.

The greater number of fractures always have been and always will be treated by the general practitioner. His functional results are usually good, and satisfactory to the patient, even though a skiagram would show imperfect alignment and defective adjustment. Consequently, the surgeon can never hope to attain an exclusive control of the management of fractures and the open treatment can never become the universal treatment.

Now, would it be desirable to do an open operation in all simple fractures? This we must answer in the negative, because many of them can be accurately and perfectly adjusted by manipulations and accurately held in place by proper retentive dressings. A Colles fracture of the wrist can nearly always be reduced if the fragments, which are often impacted, are unlocked by increasing the deformity before an attempt at replacement is made. In a Pott fracture of the ankle-joint the bones often return to their normal position with a snap if traction is made in the line of deformity before a reduction of the fracture is attempted, and the bones are easily held in position. Many transverse fractures of the tibia, and supracondyloid fractures of the femur, show very little tendency to displacement when once properly reduced and the extremity secured in a well fitting plaster-of-Paris cast. Therefore the most enterprising surgeon would hardly find justification for a statement that all simple fractures must be exposed by a free incision and the broken bones secured by suture or a mechanical device. Those of us who had an opportunity of examining Arbuthnot Lane's numerous skiagrams of simple fractures, on which operation had recently been done, which he exhibited before us a year ago, could not help but be impressed with the fact that some of his cases would have done quite as well if the fractures had been reduced by manipulation and the use of the same external splints that he employed to reinforce the clips and screws which he used through an incision. Experience has shown that with the open operation the external retentive and fixation appliances must be of the same design and must be applied with the same care as in cases where no open incision is made.

PHYSIOLOGIC SOFTENING OF BONE ENDS

At best, fixation appliances used to secure accurate adjustment in the open incision can be depended on only for a few days, because the bony structure immediately surrounding a screw or peg or wire introduced in the bone becomes loose and fails to hold in accurate apposition bone fragments unless aided by a carefully applied external splint. I had observed many years ago in cases of fracture that could not be held in good appo-

* Read in the Section on Surgery of the American Medical Association, at the Sixty-first Annual Session, at St. Louis, June, 1910.

sition, where a resort to an open incision became necessary, that after a lapse of a week or two the fractured ends rapidly underwent a process of softening. When the case came to immediate operation the bony structure was unchanged, but if the operative interference was delayed for a week or more, the fractured ends had sometimes become so soft that the bone drill could almost be forced through the bone by pressure. It was thought that this condition was pathologic and peculiar to some individuals only. These observations were used as a basis to account for non-union in bones believed otherwise to be well adjusted. I learned, however, after I had become more familiar with skiagraphic findings, that a certain amount of bone softening after fractures is physiologic. The *x*-ray shadow depends on the amount of inorganic matter present in the bone. This inorganic matter is made up of phosphate, carbonate and fluorid of calcium and a small amount of phosphate of magnesium, altogether about 67 per cent. in the normal bone. The density of the shadow seems to depend chiefly on the calcium salts (64 per cent.).

It was observed that when a succession of skiagrams were made at intervals of several days in given cases of fracture, in each succeeding skiagram the shadow at the seat of fracture became less dense, and in one or two instances it almost disappeared. I did not at first fully appreciate the full significance of the dim shadow—not until several cases were observed in which the broken ends were so widely separated that an open operation became inevitable, and in all these cases there was an amount of softening which was in direct proportion to the time that had elapsed after the fracture. This decreasing density of the *x*-ray shadow has been observed in nearly all fractures, whether reduced or not, in which I have obtained skiagrams. The bone seems to respond promptly to traumatism. The relative proportion of lime salts become disturbed at once, and their disappearance can be noted early. This condition of bone rarefaction, while peculiar to bone fractures, and part of the reparative process, has also been noted and described by E. R. Corson¹ as bone atrophy. He points out the fact that the bone terminals become atrophied in the presence of many chronic diseases, a process which may or may not be pathologic.

In fractures, however, we must consider these bone changes as a necessary physiologic process. While the skiagraphic observations are of recent date, the state of softening of fractured bone-ends, the multiplication of the periosteal cells, the changes in the marrow, Haversian canals and lacunae, the development of a mass of granulations between the fractured ends and extending into the bones themselves, have for a long time been common knowledge. But this process has not always been taken into consideration by the operating surgeon, who would wire or nail or screw together all broken bones at any time or stage. In my own work I learned after several failures, that mechanical devices applied directly to the bones during the stage of active physiologic softening are often ineffective in maintaining necessary coaptation. Consequently I attempt to satisfy myself at once whether fractured bones can be adjusted manually and secured by external appliances. If this can be done, the case is treated by the closed or non-operative method. Should it be found that reduction cannot be accomplished in the usual way, or that coaptation cannot be maintained, the open or operative method is at once resorted to before the bones have undergone reparative softening.

INTERNAL FIXATION DEVICES SHOULD BE USED EARLY

At this early stage any mechanical device applied directly to the bone will maintain a position sufficiently long for all the parts concerned to adapt themselves to a correct position. That screws and wires do not maintain a firm hold until bony union is complete has been shown in all cases in which it became necessary, either early or late, to remove them. All devices were perfectly loose. The lime salts in immediate contact with all foreign bodies become absorbed so that their firm hold is lost. Consequently we can expect a maintenance of good position only until the reparative process is fairly under way. The greatest difficulty to overcome in fractures of long bones is muscular rigidity. Screws or wires, properly applied, will hold firmly, until the muscular spasm is allayed. Usually with muscular relaxation, which occurs in five to eight days, in cases of immediate operation, the tendency to overlapping and angulation is arrested. Therefore, if we can secure good coaptation until the chief factors for displacement cease to be operative, we will achieve a good result. Several of the many mechanical devices will do this if applied early while the bones are still hard. Consequently it was soon learned that if an open operation is to be done, it should be done immediately.

It was found that when an open operation was attempted in from two to three weeks after injury in cases of fracture of the femur with overlapping, it was difficult and often impossible to overcome the muscular contraction. The same was found to be true in fractures of the bones of the leg, the arm and the forearm. It sometimes became necessary to do tenotomies and myotomies, which are not always advisable or practicable, especially in the thigh. Consequently I attempted in all cases to determine as early as possible if the fracture could be adjusted manually and adjustment maintained by external splints. If there was a tendency to recurrence of displacement or an impossibility to correct misplacement, an open operation was done as soon as the patient could be brought into a favorable environment, which meant a hospital.

DETERMINING APPPOSITION

In recent fractures of the forearm it was found possible in some cases to manipulate the extremity while being viewed through a fluoroscope until it was ascertained whether or not good apposition was possible. If reduction was successful, the forearm was fixed with such splints as maintained correction. If I did not succeed in securing fair apposition of the fractured ends and a good functional result was improbable, an open operation was resorted to.

The same procedure was found practicable in fracture of the humerus, a bone in which non-union is a more frequent outcome than in any other. It has been asserted that non-union of the humerus is most frequently due to non-adjustment; that means that not sufficient manipulative efforts are made to secure proper reduction. Too often the attendant is satisfied to apply his dressing without assuring himself that there is an end-to-end approximation of the broken fragments. In my work I do not rest content until actual crepitation can be obtained, in order that I may know that no muscle, fascia or loose fragment of bone is interposed between the fractured ends. General anesthesia is resorted to in all cases in which manipulation is too painful or muscular rigidity marked. While it may be true that non-union is due to defective innervation, dis-

1. Corson, E. R.: *Ann. Surg.*, March, 1910, p. 289.

eases of the bone, syphilis or excessive rarefaction, we must admit that a defective relation of the fragments is the prime factor for consideration. With an increasing experience I am inclined to believe that in all fractures of the humerus, and, I may add, of the femur also, general anesthesia is necessary, not only in bad displacements, but in those of very limited, or even no primary displacement. I have observed several cases in healthy and vigorous young persons, in which there existed little or no displacement and in which immobilization was easy and complete, that ended in non-union, due, no doubt, to a restricted local reaction, a defective hyperemia. The nutritive and reparative process was too slight or too short. To insure a sufficient local reaction, vigorous friction of the fragments was made by rubbing the ends on each other in cases in which there was no local swelling or hematoma. It was found that the fluoroscope was useful, in showing when reduction was secured. If it was shown that reduction was impossible or if I failed to secure distinct crepitus, an open operation was done.

RECENT PRACTICE

For the last fifteen years all patellar fractures have been opened and wired. Since it was shown how constantly large portions of fascia were crowded between the fragments in all cases, a free transverse incision, a clipping away of all torn fascia, an accurate approximation and a securing of the fragments with wire or chromic gut, has been the practice.

The immediate reduction and fixation of overlapped fractured clavicles with silver plates and screws has become more frequent.

Fractures of the cranium, whenever accessible, have always even in the preantiseptic era, been treated by operation.

In personal work I have drifted between the two extremes. Before the mastery of antiseptics had been achieved, all open operations were feared. Only in depressed fractures of the skull and in some compound fractures was it the custom to attack the bones directly. The fear of converting a simple and non-infected fracture into an open and possibly an infected one, was so great that rather than create an infected compound fracture, one was willing to take chances on obtaining a fairly good functional result even though the fluoroscope of to-day would have indicated imperfect apposition. All simple fractures were "set" by hand, as well as possible, and retained with what was regarded as a proper and suitable dressing in all cases.

Then with the advent of the Roentgen ray good functional results were not considered sufficient, but it was insisted by many that the bones must always be brought into perfect alignment. It was urged that no longer could the surgeon bury his mistakes, for the x-ray never failed to reveal his errors in "bone-setting." Therefore, we drifted along with the tide of surgical sentiment and began wiring all fractures. When my enthusiasm had somewhat abated and I recalled what I had known before, that many fractures had been reduced and easily secured by the closed method, showing that a large number of operations were useless and had not added to a more perfect outcome. Then when I recalled the cases in which operation had been done under an imperfect environment and in which infection had supervened, and, of course, improvement had not resulted therefrom, I receded from my extreme position and reduced the problem to simple rules which are now the guide. They are as follows:

RULES TO BE FOLLOWED

1. All fractures that can be adjusted manually and can be fixed in a position that will insure a good functional result, even though the Roentgen rays indicate a lack of perfect end-to-end approximation, are to be treated by the closed method.

2. In all fractures with a marked deformity, such as overlapping, angulation, lack of contact of fractured surfaces, when it is apparent that union will not take place, an open operation is done.

3. In all cases in which there is an interposition of soft structures or loose bone fragments, an open operation must be done.

4. All compound fractures are treated by operation if the broken ends do not fall into easy apposition.

5. All depressed cranial fractures are cases for an open operation.

6. All spinal fractures showing symptoms of compression are cases for an open operation.

The Roentgen ray must be employed whenever possible to aid in a proper estimation of the extent and location of the fracture. It must determine for us whether bone approximation is sufficient after the fixation appliance, internal or external, has been applied.

Having determined at the earliest possible moment that manipulation is fruitless to replace the broken bones, an immediate operation should be done before the physiologic rarefying process has begun, or at least before it is very far advanced.

FIXATION MATERIALS AND APPLIANCES

During the last twenty years I have run almost the entire list of mechanical contrivances to secure accurate adjustment of fractures. The earliest experience was with silver wire. The chief objection to this material was found to be its liability to break. Often, after a prolonged operation, when accurate approximation had been obtained, and an accidental movement on the part of the assistant was made while the external splint was being applied, a distinct snapping of the wire could be felt and heard. Occasionally the wire broke after the dressing was complete, but was not discovered until an operation for non-union disclosed a broken wire. Iron wire proved to be no better. Then a change to bronze-aluminum wire was made. This material possesses a tensile strength four times that of silver, and left little to be desired so far as strength was concerned, but it was often difficult to secure and maintain apposition of the broken ends. No matter how ingeniously the wire was placed, partial displacement was the rule rather than the exception.

In several instances silkworm gut, several strands twisted, were used. The tensile strength was sufficient, but displacement could not always be prevented. Chromic gut lacked certainly of strength and its durability was uncertain.

Nails were used a number of times in oblique fractures of the tibia, but became too loose to maintain accurate apposition until bony union was complete. The same observations were made with screws that were made to pass through the bone.

Once I inserted a bone fragment that had been split off and lay loose near the seat of fracture into the medullary canal of the broken ends of a femur. This was reinforced by a bronze wire. The outcome was good. Volkman treated a united fracture of a femur in a child by inserting into the medullary canal a piece of fresh bone taken from an amputated limb.

In one case an ivory peg in the medullary canal was used to fix an oblique fracture of the tibia. Bony union was good, but it became necessary to remove the peg later. Neither the solid ivory cylinder of Bircher nor the interosseous splint of Senn were ever employed. Gluck's work with ivory joints showed that the absorptive capacity of the tissues was inadequate to cope with such masses of foreign material.

In several instances good union was achieved with Senn's bone ferrule, but it became necessary to remove them and their removal was not an easy task.

Parkhill's clamps did service in about a half dozen cases, but they were awkward and clumsy and danger of infection was much greater than with simpler appliances.

Finally, metallic plates, applied by means of screws directly to the bone, came up for consideration. At first steel plates similar to those now used by Lane of London were employed. It was found that the plates were so firm and unyielding that if the slightest bend occurred at the seat of fracture while the fixation dressing was being applied, the screws at one end of the plate were partially pulled out and a partial displacement of the bones occurred. The fragments, instead of being firmly fixed, sometimes became loose. This was true in fractures of the femur.

I then became acquainted with the silver bar or plate of Sick, and in this have found a material that seems to be of practical utility and free from many objections found in most other appliances. This material is obtained in bars about 12 inches in length, $\frac{1}{2}$ inch in width and $\frac{1}{8}$ th inch in thickness. It contains numerous drill holes for screws. It can be cut in any length to suit a given fracture. It is sufficiently pliable to adapt itself to any inequality of the bone and possesses enough flexibility so that any accidental movement at the point of fracture does not break the plate nor loosen its screws. Should it require removal later, as most bone fixation appliances do, it is a simple operation. The plate and screws are found perfectly loose and can be removed through a short incision.

SOME DETAILS OF TECHNIC

I have endeavored to reduce my methods and technic to a state of simplicity. Nothing is introduced into the open wound that has touched the skin. Finger contact is avoided. All parts of the wound are handled with sterile instruments. In all cases in which an open operation is found necessary, three forms of material are used to insure bone coaptation, viz.: the silver plates of Sick, bronze-aluminum wire, and chromic gut; the latter only to reinforce the metallic appliance.

Brandeis Building.

ABSTRACT OF DISCUSSION

DR. E. WYLLYS ANDREWS, Chicago: The old habit of treating fractures by the closed method is so mixed with the newer method, the open treatment, that it is difficult to obtain a clear impression of what the surgery of fractures is to be in the future. If there were a man whose practice had been entirely operative, and who did not know anything about the surgery of the last 2,000 years, who knew nothing of the mechanical treatment of bone lesions, he would unquestionably evolve a system of cutting operations. It would differ radically from what we have inherited. We seem to be standing at the parting of the ways, and I do not think that any one of us can tell whether it is going to lead us to the universal adoption of the open method, or to a combination of methods. The greater must include the less, however. At the present time we operate in every case of fractured patella

in a normal subject with the associated danger of infection, loss of joint function, ankylosis, and possibly death. Is it not reasonable to suppose that in the presence of the lesser dangers in fractures not involving the larger joints the open method is the better and much to be preferred? We have in the Lane plates the best mechanical device for securing and restoring continuity of normal bone absolutely. A half cylinder of aluminum fitting the contour of the shaft of the bone and perforated with holes is the best appliance we have, one which has almost revolutionized the treatment of fractures of the femur, in my practice at least.

In no class of fractures are we confronted with a more difficult mechanical problem than with simple fractures of the femur. The bone is not large and the muscles are large and strong; therefore, the results from the closed method of treatment are often disappointing. Why not operate as a routine, as in a case of fracture of the patella? Repair is more speedy and the result is excellent in from four to six weeks as against eight or ten in the old way.

DR. HERMAN E. PEARSE, Kansas City, Mo.: In the open treatment of fractures I have found it necessary to operate about once in five cases, and most frequently in cases of fractures near the shoulder-joint, near the knee, and near the ankle. I have used the method in simple fractures and in the early compound fractures; also in the very badly infected compound fractures. There is only one point in regard to which I wish to differ with Dr. Jonas, and that is as to the reduction of the bone and its consequences on the fracture. The bone is a crystallization in the tissues of lines of force, and bone atrophies from non-use whenever forces are not applied to the shaft, just as a muscle atrophies when motion is taken away. Therefore, if you bring the ends of a broken bone together under the most careful asepsis, so that there is no further oozing, and then thoroughly fix the fragments by means of internal splints, putting on only such retentive apparatus as will serve to protect the bone for the time being, and then allow the patient more or less use of the arm or leg or hand, you will not have the consequent rarefaction of bone, at least not to the degree that I have been able to ascertain by means of the Roentgen ray.

This brings us to the tremendous value of that procedure, and to the consideration of what Dr. Andrews said, that we are at the parting of the ways. While now I operate but once in five times, and then only in the unfavorable cases, had I the support of my own conscience and of public sentiment, I am sure that I would do away with the rarefaction of bone which comes from non-use, because, as I said, the bone is only the crystallization of lines of force applied in its use. I have seen the radiogram of a splint, taken twelve years after its application, in the leg of a teamster. There were no ill results whatever in contour; size and shape of the bone were perfect; and there was no interference whatever with the function of the leg.

DR. JERE L. CROOK, Jackson, Tenn.: The very excellent paper by Dr. Jonas will no doubt call to mind the interesting symposium on this subject before this section last year, led by Mr. Laue, of London. Mr. Lane said that an operation should be performed in every case of fracture, whether simple or compound. The consensus of opinion at the close of the discussion was just about what Dr. Jonas gave us to-day. Dr. Andrews says that we are standing at the parting of the ways. That is true, to a certain extent, but the subject of the treatment of fractures is one which should be discussed from the standpoint of the men who render first aid—that is, the general surgeon's standpoint. It is different in the practice of the surgical specialist. He does not have the opportunity to demonstrate his ability, except in rare instances, when a patient limps into his office—a crippled exponent of inefficient surgery—having been sent by the man who gave first aid and who is anxious to avoid the annoyance of a malpractice suit.

In every compound fracture, there is already a solution of continuity, and it will not add anything to the danger of sepsis or the probability of death if we treat that fracture by the open method, simply enlarging the wound already produced. We can then determine quickly and accurately what

the nature of the fracture is, whether there is any interposition of muscles or ligaments, whether any blood-vessels have been torn, and we can remedy all these things, with the expectation of getting a good result afterward. Three cases under my observation at the present time have demonstrated the value of this method. In each of these cases the anterior tibial artery was cut, there was interposition of the muscular structures, and good results simply would not have been possible, except by the open method. The duration of the cases was from three to six months; the patients progressed well and made a complete recovery.

The man who renders first aid has it in his hands to produce favorable or unfavorable results. It is, therefore, incumbent on such men to use the most rigid asepsis, and be prepared to perform the operation where it is indicated; and this can be done in practically every country house, if we are careful and appreciate what asepsis means.

DR A. F. JONAS, Omaha: In my opinion, all simple fractures will never be treated by the open method for the reason that the operative technic must be in accordance with perfect aseptic surroundings, with trained assistants and proper appliances. Those who have seen Lane operate speak especially of his aseptic technic, which is absolutely faultless. He does not introduce his finger into the wound at any time nor any instrument that has touched the skin or any thing that is of doubtful asepsis. Therefore, he has ideal results. Those of us who have had to operate much in private houses as well as in hospitals know how inadequate are the means at our command in the former; if we fail in any part of the aseptic procedure, union may be imperfect and conditions are worse than they would have been if we had treated the case by the non-operative method.

We have run the entire list of mechanical devices used to keep the bone fragments in apposition, and have finally come to use, to the exclusion of other appliances, silver plates with screws and bronze aluminum wire. Early in my experience I found that silver wire was not strong enough and often the wires broke; the fractures nearly always became displaced. I then resorted to the use of bronze aluminum wire, which has a tensile strength four times that of the silver; while the wire was strong enough a partial displacement of the fragments often occurred, no matter how the wire was applied. Then I resorted to the steel plates of Lane, and found them useful in the majority of instances, except in the case of a fractured femur or humerus, in which, if the assistant made an awkward or accidental movement while the plaster cast was applied, the screws were pulled out, and we were obliged to take off the dressing, re-open the wound and re-adjust the splint. Therefore, I now use the silver splint of Sick with four or six holes, which is flexible. It will bend rather than break or pull out and the danger of pulling out the screws, that hold the plate, is not as great as in the stiff steel plates used by Lane.

CLINICAL RESULTS OF GASTRO-ENTEROSTOMY FOR NON-MALIGNANT DISEASES*

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There have been very few accurate and thorough reports on the results of gastro-enterostomy for ulcer of the stomach.

Bettman and White¹ have collected reports of 150 cases with results after the lapse of at least one year. Bamberger² has studied 836 cases in which operation was performed for chronic ulcer of the stomach. The former study shows an immediate mortality of 10 per

cent., the latter, 12.2 per cent. To this must be added a late mortality from complications in Bettman and White's series of 14.6 per cent. and in Bamberger's cases of 5 per cent. (complete late reports lacking in many of Bamberger's series).

We find, then a total mortality of 24.6 per cent. in one series and 17.2 per cent. in the second series. The group of 836 cases showed 74 per cent. cures; 13.4 per cent. unchanged. In the group of 150 cases there were 60 per cent. of cures and 30 per cent. of deaths, or no improvement.

The basis of the present report consists of forty-eight cases in which the patients were personally examined before operation; in all but two cases tests of the stomach contents and motility were performed. In fifteen cases examinations of stomach functions were made previous and subsequent to the operation. Forty-six patients were operated on by local surgeons, one by Dr. W. J. Mayo and one in Lausanne, Switzerland.

Fifteen patients have died, twelve within 17 days of the operation; an immediate mortality of 25 per cent.; a total mortality of 31.25 per cent; mortality since 1906, 10.41 per cent. The predominance of males (twelve males, three females), is significant. The average age is 50.5 years.

Case 8 was instructive. The patient was a man, aged 45, alcoholic, with a history of ulcer for five years with frequent severe hematemesis. Operation had been repeatedly refused. An ulcer on the anterior aspect of the stomach adjoining the pylorus was found which ruptured during manipulation. Partial gastrectomy with gastro-enterostomy was done. The patient made an uneventful recovery for fifteen days; then peritonitis developed to which he succumbed in two days. Necropsy revealed a ruptured gangrenous appendix with localized peritonitis. The site of operation was not involved. This case is an argument in favor of appendectomy with every gastro-enterostomy.

The three later deaths were due to carcinoma ventriculi in two instances, one six months, one twenty-one months after operation. In each case the patient had apparently recovered. Possibly these two ulcers had already undergone carcinomatous transformation at the time of operation. The third death resulted from recurrent hematemesis, morphinism and asthenia.

Of the fifteen fatal cases hyperchlorhydria was present in seven, anaecidity in two, normal acidity in four, no determination in two. Evidence of retention of chyme was found in seven cases. Five of the patients who died had been treated medically without success. Eight patients received desultory treatment, no correct diagnosis having been made. Surgical treatment should have been given much earlier in these eight fatal cases, as shown by the advanced degree of stenosis seen at operation. Two patients (3 and 11) should not have been operated on as no stenosis was found. Recent histories have been obtained in twenty-nine of the thirty-three patients living.

Table 3 gives the data in fifteen cases in which gastric analyses were made before and at varying periods after operation. The average age at time of operation was 43.2 years. There were nine males and six females. In this group twelve had ulcer of pylorus or duodenum with stenosis; one, ulcer of pylorus without stenosis, (Case 18); another had nervous dyspepsia (Case 20) and one atony of the stomach with dilatation.

Seven patients with ulcer and stenosis made perfect recoveries, while three recovered but are obliged to abstain from acid and indigestible foods.

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Bettman and White: *Med. Rec.*, Oct. 9, 1909.

2. Bamberger, L.: *Die innere und die chirurgische Behandlung des chronischen Magengeschwürs und ihre Erfolge*, Julius Springer, Berlin, 1909.

Another case (18) has improved, but has recurrent hematemesis and morphinism.

In Case 20 gastroplication was performed, leaving the patient with an aggravation of symptoms.

In Case 28 (nervous dyspepsia) the gastro-enterostomy has been followed by greater suffering than before the operation.

Examination after an Ewald test breakfast shows free hydrochloric acidity above 40 in six cases, between 20 and 40, or normal in two; below 20 in six; absent in one.

Hyperchlorhydria has increased after operation in three cases (Nos. 16, 19, 25). One of these patients (No. 16) has regained motor power and is free from

TABLE 1.—IMMEDIATE MORTALITY (WITHIN SEVENTEEN DAYS)*

Case.	Year.	Sex.	Age.	Diagnosis.	Gastric HCl.	Findings. Total Acidity.	Cause of Death.	Time After Operation.	Operation.
1.	1903	M.	60	Pyloric ulcer; arteriosclerosis; previous medical treatment.	80	110	Shock.	24 hours.	Gastro-enterostomy.
2.	1903	M.	56	Multiple ulcer of pylorus and duodenum; slight stenosis.	81	112	Shock.	48 hours.	Gastro-enterostomy.
3.	1904	M.	74	Ulcer of lesser curvature near pylorus; no stenosis.	65	85	Shock.	6 hours.	Gastro-enterostomy.
4.	1904	M.	51	Pyloric ulcer; stenosis; previous medical treatment.	60	80	Hematemesis.	6 days.	Gastro-enterostomy.
5.	1904	M.	63	Pyloric ulcer; stenosis.	10	20	Vicious circle.	12 days; 6 hours after second operation.	Gastro-enterostomy.
6.	1905	M.	30	Pyloric ulcer; no stenosis.	60	84	Vicious circle.	10 days.	Gastro-enterostomy.
7.	1906	F.	30	Hour-glass stomach near pylorus.	0	0	Shock.	12 hours.	Resection pylorus; Gastro-enterostomy.
8.	1906	M.	45	Perforating pyloric ulcer; stenosis.	43	68	Gangrenous appendicitis.	17 days.	Resection pylorus; Gastro-enterostomy.
9.	1906	M.	36	Duodenal ulcer; slight stenosis.	20	34	Perforation and peritonitis.	3 days.	Gastro-enterostomy.
10.	1908	M.	65	Pyloric ulcer; old perforation; localized abscess; stenosis.	No tests.	No tests.	Peritonitis.	10 days.	Gastro-enterostomy.
11.	1909	F.	35	Hematemesis; clinical diagnosis ulcer; no visible ulcer or stenosis.	No tests.	No tests.	Shock.	24 hours.	Gastro-enterostomy.
12.	1910	M.	61	Pyloric ulcer (active); stenosis.	60	90	Hematemesis.	48 hours.	Gastro-enterostomy.

* Average age, 50.5 years; immediate mortality, 25 per cent.; males 10; females 2.

TABLE 2.—LATE MORTALITY *

Case.	Year.	Sex.	Age.	Diagnosis.	Gastric HCl.	Findings. Total Acidity.	Cause of Death.	Time After Operation.	Operation.
13	1901	M.	30	Active pyloric ulcer; stenosis.	0	6	Recurrent hematemesis.	3 months.	Gastro-enterostomy.
14	1908	M.	63	Duodenal ulcer; localized ulcer.	70	85	Carcinoma ventriculi.	6 mos. after first operation.	Gastro-enterostomy.
15	1908	F.	34	Pyloric ulcer; stenosis.	23	46	Carcinoma ventriculi.	21 mos. after first operation.	Gastro-enterostomy.

* Total mortality 31.25 per cent.; males 12; females 3; mortality since 1906, 10.41 per cent.; seven hyperchlorhydria; four hydrochloric acid normal; two hydrochloric acid absent; two not determined.

TABLE 4.—RESULTS IN 12 CASES, 1 TO 6 YEARS AFTER OPERATION

Case.	Year.	Sex.	Age.	Diagnosis.	Operation.	Result.	—Gastric Findings—		Last Report After Operation. Years.
							HCl.	Total Acidity.	
31.	1903	M.	28	Pyloric Ulcer; perigastric adhesions.	Gastro-ent.	Perfect.	22	44	5
32.	1903	M.	45	Pyloric ulcer; stenosis.	Gastro-ent.	Improved.	30	75	1
33.	1904	F.	31	Pyloric ulcer; stenosis.	Gastro-ent.	Improved; has hyperchlorhydria.	40	60	2
34.	1904	M.	45	No ulcer or stenosis; nervous dyspepsia.	Gastro-ent.	No improvement; worse.	54	78	2
35.	1904	F.	50	Pyloric ulcer; stenosis.	Gastro-ent.	Recovery.	65	85	6
36.	1905	F.	30	Pyloric ulcer; perigastric adhesions; no stenosis.	Gastro-ent.	Made worse; vomiting.	30	50	5
37.	1905	F.	57	Pyloric ulcer; stenosis.	Gastro-ent.	Perfect.	4	10	5
38.	1907	M.	48	Duodenal ulcer; partial stenosis.	Gastro-ent.	Perfect.	69	84	3
39.	1908	F.	24	Pyloric ulcer; stenosis.	Gastro-ent.	Perfect.	50	80	2
40.	1908	M.	60	Pyloric ulcer; stenosis.	Gastro-ent.	Perfect.	19	13	2
41.	1908	F.	37	Pyloric ulcer; stenosis.	Gastro-ent.	Perfect.	50	80	2
42.	1909	M.	59	Duodenal ulcer; stenosis.	Gastro-ent.	Perfect.	36	92	1

TABLE 5.—SIX CASES IN WHICH LATE RESULTS COULD NOT BE SECURED

Case.	Year.	Sex.	Age.	Diagnosis.	Operation.	Result.	—Gastric Findings—		Last History After Operation. Months.
							HCl.	Total Acidity.	
43.	1905	F.	35	Ulcer lesser curvature; pyloric stenosis.	Gastro-enterostomy.	Operative Recovery.	60	80	2
44.	1906	M.	40	Pyloric ulcer; stenosis.	Gastro-enterostomy.	Operative Recovery.	28	50	1
45.	1907	F.	22	Pyloric ulcer; no stenosis.	Gastro-enterostomy.	No relief.	25	35	3
46.	1907	M.	42	Duodenal ulcer; slight stenosis.	Gastro-enterostomy.	Improved.	25	40	2
47.	1907	F.	30	Pyloric ulcer; cholelithiasis; stenosis.	Gastro-enterostomy.	Operative Recovery.	60	80	1
48.	1909	F.	25	Pyloric ulcer; no stenosis.	Gastro-enterostomy.	Operative Recovery.	40	60	2

TABLE 3.—DATA IN 15 CASES IN WHICH GASTRIC ANALYSES WERE MADE BEFORE AND AFTER OPERATION.

Case.	Year.	Sex.	Age.	Diagnosis.	Operation.	Result.	Before Operation. HCl.	Gastric Total Acidity.	Findings After Operation. HCl.	Total Acidity.	Date Last History.	Time Since Operation, Years.
16.	1904	F.	55	Pyloric ulcer (active); stenosis and dilatation.	Gastro-ent.	Recovery, but cannot take acid foods.	90	Blood.	124	No bile.	2/1/1910	6
17.	1904	M.	39	Ulcer of lesser curvature at pylorus; acute peripneumonitis; adhesions of stomach to abdominal wall; stenosis.	Gastro-ent.	Recovery; recurrent attacks; hyperacidity due to errors in diet.	10	Retention chyme.	70	110 c.c.; recovered one hour after meal; no bile; no retention.	3/13/1910	6
18.	1906	F.	32	Pyloric ulcer; posterior wall; no stenosis.	Gastro-ent.	Improved; occasional hematemesis; pain; morbidum.	0	Blood in stool; no retention.	0	40 c.c. recovered; no retention; bile.	3/10/1910	4
19.	1904	M.	36	Pyloric ulcer; stenosis.	Gastro-ent.	Perfect recovery; gained 10 pounds.	50	Retention.	54	Retention after ten hours.	3/20/1910	5 1/4
20.	1905	F.	28	Neurasthenia; no ulcer or stenosis demonstrable.	Gastro-ent.	Unimproved; increase of symptoms.	30	No retention.	20	40 c.c. recovered.	3/13/1910	5
21.	1906	M.	25	Pyloric ulcer; stenosis.	Gastro-ent.	Perfect recovery; gain of 40 pounds.	60	Retention.	30	No retention.	2/14/1910	2
22.	1906	M.	60	Pyloric ulcer; stenosis.	Gastro-ent.	Perfect recovery; gain of 50 pounds.	15	Retention.	20	No retention.	3/19/1910	4
23.	1908	M.	67	Duodenal ulcer; stenosis.	Gastro-ent.	Unimproved.	25	Retention.	30	No retention.	3/13/1910	2
24.	5/4/1909	M.	40	Pyloric ulcer, active; stenosis.	Gastro-ent.	Recovery; must eat lightly; gain of 25 pounds.	10	Retention.	0	Retention.	4/20/1910	11.12
25.	11/4/1909	M.	58	Pyloric ulcer (active); stenosis.	Gastro-ent.	Improved; gain of 10 pounds.	48	Retention.	55	35 c.c. recovered; bile.	5/1/1910	1/3
26.	10/4/1909	M.	30	Pyloric ulcer (ant. and post.) active; stenosis.	Gastro-ent.	Perfect recovery; gain of 30 pounds.	0	Retention.	0	Retention; bile.	5/1/1910	7/12
27.	10/16/1909	F.	54	Pyloric ulcer; peripyloritis; stenosis.	Pylorecto- my; Gas- tro-ent.	Perfect recovery.	2	Retention; lactic acid.	0	No retention.	4/20/1910	5/12
28.	1/10/1910	F.	36	Atony of stomach; dilatation.	Gastro-pli- cation.	Unimproved.	18	Retention.	10	Retention; bile.	4/10/1910	1/4
29.	3/31/1910	F.	53	Duodenal ulcer; stenosis; peripyloritis.	Gastro-ent.	Perfect recovery; gained 10 pounds.	77	Retention.	40	Retention; bile.	5/4/1910	1/12
30.	1906	M.	35	Duodenal ulcer; perforation; slight stenosis.	1st repair perfora- tion; 2nd gastro-ent.	Perfect recovery.	60	No retention.	38	No retention.	4/10/1910	4

symptoms when he refrains from acid and heavy foods. The second (No. 19) has retention of chyme for ten hours, a greater hyperchlorhydria with a complete recovery from all gastric disturbances.

Hyperchlorhydria has disappeared in three cases (Nos. 21, 29, 30) and the proper motor function has been restored.

Patient 20, in spite of a clinical history of ulcer with hematemesis, had no visible ulcer scar or stenosis. Five years after operation hydrochloric acidity is within normal limits and motor power is perfect.

Patient 23, who had normal acidity, has two years after operation persistence of motor insufficiency and no improvement in condition. The six patients with hypo-acidity have suffered a variety of results. Patient 17 has developed a hyperchlorhydria, has a good motor function and is free from symptoms if he abstains from acid foods.

In Cases 18, 24 and 27 the hypo-acidity has been supplanted by an absence of free hydrochloric acid. In Case 23 the hydrochloric acid has risen to a normal degree and motor power has become established, while in Case 28 the hydrochloric acid has decreased and retention of chyme continues with the patient unimproved. Before operation Patient 26 had an absence of hydrochloric acid with marked retention of chyme. The hydrochloric acid has not reappeared, drainage is now complete within the normal time.

The appearance of bile has usually been noted one hour after the test breakfast, for four months, after which it cannot be detected. Bile was found, however, in Case 18 four years after operation.

Table 4 outlines twelve cases in which results have been ascertained from one to six years after operation. Six cases are included in which operative recoveries only are procurable (Cases 31 to 48, inclusive). In this group the diagnosis is chronic ulcer of the stomach with stenosis in fourteen; chronic ulcer without stenosis in three; nervous dyspepsia in one.

The following outline shows results in the entire series of 27 patients known to be alive.

ULCER OF STOMACH OR DUODENUM WITH STENOSIS, 21

Perfect recovery.....	14
Recovery (care required as to choice of food).....	4
Improved.....	2
Unimproved.....	1
	<hr/>
	21

ULCER OF STOMACH OR DUODENUM WITHOUT STENOSIS, 3

Perfect recovery.....	1
Improved.....	1
Unimproved.....	1
	<hr/>
	3

NERVOUS DYSPEPSIA, 2

Unimproved.....	2
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ATONY WITH DILATATION, 1

Unimproved.....	1
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Total.....

27

A definition of the term "perfect recovery" as used in this classification depends on unqualifiedly favorable answers to the following questions:

Do you still have trouble with your stomach? Do you have any belching of gas or food? Do you vomit at all? Have you vomited or spit up any blood since the operation? How is your appetite? Do you find it necessary to eat more than three meals a day? Are your bowels regular or do you find it necessary to take physic for them?

There must also have been the ability to pursue the former vocation or avocation without disturbance.

The elimination of three cases of nervous dyspepsia, one of gastric atony and one in which no determination was made enables us to discuss the gastric findings in forty-three undoubted cases of ulcer of the pylorus or duodenum.

	Cases.
Hyperchlorhydria (free hydrochloric acid above 40).....	19
Normal acidity (free hydrochloric acid 20-40).....	14
Hypoacidity (free hydrochloric acid below 20).....	7
Anacidity (free hydrochloric acid absent).....	3
Total	43

This makes nineteen patients with hyperchlorhydria; twenty-four patients with normal or subnormal hydrochloric acid.

CONCLUSIONS

1. Hyperchlorhydria as a symptom of chronic gastric ulcer is inconstant and should be disregarded.
2. Perfect recovery may occur when atony of the stomach has existed before the development of ulcer and motor insufficiency persists; illustrated in Case 19.
3. Many of the fatalities cited in this report would have been averted had the family physician made a diagnosis before serious complications had developed. Forty patients in this series of cases gave a history of ulcer covering five years or more before the diagnosis was made.
4. Pylorotomy offered a better prognosis for recovery in five of the fatal cases. Patients 4, 12 and 13 were lost by fatal hemorrhages from the ulcer area. Patients 14 and 15 died as a result of carcinomatous transformation of the pyloric ulcer.
5. The legitimate field for gastro-enterostomy in benign diseases of the stomach is in chronic ulcer near or below the pylorus with stenosis.

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ABSTRACT OF DISCUSSION

DR. JUDSON DALAND, Philadelphia: Chronic gastric ulcer often shows a period of latency so far as the symptoms are concerned, although the ulcer itself is still present. The patient seems to recover symptomatically. It is believed that no ulcer is present at all and the case is often pronounced cured. I recall one case in which the fundic ulcer was discovered and removed; this was followed by complete recovery. The cases of gastric ulcer referred to at another session of the Section in which the carcinoma was supposed to be cured three times belong to this same group. We see cases of chronic indolent ulcer in which under treatment great improvement results and the patients are supposed to be well.

DR. MILTON J. LICHTY, Cleveland, Ohio: The study of these cases and the study of the statistics ought to be of great value and help to physicians. I should like to remind the members of the Section of the discussion of this subject three years ago by Dr. Paterson of London, when he spoke of the value of gastro-enterostomy in connection with cases of gastric ulcer. He reminded us of the temporary benefit to be derived from gastro-enterostomy when there was incomplete stenosis of the pylorus. I have watched cases since and must say that the best results of the gastro-enterostomy were seen in cases in which the stenosis was almost absolutely complete. One does not really know just what to do with cases of incomplete stenosis of the pylorus. Of course, we cannot dictate to the surgeon just what shall be done at the time of operation, but it seems to me that in some cases in which a gastro-enterostomy has been done, the patient's subsequent condition shows that it would have been better to have done a pylorotomy. It seems also that a pylorotomy should be the operation of choice whenever possible, and that a gastro-enterostomy should only be done when there is complete stenosis of the pylorus.

DR. JOHN A. WITHERSPOON, Nashville, Tenn.: A few years ago a very prominent surgeon regarded this disease as a

surgical one. The pendulum has swung back now, and every advanced surgeon is doubting the propriety of operating on gastric ulcer unless there are definite evidences of obstruction. I do not feel that gastric ulcer belongs to the surgeon for two reasons. Operation in my experience in the past has been unsuccessful. The patients I have had have recovered immediately, but later they had more or less trouble. Some of the bad ulcers become latent. It is extremely difficult in some cases to determine whether or not the gastric ulcer is cured; we know that often by medical treatment alone we may relieve patients symptomatically and they may get along well for months, gaining flesh. Yet the condition may remain dormant for some time only to awaken into activity again. A few years ago every case of hemorrhage from the stomach in cases of ulcer was referred to the surgeon for treatment; recently it has been found that medical treatment is better in such cases. The surgeon will not intervene now unless there is complete obstruction; then surgery may save many lives which otherwise would be sacrificed.

DR. DELANCEY ROCHESTER, Buffalo, N. Y.: If there is impending obstruction, or actual obstruction, of course immediate operation is indicated. However, a gastro-enterostomy is an operation that I believe should be avoided wherever possible. If any operation is to be done at all I should say that the one to be preferred was pylorotomy. I agree with Dr. Witherspoon that much can be done by medical and dietetic treatment in these cases and an operation should not be urged on patients with gastric ulcer unless it is absolutely necessary, because of the danger of cancer developing. This is a possibility, although a possibility only. Such good results are obtained from medical and dietetic treatment if continued for a sufficient length of time that operative measures should be avoided if possible.

DR. A. J. BENEDICT, Buffalo, N. Y.: My experience with gastro-enterostomy for either malignant or non-malignant disease of the pylorus is limited to one or two cases, because such an operation seemed inadvisable. In cases in which there is marked obstruction at the pylorus, a superior enterostomy is a good substitute for gastro-enterostomy, the idea being to short circuit the stomach. In patients with serious lesions of the stomach the chances for betterment are increased if no food passes through this organ at all. In one patient, a woman on whom superior enterostomy was performed, a diagnosis of carcinoma was made. The patient was very much emaciated; there was pyloric obstruction and there was no free hydrochloric acid. I thought that I could feel the thickened pylorus and when the tube was passed, obstruction was also found at the cardiac end. The surgeon who was called in wanted to do gastro-enterostomy, but it was decided that a superior enterostomy was to be preferred. On exposing the stomach there was found a small tumor at the pylorus. A section was not made, but taking it for granted that the tumor was a cancer, enterostomy was performed, and the patient was nourished through the fistula in the small intestine. I wish to emphasize that the diet should be watched with care. In the course of three or four weeks the symptoms in this patient were somewhat relieved; however, she had so much mental distress because of the fistula that we decided to close it, believing that she would die soon anyhow. That was in 1898. To our surprise, the woman made a good recovery and has remained well ever since. The tumor could not have been a cancer; just what it was I do not know.

DR. GUSTAV BAAR, Portland, Ore.: It seems to me that a mortality of 20 per cent. is too high in such cases. I have had sixteen patients operated on by surgeons during the last few years, and none died. Two of these cases were most remarkable. One patient was a woman of sixty, six feet tall, with a palpable tumor and with frequent hemorrhages; she was much emaciated, weighing but ninety-eight pounds. A gastro-enterostomy was performed, and the surgeon thought that he was dealing with a carcinoma. I insisted, however, on the diagnosis of an indurated ulcer. There was free hydrochloric acid present. The patient took nourishment without the slightest distress, being given lamb chops on the third day after operation. At the end of two months her weight had increased to 168 pounds. This was only two years ago;

the patient, at this date, is perfectly well. In another case the tumor was the size of the fist and appeared in a man aged forty-five. He had repeated hemorrhages. A diagnosis of indurated ulcer was made and a gastroenterostomy was performed. The man was absolutely cured. I believe that gastroenterostomy gives the most satisfactory results in all cases of pyloric ulcer and is a real boon to suffering humanity.

DR. JOHN D. DUNHAM, Columbus, Ohio: In regard to the symptomatic cure of these patients I wish to emphasize the fact that such patients should be followed for a number of years before any final conclusions regarding them should be considered. The surgeon who sees these cases finds the patients sufficiently recovered to leave the hospital and he cites such cases as recoveries. However, the general practitioner who follows the cases will often find recurrences. In the series of cases reported there was only one in which a secondary operation was called for. If the cases are properly selected and only those patients with stenosis are operated on, a secondary operation will rarely be needed. Attention to the diet is very important. These patients with partial or complete pyloric stenosis are starved, as a rule, and they require abundant feeding; they cannot live on slops; the choicest and best food properly prepared should be given them for many weeks. The food should be given frequently through the day and not as is customary, three times a day. In a consideration of the mortality the surgeon includes only the deaths which occur immediately after the operation, while the general practitioner and the internist follow the patient's history for several years. The mortality after gastroenterostomy should only be considered when the cases have been studied for five or six years. In the series I reported there were two cases in which perforation of the stomach occurred and two in which carcinoma developed.

BLOODLETTING IN CHILDREN *

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HISTORY OF BLOODLETTING

The history of bloodletting prior to the nineteenth century gives but scant mention of the employment of this therapeutic measure in children. The very fact, however, that ancient and medieval medicine would under ordinary circumstances not dispense with depletion justifies us in assuming that the children were subjected to the same procedure, although little special reference to this custom can be found. In Stöfler's "Calendarium romanum magnum" (1518) and in the "Medicina magica" (1568) it is stated that astrology, which influenced and pervaded the entire theory and practice of medicine of the times, accepted the theory that, according to situation and conjunction of the heavenly bodies, there existed favorable, dubious and unfavorable depletion days; the various periods of life had different days on which bloodletting was to be preferentially performed.

The phase between half and full moon was deemed especially to favor depletion of young persons, but to be inimical to the operation in old people. In nurslings blood was probably never abstracted for therapeutic purposes in the olden times.

The literature of the first half of the nineteenth century contains not infrequent allusions to bloodletting in children. On the whole, the opinions of the foremost clinicians of that period were opposed to it. According to a very brief historical sketch pertaining to this epoch

and furnished by Baginsky,¹ Bretonneau as well as Louis (1835) repudiated depletion in the treatment of diphtheria; the latter also renounced bloodletting in pneumonia and erysipelas. Bailly and Legendre afterward declared against the procedure in bronchopneumonia (catarrhal pneumonia), but recognized its value in lobar pneumonia (fibrinous pneumonia). Among the Germans, Walther (1835), Wetzlar (1837) and Nasse (1849) expressed their opposition to blood abstraction in children. The pediatricist, Mauthner, of Vienna, on the other hand, was an energetic advocate of general and local depletion in children, especially in pneumonia and other febrile affections.

In a masterly discourse on the "Antiphlogistic Treatment in Diseases of Children," which is spread over five issues of the *Medical Record* of 1870² Jacobi also deals with the problem of bloodletting, and asks the question, "Are we justified in resorting to depletion at all?" He says:

It is an established fact, or at least a very general conviction, that when we perform venesection—for the relief of pneumonia or meningitis, for example—we do not relieve the pneumonia or the meningitis itself, but we do relieve the collateral edema which has taken place in the tissues as yet uninvaded, or but partially invaded, by the inflammation. And by this relief of the collateral congestion and edema of the meninges or of the brain, we may save a patient from approaching dissolution. Such cases are rare; but when they occur, when we have to deal with acute edema, we must of course resort to depletion in many a case. I recall a case of convulsions in which I myself opened the jugular vein. I did not know the cause of the convulsion, but the venous congestion was so evident and so extreme, that I was led to relieve it as soon as possible. I think Trousseau relates a similar case. We know that the immediate danger in such cases depends not on the primary cause of the affection, but on the prolonged congestion, which may give rise to effusion or extravasation. To avert these I do not object to venesection—indeed, it may become imperative. . . . But to depletion as a general antiphlogistic I must object, and this whether it be made by venesection or by local bloodletting. . . . We often hear of plethora, of surplus of blood; if such a condition ever occurs, it is certainly not in infancy. At that period any surplus would be sure to be used to build up the body, to contribute to growth.

Accordingly, Jacobi seldom resorted to depletion in inflammatory diseases of infancy and childhood, and, although meningeal and cerebral affections sometimes required direct depletion, he believes that generally, "wherever extensive derivation is really indicated," stimulation of the emunctories will be more effective than a local withdrawal of blood about the head.

The literature from 1870 to 1890 contains very little about the subject of depletion in the young. Jewett,³ in 1891, recommended moderate bleeding for young girls of full habit who suffer from menstrual irregularities, dysmenorrhea or temporary suspension of the flow, accompanied by flushed face, headache and a throbbing pulse. Lisner,⁴ in 1897, published the following interesting case:

A boy, 8 years old, well developed, was affected with a mild form of scarlatina. The disease had about abated when a grave nephritis supervened. The eyelids were edematous; the urine contained about 1 per cent. albumin and showed, micro-

1. Baginsky, A.: Ueber allgemeine örtliche Blutentziehungen in der Kinderheilkunde, Berl. klin. Wehnschr., 1898, p. 457; Ueber die Indicationen und Contraindicationen des Aderlassens bei Kindern, Arch. f. Kinderh., 1901, xxxi, 359.

2. Jacobi, A.: Med. Rec., New York, 1870, v, 245.

3. Jewett, Homer C.: North Carolina Med. Jour., June, 1891.

4. Lisner: Beitrag zur Anwendung des Aderlassens bei Pämie, Aertzliche Prakt., 1897, No. 6.

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910

scopically, white and red blood-cells, renal epithelia and numerous granular casts. The heart was normal, the pulse 96 per minute; there was increased tension; no temperature elevation. The usual therapeutic measures were ineffective. Urinary examination, performed daily, showed no decrease of albumin; the general condition, which was fair at the onset, became worse. Without somnolence or other distinct premonitory symptoms uremia supervened suddenly, with four rapidly succeeding convulsive attacks, one of which lasted about half an hour and affected particularly the right half of the body. Chloroform inhalations caused momentary relief but did not prevent repetition of the convulsive attacks, which ensued with greater frequency and intensity. The child was apparently moribund. As the pulse was still strong, however, venesection was resorted to, though very little hope was held out for recovery. About 100 c.c. blood were withdrawn from the right median cephalic vein. The result was more striking than any the observer had ever noticed following therapeutic intervention. Movements of the right arm were perceived even while the blood was still flowing. Three additional but very mild convulsive attacks ensued after depletion; the patient slept during the night. The subsequent course of the affection was also surprising; the urinary albumin decreased slowly but steadily; ten days later albumin was no longer found in the urine; the edema of the eyelids disappeared and the improvement in the general condition was rapid.

Marfan,⁵ in 1897, dwelling on therapeutic considerations concerning the diseases of childhood, remarks that general depletion should not be employed before the fourth or fifth year of life, because abstraction of body liquids below this age is not well borne. He maintains, on the other hand, that local depletion by means of leeches or wet cupping, which often yielded excellent results, may already be applied after the fifteenth month of life. Concerning the action of topical depletion he has to say the following:

Ces émissions agissent d'une manière complexe, à la fois par la soustraction d'une petite quantité de sang et par la révulsion, qui est très vive avec la ventouse scarifiée, très spéciale avec la sangsue.

At the onset of lobar pneumonia he applies one or two wet cups beneath the nipple of the affected side; in meningeal states and grave convulsions, one or two leeches behind the mastoid processes, or two or three wet cups on the nape of the neck will sometimes appease the untoward phenomena; and in cases of nephritis with anuria or uremia, he concludes, the application of from two to four leeches or wet cups on the lumbar region often constitutes a heroic treatment.

Murray⁶ in the same year published a note of caution concerning bloodletting in children. He says that when children are bled to faintness the recovery is slow and even convulsions and death may ensue.

The most important communications on the question before us were made by Baginsky¹ in 1898 and 1901, respectively. In his first article he gives the histories of three of his cases:

CASE 1.—Girl, aged 7½, affected with grave pneumonia and arrhythmia; facial pallor, cyanosis of the lips, extreme dyspnea; orthopedic posture; pulse not palpable; diffuse rhonchi; enlargement of liver; albuminuria with numerous anatomic elements. The increasing dyspnea, threatening the life of the child, the great restlessness and fear, prompted withdrawal of 120 c.c. blood. This was very dark. Even while the process of depletion was still going on the intense cyanosis became relieved, the lips red, the pulse palpable, respiration slower. Sleep ensued. Recovery.

CASE 2.—Boy, aged 9, affected with pulmonary cirrhosis, bronchiectasis and asthmatic attacks. Improvement ensued after abstraction of from 80 to 100 c.c. blood.

CASE 3.—Girl, aged 7. In June, 1897, she was treated in the hospital for pneumonia. Since then the child was ailing. Seriously sick for the previous few days, she was again admitted to the hospital Dec. 19, 1897. Patient was suffering extreme dyspnea and was nearly dead of exhaustion; respiration involved exertion of all respiratory muscles and strong movements of larynx and thorax; wings of the nostrils far apart and moved with respiration; cyanosis of lips; pulse not palpable; dull sound in place of cardiac sounds; loud bronchial rales. Injection of camphor and mustard bath produced no improvement; venesection resorted to; median vein of right arm first, that of left arm subsequently, were incised. But a few drops of blood escaped from either vein. The child was apparently moribund, and section of the radial artery seemed justifiable. About 80 c.c. arterial blood was withdrawn. The blood was very dark. Cyanosis disappeared quickly, the pulse became palpable, dyspnea was relieved and the general condition became encouraging. The child stated that it felt better. Thoracic phenomena persisted for some time. A livid, morbilliform eruption had been present. The further course was undisturbed. The phenomena of a grave, diffuse bronchitis abated gradually; otitis media was intercurrent; the exanthema followed its normal course; the child was discharged as cured July 7, 1898.

On the strength of his clinical experience Baginsky maintains that venesection (or, if necessary, arteriotomy) must be frankly conceded to be a life-saving procedure, even in younger children, in the presence of an engorged right heart and consequent circulatory difficulty. The fact that blood abstraction may prevent a fatal issue he ascribes to its purely mechanical effect; depletion relieves the engorged and incompetent heart and reestablishes the passage of the blood through heart and lungs; however, it is not effective in every instance in which it is indicated, as the cardiac muscle may be too far deteriorated to again functionate properly.

A brief article by Gregor of the Pediatric Clinic of Breslau University, published in 1900,⁷ deals with bloodletting in nurslings. He states that many physicians not rarely apply leeches in children under 1 year of age in the treatment of pneumonia or when there is suspicion of intracranial congestion. At the Breslau clinic venesection has been performed on nurslings between the fourth and eighth months of life when there existed extensive pulmonary disease. Depletion in these cases was, however, undertaken at a stage of the malady when, as a consequence of blood-pressure decline, thrombosis of the opened vein ensued rapidly and the abstraction of sufficient amounts of blood was no longer possible. However, in a 6-months-old nursling with bilateral pneumonia and imminent cardiac insufficiency, venesection was successfully applied; the child was brought through the exudative stage until, by the occurrence of a vicarious emphysema, the danger of respiratory insufficiency had been averted. Gregor is prompted by the happy issue of this case to employ venesection in nurslings affected with pneumonia (in cases in which one lung becomes rapidly involved after the other and digitalis proves ineffectual to regulate cardiac activity) at a time before the blood-pressure has markedly decreased.

In an article devoted to venesection in uremia consequential to scarlatinal nephritis, Singer,⁸ in 1905, champions the therapeutic measure. He has observed nineteen cases of uremia in the course of scarlet fever. In all venesection was made use of. Fifteen patients recovered, four died. In eight instances the improvement was immediate; the convulsions ceased and consciousness re-

7. Gregor, K.: Ueber die Berechtigung des Aderlassens bei Säuglingen zu therapeutischen Zwecken, *Jahrb. f. Kinderh.*, 1900, p. 116.
8. Singer, G.: Venesection bei der Uremie in Folge von Scharlach Nephritis, *Jahrb. f. Kinderh.*, 1905, p. 417.

5. Marfan, A. B.: *Traité des maladies de l'enfance*, Paris, 1897.
6. Murray, C. A.: *Buffalo Med. Jour.*, 1897-8, xxxvii.

appeared at once. In children with a small, frequent pulse blood abstraction was followed by better results than when a pulse of different quality obtained. A filiform pulse contraindicates venesection. The operation, Singer maintains, is particularly called for when cerebral irritation governs the picture of the disease. When a comatose state prevails the chance for recovery is not so favorable.

As I am not a pediatricist, my personal clinical experience with general depletion in children is naturally limited and dates back to my days of general practice, shortly after the time of the first article of Baginsky on the subject. I have performed venesection eight times in children, viz., in two cases of bronchopneumonia, one case of lobar pneumonia and five cases of uremia. In the cases of bronchopneumonia and lobar pneumonia resort to bloodletting was had too late in the course of the disease, and all the children died. Of the five children with uremic manifestations, three survived. Concerning one of the latter cases I gather from the brief notes in my possession the following:

A girl, aged 7, exhibited the symptoms of postscarlatinal nephritis in the fourth, and those of uremia in the fifth week after the onset of the original affection. There were the usual nervous and urinary phenomena, the various edematous conditions, high vascular tension, dilated heart and subnormal temperature. To prevent edema of the lungs, which seemed imminent, blood was abstracted from the most prominent vein in each arm. Together about 60 c.c. were withdrawn. The high tension subsided rapidly, the temperature (rectal) became elevated to 100 F. within one hour, and the child was overcome with a natural sleep which lasted a few hours. After another week the child was out of danger; the swelling subsided, the urine had cleared up to a remarkable degree, and there were no undue cardiac or vascular manifestations. There was an uninterrupted recovery.

INDICATIONS AND CONTRAINDICATIONS

The opinion prevails among most of those who have contributed to the subject since the revival of bloodletting in the beginning of the nineties of the last century that early age, *per se*, offers no specific contraindication to the employment of this therapeutic procedure. In principle all these clinicians advocate bloodletting in suitable cases, although Marfan⁵ does not wish to see general depletion used in children under 4 years and topical depletion in those under 15 months of life. On the other hand, the physicians of the Breslau Pediatric Clinic do not hesitate to take recourse to venesection in the nursing when it seems indicated (Gregor⁷). Singer⁴ maintains that venesection is a potent and appropriate remedy in uremia arising in the course of scarlatinal nephritis, and he applies it in all types of children—the strong, the weak and the anemic; the only contraindication to bloodletting he recognizes is the presence of a filiform pulse. It goes without saying that general depletion is a much more energetic measure in children than in adults, principally for the reason that hematosiis is rather an uncertain and tedious process in early life, and it must not be forgotten that the infant needs every drop of its blood at the moment the acute condition demanding depletion has subsided.

The authors cited in the foregoing have obtained beneficial results from bloodletting, especially in instances of pneumonia and of nephritis with uremic manifestations. These are also the principal affections for the treatment of which depletion has been employed in adults. Moreover, there seem to exist no special reasons why depletion in children should not be undertaken for

the amelioration of the same pathologic state as in adults. Accordingly it may be indicated in affections of the heart and circulatory organs and diseases of the nervous system. Baginsky¹ recounts the following diseases in which blood abstraction may become necessary in children: pleuropneumonia, bronchopneumonia, capillary bronchitis with hyperemic manifestations, chronic heart disease, rapidly succeeding convulsions caused by hyperemia of the brain, and grave nephritides with uremic symptoms.

The action of full depletion in all these diseases is probably a mere mechanical one. In that group of affections in which orthopnea and dyspnea, regardless of their origin, dominate the acute clinical picture, the removal of adequate amounts of blood suddenly relieves the right heart, which, from the accumulation therein of venous blood, has become engorged, dilated and incompetent. In those clinical pictures in which coma or convulsive states overshadow the other manifestations bloodletting diminishes the underlying hyperemia of the brain, the irritation of the cerebral cortex and the vasoconstriction very likely in an entirely mechanical manner. Apart from the fact that a hemocathartic or detoxicating influence of bloodletting has never been fully demonstrated, the suddenness of the relief afforded in uremia stamps depletion as a mechanical or physical therapeutic agent.

In both groups of syndromes danger is imminent; on the one hand impending suffocation; on the other, coma or convulsions, while pulmonary edema is threatening in either case. In all pertaining instances in which the child is apparently moribund, bloodletting is unreservedly indicated.

We know at the present day that depletion does not produce a general antiphlogistic or antipyretic effect; general bloodletting neither reduces the body temperature nor subdues inflammation. Our grandfathers in medicine considered nearly every disease to be of an inflammatory character, for which vigorous antiphlogistic treatment had to be instituted. Their antiphlogistic therapy consisted for the most part in bloodletting. Jacobi² has given the death-blow to the practice of general antiphlogosis by depletion in children. In the treatment of the general run of acute diseases in children and infants blood abstraction is contraindicated unless the phenomena of suffocation, pulmonary edema, coma or convulsions, demanding mechanical relief, are paramount. On the other hand, topical bloodletting may exert a local antiphlogistic effect, as Marfan⁵ and others assert, for the pediatric practice. Experimental proof of this clinical observation is not lacking. Nicholas⁹ has shown, in the web of curarized frogs, that clinging of leukocytes to the vessel wall and their transmigration, retardation of the blood-current and, finally, stasis are manifestations of inflammation, while the opposite phenomena follow local blood abstraction, and consist of acceleration of the circulation, cessation of transmigration of leukocytes, their detachment from the vessel wall and resumption of their movements and activity in the increased blood current.

Bloodletting in children is distinctly contraindicated in instances of chronic hydremia and the cachectic states.

AMOUNT OF BLOOD TO BE WITHDRAWN IN CHILDREN

In local depletion the amount of blood withdrawn is always small. It is generally gauged by the number of leeches which have been applied. Marfan⁵ as already

9. Nicolas: Ueber locale Blutentziehungen als antiphlogistische Operationen nebst einschlägigen Experimenten, 1882.

mentioned, has given some practical hints as regards topical bleeding in a number of affections.

General depletion will prove of little or no avail if insufficient amounts of blood are abstracted. Yet, in children, the blood frequently ceases to flow before a sufficient quantity has been obtained. Under these circumstances it is often justifiable to resort to arteriotomy. The egress of the blood is livelier in the afternoon or evening than in the morning. Cold enhances coagulation and, hence, causes cessation of the blood flow. Baginsky¹ declares that if the blood escapes normally and without interruption the fifteenth or twentieth part of the entire blood of the child may be withdrawn with impunity. According to the same author if the entire blood of the child amounts to from one-fifteenth to one-twentieth of his body-weight, the quantities of blood shown in the accompanying table may be abstracted:

TABLE SHOWING AMOUNT OF BLOOD THAT MAY BE SAFELY ABSTRACTED AT DIFFERENT AGES, ETC.

Years of Life.	Body Weight in Kilograms.	Total amount of Blood, in Kilograms.	Amount to be Withdrawn.
One	10	0.66-0.5	45-25 c.c.
Three	12.5	0.85-0.62	65-45 c.c.
Five	16	1.1-0.8	73-50 c.c.
Seven	20	1.3-1.	85-50 c.c.
Ten	24.5	1.65-1.23	110-85 c.c.
Fourteen	38.5	2.57-1.92	170-100 c.c.

These are merely approximate amounts; occasionally more blood may be withdrawn, especially in cases of uremia. In other instances a smaller depletion may be safer for the child and still be sufficient to accomplish the desired end. Singer⁸ mentions, relative to scarlatinal nephritis, that the amount of blood to be removed should be in proportion to the age of the patient and the severity of the attack. If bloodletting does not yield satisfactory results, so that neither the syndrome or the patient's general condition change materially, depletion may be repeated in from twelve to twenty-four hours.

METHODS AND TECHNIC OF GENERAL DEPLETION IN CHILDREN

General depletion may be accomplished by either arteriotomy, venesection or venepuncture. Arteriotomy should be resorted to in cases of existing or imminent pulmonary edema. It should be undertaken only by one who has sufficient surgical experience. In the great majority of cases, however, the blood is withdrawn from a vein. Prior to the era of aseptic surgery phlebotomy was effected by means of a spring-lanceet; in modern times the little operation is performed with the scalpel. One of the veins of the arm may be incised; the median, the median cephalic or median basilic vein are best suited for the purpose. In other instances the blood may be obtained from one of the saphenous veins in the leg. In children, especially in infants, the veins of the arms are little prominent and are more or less hidden by goodly layers of adipose tissue. Baginsky recommends the free dissection of the vein and a long incision into it. Venepuncture, whenever applicable, is that method of blood abstraction which should be given preference. On account of the little prominence of the arm veins and the comparatively extensive fatty bolster in the young subject, it is probably not possible to employ it as frequently in children as in adults. The little blood, on the other hand, which it is often possible to obtain from one vein only should prove no contraindication to the employment of venepuncture; the little puncture wound is of no account and the instrument may be inserted into a

number of veins until the desired amount of blood has been secured. The advantages of venepuncture over venesection are: greater simplicity, greater safety for both patient and physician, greater cleanliness, more rapid accomplishment of the purpose, possibility of immediate intravenous saline infusion after abstraction, rapid healing of the small puncture wound. I have devised a venepuncture trocar, the description of which has already been published.¹⁰

The instrument is employed as follows: After the arm is corded as for venesection the thumb-rest of the trocar is held between thumb and index-finger, while the middle finger rests against the handle of the perforator to prevent it from sliding backward. The operator then thrusts the trocar directly into the most prominent vein of the forearm—the right, if possible. The puncture is made so that the point of the trocar is toward the axilla, and, although the needle points in the same direction as the blood-current, the blood flows out readily when the perforator is withdrawn beyond the outlet. A piece of rubber tubing should be attached to the outlet before the instrument is introduced into the vein. To the free end of the tubing a glass connecting tube should be fastened. The tubing and glass tube should lead into a graduated vessel, so that the operator may ascertain the amount of blood withdrawn. Immediately after depletion, when the cannula is still in position, an infusion may be administered through the same tubing and outlet. All that there is to do to accomplish this purpose is to connect the glass tube with the tubing of the vessel containing the saline solution, and to remove the material used for constricting the arm. The chance of injuring nerves and arteries is reduced to a minimum by inserting the trocar into the cephalic vein, which is not situated in as close proximity to these structures as is the median basilic, which is the vein most frequently chosen for venesection in the adult. The chance of admitting air into the vein when employing the trocar is entirely eliminated.

In the adult, bloodletting by venepuncture is one of the simplest operations imaginable. It is readily executed by any physician and I have as yet to hear the first objection to its employment by the patient or his relatives. In the child and infant the operation is a little more difficult on account of the slight prominence of the veins and the fat tissue of the arms; here the walls of the veins are not as tough as in the adult life, and great care must be exercised that the trocar needles the vein and does not penetrate it on the other side.

In concluding I wish to say that bloodletting in proper cases is probably the most potent single remedial measure which we possess, and if I again have drawn the attention of the pediatricist to this subject, it is to awaken interest in the clinical study of this old remedy through modern eyes and with modern methods of observation.

250 West Seventy-third Street.

ABSTRACT OF DISCUSSION

DR. E. MATHER SILL, New York: I can imagine that bloodletting would be very good to diminish the blood-pressure in cases of edema due to congestion. I have been accustomed to use aconite and sweating in these cases rather than bloodletting. I find that in cases of congestion due to bronchopneumonia, the old-fashioned method of cupping gives relief. Bloodletting would be contra-indicated in pneumonia, in which the children are "run down." In cases of pneumonia in

children, especially babies, the patients are much affected by loss of blood and if this bloodletting is performed it seems to me that a saline infusion should always be used to take its place. I am of the opinion that it would be very important to have a standard whereby we could know just how much blood to let in certain cases according to the age and condition of the child. I should say that it would be indicated only if the child was robust and strong and contra-indicated in cases of anemia and malnutrition.

DR. ABRAHAM JACOBI, New York: I can only repeat what I said forty years ago (*New York Med. Record* of 1870), and forty years ago I spoke on an experience of seventeen years in practice in New York. I have not modified my opinion expressed at that time. We must not forget that we cannot say beforehand uniformly just how much blood should be taken. The patients and the cases are not alike. We should remember that the amount of blood is present in a different percentage in the adult. The baby has about 5 per cent. of its weight in blood (1 part blood in 19½ body weight) while the adult has nearly 8 per cent. (1 part blood in 13 body weight). If a child weighs 40 pounds, about 2 pounds only would be the amount of blood in that child and in that proportion only the blood should be taken. No large percentage of the amount circulating in the body should be taken away.

DR. HEINRICH STERN, New York: Dr. Jacobi has again hit the nail on its head. The amount of blood to be abstracted in the young should always be in proportion to the amount contained in the organism, and we know that the blood ratio in children is decidedly smaller than in the adult. It should never exceed in the general run of cases 50 to 100 c.c.

made opposite one another. The idea naturally suggested itself to apply this principle in making the initial incisions. In the next operation, after making the first incision through the mucous membrane, etc., down to the cartilage, and separating the membrane from it as far back as necessary, instead of cutting through the cartilage at the same line of incision followed in going through the membrane, the cartilage was carefully cut through from one-eighth to one-fourth inch posterior to the incision through the mucous membrane. The rest of the operation was done after the usual methods. At the close of the operation, instead of the cartilage being cut off flush with the incision through the mucous membrane, there was left a projecting ledge of cartilage extending from one-eighth to one-quarter of an inch posteriorly from the line of this incision. In bringing the raw surfaces of mucous membrane together this projecting ledge of cartilage was found not only to be completely covered over, but also to appear to aid very materially in holding the edges of the wound in close apposition, acting somewhat as a natural splint.

I have tried this method in a series of cases with uniform results, without a perforation, and I would state that in my opinion with ordinary care and reasonable exercise of even moderate skill it is practically impossible to produce a perforation in using this method of making the primary incisions.

AN ORIGINAL METHOD FOR PREVENTION OF PERFORATION IN SUBMUCOUS RESECTION

RICHARD M. NELSON, M.D.

Eye, Ear, Nose and Throat Clinic, Colon Hospital

CRISTOBAL, CANAL ZONE

In every adverse criticism of the operation of submucous resection for the correction of deviation or deflection of the nasal septum which I have read or have heard, the greatest stress has always been laid on the danger of perforation resulting therefrom. Indeed, such great emphasis is laid on this danger, that in every such operation which I have performed the dread of this occurrence has ever been foremost in my mind.

Believing that it ought to be possible to devise some modification of the usual steps of this operation rendering the danger of perforation less than was to be apprehended with existing methods, I set to work to put into practical use an idea that had often suggested itself to me in operating after the usual method. I noted on several occasions that in dissecting or separating the mucous membrane from the cartilage on both sides, although I several times made "buttonholes" in the mucous membranes of both sides in a single operation, I never had a perforation result.

In looking for an explanation for this I noted that in no case had any two "buttonholes" been

A PRACTICAL MECHANICAL METHOD OF END-TO-END ANASTOMOSIS OF BLOOD-VESSELS

USING ABSORBABLE MAGNESIUM RINGS

V. D. LESPINASSE, M.D., G. CARL FISHER, M.D., AND
J. EISENSTAEDT, M.D., D.D.S.

CHICAGO

This work was done in the laboratory of the department of Experimental Surgery of Northwestern University Medical School, with the cooperation and assistance of Prof. Robert Zeit and Drs. Wolfer, Violet Pearson and Solomon. It is accomplished by the use of rings of metallic magnesium.

PHYSICAL PROPERTIES AND METALLURGY OF MAGNESIUM

Magnesium is a hard, silver-white metal, having a specific gravity of 1.75 and possessing a melting point of 800 degrees. As it tarnishes in the air the bright luster is soon lost, but the change is unimportant at the ordinary temperature. At a high temperature combustion follows, with production of the well-known brilliant white light. At ordinary room temperature the action increases and hydrogen gas is slowly liberated, the hydroxide of magnesium being formed at the same time.

The action of water on magnesium is hastened by the presence of salts, such as sodium chlorid, from which it follows that in the juices of the body the solution or disappearance of the metal would be more rapid than in water alone. However, even with salts present, the action is relatively slow and the hydrogen set free is scarcely appreciable. Under proper conditions 24 milligrams of magnesium will liberate 2 milligrams of hydrogen, or 22.4 c.c. at the normal temperature of zero centigrade. This volume would be somewhat greater at body temperature; approximately, 1 mg. of the metal will liberate 1 cubic centimeter of the gas.

Posterior nares



Anterior nares

Diagrammatic horizontal section through a septum deflected to the right. A, initial incision through mucous membrane down to cartilage. (Usual method is to cut through cartilage also here.) B, incision through cartilage only, a quarter or an eighth of an inch posterior to incision in mucous membrane. Both incisions, of course, are made from the right.

A 3.5 mm. ring, such as would be used on a dog's carotid, produces about 60 c.c. of gas. A 9 mm. ring, such as would be used on a human femoral, produces about 240 c.c. of gas. This gas is produced slowly and is absorbed almost as fast as produced; hence it does no harm.

Several different explanations of the action of magnesium with salt solution have been given but for all practical purposes the formation of magnesium hydroxid and hydrogen may be considered as covering the main features of the changes. The products formed are non-toxic and non-irritant.

The metal is very brittle and breaks suddenly when it is bent at a right angle, but it is quite resistant to a pull or crush.

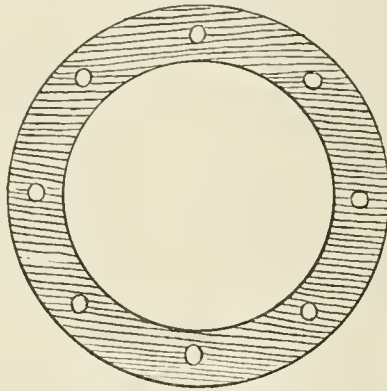


Fig. 1.—A ring, a flat piece of metallic magnesium, with edges rounded off and eight holes punched in it equidistant. These holes are counter sunk so that their edges will not cut the threads.

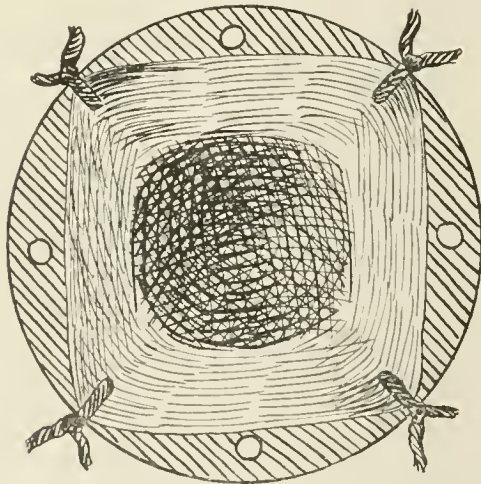


Fig. 2.—Vessel sewed into the ring, using every other hole; the sutures are triple O silk.

STERILIZATION

The rings are boiled in water from Lake Michigan, which does not contain much salt. Where the water contains any considerable amount of salts, one should use distilled water.

METHODS

Many methods of blood-vessel anastomosis have been advanced but they are all lacking in some way. The only methods at all practicable at the present time are first, the Payr method, second, the suture method.

The Payr method constricts the lumen of the vessel and is very liable to secondary thrombosis, while the technic of the suture method is very diffi-

cult. In the method here advanced these objections are overcome. There is no constriction, secondary thrombosis is impossible and the technic is simplicity itself. In a properly applied union there is not one drop of hemorrhage. One is master of the situation at all times, and does not have to try slight pressure, hot sponges, and other temporizing and uncertain methods, to stop the oozing of the blood after the clamps are removed. He knows that when the clamps are removed his junction will be perfect; if anything is wrong, it will be easily detected during the operation and can be remedied at once. While a suture may look ever so well, it may still bleed furiously when the clamps are removed, showing that the approximation is imperfect and the whole operation is destroyed beyond repair. Secondary attempts at repair have in my experience been failures in every instance.

TECHNIC OF MAGNESIUM RING BLOOD-VESSEL ANASTOMOSIS

The first step in the operation is the dissection and exposure of the vessel. This must be done carefully, and all collaterals must be clamped, cut and ligated. Then the loose sheath and adventitia is dissected off as completely as possible. As the blood flows through the vessel, the diameter of the vessel is accurately determined by the use of a millimeter gauge, which is a very important step in the operation, as the vessels, surgically speaking, have very little elasticity in a transverse direction; the fact is this elasticity is just sufficient to maintain the original lumen of the vessel, and allow for the everted portion necessary to make the anastomosis. The diameter of the vessel determined, a ring should be used having a lumen of the same diameter as that of the blood-vessel, while the blood is flowing through the vessel. If the vessel has been clamped and cut before it is measured the measurement should be taken proximal to the proximal clamp. Next the vessel is clamped in two places by means of the ordinary Crile clamp. These clamps are tightened just sufficiently to shut off the blood-stream, but not tightly enough to traumatize the intima; the vessel is then cut midway between the two clamps. The distance between the two clamps before cutting should be an inch and a half to two inches; this allows a sufficient working distance on each cut end of the vessel. The anastomosis can be done with much less space than this if necessary, but with a corresponding increase in the difficulties of the technic. After the vessel is cut the ends retract widely. The cut ends draw themselves down into and are covered over by a portion of the sheath and adventitia; grasp this connective tissue with tissue forceps; draw it up, and cut it off flush with the cut end of each vessel. The adventitia then slips well back, and is entirely out of the way for the remainder of the operation. Each end of the blood-vessel is then washed out with a normal saline solution discharged from a large syringe. In the smaller vessels, it is best to grasp them just distal to the clamp with a Knapp trachoma roller, and thus the clotted blood is forced out of them. During this process of rolling, a stream of saline solution should be playing on the cut end of the vessel.

The vessel is now ready for the application of the rings. These rings may be used in the following ways: First, one ring and a lock-stitch; second, two rings which are sewed into the respective ends of the vessel; third,

two rings and four ligatures: fourth, two rings, one of which is threaded.

First Method: One ring and lock stitch.

An appropriate-sized ring is slipped over one end of the vessel; then four guy ligatures, equidistant, are passed through the ends of the vessel; next the lock stitch is passed, first through the vessel walls, and then through the rings. The loops of the stitch are cut, and the appropriate ends tied together. The lock stitch consists of eight needles; or if the ring has more than eight holes, then have the same number of needles as there are holes in the ring. These needles are all threaded on a single thread, being spaced about eight inches apart. The two ends of the thread are passed through the same needle. In this method the ring acts only as a splint, to prevent constriction of the vessel, and every portion of the vessel wall is in the grasp of the suture; hence there is practically no hemorrhage.

Second Method: Two rings are used which are sewed into the respective ends of the vessel, by four sutures of triple-0 silk, using every other hole (Fig. 2).

In tying these sutures, care should be taken that the knot is on the outer edge of the ring, or on the opposite side of the ring from the intima of the vessel. After the rings have been sewed into the ends of both vessels, the two rings are united by four stitches passing first through one ring, then through the blood-vessel, then through the blood vessel on the opposite side, and finally through the opposite ring. These four sutures are then tied over the edge of the rings. This method is a poor one, first, because there is a liability of the suture cutting through the metal of the ring; second, it only provides four points of pressure on the ring and hemorrhage is liable to occur; third, it gives a chance for spreading of the rings at their inner edge with exposure of the sutures and consequent thrombosis.

The sutures joining the rings together had better be placed as a mattress stitch, which is done in the following way (Fig. 3):

Four strands of fine silk or linen about eight inches long are selected and armed with a needle on each end. These sutures should be perfectly smooth and withstand at least an 8-lb. pull. One of the needles is passed through the same hole in the ring through which a fine silk suture has been passed; the other end of the suture is passed through an adjoining hole in the ring, and then through the blood-vessel wall. On the other ring the sutures are passed through the same relative holes. Four of these mattress sutures are passed. After the sutures are all in place, they are pulled together and approximate the rings accurately, with no tendency for the rings to spread, and there is no liability of the sutures cutting through the large amount of metal in their grasp (Fig. 4).

Third Method: Two rings and four guy ligatures.

An appropriate-sized ring is slipped over each end of the vessel. Two ends of the vessel are then united together by four guy ligatures placed equidistant from each other. A suture is then passed through the ring, through the two ends of the vessel, immediately beneath the guy ligatures; then through a hole in the opposite ring. The suture is passed back through an adjoining hole in the second ring, through the two ends of the blood-vessel, midway between the guy ligatures and finally through the adjoining hole of the first ring. Three other sutures are passed and then the four sutures are drawn up and tied. The guy ligatures are cut and the operation is completed.

Fourth Method: Two rings, one of which is threaded.

Four strands of fine linen are armed on each end with a needle. These strands are threaded through an appropriate-sized ring in such a manner as to make four mattress stitches, having all the loops on the same side of the ring; this ring is then slipped over the cut end of the vessel; the vessel is grasped at points exactly opposite, by two very fine tenaculums; the needle directly opposite the first needle inserted is now passed through the blood-vessel, exactly between the tenaculums but on the opposite side; the remaining needles are now passed in their appropriate places. The first two needles are indicated by being grasped in marked mosquito forceps. The opposite cut end of the vessel is now grasped

by two fine tenaculums at points directly opposite each other. The two marked sutures are now passed through the vessel, midway between the tenaculums and on their appropriate sides; then they are passed through their appropriate holes in the second ring; the remaining sutures are then passed in their proper places through the vessel and through their proper holes in the second ring. The tenaculums are removed and the sutures drawn up and tied.

For large vessels, namely, above 5 mm. in diameter, the fourth method is preferred; for smaller vessels, the best method is the second here mentioned, passing the sutures uniting the rings as a mattress stitch. All sutures are heavily smeared with petroleum. These sutures need not be boiled in petroleum. The petroleum is put on first to strengthen the thread and second to make it slip easily through the tissues and not drag connective tissue with the thread into the lumen of the vessel. And the petroleum is not intended, as in the suture method, to prevent thrombosis.

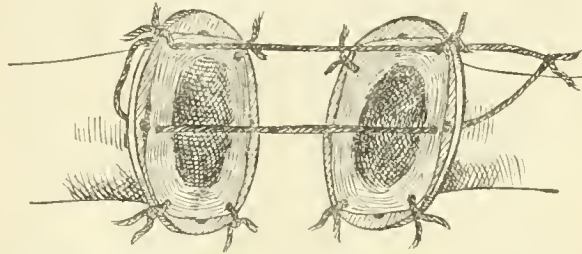


Fig. 3.—The two rings and one of the four approximating sutures of linen passed. Three others are passed in exactly the same way.

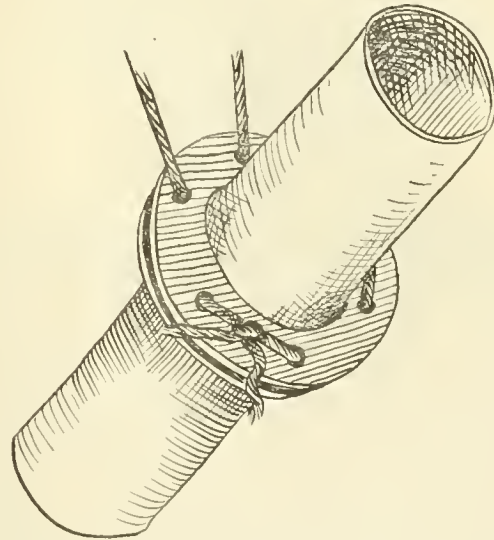


Fig. 4.—The two rings drawn together and three of the approximating sutures tied while the fourth one is drawn up ready to be tied.

After the sutures are pulled up and tied, the clamps are removed, removing the distal one first. The fascia of the sheath is then sewed over the line of union, and the operation is completed.

THE METHOD FOR REPAIR OF A LONGITUDINAL SLIT IN A BLOOD-VESSEL

In this operation the ring is replaced by a thin plate of metallic magnesium 1.5 mm. wide with holes 3 mm. apart (Fig. 6).

Technic: Clamp the vessel above and below the slit. Then locate the ends of the slit. Pass a guy ligature through the vessel walls at each end of the slit; select two plates a trifle longer than the slit; pass the needle, first through the end hole in one plate, then through both walls of the vessel a trifle

beyond the end of the slit; next through the first hole in the opposite plate, then back through the second hole of the second plate, through the vessel walls on both sides of the slit; about 1 mm. from the edge, and finally through the second hole of the first plate. Taking another suture it is passed through the third and fourth holes of the plates in exactly the same way, and so on, the number of sutures depending on the length of the slit (Fig. 7).

ABSORBABILITY

The period within which the magnesium rings are absorbed varies from 80 to 100 days for complete absorption. They maintain their original shape and hold for about thirty days and then begin to break down.

TYING THE SUTURES

It has been determined that a ligature passed around a large artery and tied under five pounds pressure will shut off the blood stream but not injure the intima. A ligature passed in the same way but tied under

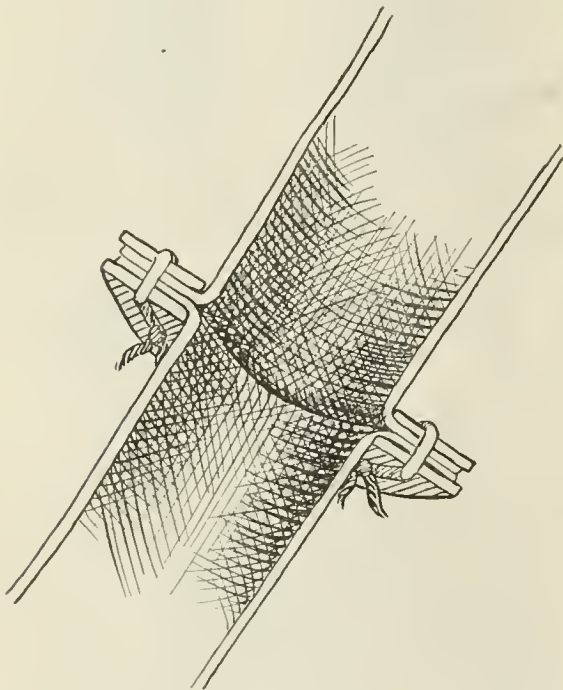


Fig. 5.—A longitudinal section of the vessel. It also shows that no foreign material of any kind comes in contact with the blood after the operation is completed.



Fig. 6.—A magnesium plate suitable for repair of a lateral slit in a vessel.

eight pounds' pressure will cut the intima. Hence to bind the two rings together the sutures should be tied with a pressure of more than five and less than eight pounds. Throughout the operation the ends of the vessel should be washed in saline solution every few minutes. Occasionally, if the vessel is not thoroughly cleaned of connective tissue and the sutures are passed from without inward, a small tag of connective tissue may catch in the suture and be dragged through the vessel wall and project into the lumen. One point that must be carefully watched in regard to the sutures which hold the rings together is their cleanliness. These sutures must not be permitted to come in contact

with blood or serum. This can be avoided by the use of gauze sponges or a piece of dentist's rubber dam appropriately placed. If the sutures are not kept clean the material adherent to them is stripped off by the blood-vessel walls as the sutures are drawn up and collects as little masses around the sutures and form the starting points for thrombi.

THROMBOSIS

In this method there is nothing inside of the lumen of the vessels after the operation is completed; hence if trauma to the intima is avoided during the operation and the vessel is washed free from all clots and not tied tightly enough so that the rings will cut the intima where it bends outward to form the flange, thrombosis will not occur. Secondary thrombosis, such as occurs in the Payr operation from pressure necrosis, is impossible.

STRICTURE

In this method primary stricture cannot occur if the vessel is accurately measured and an appropriate-sized ring is at hand with which to make the anastomosis. Secondary stricture has never occurred in any of my experimental operations. In one specimen there was a small pouch at the site of operation.

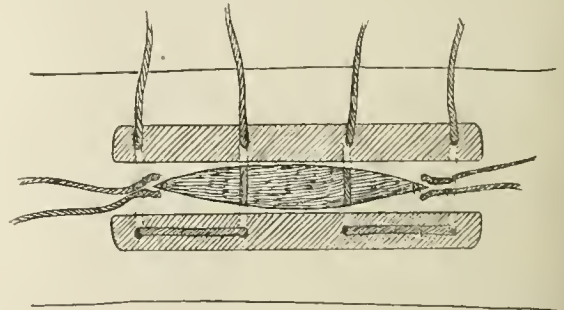


Fig. 7.—A lateral slit with a guy rope passed through each end of the slit and two mattress sutures passed through the two plates and the vessel wall ready to be drawn up and tied.

HEMORRHAGE

Primary hemorrhage should not occur. In most of the anastomoses, there is absolutely no hemorrhage, not even a drop; secondary hemorrhage has occurred only in the presence of infection.

EMBOLUS

There is danger of this occurring only when thrombosis is present; hence to avoid embolus, avoid thrombosis. Its seriousness depends entirely on the point of lodgment of the embolus.

SUMMARY

The following principles must be kept in mind when making blood-vessel anastomoses with magnesium rings:

1. The vessel must be accurately and cleanly dissected.
2. All wound hemorrhage and oozing must be checked.
3. All clot must be removed from the ends of the blood-vessel.
4. A proper-sized ring must be used.
5. The rings must not be tied together under more than 8-lb. pressure or less than 5 lbs.
6. Traumatism to the intima behind the line of union must be avoided absolutely.

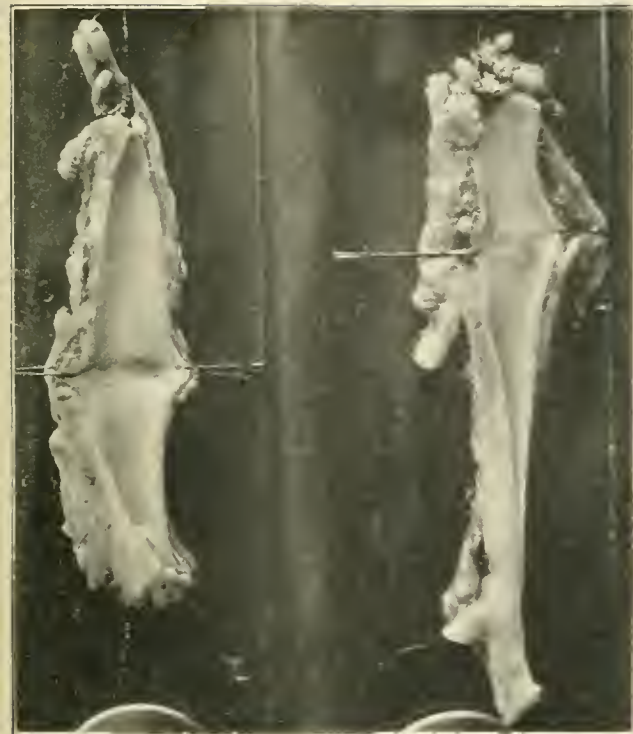


Fig. 8.—Result of anastomosis of common carotids after 100 days. No clots, no thrombosis, no constriction; arteries were pulsating and spurted when cut; magnesium rings absorbed.



Fig. 10.—Common carotid operation. Dog killed 112 days later. The arteries were dissected out and demonstrated to be pulsating. They were clamped and cut distal to the anastomosis. In each instance the blood spurted. The vessels were then split open and mounted. Age of operation 112 days; magnesium practically gone; few small pieces still present; vessel smooth; no constriction.



Fig. 9.—Result of common carotid operation. Dog died 36 days after operation; cause unknown. One vessel shows large gas tumor; neither showed any clot or thrombosis.



Fig. 11.—End-to-end anastomosis of external jugular vein. Operation 84 days old. Vessels smooth on the outside; blood flowing through them; magnesium rings absorbed except two small pieces in the tissue; no gas present. On opening the vessel; intima smooth and site of anastomosis determined with difficulty; 4 mm. rings used

7. Gentleness and accuracy in all manipulations is absolutely essential.
8. Perfect asepsis must be maintained.

CONCLUSIONS

The use of magnesium rings to anastomose blood-vessels makes the operation safe, certain and easy, bringing it well within the skill of the average surgeon.

At the present time this operation is applicable, and should be done, in all wounds of the large vessels, both venous and arterial, and in all false aneurisms; and in all arterio-venous aneurisms. Under these conditions the short piece of vessel containing the opening can be removed bringing the ends together and making an end-to-end anastomosis, thus reestablishing the circulation through the vessel.

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ABSENCE OF HYDROCHLORIC ACID WITH
BLOOD IN THE STOMACH SECRETION
(ACHLORHYDRIA HEMORRHAGICA
GASTRICA) AS A SYMPTOM OF
CHRONIC GASTRITIS *

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The purpose of the present communication is to describe a condition which has been encountered many times among the cases of stomach disease which have presented for treatment at St. Mary's Hospital of Rochester, Minn., during one and a half years, all of whom have been personally examined by me. In making these examinations some 4,000 stomach extracts after an Ewald test meal have been analyzed. Of this entire number I can recall only seven to which the term "achylia gastrica" might be applied, and there was but one case of real insufficiency of the pylorus, which was determined at operation. On the other hand, the absence of free hydrochloric acid, accompanied by occult blood, was observed in 271 instances, or approximately one in every fifteen stomachs examined.

In various instances every gradation between normal acidity and achlorhydria has been observed, and in yet other cases it has been possible to watch the gradual return from a condition of achlorhydria hemorrhagica back to regained normal acidity.

The anamnesis developed the fact that in 156 of the 271 cases of achlorhydria the onset of the gastric symptoms seemed to bear an immediate and direct relation to various diseases and conditions, among which the incidence of infectious diseases in thirty-eight cases, circulatory disturbances in twelve, postoperative development in fourteen, and derangement of the ductless glands in twenty instances deserve mention. In contradistinction to these etiologic factors determined clinically, it is very significant that in 100 cases an operation was performed while a condition of achlorhydria hemorrhagica gastrica was present. The gross pathologic findings in these showed involvement of the appendix in thirty-six cases, the gall-bladder in thirty-two cases, the gall-bladder and pancreas sixteen cases, the stomach sixteen cases. There were twelve cases in which the appendix was diseased concomitantly with the gall-bladder.

* Read before the American Gastro-Enterological Association, St. Louis, June 7, 1910.

* From the Pathologic Laboratories of St. Mary's Hospital, Rochester, Minn.

Appreciating generally the extraordinary degree of gastric disturbance which irritation in distant organs can produce, it may be considered even more than a presumptive conclusion that reflex nervous phenomena are responsible primarily for the inhibition of the production of hydrochloric acid in such instances.

The morbid anatomy of the stomach and pylorus in these patients is also of interest. Sixty-four were apparently normal. In twenty-four pylorus-spasm was demonstrated on the operating table, accompanying appendicitis eighteen times, and gall-bladder involvement six times. There were four cases in which Dr. Mayo deemed it advisable to cut off former gastro-enterostomies done elsewhere, there being no pathologic indication for their continuance. In two cases ulcer of the stomach was found, in one pyloric insufficiency, in three the pylorus was markedly thickened; there was one congenital stenosis, and one hour-glass contraction.

Regarding the pathology of the stomach mucosa in cases which do not show any free hydrochloric acid, it would be well to consider the study made by Drs. Wilson and MacCarty of 230 stomachs resected by Dr. Mayo for carcinoma.¹ In the majority of these hydrochloric acid was absent, yet in none of them was a general atrophy of the mucous membrane found. On the other hand, there was present almost without exception a marked proliferation of the mucous membrane at the margin of the ulcer. There is, however, usually an accompanying round-cell infiltration of the submucosa of a greater or less degree.

In considering the similar derangement of the gastric secretion in cases in which no carcinoma is present, I have obtained specimens from three stomachs exhibiting this phenomenon. The most noticeable findings are the occurrence in each of unquestionable non-contiguous erosions or ulcerations of the mucosa (Fig. 1), in places down to the muscularis, and a very evident submucosal infiltration of round cells (Fig. 2). Further, in many situations there was a marked engorgement of the capillaries, apparently due to the inflammatory reaction. Lying irregularly over the epithelium were masses of yellowish blood pigment, which are not found in normal stomachs, as was shown by many controls, and I feel justified in suggesting that they are probably due to a precipitation of the ferruginous element contained in the serum, which, it is evident from analogy, must exude from the eroded and inflamed areas.

The explanation of the entire *modus operandi* may be found in considering the following facts, which seem to have been fairly well established, and their correlation demonstrated:

First, a primary inhibition of the hydrochloric acid (reflexly produced); second, an invasion of the stomach by pathogenic organisms, especially streptococci, causing irritation of the mucosa; and third, a superficial ulcerated erosion of the mucosa.

Calling to mind evidence tending to prove the above, we have to consider:

First, inferentially:

1. Food causes pain, the acids being the worst.
2. Relief by vomiting, lavage and alkalis.
3. Restoration of hydrochloric acid after operation and treatment.
4. Disappearance of blood from test meal after treatment.
5. Complete disappearance of gastric symptoms after removal of irritant (appendix, gall-stones, etc.).
6. Various progressive and retrogressive phases as indicated previously.

1. Am. Jour. Med., 1909, cxxxviii, 816.

Second, objectively:

1. Absolute evidences of strong reflexes (pylorospasm).
2. Presence of micro-organisms (streptococcus, diplococcus, colon).
3. Absence of same in cases of normal acidity.
4. Normal gross appearance of these stomachs.
5. No thickening, cicatrices or atrophy when palpated.

Third, pathologically:

Macroscopic and microscopic demonstration of erosions of mucosa and round-cell infiltration of submucosa.

BACTERIOLOGY

In 350 specimens from 150 of these stomachs, stained at various intervals of time, the following organisms were found present with the indicated frequency:

Streptococci	127 cases	Diplococci (marked)	84 cases
Colon alone	8 cases	Lactic acid bacilli	42 cases
Streptococci and colon	64 cases		

Staphylococcus, proteus and leptothrix were always present. In several instances the cells of the mucosa itself had taken on phagocytic properties. Degenerated leukocytes were almost always present; in quantities

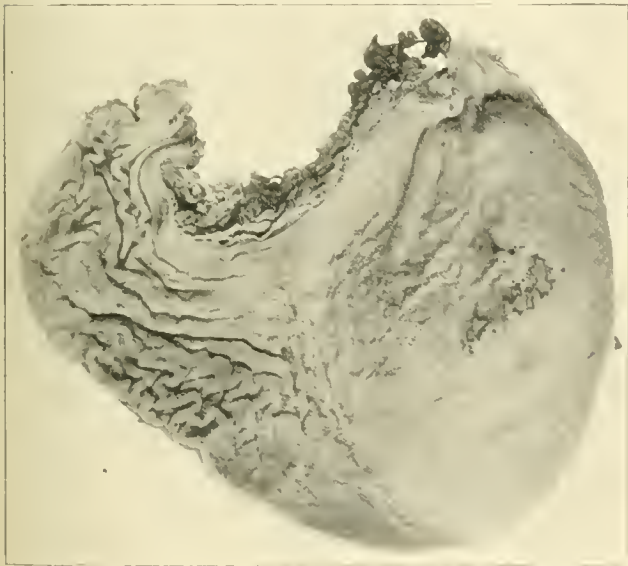


Fig. 1.—Gross appearance of posterior wall of stomach showing non-contiguous erosions or superficial ulcerations in fundus.

large enough to be designated as pus in forty-eight cases. These findings have been amply controlled by repeated observations of the flora existing in cases of hyperacidity, normal, and hypo-acidity, and in malignant and non-malignant stenoses, with the result that the following conclusions seemed to be indicated:

In the stomachs of patients presenting the symptom of achlorhydria hemorrhagica there is present a very large number of bacteria. Varieties ordinarily pathogenic are almost universally found, either alone or in combination.

Their presence is dependent on the lowered acidity of the gastric juice.

They are actively growing bacteria, evidenced by their profusion, morphologic characteristics and staining properties.

The streptococci are probably the most important factors, since they are found in larger numbers in those cases in which pus has been noted.

This would seem to be proof of some active irritation which would also account for the inferred presence of erosions of the mucosa.

The erosions of the mucosa are further indicated by the pain complained of.

The yellow color in the extracts and the blood reaction must both apparently be due to the oozing or seeping of serum from these erosions.

The sour, bitter, acrid eructations are the result of the formation of organic gases.

DIAGNOSIS

The determination of the presence of this symptom can, of course, only be made with accuracy by an analysis of the stomach contents, and this is quite characteristic either when considered grossly, chemically, or microscopically.

The amount recovered is usually less than that ingested. The bread is in a very coarse state of division, and practically as it has been swallowed. There is a uniform absence of viscosity, but the bread is quite frequently incorporated in thin mucus.

The color varies from a yellow tinge, just off the white, to a light orange. There is occasionally a slightly rancid odor.

The filtrate is invariably crystal clear and may have a slight yellowish tinge.

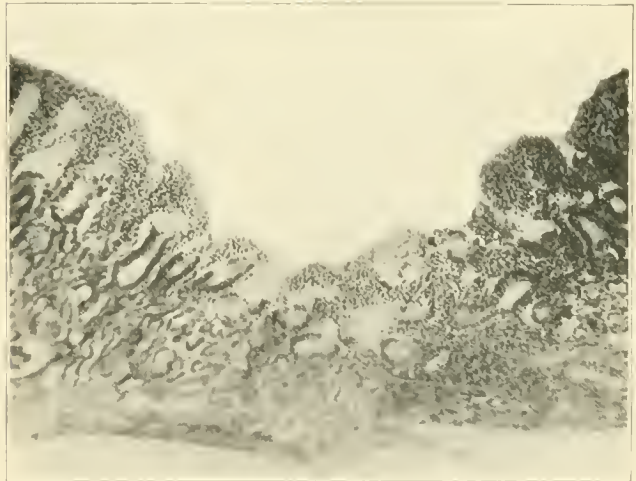


Fig. 2.—From photomicrograph through defect in mucosa shown in Figure 1, showing destruction of epithelium and round-cell infiltration of submucosa.

The total acidity varies between 6 and 8 points, and is due to the acidity of the ingested bread. Free hydrochloric acid is never present. Combined acids are practically negative. Traces have, however, occasionally been found.

Lactic acid is present in about 15 per cent. of the cases, but the Strauss method must be used, as by Uffelmann's method a perfect reaction is nearly always obtained, due to the lack of masking by hydrochloric acid.

The blood reaction is always present, the guaiac test in a modified form being employed. It is always of the so-called "occult" variety, and never traumatic. If it were, the extract would be red, and it would not be an admixture or diffuse. This reaction has been amply controlled in order to convince myself that the title proposed in this paper was justified.

Remnants are seldom found, and if obtained are due to continuous pylorospasm.

I have found the biuret reaction present in a much greater percentage than other observers have found it.

SYMPTOMATOLOGY

The symptom-complex in this class of cases presenting the symptom of achlorhydria hemorrhagica gastrica is rather difficult to define, chiefly because of the inconsistency of the accompanying symptoms, and yet it is on this very capriciousness that the chief point in diagnosis must be based.

The majority of these patients complain of oppression or distress in the epigastrium, amounting usually to a sensation of pain. In most cases it is of a burning or gnawing character, and occurred in one-third of the cases immediately after food. This does not always obtain, as they will say at times it occurs much later, or even before meals. The expression "at any time" is a familiar one, until the patients are required to state the inception more definitely. It is usually increased by taking food, although it may be relieved, temporarily. Various methods for its more permanent relief are to be noted, vomiting being the most prominent. Belching and sour, bitter, acrid eructations are a constant accompaniment.

In at least one-half of the cases vomiting is complained of, usually immediately after meals, consisting of the ingesta, which have a sour, bitter taste. Nausea is not infrequent, and hematemesis has occurred in several instances. Constipation is usual, but this may alternate with periods—usually of one to four weeks—of diarrhea, while in one class of cases the imperativeness of bowel movement immediately after eating is very suggestive of this derangement.

There is usually discrimination used by these patients as to the quality and quantity of food eaten, meats and fats being the first to be discarded. Very marked impairment of the appetite is present in many instances, although here also vagaries are to be noted. The loss of weight, averaging between 15 and 25 pounds, is an almost constant finding.

Generally patients with achlorhydria present a perverted mental attitude, and have periods of depression alternating with nervous excitement. All these factors I am inclined to think are rather the result of the condition due to the continued thought exercised by many of the so-called dyspeptics concerning their stomachs, or the fear induced by the idea of cancer being present, rather than a causative factor of the condition itself, which seems to be explicable on a much sounder pathologic basis than that of a neurosis. Malaise, easy fatigue, inability to work, occasional headaches, and insomnia, complete in a general way the symptomatology presented by the majority of the cases in this series.

Among the conditions which must be differentiated are gastric and duodenal ulcer, cancer and cardiospasm, also pregnancy, uremia, phthisis, urokinetic conditions, chronic obstructions of the colon, diseases of the nervous system, tabetic crises, hysterical vomiting, angina pectoris, abdominal angina and muco-membranous colitis. The relative value of each I hope to demonstrate in a subsequent article.

The coexistence of the etiologic factors (cholecystitis, appendicitis, pancreatitis, etc.) with their more or less obvious symptomatology, must be taken into consideration primarily.

TREATMENT

Treatment resolves itself into either medical or surgical. The latter is certainly indicated when any pathologic condition can be determined on. In view of our inability to diagnose any etiologic factor, the best results have been obtained from proper-regulation of the

diet and from the employment of the alkalis in combination with general tonics.

In the cases considered, 172 patients have been traced and their personal statement of their present condition tabulated. Sixty-one patients have entirely recovered, thirty-eight have merely an occasional complaint, twenty-three feel comparatively well, nine are moderately improved. In twenty-six there was no improvement, while four were worse, and eleven had died.

The greatest improvement has been obtained in those operated on. Of the eleven recorded as dead, we find the primary factor, as pancreatitis, nephritis, myocarditis, pernicious anemia, etc., given usually as the cause. One I know developed a cancer in the stomach, and two gave a history very suggestive of it, but it could not be confirmed.

SUMMARY

There is a definite entity presented in the stomachs of some patients suffering from various intra-abdominal and extra-abdominal pathologic conditions, which is characterized by the absence of hydrochloric acid and the presence of "occult" blood.

This condition is probably effected through the agency of a reflex nerve stimulation inhibiting first the production of free hydrochloric acid to only a moderate degree.

This so modifies the inhibiting factor of the gastric juice that the necessary conditions for the growth of pathogenic bacteria are furnished, chief among which are to be reckoned the streptococci and colon group, which are present in striking numbers.

These direct irritants, either themselves or in conjunction with a primary irritative factor, *e. g.*, gallstones, appendicitis, pancreatitis, etc., perpetuate the pathologic process until there is an achlorhydria produced. It is most probable that to the ulcerative erosion following this irritation the presence of blood may be ascribed.

In the 100 stomachs examined at operation atrophy was never present, nor was there, except in one case, any evident insufficiency of the pylorus.

There is a general symptomatology accompanying this condition which is very suggestive.

The test meal recovered is indicative of the pathologic process in the stomach.

There were indications in but seven cases observed that there was no secretion from the stomach mucosa. In others the presence of mucus, the biuret reaction and coagulation after activation would tend to show that there was still a moderate degree of enzymatic action. The cases are therefore not "achylia gastrica."

Proof of the etiologic factors has been deduced from the prompt and permanent recovery of the patients operated on.

The condition is so common, approximately one in every fifteen stomach cases in which the patients were examined, and the indication it gives of irritation in other organs I believe is so firmly established, not to mention the potential factor for future trouble which it itself contains, that it merits more frequent consideration in the study of possible gastric conditions.

I wish to take this occasion to express my appreciation of the kindness of Dr. W. J. Mayo in placing at my disposal this clinical and surgical material, which has made these investigations possible, and also my indebtedness to Dr. L. B. Wilson for many valuable suggestions in the course of this research.

145 Gates Avenue.

THE PLACE OF HEBOSTEOTOMY AS AN
AID TO DELIVERY *

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Since pregnancy in woman usually consists in single fetation and since the child is born needing the care of the mother for years to come, that obstetric treatment which does not strive to the utmost to result in a living healthy mother and child ignores the fundamental purpose of pregnancy, namely, reproduction.

The obstetric art cannot afford to be wasteful of a single life. As long as there is a child mortality of 2 per cent., as reported by Hill, as well as a maternal mortality and morbidity and due directly or indirectly to disproportion between the size of the passage and the passenger, we are entirely justified in our efforts to secure for each mother and child that treatment best adapted to their needs.

APPLICATION AND LIMITATION OF HEBOSTEOTOMY

Hebosteotomy must be considered in the light of its success in certain conditions in which other measures fail and its limitations must be set only by the greater success of other procedures to terminate the pregnancy safely for mother and child, to which end the state and the individual has a right to expect that every means possible be brought to bear. Two important erroneous impressions obtain in this relation: first, that pregnancy and labor are physiologic processes and second, that when they cease to be so, the separation of the mother and child at all hazards to the child constitute successful obstetrics. When we consider the number of maternal and fetal deaths, the invalidism in mothers from tears, infections, hemorrhages, etc., and the crippled and mentally defective children that result, it will be seen that it were greater wisdom to consider them pathologic processes. This would send the obstetrician to his case better equipped mentally as well as materially. This would also do away with the midwife, one of the greatest inconsistencies of modern medicine. As to the second point, it may not always be possible to save mother and child but failure to do so allows the pregnancy to fail of its purpose and this should not be until every measure at our command is exhausted. Good obstetrics means not only watchful expectancy for a spontaneous delivery but wise intervention looking toward the saving of the life and health of mother and child.

Not every practitioner has acquired such skill in pelvic measurements that he can determine the amount of contraction, flattening, narrowing of the pelvic arch, exostoses, size of the child's head, etc., to a nicety; neither can an expert estimate the proportions to a certainty, but such skill can be acquired as will foretell a probable difficult labor and too much emphasis cannot be laid on the importance of seeking hospital care and the services of one skilled in obstetric technique in order that the right step may be taken at the right time.

METHODS OF DELIVERY

The purpose of this paper is to review some of the methods in use in the presence of disproportion between the child's head and the pelvis of the mother and to deal in particular with one of these methods—hebosteotomy.

1. A marked degree of contraction has been considered a justifiable excuse for abortion in the early months of pregnancy, but if we do not presume to judge between human lives 100 per cent. fetal mortality is too high a price to pay.
2. Artificial labor is sometimes induced after the period of viability has been reached in moderate degrees of contraction.
3. Efforts have been made, and with reported success, to control the growth of the child during the latter months of pregnancy.
4. Labor is allowed to continue beyond the usual length of time in order that a disproportionally large head may mold.
5. The high forceps are applied and efforts made to drag the head into and through the pelvis.
6. Version is performed to force delivery of the mother at the expense of the child.

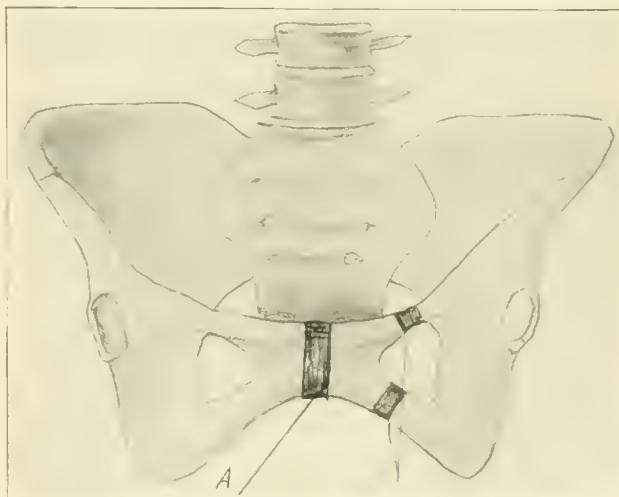


Fig. 1.—Diagram of (A) Sigault's symphyseotomy (1777) and (B) Pinard's ischiopubiotomy (1892).

7. Craniotomy is performed even in the living child by some.
8. Cesarean section is chosen when a medium or marked degree of contraction is known to exist or when it is discovered while the child is still living, head not engaged, and the mother still in fair condition and uninfected. In some instances these objections might be set aside in favor of Cesarean section.
9. Enlargement of the pelvis to meet the disproportion is accomplished by separating the symphysis, or preferably cutting through the body of the pubic bone, the first known as symphyseotomy and the latter variously known as pubiotomy, hebotomy, etc., but preferably called hebosteotomy.

I would not wish to say that any one of these methods is without its field of usefulness in some hands, but I should have to have a stronger indication for abortion and craniotomy than that a patient did not wish to submit to a fairly safe obstetric operation. The periods of pregnancy and labor are no times for a woman to prove a "quitter." I should say that she has no right to ask the life of the child that she may avoid hebosteotomy or a comparatively safe Cesarean section.

* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

Artificial premature labor is followed by a large fetal mortality and efforts at dwarfing the growth of the child may prove ineffective or harmful if effective.

Again our treatment in many cases begins only after labor has begun or long continued. The value of a long and forced labor in molding the head in cases of mild disproportion must be appreciated and yet the dangers of exhaustion of the mother and compression of the child's head must not be underestimated. The head floating above the pelvic brim after long-continued labor indicates a marked degree of disproportion in



Fig. 2.—Aitken's pelvotomy (1785).

which version and high forceps are seldom, if ever, indicated, as they are murderous to the child. Cesarean section, with the improved surgical technic, holds a wide and increasing field of usefulness. That there have been errors none will deny. Much has been said about Cesarean section displacing hebosteotomy, they are not entirely competitive procedures they are complementary, each having a place of its own, yet with their fields overlapping.

Remove hebosteotomy, and craniotomy or its near cousins high forceps and version have to be substituted. Hebosteotomy is for the living child; craniotomy for the dead. A well-chosen Cesarean section promises life for the future child after the death of this one; hebosteotomy steps in to save this one. "Cesarean section gives a high percentage of recoveries." True, in selected cases; but done in those cases in which hebosteotomy could be successfully done the mortality would decidedly increase. Cesarean section permits of no well-determined efforts at labor in the border line cases with a safe means of escape if that effort fails. The statistics of Cesarean section and operations on the bony outlet cannot rightfully be compared as the former are done on fresh patients while the latter are frequently done on exhausted patients.

THE PLACE OF HEBOSTEOTOMY

I make no enthusiastic claim for the theoretic beauty of the operations of enlarging the bony pelvis, but if it saves life and in no great degree sacrifices health, it has a place, and if it has a place its successes will be greater as its indications are better understood and its technic improved. There is at present wide variations of opinion. The value and the place of the operation is not determined. Williams, who formerly spoke very discouragingly of symphyseotomy and in favor of Cesarean section, now reports his experiences based on 25 cases of hebosteotomy with marked success and this is entirely worthy of the consideration of the champ-

ions of Cesarean section who think that this should take the place of hebosteotomy.

RESULTS IN SIX CASES

My experience is based on six cases, the results of which have gone far to overcome my former prejudice against the advisability of attacking the bony pelvis. The six patients while operated on during varying degrees of exhaustion have resulted in six living mothers and six living children. Of these six cases four were seen after labor had continued for many hours. The patient in Case 4 had been in labor four and one-half days. The patient in Case 3 began labor under my care but was required to exert a strong test of labor because she had previously been delivered of a 9½ pound girl, with high forceps. She was urged to enter the hospital at the second delivery as it was found that the head was large and a moderate exostosis existed at the symphysis. The patient in Case 6 entered the hospital under my care and it was thought that delivery would take place. The test of labor and the use of forceps with moderate force disproved this. The patients in Cases 1, 2, 3, 5 and 6 had had forceps used previous to the operation of hebosteotomy. In Cases 2 and 3 and 6 the forceps were applied by myself and a very careful effort made to engage the head. In Case 5 the forceps had been applied several times before the patient entered the hospital, the head was arrested in transverse position. It was thought that delivery might be effected with the use of the forceps, but the child's heart-beats were so rapid and weak that it was not thought best to put the additional tax on it. Extreme efforts at resuscitation had to be used even after a very easy delivery by hebosteotomy. In this case the soft parts over each parietal eminence sloughed but with no evil after-results.

This, like many of the complications, must not be charged to the operation. In Case 4 the head could not be reached with any degree of safety for the application of the forceps. In three cases the hebosteotomy com-

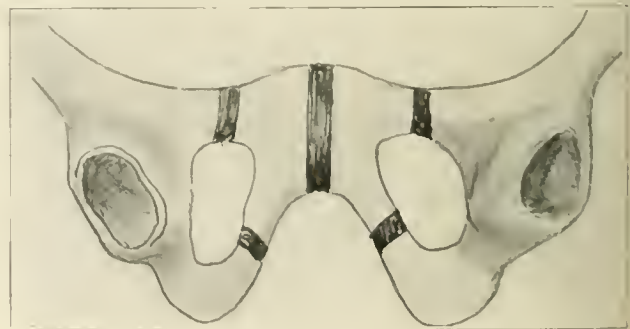


Fig. 3.—Galblat's "pelvotomia," 1819-1832.

municated, through more or less considerable tears, with the vagina. These were closed with drainage and in no way seem to complicate the healing of the bone. In no case were the tears more extensive than frequently happens without the operation, and Case 6, in which the patient had extensive vaginal tear due to necessarily wide separation, resulted not less favorably than those with less tear. In no case was there even annoying hemorrhage at time of operation or hematoma afterward.

In Case 1 the operation was done in conjunction with Dr. Fitzpatrick by the open method. The Gigli saw was placed so far inward as to saw partly bone and partly

cartilage. All others were done by the subcutaneous method and separated entirely through bone. The post-partum operation in Case 1 of bringing the bones and soft parts together consumed considerable time, while by the subcutaneous method all this was avoided.

The bony separation obtained we have estimated at from 3 to 6 cm. (about $1\frac{1}{2}$ to $2\frac{1}{2}$ in.). Four of the patients have been recently inspected and in no case is there a waddling gait or difficulty in walking due to the bony pelvis. The patient in Case 3 has some prolapse of the soft parts due to injury to the levator ani muscle; and the one in Case 4 has the cervix fixed by scar tissue but it is on the opposite side from that operated on and evidently in no way due to the operation.

COMPLICATIONS

Operators have recorded many evils and complications among which are injuries to the urethra, injuries to the head of the child, (laceration of the ear) traumatism of the iliac vessels, separation of the sacroiliac joint, severe hemorrhages (in some cases causing death) failure to obtain room for delivery even after this operation, non-union leading to disability, etc. These misfortunes have not befallen my patients thus far. It will also be seen that many of these are evils which may occur in case of severe labor without this or any other operation and many of them are plainly due to the injuries which have preceded the hebstectomy or took place during delivery independent of the cutting of the bone. Direct injury to the bladder or to the head of the child have been due mostly to a sharp needle and this in itself must be looked on as faulty technic.

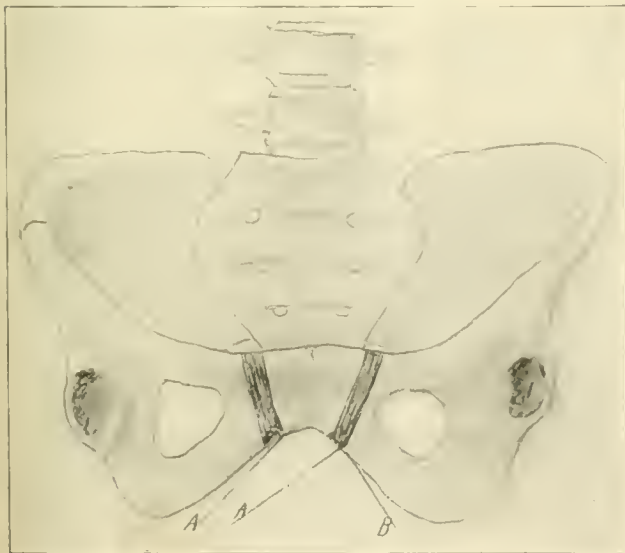


Fig. 4.—Diagram of (A, A') Pitöis' bipubiectomy (1831), and (B) Champion's pubiotomy (1844).

In addition to the usefulness of hebstectomy in immediate delivery it is interesting to determine the kind of healing that takes place as having some bearing on the future health of the mother and on future child-birth. In all cases examined the union has been firm, allowing no play of bone ends. In no case has there been a callous felt on the underside of the bone, but thickening has been felt on the upper surface persisting for some time. In four cases examined recently no thickening remains to suggest a previous operation. In one case a slight depression could be felt on the under

side. There was, in all but one case, some fixation of the vaginal wall at the site of the operation. The skiagraphic picture has indicated a fibrous union in two cases but with separation of only $\frac{1}{4}$ and $\frac{3}{8}$ inches, respectively. The skiagraphic results in the other cases were not satisfactory and future attempts will be made.

The above finding speaks well for the recovery of the patient but would seem to promise little so far as permanent enlargement is concerned. Williams reports the case of a patient dying after Cesarean section in a pregnancy following a hebstectomy, in which a post-mor-

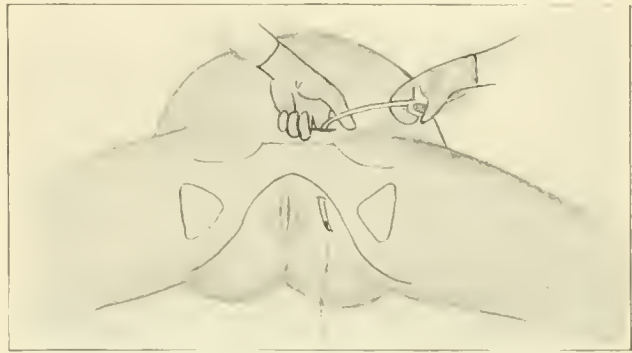


Fig. 5.—Döderlein's hebstectomy, showing short transverse incision above the pubic bone for the introduction of the finger to guide the needle inserted from above downward.

tem study indicated a softening of the fibrous union that promised considerable enlargement. Some of his cases have shown enlargement and movability without apparent disability in locomotion. He reports, however, that such enlargement cannot always be expected as one patient had a second hebstectomy with a child weighing even less. Seven of the pregnancies following the operation in his cases terminated as follows: 1 hebstectomy, 2 Cesarean sections, 4 spontaneous deliveries.

It must not be taken for granted, however, that the cases of spontaneous delivery were necessarily the result of permanent enlargement, for some of our patients had been previously delivered successfully. Neither must it be taken for granted that a patient having had a hebstectomy is going to require operative delivery and a Cesarean section chosen, on that ground alone. Crédé, Truzzi and Wendeler, Schikeles, Hammerschlag, Bell and others have advocated methods looking toward permanent enlargement, some even requiring extensive dissections.

When we consider that it is only in the slightly or moderately contracted pelvis that hebstectomy is applicable and in these cases the test of labor is needed to determine whether or not any enlargement will be required, and when it is so easy to get the desired enlargement at the time, if it is found necessary; and when we further consider that any permanent enlargement that would not cause a disability must necessarily be limited, while the required enlargement may vary 3 to 6 cm., such procedures must be viewed in the light of meddling surgery. I am convinced that our best results will be obtained by endeavoring to get the required enlargement for the present delivery with the best approximation and healing possible, leaving future deliveries to be determined by the merits of the case, spontaneous delivery if possible, forceps if required, hebstectomy if necessary, Cesarean section if the degree of contraction is so great that delivery was very difficult with the previous hebstect-

omy. To the extent that we get permanent enlargement, in that proportion shall we have disability in locomotion or pelvic hernias.

INDICATIONS

Lewis, in a summary of the literature, says: "I think the indications for both symphysiotomy and pubiotomy will become narrower and narrower as time goes on. In individual cases the decision will be between Cesarean section and perforation rather than between symphysiotomy and pubiotomy."

DeLee condemns hebosteotomy, but both these authorities speak without personal experiences with the operation, preferring Cesarean section. In many cases the opportune time for Cesarean section is past long before the life of the child is extinct—these authors would have to resort to craniotomy or, in these cases, a death-dealing high forceps or version. I think it may be said that the operation is indicated whenever it promises greater assurances of life to the mother and child than

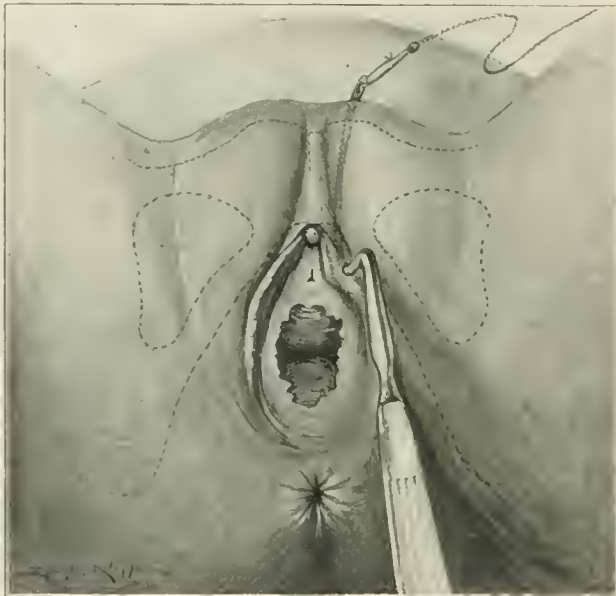


Fig. 6.—Hebosteotomy, showing the author's needle in place, entering just under the body of the pubic bone and emerging just above the bone and inside the pubic spine. The silk carrying the saw is then double threaded or tied in the eye of the needle.

any other measure obtainable under given conditions. It can not compete with Cesarean section in marked degrees of contraction seen early. It has no reason to compete with craniotomy in the dead child. Neither can Cesarean section compete with hebosteotomy in patients who are seen advanced in labor and in whom numerous examinations and forceps applications have been made, making infection possible or, when the mother is exhausted. Yet in many of these cases craniotomy has no place, and version and high forceps are scarcely better.

It must be said that under these conditions hebosteotomy is not at its best but is not precluded, and may be said to have a wide field. Its most ideal field is in those cases in which a moderate degree of contraction foretells a difficult labor but in which there is promise enough of delivery that a good strong test of labor is desired. Here the patient should be placed under the best of surroundings and progress awaited. Should the mother or child show exhaustion, speedy delivery may

be obtained at any time. I have not chosen the prophylactic hebosteotomy, for experience has shown that had I been so inclined I would have performed the operation on patients who were delivered spontaneously, or with forceps. On the other hand I recall a number of cases in former experience in which I should now employ hebosteotomy. Some place the aseptic restrictions on hebosteotomy almost or quite as strong as on Cesarean section. While it is true that sepsis complicates any operative procedures and that complications will increase thereby, yet the mere possibility of sepsis is no contraindication to the operation, and it must be remembered that the infected woman is not safe with or without operation, and instances may arise in which the saving of the child will more than offset any slightly increased risk to the mother incident to such operative procedure.

HISTORY

Hippocrates recognized the disproportion between the child's head and the pelvic outlet and its tendency to cause malposition. His writings also express the belief that delivery is effected by a separation of the pubic bones and that this should be permanent making future childbirth easy. Only the dangers of surgery would prevent this conception from being utilized in enlargement of the pelvis during difficult labors. Hebosteotomy can only be said to secure the advantages of symphysiotomy minus some of its disadvantages, and therefore the history of the two is closely associated.

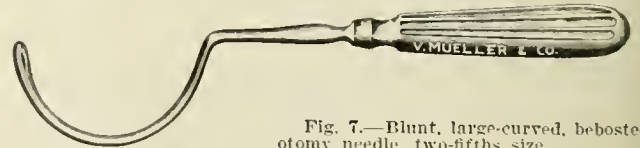


Fig. 7.—Blunt, large-curved, hebosteotomy needle, two-fifths size.

Sigault first demonstrated the possibility of pelvic enlargement by means of separation of the symphysis in 1768 but he lacked opportunity to demonstrate it on the living until 1777 when he and LeRoy operated on Mme. Suchot, who had had four difficult confinements with no living child. This resulted in a living child. Antonio Delgado in 1781 published an account of an operation of separating the symphysis with a knife subcutaneously, great enthusiasm was shown for symphysiotomy but it met in Baudeloque a caustic opponent. Misjudgment and lack of skill led to its falling into disrepute for nearly a century, when it was revived in 1866 by Morisani, who in 1881 reported 50 operations with 10 recoveries. Spinelli and Pinard are credited with its introduction into France.

R. H. Harris called attention to its use in this country, but Jewett was the first to perform the operation on this side of the Atlantic. Numerous methods of enlarging the pelvis were proposed in the century following Sigault's work. Pitois in 1831 proposed "bipubiotomy," severing both pubic bones. Champion proposed restricting this to one side in 1844. Aitkin in 1785, proposed "pelviotomy," cutting into the obturator foramen on each side severing all rami of the pubic bone. Galbiati's "pelviotomy" in 1819 to 1830 extended this to include the separation of the symphysis, but evidences are lacking that these operations were performed except on animals. Gigli in 1894, after a study of the disadvantages of symphysiotomy, proposed the cutting of the pelvic bone through an incision; this was but

carrying out the idea of Champion fifty years previously. Bonardo of Lugano was the first to perform the operation in 1897. Calderini, Van de Velde and Gigli soon followed. Doederlein in 1904 substituted a small incision through which the tip of the finger could be inserted, to guide the needle posterior to the pubic bone. Walcher and Bumm punctured the skin and carried the needle through without the introduction of the finger. Montgomery of Quincy, Ill., was the first to do pubiotomy in this country, and recommends the Gigli incision, claiming to see no advantage in the subcutaneous operation. My observation would lead me to a far different conclusion.

CHOICE OF METHOD AND TECHNIC

As a means of enlarging the pelvis, hebstectomy must be compared with symphysiotomy, the older operation. Each procedure has its supporters but there is a growing consensus of opinion that hebstectomy secures all the advantages of the other operation minus some of its objections. Comparisons of statistics are drawn from a period when operative technic was less perfect, and again the statistics of symphysiotomy are largely with the open operation while hebstectomy statistics show improvement because of the use of the subcutaneous, or partially subcutaneous, method. It may be said that hebstectomy requires special instruments which may not be at hand; it is urged, however, that hebstectomy runs less risk of injuring the crus, the urethra and the bladder, and, being through bone, secures better union. While not favoring symphysiotomy I am free to admit that its record might be decidedly improved if the subcutaneous method were adopted.

If hebstectomy is chosen we then have for consideration the open method of Gigli, the partially open method of Doederlein and the subcutaneous method of Walcher and Bumm. My very limited experience of one case with the open method, and five cases with subcutaneous method leads me greatly to prefer the latter. There is no comparison in ease of performance and simplicity of after care. Montgomery, Williams, myself and others have chosen the open method for the first operation. Montgomery without further experience says he sees no advantage in the subcutaneous method. In Williams' subsequent cases the patients were operated on by the partially subcutaneous method of Doederlein and he much prefers it to the open methods. He has not tried the entirely subcutaneous method and thinks that his success in avoiding the bladder is due to the use of the partially open method. He, however, ascribes some of the infections to the open method and thinks it possible to avoid this by having a clean assistant close the wound.

There seems to me great advantage in the subcutaneous method providing a safe means of avoiding the bladder can be obtained. In the subcutaneous methods of Walcher and Bumm a sharp needle is employed that punctures the skin. The needle which I have had constructed has a large curve which gives plenty of room to sweep around the pubic bone, even though massive—as many of them are—and still allow for abundance of adipose tissue. The needle not only offers safety to the bladder directly by reason of its bluntness but, being blunt, it can be made to grate against the bone without catching unduly and thereby avoiding contact with the bladder. If this precaution is observed the point of the dull needle is under control at all times. It will be seen that the sharp needle cannot scrape the bone and

therefore may injure the bladder. The needle enters through a slight knife stab at the fissure between the labium majus and minus at the lower border of the body of the pubic bone, is made to scrape the posterior surface of this bone to its upper border, when the handle is depressed and the point made to elevate the skin above the upper border of the bone where it is brought out a slight knife puncture. During the journey of the needle, its direction is controlled by one or two fingers in the vagina. When the needle is in place it is threaded with heavy silk thread, which carries the Gigli saw, after which it is made to retrace its steps, leaving the saw in place to sever the bone. The time of performing the operation is a matter of some discussion. Some Continental writers prefer to perform the operation early in labor after which the labor is allowed to progress normally. Four of my cases were seen after the patients had been long in labor and in the other two I needed the strongest test of labor and the moderate test of the forceps to prove the necessity of the operation, so that in all cases immediate delivery was desirable or imperative, which has been accomplished in each case with forceps. Possibly podalic version might be employed to advantage in some cases looking to a better adaptation of the head, as posterior positions are common. Forward rotation has been possible in all cases.

With Williams, I have found it a great advantage to massage and stretch the vagina and pelvic floor previous to the introduction of the saw, but this is scarcely less desirable in forceps delivery and so cannot be counted as belonging to the hebstectomy. The technic, in addition to the forceps delivery, is the introduction of the needle and the sawing of the bone with perhaps the sewing of an unusually placed tear. Some have recommended the laying of the saw preliminary to the application of the trial of the forceps but this would mean an unnecessary laying of the saw in some cases. It appears more desirable to make the required test with the forceps, failing in which, the forceps may be removed and the hebstectomy performed after which the forceps may be reapplied. On the other hand, I do see great advantage in the preliminary preparation of the saw if a breech delivery or podalic version is to be attempted in cases of disproportion, as when once begun, time would not allow the introduction of the needle even if necessary to delivery, while if the introduction had taken place the bone could quickly be severed. I would here recommend the introduction of the silk carrying the saw, leaving the saw above, as this would avoid the hard rough saw between the head and the pubic bone. If delivery failed, the saw could be quickly drawn through.

The after care has been very simple in the patients operated on subcutaneously. A sand-bag has been placed on each side of the patient and a broad adhesive strap placed across the pelvis in front. In cases in which a vaginal tear occurred this was closed and a strip of gauze carried up to the bone for a few days.

MORTALITY AND MORBIDITY

Hebstectomy is an operation of importance undertaken at times when the mother or child has undergone considerable strain and sometimes abuse. It is inevitable that it will have a mortality and morbidity but these are often the results of prolonged labor not due to the operation but due to the operation being delayed. It is an operation of weight whose dangers are hemorrhages, infection, injuries to the soft parts, etc., all the

details of which cannot be discussed. It will have its greatest percentage of success in the hands of men not only trained in surgery but trained in obstetric surgery of this particular kind. It will have its greatest numerical success, although some failures, when taken to the lying-in room by all who are willing to be taught the technic and to provide the necessary saw and needle. It is not technically as difficult as repairing a lacerated pelvic floor, but that is not saying that it has no difficulties. I am inclined to think that Reed puts the matter too lightly, yet any procedure that will advance the obstetric art greatly must be capable of application by the many. Schläfli and others are overconservative. It is our purpose and privilege to say what is to be done with a woman advanced in labor with a living child in the presence of disproportion; it is the individual worker's problem to answer the question as to his ability to carry this out in his environment.

In conclusion I would say:

1. Pregnancy fails of its fundamental purpose when it does not terminate with a living child and living mother.
2. The child has rights that the mother's wishes and convenience have no right to ignore.
3. Patients should be examined for disproportion previous to the time of delivery and if this condition is present the child and mother should be safeguarded by being placed under the best possible conditions.
4. Hebo-teotomy gives a separation of 3 to 6 cm. and facilitates delivery in cases of moderate disproportion to such an extent that the mortality and morbidity to the child and mother is only slightly greater than that incident to the injuries already sustained.
5. Hebo-teotomy has a field in place of craniotomy in the living child showing an improved fetal mortality of nearly 100 per cent. with slight, if any, increased mortality to the mothers.
6. It should not be elected in place of Cesarean section in patients with a true conjugate of less than 7 cm.
7. It has a wide field of usefulness in those borderline cases of patients who fail to deliver after a strong labor test.
8. A head floating above the pelvic brim after a sharp second stage indicates such a degree of disproportion as to make version and high forceps dangerous.
9. Hebo-teotomy has a field in the above condition after a moderate trial with the forceps or in cases in which they cannot be conveniently and securely applied.
10. When hebo-teotomy is employed after labor has long continued, the patient should be delivered immediately with high forceps or version.
11. Version should not be employed in cases with marked disproportion without a preliminary laying of the silk which is to carry the saw.
12. The simple instruments necessary to this means of saving human life should be a part of the obstetric outfit.

100 State Street.

ABSTRACT OF DISCUSSION

DR. ERNEST G. ZINKE, Cincinnati: When advocating hebo-teotomy, two years ago, before the American Association of Obstetricians and Gynecologists, I found but little sympathy, and this operation was roundly denounced at a meeting of the American Gynecological Society two years ago. With the exception of Montgomery of Quincy, Ill., Williams of Baltimore was the only one, at that time, who had performed the operation repeatedly, notwithstanding the opposition expressed. The new therapy of narrow pelvis simply implies this: We must carefully study pregnancy cases before parturition sets in. If we discover contracted pelvis, these patients should be conveyed, if possible, to a lying-in hospital. When the pelvic contraction is moderate, the "test of labor" is indicated. If the passage proves too small for the passenger, the case is one either for hebo-teotomy or Cesarean

section. If the contraction of the anteroposterior diameter of the inlet is not below 8 or 7.5 cm., hebo-teotomy is indicated; if the contraction amounts to 7 cm. or less, the case is one for Cesarean section. The new therapy of narrow pelvis has achieved wonderful results abroad, principally in Germany, Italy and France. There are on record several thousand cases of narrow pelvis in which this new treatment secured a maternal mortality of only 0.1 per cent., and a fatal mortality of between 4 and 5 per cent. What better results can we expect? Briefly stated, the new therapy of narrow pelvis at present consists of the test of labor, hebo-teotomy and Cesarean section. Eighty per cent. of the women subjected to this treatment delivered themselves spontaneously without harm to themselves or their offspring; 15 per cent. were delivered by the aid of hebo-teotomy, and only 5 per cent. required Cesarean section. Equally good results have never been obtained by other means in the history of obstetrics.

DR. COLLIN FOULKROD, Philadelphia: I think it is unwise to let this paper pass without saying a word from the standpoint of those few men who, Dr. Barrett says, still hold to some other views not supporting hebo-teotomy. In the institution with which I am connected, we have not done it, because we have been able to save the patients without doing hebo-teotomy, and because we have been led by the experience of other men to conclude that perhaps hebo-teotomy does not fill the place it is said to fill. I think that men going out into the country should know something of the objections to it. In the first place some of these patients should be subjected to the test of labor; but this consists in proving without forceps whether it is possible for the head to engage in the pelvis. If it can, there is no question of doubt that we can bring the head out with forceps. In the class of cases in which the head cannot engage, we do not manipulate enough to have them called infected cases, and in these Cesarean section is done with good results, there being less than 1 per cent. of deaths to the mother, with 100 per cent. of living children. These cases are not in our own practice, because in our own patients we determine by measurement made before labor whether Cesarean section will be needed; but there come to us in hospital work certain cases that have been handled, and they are dealt with according to the indications; we have saved a great percentage with Porro Cesarean section as with hebo-teotomy. There are still a few men in the large cities who hold to the view that patients can be delivered by Cesarean section after a fair test of labor. Those who go out into practice should study cases to know whether to induce labor rather than do hebo-teotomy. Hemorrhage is present in some cases, and unless great precaution is taken there will be failure to control it. In the second place, there will be greater lacerations by hebo-teotomy than by Cesarean section in good hands. Hebo-teotomy has a place in obstetrics, but the cases in which it is applicable are very few.

DR. H. D. FRY, Washington: I expect that I am to blame for the objections that were made to this operation which Dr. Zinke refers to in connection with the American Gynecological Society three years ago. I read a paper at that time reporting some cases, and also the histories of patients who had been operated on in this country. The great objections to hebo-teotomy as shown by that paper were, that there were a number of cases of lacerations from the incision into the vagina and injuries to the bladder. There were cases of hematoma, of septic inflammation and of phlebitis, and in one of the cases that I reported, the patient died on the tenth or eleventh day from embolism due to septic phlebitis. These lacerations of the vagina and injuries to the bladder are not due to the use of the needle or knife, but to the tearing of the tissues when the head, on extraction, causes separation of the bones that have been sawn apart. Another great objection to hebo-teotomy and symphysiotomy is that convalescence is so unsatisfactory. The patients suffer a great deal of pain, it is difficult to draw the urine and the nurses dislike the care of these patients. I have tried repeatedly to have a special bed used, having a hole cut at the point where the buttocks will come, so that the douches may be given readily. I dread to do the operation, simply because of the unsatisfactory convalescence. I believe, however, that there is a place for symphysiotomy or

pubiotomy, but I would never make the operation an elective one, as has Williams, who has done it in 25 cases, nearly every one elective, in which I should have performed Cesarean section. The patients I would treat by this operation are just the ones Dr. Barrett has mentioned. If I were called to see a woman who had been in labor for some hours, examined repeatedly, and on whom the forceps had been tried, Cesarean section should not be done. In such cases we must resort to hebostectomy or craniotomy, version or high forceps. Craniotomy I do not believe is justifiable on the living child. High forceps operation in maternity hospitals has a death-rate among children of 33 per cent. Version with contracted pelvis has about the same fatality; so in those border-line cases, in which we have had labor coming on, or those in which we have allowed labor to come on as a test, if the head is still not engaged and the case has the appearance of a difficult high forceps one, the time for doing a hebostectomy has arrived.

DR. T. MITCHELL BURNS, Denver: I wish to speak for symphysiotomy, not saying that hebostectomy is not just as good. I believe to the average obstetrician symphysiotomy is a simpler operation, requires no special instruments, and gives just as good, if not better, results. I have performed this operation four times on parturient women, have operated once on the cadaver and another time on the dog. I believe preliminary operations should be done on the cadaver and the dog before one operates on the human being. In the cadaver I did not cut completely through the sub-pubic ligament, and as a result I had laceration of the clitoris. I believe that symphysiotomy or hebostectomy may be well performed in the private house. This makes it a much better operation to consider in a great many cases in the country. All that is necessary to hold the hips together afterward is an ordinary many-tailed bandage. All the complicated apparatus is absolutely unnecessary. The patient's posture may be lateral or dorsal, or with the legs extended or flexed. She may get up at the end of two weeks or ten days even.

DR. CHANNING W. BARRETT, Chicago: The champions of Cesarean section did not come out so strongly as I thought they might. There was much in the paper that I would like to have brought before the Section, which I did not have time to read, and some of these points have been mentioned. One point is, that in enlarging the pelvis we have different procedures to fall back on, one of which is symphysiotomy and the other pubiotomy. The advantages of the pubiotomy are perhaps less risk of injury to the urethra, and bone union instead of cartilage union. One of the advantages of symphysiotomy, as Dr. Burns stated, is that it may be done without the instruments necessary for hebostectomy in an emergency, and the disadvantages of symphysiotomy as taught in literature are not so great as the statistics would indicate, because the statistics of symphysiotomy are drawn from an older period than those of pubiotomy—a time when the technic was less accurate, and the statistics compare open symphysiotomy with subcutaneous hebostectomy. If we could compare the statistics of subcutaneous symphysiotomy with subcutaneous hebostectomy we might find that the statistics would be almost as good as they are in hebostectomy. Some authors insist that the open method of one should not be compared with the subcutaneous method of the other. Subcutaneous hebostectomy has much the advantage over the open method in the immediate time of doing the operation, the element of danger to the patient, after care, etc. Dr. Fry spoke of the precaution of having the patient supported from the side. I find that entirely unnecessary. When we cut through the bone we get just a little separation, because we have all the soft parts there to hold the pelvis. If an open operation were being performed we might need to observe this precaution. In the subcutaneous operation it is only when we draw the head through the pelvis that we get such separation as is required.

The point was made in regard to Cesarean section that the cases were chosen—that the physicians determined beforehand by measurement whether the head was going to come through the pelvis or not. They must have a very fine technic. There are some cases in which measurement would easily determine that a Cesarean section would be necessary, but that is not the average case. More frequently it is the border-line cases

we meet in which a strong labor test is required to determine this. I have had opportunity to observe cases in which measurement determined that a Cesarean section would be necessary, but labor easily proved the contrary by spontaneous delivery. A slight test of labor is no test at all; it takes a very hard test to tell whether the woman is going to deliver herself spontaneously or with forceps, after which a Cesarean section may not be advisable. We see also cases in which the patients have been in labor under the hands of some one else, and they have passed the time when safe Cesarean section could be done. In hebostectomy we have an operation that an average man can do.

Williams says, that in cases in which he is going to put on forceps or perform version, he would put the saw in position so that if version or forceps failed he could sever the bone. This is unnecessary in case the forceps are to be applied, because if the forceps fail we can take them off and then introduce the needle and saw. In version this precaution is important, but I would urge the advisability of introducing the silk that is to carry the saw rather than the saw itself, as we will not then have the rough saw between the fetal parts and pelvic bone, while if efforts at delivery fail the saw can readily be drawn through. My experience has not demonstrated that the patient has marked pain after this operation, nor that the after-care is formidable, as has been mentioned by Dr. Fry.

INFLUENCE OF PERIGASTRIC LESIONS ON GASTRIC SECRETIONS

STUDY BASED ON CLINICAL AND EXPERIMENTAL OBSERVATIONS *

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A few years ago I was impressed with the extraordinary frequency with which I met patients who had gastric hyperacidity with their gastric symptoms. Many of them were of a neurotic type and could possibly have been diagnosed and dismissed as cases of nervous dyspepsia with hyperacidity. But a great many others, eventually and often surprisingly, gave positive symptoms and physical signs pointing to disease of other organs near the stomach, which, no doubt, influenced the gastric secretions and made the diagnosis of nervous dyspepsia unwarranted. In a discussion of this matter with my brother, Dr. J. A. Lichty, of Pittsburg, I found that he had the same experience. On account of the belief that the very frequent diagnosis of dyspepsia with hyperacidity was often unwarranted, we decided to investigate the subject more minutely, both from clinical observations and by experiments on animals.

SUMMARY OF CLINICAL OBSERVATIONS

In a review of the cases of 600 patients who consulted me in private practice, who complained of symptoms referring to the stomach, and on whom gastric analyses were made, 318, or more than 50 per cent., had a gastric juice which was hyperacid. The number of cases with normal acidity, subacidity and achylia gastrica was less than those of gastric hyperacidity. This excessive acidity could be accounted for in several ways. Some were cases of simple nervous dyspepsia with hyperacidity. Many could safely be diagnosed as catarrh of the stomach with hyperacidity. A considerable number of patients had ulcer of the stomach. But others had a hyperacidity which, from what the clinical and experi-

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

mental work now indicate, was secondary to lesions of the digestive tract in organs surrounding the stomach.

I regret that my own tabulated report of very positive diagnoses of appendicitis and gall-bladder disease is so limited. It may be worthy of mention, however, that, in 54 per cent. of the fifty-six cases of acute and chronic appendicitis seen the last few years in private practice, examinations, including gastric analyses, were made. And, of the cases in which these gastric analyses were made, 83 per cent. showed a hyperacidity. In nearly all of the cases diagnosed as appendicitis the advice for operation was warranted, but only 65 per cent. of these cases were treated surgically, three-fourths of which had gastric analyses which showed a hyperacidity in 75 per cent. of the analyses. It appears, therefore, that of the patients operated on, as well as in those not operated on, more than 75 per cent. had a gastric hyperacidity.

In a still more limited number of gall-bladder cases (forty in all), 75 per cent. showed a gastric hyperacidity and, of those gall-bladder cases in which the diagnosis was verified by operations, more than 50 per cent. had a gastric hyperacidity. Those gall-bladder cases studied at operation which showed up hyperacidity were peculiarly interesting, inasmuch as they quite universally showed a gastric secretion with the very opposite extreme, a marked hypo-acidity. This hypo-acidity was usually present when the patient's physical condition had been greatly reduced by prolonged illness, or by extensive adhesions which bound together both stomach and gall-bladder, interfering directly with the motor power of the stomach. Two of the operative gall-bladder cases with subacidity had most striking gastric symptoms. The gastric analysis showed a marked deficiency of acids, the presence of lactic acid, as well as occult blood in several repeated analyses, making one very suspicious of gastric carcinoma. But the operations in these two cases showed nothing but gall-stones, and a perfectly healthy stomach except for adhesions to it. Another gall-stone case, with hypo-acidity and a secondary anemia, so marked that the diagnosis of some form of serious primary anemia was considered, had most dense adhesions between the gall-bladder and stomach, as well as an old perforation of the gall-bladder, which allowed the escape of several small stones into the peritoneal cavity. These stones, however, had been held adjacent to the gall-bladder by the firm adhesions.

Reference must here be made to the very striking similarity of figures and percentages in a study of a greater number of cases taken from the records of Dr. J. A. Lichty. Gastric analyses performed in 111 out of 258 of his cases of appendicitis showed a hyperacidity in 64 per cent. of the analyses. Of his 127 patients subjected to operation only forty-nine had had a gastric analysis, but in 69 per cent. of the cases a gastric hyperacidity was present, showing, therefore, a hyperacidity in two-thirds of all appendicitis patients so examined, whether operated on or not operated on. In 157 of 250 gall-bladder cases, which he tabulated, gastric analyses showed a hyperacidity in 51 per cent. of analyses; and, in those gall-bladder cases treated surgically in which gastric analysis had been made, 53 per cent. had an excess of gastric acidity.

Similar study of the gastric juice has been made recently by others:

Graham,¹ in his work with the Mayos, has very recently referred to the gastric symptoms arising from surgical

conditions of other abdominal organs, though it was not his experience to notice this frequency of gastric hyperacidity.

Paterson,² of London, only a few months ago, expressed his surprise at the frequency of gastric symptoms and the change in gastric secretions caused by appendicitis. In his opinion, the many symptoms of gastric ulcer and even gastric hemorrhage were found at times, by study as well as at operation, to be the sequel of appendicitis. In a few of his cases there was a normal acidity, in about 30 per cent. a hypo-acidity, and in the remaining a marked hyperchlorhydria. He says that "a combination of marked symptoms of gastric ulcer with a negative gastric analysis is suggestive of chronic appendicular disease," and that "in recent years it is becoming gradually recognized that hematemesis, accompanied by pain and vomiting, is not pathognomonic of gastric ulcer." His statement that a gastro-enterostomy will not remove a diseased appendix is strikingly significant. While my experience is not exactly parallel with that of Paterson, since mine shows appendicitis frequently with a positive change in gastric secretion instead of a negative gastric analysis, as he states, yet I am very happy to refer to his comment of associated symptoms.

Here I wish to refer to a patient of my own who, three years ago, had a gastro-enterostomy for a gastric ulcer, which was nearly perforated and was excised at operation. Another ulcer was found to be present at the same time. The operation was done hurriedly. The patient made only a fair recovery and required an entero-enterostomy a year later to correct a vicious circle. Previous to the first, and following the second operation, the patient's gastric secretions were high, but within the last year she again developed vomiting and there was occasional blood in the vomitus. The tenderness over the appendix, which had been noticed the last few years, became more marked and the appendix was removed from dense adhesions only a few months ago. At present the patient seems to be making a good recovery.

W. S. Fenwick³ calls attention to a mild type of hypersecretion, the result of latent disease of the appendix. He says:

As a rule, it displays an intermittent character for several years and each fresh addition is ascribed by the patient to a chill, mental anxiety, or some indiscretion of diet. Considerable time after it has attained the chronic stage, the typical symptoms of a moderate hypersecretion continue to manifest themselves, but, with the progress of time, paroxysmal pain is gradually replaced by discomfort and distention, which persists during the day, the symptoms varying to a great extent according to the appendicular lesion and the concomitant state of the gastric secretion.

Moynihan⁴ states, that, in his view, "the typical gastric ulcer in the medical text-book is frequently the appendix." In his study, recently published, he considered the pathology and symptoms of the associated lesions of the appendix and stomach without giving much attention to the gastric secretions. I myself believe that the typical chronic dyspepsia (of the medical text-book) with change of gastric secretions is frequently the appendix or the gall-bladder.

EXPERIMENTAL OBSERVATIONS

A summary of earlier clinical observations, as well as those of others more recently made, has fully justified an

1. Graham, C., and Guthrie, D.: The Dyspeptic Type of Chronic Appendicitis, *The Journal A. M. A.*, March 19, 1910, p. 960.

2. Paterson: Appendicular Gastralgia in Appendicitis as a Cause of Gastric Symptoms, *Lancet*, London, March 12, 1910.

3. Fenwick, W. S.: *Lancet*, London, March 12, 1910.

4. Moynihan: *Brit. Med. Jour.*, Jan. 29, 1910.

investigation of this subject from an experimental basis. Experiments on a number of dogs were begun two years ago and have been continued constantly since, with some very satisfactory and surprising results. The method of experimentation, briefly described, was as follows:

A number of healthy dogs were secured and a study was made of their gastric secretions. At definite intervals of two or three days the dogs were not fed until noon; then a meal of about 8 ounces of water, containing bread sufficient in quantity to make a gruel, was inserted into the stomach with a bulb and a stomach-tube. Thirty minutes later, this meal was removed and analyzed. We soon found that, if the bread and water remained in the stomach much longer than thirty minutes, the stomach was empty and the secretions and acids were low. In other words, the gastric secretions in dogs supplied with practically the Ewald meal were at the highest about thirty minutes after feeding. After a dozen or more test meals were given to each dog, and a fairly accurate average estimation could be made of the gastric secretion, these dogs were subjected to laparotomy. At the first operations the gall-bladder was opened and filled with cinders and pebbles. Then, again, about a dozen or more analyses were made. After that period, the dogs were operated on a second time, at which time the appendix was opened and filled with foreign bodies, which were fixed there with sutures. The appendix in the dog is, of course, rather a diverticulum of the cecum than a real appendix as in man. After the operation on the appendix, a third series of gastric analyses was made. Following these operations and analyses, if death had not occurred, a third laparotomy was performed, or the animal was bled to death in some other experiment and a post-mortem examination was made to see what pathologic conditions had been caused by the former operations. Out of a number of dogs secured for these experiments, only seven survived all this analytical work and all these surgical operations.

The information which we have gained from these surgical operations, fifteen in all, and from the gastric analyses, exceeding 500 in number, is in our estimation worthy of consideration. Though only seven dogs were kept for any length of time, and subjected to operations with gastric analyses before and after, several dogs were kept under observation and subjected to analysis only. We soon found that the study of these numerous test meals was of no value or constancy, unless done with much caution and care. Even then, there was considerable variation in the gastric acidity, which indeed was the only secretion studied, including free hydrochloric acid, combined hydrochloric and total acidity.

When the dogs were given the Ewald meal at noon, as previously described, and then fed again with meat and other food soon after the Ewald meal was removed, but not any oftener that day, there was a fairly constant acidity. If, however, the dogs were fed oftener and excessively the remainder of the day, the following day the acids were higher, even though the test meal given at noon was the first food of that day. On the contrary, we also noticed that, when the dogs were starved for forty-eight hours and then given the test meal, the acidity was constantly and markedly very much lower. This notice of a hypo-acidity after hunger or starvation came in a peculiar way. At one time daily analyses were begun on six new, healthy dogs. After several analyses were made on each one it was suddenly noticed that on alternate days the acids were high one day and very low

the next. The variation was so great and constant that the physicians who made all the analyses could not overlook or explain it, until they found that, by some misunderstanding of the man who fed the dogs, the animals were given food after the removal of the test meal only every second day. They were then very hungry and ate much. The day following such a full meal the acids were generally high, but the second day thereafter, without any food for forty-eight hours, they were just as constantly low. At another time we secured several new dogs, on which gastric analyses were impossible or of little value, except for one point, the influence of excitement on the secretion. While most of the dogs usually took the stomach-tube and test meal without any difficulty, these dogs fought such a procedure stubbornly. Very rarely could we recover a meal from these dogs. If taken at all, it had to be taken promptly at the end of half an hour; then it was very acid. Sometimes the animal fought the introduction of the tube and meal so stubbornly that vomiting and diarrhea immediately followed. These dogs were not kept long, though long enough to make us believe that excitement caused increased acidity and peristalsis.

A summary of the analytical work done on three dogs only will be given.

DOG 1.—This dog had eight analyses before any operation, in which the average gastric total acidity was 60. At his first operation the gall-bladder was filled with pebbles. This was followed by sixteen analyses, giving an average total acidity of 54. At a second operation on the dog the appendix also was filled with pebbles, which were held in place by purse-string sutures. The gall-bladder was examined at the time and found to be contracted and adherent to the liver. The stomach was free. The second operation was followed by nineteen gastric analyses, with an average total acidity of 75. At a third operation the appendix was found to be somewhat adherent to the bowels, but not entirely obliterated. More foreign bodies were placed in the appendix and this operation was followed by twenty-six analyses, with an average total acidity of 72. When, later, the animal was bled to death, many adhesions were found around the appendix, gall-bladder and intestines though the stomach was free from adhesions. The acidity had risen 25 per cent.

DOG 2.—This dog had seven gastric analyses, with an average total acidity of 43. The gall-bladder operation was followed by eight analyses, with an average total acidity of 42. This, again, was followed by an operation on the appendix and examination of the gall-bladder. This last operation was followed by eighteen analyses, with an average total acidity of 57, the last series of examinations showing an increased total acidity of 30 per cent. This dog, however, died from intestinal obstruction, and the last six analyses showed a gradual lowering acidity. At post-mortem examination it was found that dense adhesions about the appendix and bowels caused intestinal obstruction and death. It will be noticed, therefore, that, in spite of the gradual lowering of acidity in the last six analyses prior to death, the last series of examinations, including the last six, had an increased acidity.

DOG 3.—This dog had thirteen gastric analyses, with a total acidity of 92. This was followed by an operation on the gall-bladder, filling the gall-bladder with pebbles. Eighteen analyses were then made, showing an average acidity of 82, a reduction of ten points. At a second operation the appendix was filled with pebbles and the stomach was found adherent to the gall-bladder and abdominal wall. Thirteen analyses were then made, with an average total acidity of 56. When the dog was finally bled to death, dense adhesions were found binding together the stomach, gall-bladder, intestines, appendix and omentum, and even the abdominal wall. This dog, therefore, showed a diminution of total acidity from 92 to 46, almost 40 per cent. The extensive adhesions certainly interfered with the gastric function.

From the analyses made on dogs subjected to operations, we were able then to draw two other conclusions. First, it was noticeable that dogs showing depression or shock following operation had a very uniform lowering of the gastric acidity. The acidity was also lowered when there were adhesions around the stomach, whether binding it to gall-bladder alone, or to the gall-bladder and bowels and abdominal wall. Second, it was noticed that those dogs which survived all operations, and which were examined post-mortem and found to have adhesions around the gall-bladder and appendix, which, however, did not interfere with the stomach and the gastric motility, had a very constant gastric hyperacidity. It will be noticed at once that the experimental work, though not as extensive as we should like, shows two features very similar to the clinical observations, namely, a decrease of gastric acidity following inflammation, shock or impaired gastric motility, and an increase of gastric acidity when the function of the perigastric organs only was impaired by adhesions and the stomach left free.

Bashford, at the head of the Imperial Cancer Research Laboratory, in London, reports the findings of the gastric analyses of 500 mice inoculated with cancer. Most of the mice inoculated, of course, had cancer in organs not affecting the stomach. The analyses of these 500 mice showed a gastric hyperacidity. The hyperacidity could be explained only as a compensatory feature. This gastric hyperacidity of mice afflicted with cancer not affecting the stomach is quite a contrast to the hypo-acidity found in human beings afflicted with cancer affecting the stomach.

It will be noticed that this study of gastric secretions was not made on animals with the Pawlow fistula, inasmuch as the establishment of the Pawlow fistula, though ideal for certain studies of gastric secretion, would have required some adhesions between the stomach and the abdominal wall, which alone would have made rather indefinite a study of the influence of adhesions affecting the other organs, which concerned us more especially.

The terms "perigastric lesions" and "perigastric organs" have been used merely to avoid the more technical and frequent reference to the many abdominal structures and pathologic conditions either very close to or more distant from the stomach. There is no doubt that the functions of the liver, spleen pancreas and uterus, when changed by disease, have an influence on the stomach also.

CONCLUSIONS

It seems to me that this clinical and experimental study warrants the conclusion that the frequent diagnosis of nervous dyspepsia with hyperacidity should not be dismissed as a neurosis without caution. Likewise, many cases of hypo-acidity, even when occult blood and lactic acid are present in the gastric secretion, often demand an explanation beyond the stomach itself.

A summary of the experimental work showed, (1) a decrease of acidity during starvation; (2) an increase of acidity following excitement; (3) a decrease of acidity from lesions causing inflammation and shock and greatly impaired motility; and (4) an increase, perhaps compensatory, when the function of the perigastric organ is impaired by adhesions. While this study, of course, is not conclusive it is reported simply as a matter of interest, with the hope that others interested in the physiology and diseases of the gastro-intestinal tract may investigate the subject more completely.

I wish to express my thanks to Drs. Stoner and Rogoff, who have done the many analyses with great care and labor and accuracy, as well as to Dr. Hambleton who did all the surgical operations on the dogs.

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ABSTRACT OF DISCUSSION

DR. DELANCEY ROCHESTER, Buffalo, N. Y.: In a paper presented by me before the Medical Society of the State of New York recently, fifteen or twenty observations were reported in which superacidity was noted in almost all, and it was stated that two factors brought this about. One was eyestrain, and the second was disturbance of the intestinal tract, or digestive tract below the stomach. Any disturbance in the digestive tract, such as duodenal ulcer, disturbance in the gall-bladder, gall-stones, adhesions around the duodenum, or around the pylorus, appendicitis, cholelithiasis, inflammation of the colon, chronic colitis, etc., all tend to produce superacidity of the gastric juice; in some cases gastric ulcer will develop which gives symptoms referable to points below, and the patient will not be cured of the symptoms until an operation has been performed; then the symptoms referable below the stomach will be relieved.

DR. JAMES T. PILCHER, Brooklyn: After a study of about 7,000 gastric analyses I wish to confirm Dr. Lichty's observations as regards the tendency to increased acidity of the gastric juice in cases in which there is gall-bladder involvement. However, as he so well pointed out, the other extreme is frequently encountered. While acknowledging the tendency to an increase of the hydrochloric acid content of the gastric juice in the majority of the cases of gall-bladder involvement in any of its many phases, I wish also to call attention to the fact that the other extreme may also be reached: in proof of this fact I will mention thirty-two cases of gall-bladder involvement and fifteen cases of combined gall-bladder and pancreatic involvement in which there was present, at the time of operation, a condition of achlorhydria hemorrhagica gastrica. Appreciating this, it is obvious that the conclusion that in all cases of gall-bladder involvement there is an increase in the acidity of the stomach would be erroneous in the large majority of the instances, although it obtains, as has been noticed, in some 300 cases which I have had the opportunity of examining.

I wish further to congratulate Dr. Lichty on emphasizing so strongly and expounding so clearly the fact that in cases of so-called hyperchlorhydria we have not to do essentially with the stomach, but should seek the etiologic factor which is giving rise to reflex gastric symptoms. The question is certainly a pertinent one. Is there any such a condition as hyperchlorhydria *per se*? The indications certainly point against it and it will only be through such experiments as have been carried on by Dr. Lichty that we can come to any definite conclusions. The work so far accomplished I am sure is more than indicative that many of the dictums laid down so precisely in the text-books on the subject are in some respects fallacious and will shortly require a complete revision.

DR. A. L. BENEDICT, Buffalo, N. Y.: The stomach is, to a large degree, an indicator of disease of other organs. For instance, in 100 serial "stomach cases" I found that 80 patients were either entirely normal so far as gastric secretion, etc., were concerned or, at most, showed only trivial gastric disturbances. The underlying condition was chronic colitis, typhilitis or even localized inflammation of the appendix, gall-stones, etc. Thus, we may well expect reflex variation in the condition of the stomach contents. Still, in actual practice, following a uniform technic, it is surprising to note that the analyses repeated in any given case, almost always give consistent results. Several years ago, in the American Gastro-Enterological Association, several cases of hyperchlorhydria due to gall-stones were reported. My experience is that gall-stones frequently give a typical clinical picture of hyperchlorhydria, more typical in fact than most cases of genuine hyperchlorhydria, but that on actual analysis, the stomach contents are of very low acidity. Do not understand me, however, as deny-

ing that there may be genuine hyperchlorhydria in gall-stone cases.

One more point: Many men speak of hyperchlorhydria as a common condition and one that can be diagnosed symptomatically. I do not believe that it can ever be positively diagnosed except by analysis. Furthermore, there is an unfortunate tendency both to exaggerate the degree of hydrochloric acidity and to accept a low standard of normal acidity. The hydrochloric acid of gastric juice is normally about 20 to 10,000, corresponding approximately to 50 degrees by N/10 alkali. For chyme, we may assume, approximately, a 50 per cent. dilution of gastric juice, making the normal standard of hydrochloric acidity one hour after an ordinary light test meal, about 25 degrees. To warrant the diagnosis of hyperchlorhydria, there should be either a considerable excess of acidity by degrees or an excess of contents. My standard test meal consists of 50 grams of bread (one or two ordinary slices) 5 grams of butter (about what would ordinarily be spread on this amount of bread) and 250 c.c. of water (one glassful). By careful extraction, one should normally obtain from 30 to 100 c.c. one hour after such a meal. For such quantities, I should require a hydrochloric acidity of at least 40 degrees to establish the diagnosis of hyperchlorhydria, whereas, if there were an increase of chyme above the 250 c.c. ingested, any significant increase of acidity beyond the 25 degree standard, might be considered a basis for the diagnosis of hyperchlorhydria.

Now as to the exaggeration of the reading: using dimethyl-amido-azobenzol as an indicator, the end-point for free hydrochloric acid is at the transition from a distinct cherry red to a color almost exactly like that called cerise. We would naturally suppose that cherry-red and cerise meant the same tint but they do not. Beyond this end-point, the further addition of alkali produces changes, through orange to a straw yellow, for somewhere about 10 or even 15 degrees. One can readily see that a man who titrates to the final change, in estimating his free hydrochloric acid and perhaps overruns, at that, and who has started with the assumption that anything beyond 20, or perhaps 15 degrees of free hydrochloric acidity, is an excess, will find hyperchlorhydria, not only in normal cases, but in those in which there is a moderate hypochlorhydria—hence, a lot of nonsense about hyperchlorhydria associated with organic fermentation.

DR. G. C. SMITH, Boston: Ewald, several years ago when lecturing to students who came to him from all over the world to study diseases of the stomach, made the statement that 98 per cent. of all diseases with symptoms referable to the stomach originate from outside the stomach.

DR. GUSTAV BAAR, Portland, Ore.: What do we want to know when we see these cases? Shall we, as internists, attempt to cure these patients, or shall we turn them over to the surgeon? What are the additional signs and symptoms we can have besides hyperacidity which will enable us to determine whether we are dealing with some gastric trouble or with some extragastric trouble—appendicitis, perigastritis, etc.? In an examination of 10,000 urines, routine tests were made for indican and in nearly all hyperacidity cases caused by extragastric disturbances it was found constantly present. The constant presence of excessive indican in the urine means some anatomic disturbance of the gastrointestinal wall and calls for surgery.

DR. JOHN A. LICHTY, Pittsburg, Pa.: I have noticed in my clinical experience that many patients have consulted me for disturbances of the stomach when, in truth, the trouble was elsewhere. Many of them had hyperacidity and often there was a high percentage of free hydrochloric acid. They had also the typical symptoms of hyperchlorhydria. Many had been treated previously from time to time as "nervous dyspeptics." Three or four years ago, when at Leeds, I had an opportunity of referring to these cases in conversation with Mr. Moynihan, who impressed on me the fact that these patients were probably suffering from duodenal ulcer and might at any time have perforation. When I returned to my work, I continued my observations, but did not see a single instance of perforating duodenal ulcer. I did, however, find every now and then one of these patients with an attack of acute appen-

dicitis or an attack of gall-bladder or gall-duct trouble, and, at the operation, the pathology revealed, always showed that attacks must have occurred previously, the history of which I was unable to get, and that the whole train of symptoms must have been due to the lesion found. It occurred to me that probably hyperchlorhydria was an accompanying symptom of gall-bladder, or appendix affection. For this reason, I experimented on dogs to determine whether a foreign body in the gall-bladder or in the appendix or the adhesion produced might not produce the same disturbance of gastric function as is found clinically. The Ewald test breakfast was used and every effort was made to make the experiment conform with the technique used clinically. Six dogs were under observation. One was kept for a control dog. Of the five dogs in which the gall-bladder was opened, and an infected foreign body introduced, all but one subsequently showed an increased acidity and a diminished gastric motility. These results are in accord with the paper which has just been read.

DR. M. J. LICHTY, Cleveland, Ohio: It has been noticed for some time that frequently gastric disturbances are present clinically, when the real trouble has been in other organs; just why this is so does not seem entirely clear to us at present. We frequently see high acidity of the gastric juice when there are gall-stones; and the high acidity disappears on the removal of these gall-stones. I have in mind an individual who had gall-stones and with this condition a high acidity, but when the gall-stones were removed the man became perfectly well. I am glad that Dr. Pilcher has called attention to the terms hyperacidity and hypersecretion. I did not mean to use them synonymously in the paper. Of course the terms signify different conditions, and these two conditions should be studied more both clinically and experimentally.

The question has been asked, What shall we do with these cases of disturbed secretions? We certainly should not subject all these patients to operation at once, though when these rather obscure cases do not improve under systematic treatment, they should require further study and operation may be necessitated. A patient recently referred to me on account of stomach trouble had no symptoms whatever except vomiting which had existed for weeks. At my first examination, I found some tenderness over McBurney's point and was rather confident that there was an unrecognized appendicitis. Operation proved it so and removed the symptoms.

I recall another patient who had gastric symptoms, but in whom I noticed, after repeated examinations, an occasional slight tenderness over the region of the appendix. This patient has been treated some years before for gastro-intestinal trouble by a physician whose practice is now confined to surgery. The same man was called in consultation and hesitated to confirm the diagnosis of chronic appendicitis. At last he approved of operation; and when he operated he could hardly find the little appendix, half obliterated and buried with many dense adhesions; but while removing it with great difficulty he remarked: "Here was likely the trouble when I treated this patient eleven years ago for dyspepsia."

Cholera Germs in Food.—P. Pospelow reports the results of extensive research in this line in the Russian *Wojenno Journal*, April, 1910, stating that the cholera vibrio is liable to persist unmodified in food, as it does not seem to be affected by the composition of the food or symbiosis with other micro-organisms or by changes in temperature. It is, however, extremely sensitive to the drying out of the medium and to the action of acids. It degenerates in acid and salted foods. It proliferates in solid and fluid media rich in organic elements, but degenerates in water free from organic elements. Dilution of wine and of contaminated water kills the cholera germs in from ten to fifteen minutes. They also die off in beer, but not so rapidly; this destructive action depends on the acid content and the content in acid salts rather than on the alcohol content, as the germs survive for five hours and over in diluted whiskey (*Kornbranntwein*). Pospelow's article was summarized in the *St. Petersburg, med. Wochenschr.*, Oct. 8, 1910.

TREATMENT OF ACUTE ANTERIOR POLIOMYELITIS*

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During the past two years a great amount of interest has been manifested in poliomyelitis acuta, not only by the medical profession, but by laymen as well. Many new facts regarding the pathology, and particularly the etiology, have appeared in medical articles in this time. Mention may be made of the brilliant work of Landsteiner and Popper¹ and Flexner and Lewis.² These and other workers have demonstrated the infectiousness of the disease, which is undoubtedly caused by some virus. Their writings have given us a number of new facts regarding the pathology, but nothing radically new in the treatment.

This article will deal only with the treatment of the prodromal and acute stages.

As yet, there is no specific treatment. Vaccine or antitoxin treatment is being vigorously sought by several laboratory workers at this time. Apparently some time may elapse before such treatment is discovered. Then, to follow such a discovery, a critical, practical experimental period must elapse before the new treatment becomes generally adopted.

An early diagnosis—one before the paralytic stage has resulted—is particularly to be desired. Two laboratory diagnostic means are now available which may be of great value in determining the presence of the disease before any serious or irreparable damage to the nerve cells of the anterior horn has occurred. The blood-count shows an early mild leukocytosis with a decided increase in the lymphocytes and a decrease in the polymorphonuclear leukocytes. Lumbar puncture has usually demonstrated a mild increase in lymphocytes of the cerebrospinal fluid. There have been some cases observed with no increased cells in the cerebrospinal fluid, but it is possible that at some stage of the disease they may have been increased.

In a number of cases in which I have been called in consultation, drugs have been used to excess, particularly purgatives. There is no objection to using laxatives moderately in most of the cases. Ergot has been employed, but I believe that it is contra-indicated. I can see no reason why a drug which contracts the smaller arteries should be given in a condition in which the blood-supply of nervous centers is already diminished by a too small caliber of the smaller vessels. The iodids have been given, but have no value during the acute stage. One of the most important therapeutic means is rest. It is possible that if absolute rest could be obtained for a few days before the paralysis is due to appear, many cases would abort without paralysis. It is possible that the comparatively high percentage of the paralysis of the lower extremities may be accounted for by the increased blood-supply required for the nervous centers in the lumbar enlargement containing the motor cells for the lower extremities.

Lumbar puncture may be of considerable value in those cases in which there is more or less meningeal infiltration, and particularly where there is an increased amount of cerebrospinal fluid. I have performed lumbar puncture in the last year in forty cases, and have found the cerebrospinal fluid increased in 40 per cent., usually to a mild degree. Then in the early stages, a lumbar puncture may be of value in both the diagnosis and treatment.

Hexamethylenamin may be used in the treatment of these patients. A number of experiments have demonstrated that this chemical can be recovered from all of the secretions and excretions of the body in a short time after its ingestion. Crowe, at the suggestion of Cushing, demonstrated experimentally on animals and man that formaldehyd is present in the cerebrospinal fluid thirty minutes after the administration of hexamethylenamin (urotropin).³ It is probably better to give the drug in as large doses as is safe over a period of a few hours, and then discontinue it for about twenty-four hours. My method is to give from 0.12 to 0.24 gm. to a child 2 to 4 years of age, giving a dose every hour until three doses have been given. No more is then given until the following day at the same hour, when it is repeated in the same manner. This repetition may be employed as long as acute symptoms persist. Thus, we suddenly load the body with the chemical, and then allow a short period of rest. We might give 3 to 8 gm. of the drug to the adult during the daily three or four-hour period of its administration.

During the past two months I made a diagnosis of poliomyelitis acuta in five cases in the prodromal stage. The hexamethylenamin treatment, as outlined above, was given to all these patients and three made recoveries without any paralysis. One child, cared for under unfavorable circumstances, died; and another, whose case was of the *foudroyant* type, developed paralysis. Hexamethylenamin has also been given to a few children in families in which there was great fear that others might contract the disease.

Some of the patients suffer from much pain and hypersensitiveness. To these may be given some form of the salicylates, preferably sodium salicylate or acetylsalicylic acid (aspirin). I have found the latter more agreeable for children. I have obtained much relief in a few cases by applying a heavy cotton dressing to the involved extremities. Partial immobilization may have been a factor in the results obtained.

We now have sufficient evidence at hand, experimentally and clinically, to warrant instituting some kind of isolation and care to prevent the transmission of the virus. A few health boards now include poliomyelitis acuta among the diseases to be reported. The Kansas State Board of Health at a meeting in June, 1910, made a rule that all cases of poliomyelitis acuta must be reported to the proper health officers, and a sign bearing the words "Infantile Paralysis" posted on the house; and that all people not required to care for the patient be prohibited from entering the sick-chamber.

In private practice, I direct that the patient be kept alone in one room, and only those actually required for care and nursing be permitted to enter. Instructions are given to sterilize by boiling or chemicals all articles used by the patient and to disinfect secretions and excreta.

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* A contribution from the Kansas State Board of Health and the University of Kansas Medical School.

1. Landsteiner and Popper: Übertragung der Poliomyelitis acuta auf Affen, Ztschr. f. Immunitätsforsch. exper. Therap., May 25, 1909, li, No. 4.

2. Flexner, Simon, and Lewis, Paul A.: Transmission of Acute Poliomyelitis to Monkeys, THE JOURNAL A. M. A., Nov. 13, 1909, p. 1635; Dec. 4, 1909, p. 1913; Experimental Epidemic Acute Poliomyelitis in Monkeys, Jour. Exper. Med., xii, 227.

3. Crowe: The Excretion of Hexamethylenamin (Urotropin) in the Cerebrospinal Fluid and Its Therapeutic Value in Meningitis, Bull. Johns Hopkins Hosp., April, 1909, xx, No. 217.

METASTASIS AND TUMOR IMMUNITY

OBSERVATIONS WITH A TRANSMISSIBLE AVIAN NEOPLASM*

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In a previous article,¹ I have reported some observations on a sarcoma of the chicken, a typical neoplasm, which, unlike the avian tumors already studied, has shown itself transplantable from fowl to fowl. At this writing the sarcoma has developed an extraordinary malignancy and gives wide-spread metastasis. Work with it has brought out facts which bear largely on the general problem of tumor metastasis and tumor immunity.

The sarcoma has passed through six generations of inoculated fowls during the last thirteen months. It is of spindle-celled variety and has throughout remained true to type. In the degenerated portions true mucin may be found. The specificity which at first limited its successful transmission to fowls of the same pure-bred stock in which the growth arose has been to some extent overcome. It now grows in about 85 per cent. of these pure-bred fowls—light, barred Plymouth Rocks—and in an occasional individual that shows by its plumage the slight admixture of some darker strain; but it grows only in Plymouth Rocks. Retrogressions of the developed tumor are rare.

The increase in the malignancy of the sarcoma followed the use of young hosts. Prompt invasion and metastasis are now the rule. Grafts removed and examined three days after implantation are found vascularized, and the sarcoma cells have already pushed into the host's tissues well beyond the boundary of the introduced bit. A fragment 1 to 2 mm. in diameter, placed with a trocar in the breast muscle, may give rise in the course of a month to a mass measuring 8 by 4.8 by 4.2 cm. From clavicle to lower sternum the muscle fibers are almost completely replaced by tumor. The host rapidly emaciates, becomes cold, weak and somnolent and shortly dies.

Metastasis takes place through the blood-stream and much more rarely through the lymphatics. The lungs are often almost completely replaced by coalescing growths, and less frequently the liver and kidneys show nodules. The serous membranes may be penetrated and a wide-spread peritoneal dissemination follow. Intra-peritoneal growths may cause intestinal occlusion, or may unite viscera that lie far apart into a common mass. In general the secondary tumors spare or affect the same organs as in mammals, the spleen, for example, enjoying an almost complete immunity as compared with the lungs, liver and kidneys. The reason for this freedom of the spleen from tumor metastasis is not apparent.

Metastases appear in the heart with great constancy, a feature not seen in mammals. Both sides of it are involved about equally often and the organ may be almost completely replaced by tumor tissue before the host dies. In such cases it is found greatly enlarged, pale, stiff and roughened by growths that have broken through on its surface. The pericardium is thickened with contact metastases.

Metastases develop best when the primary tumor grows slowly. When it grows rapidly the host dies before the secondary nodules have had time to reach a large size. In such animals great numbers of minute metastases are found, but apparently a sufficient interval

for their development has not elapsed. The growth-rate of the primary tumor has increased without a corresponding increase in the rapidity of metastasis formation. This is doubtless because some of the more or less mechanical processes concerned (the invasion of capillaries, breaking off of cells, their transportation, lodgment and vascularization by the host tissue) are not to be hastened beyond a certain limit by mere increased growth-rate of the neoplasm.

A study of grafts of the sarcoma removed at short intervals from susceptible fowls, and fowls with a natural or acquired resistance, has shown that this resistance does not depend on the absence of a supporting and vascularizing reaction for the graft—a phenomenon held by many to be of primary importance in tumor immunity. It is true that an absence of such a supporting reaction is not infrequently responsible for the death of grafts in the resistant animal, especially when they have been placed in a site where connective tissue is nearly wanting; but in by far the greater number of cases the graft undergoes vascularization. Its success is nevertheless of short duration. In the first few days after inoculation, while it is growing and seems healthy, there occurs a rapid accumulation of small round cells, (lymphocytes) first about the near-by blood-vessels, then extending around and into the tumor graft. A week from the time of its implantation this is so inclosed by small round cells (and to a much less degree by large mononuclears, plasma-cells and fibroblasts) that on a casual glance one would think it part of a lymph-gland. At this time it is, as a rule, rapidly degenerating, although well vascularized. Exceptionally it does not die but continues to proliferate, despite the indications of resistance by the host, and eventually establishes itself. In susceptible fowls one finds at the edges of the growing tumor a less marked reaction of the sort described. There are traces of it about the original neoplasm. It is not called forth by material killed by heat (60 C. for thirty-five minutes) or repeated freezing and thawing.

Immunity in the case of this chicken sarcoma does not then depend primarily on the absence from the host tissues of a supporting reaction and vascularization for the graft. There are indications in the literature that this phenomenon, so obvious in rats and mice, is here also secondary to less understood processes. Burgess² examining grafts removed from mice racially insusceptible to the tumor inoculated, has found them vascularized and growing for a short period, then surrounded by granulation tissue and degenerating. De Fano³ after a careful histologic study of tumor grafts in mice, and of the sparse cellular reaction about them, has come to the conclusion that lymphocytes are in some way connected with tumor immunity. About the growing tumors of man lymphocytes are not infrequently seen in considerable numbers.

The conclusion seems justified that resistance to tumor growth can no longer be considered to depend primarily on a failure of the host to provide a stroma and vascularization for the neoplastic cells. Both may be provided by the resistant host, and yet the tumor dies. Whether the lymphocytes which accumulate about it, or some factor unknown, is responsible for this result, has yet to be investigated.

The chicken sarcoma has recently been cultivated *in vitro* by Drs. Carrel and Burrows.⁴

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* From the laboratories of the Rockefeller Institute for Medical Research.

1. Rous, Peyton: *Jour. Exper. Med.*, 1910, xii, 696.

2. Burgess, A. M.: *Jour. Med. Research*, 1909, xxi, 575.

3. De Fano, C.: *Ztschr. f. Immunitätsforsch.*, 1910, v, 1.

4. Carrel, A. and Burrows, M. J.: Cultivation of Sarcoma Outside of the Body, *THE JOURNAL A. M. A.*, Oct. 29, 1910, iv, 1554.

THE DIAGNOSIS AND TREATMENT OF THE EARLIER CHANGES IN THE LARYNX IN PULMONARY TUBERCULOSIS*

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There is no more encouraging fact in the development of modern medicine than the interest that is being taken in the early diagnosis and the rational treatment of pulmonary tuberculosis. The medical profession must not be satisfied, however, with what has been accomplished, for satisfaction with one's own achievements rings the knell of all further progress; rather, physicians should keep their minds open to discern where the present practice is imperfect and be ready to correct flaws as soon as they are discovered.

An important defect in the early diagnosis of tuberculosis is the fact that few physicians in the examination of such patients pay any attention to the condition of

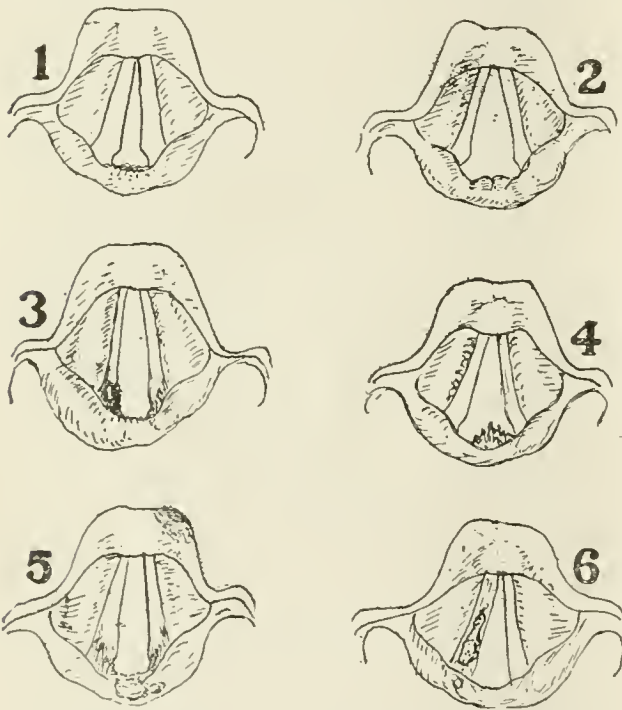


Fig. 1.—Gray wrinkling of posterior commissure, which is not diagnostic, but is suspicious if tuberculosis exists in the lungs. It can be found in many cases of chronic laryngitis.

Fig. 2.—Typical table-like elevation in posterior commissure, with central longitudinal groove. The mucous membrane over it is usually unduly red, but at times is edematous and yellowish. This is the *tafelförmige Erhebung* of Schroetter.

Fig. 3.—Swelling of the right arytenoid region and reddening of the posterior insertion of the right and left cords, this last being very typical and often showing a small white ulcer at the processus vocalis. Right false cord is slightly redundant.

Fig. 4.—Granulations arising from an ulcer in the posterior commissure and hiding the ulcer.

Fig. 5.—Superficial dirty ulcer of posterior commissure invading its upper surface and thereby causing severe dysphagia. Thickening and ulceration of epiglottis. Thickening and redness of posterior ends of cords which are invaded by ulcer of posterior commissure.

Fig. 6.—Superficial ulcer of upper surface of right cord.

the larynx or are capable of making the necessary examination to determine the condition of this organ.

No examination of a tuberculous patient can be called satisfactory or thorough in which a laryngeal examination has not been made, and the value of this examination to the patient and to the physician in charge will be

greatly increased if the latter has taken time to master the technic of laryngoscopy so that he can see the condition of things for himself and not through another's eyes, for no other man's report of what he has seen or found can begin to equal in its effect on the mind the results of one's own observations. Therefore, it is always greatly to be regretted when the physician has to depend on the report of another as to existing conditions in a patient, and while in view of the enormous growth of modern medicine this is necessary in many cases, notably as regards laboratory work, which no busy practitioner, however well-trained, has time to do for himself, laryngoscopy is so easily learned and so easy and quick of application when once learned that no physician who wishes to be thorough need say that he cannot master it or that he has not time to apply it.

Further, a review of the literature of the subject shows that the laryngeal conditions usually recognized and spoken of are not those early and curable changes which can be discovered only by the use of the laryngoscope, but rather relatively advanced alterations such as turbaned epiglottes, pear-shaped arytenoids, extensive ulcerations of cords or commissure or epiglottis, which produce symptoms. This explains why the profession looks on laryngeal tuberculosis as a *noli me tangere* and considers a diagnosis of such trouble as tantamount to a death sentence. If the physician would take the trouble to master laryngeal technic, not necessarily so thoroughly as to prepare himself to do endolaryngeal operations but so as to enable him easily and thoroughly to look at the larynxes of patients and familiarize himself with the early changes which antedate the conditions I have noted, he would find many tuberculous throats which he had not suspected, and also that a much larger percentage of such patients can be cured than he had hitherto supposed. While I would not, of course, wish to be understood as saying that laryngoscopy is not a matter of skill, I am ready to assert that it is not an extremely difficult matter to learn to see the larynx clearly, and after a man has learned to see clearly he only needs brains and opportunity to learn to diagnose these conditions early.

If it becomes an accepted view that a laryngeal examination is a routine and essential part in every physical examination, it will not be long before the physicians learn that the prognosis in laryngeal tuberculosis is not what they have thought it to be, and it is to encourage such an attitude that this article is written.

The symptoms of early laryngeal tuberculosis are limited in number and not so valuable as the signs. The earliest is usually a mere weakening of the voice which may exist for a long time before any hoarseness appears; and here let me note that while hoarseness is a prominent and often an early symptom it is by no means always present, and that the case can advance considerably before it appears; sometimes, however, it is surprising how well the voice is retained despite extensive trouble. Next to a weak voice I would note a sense of dryness in the throat with which is soon associated an insufferable localized tickling, scratching or pricking as though a hair had been swallowed. In my experience, pain on swallowing is not usually an early symptom, although a consciousness of the larynx at such times, as if a lump were in the throat, comes soon.

The subjective symptoms, however, are relatively unimportant compared to the great importance of the objective signs. While it has been generally taught that pallor of the mucous membrane is the earliest change in this disease, recently several voices have been raised

* Read before the National Association for the Study and Prevention of Tuberculosis, in Washington, D. C., May, 1910.

against this view, notably Lockard's in his recent book. I have not found this often an early sign, and I believe that catarrh with hyperemia is usually the first manifestation of beginning trouble, though, of course, this is not in itself at all diagnostic. Those who treat pulmonary tuberculosis have, I believe, an earlier opportunity of seeing the beginning lesions in the larynx than the laryngologist has, save in a health resort, for when a patient consults a specialist in a city it is usually for pronounced and troublesome symptoms, whereas, since pulmonary trouble usually greatly antedates laryngeal lesions, by systematically watching the throats of his pulmonary patients the physician often has the chance to see the very beginnings of the trouble.

It is only when the catarrh referred to begins to localize itself and becomes unilateral and persistent that it becomes really suspicious; for it must be recalled that every pulmonary patient is unduly subject to ordinary laryngeal catarrh. An obstinate patchy catarrh localized, however, to one cord or to one arytenoid is highly suspicious, though not positively diagnostic, but such a localized condition occurring in a patient in whose lungs we know there is a tuberculous deposit, can safely be considered as tuberculous and the trouble is frequently on the same side as the lesion in the lung.

Next to this I would note as highly significant a grayish wrinkling of the posterior commissure (Fig. 1). This I believe to be the commonest early finding, but since it can be simulated by a chronic catarrh, such as is often seen in public speakers, it will not do to base a diagnosis on this alone. The earliest change which has real diagnostic significance is, in my experience, a table-like elevation of the mucous membrane in the posterior commissure (Fig. 2). This generally occupies the center of the commissure, in which case it shows a vertical furrow or depression down its center, dividing it into two symmetrical halves; but it is frequently unsymmetrical and situated to one or the other side of the center. The color is generally grayish-pink, though at times it may be congested.

Such an elevation in this location I believe to be pathognomonic, and in this view have the support of so able an authority as Schnitzler. Such elevations tend to break down into shallow ulcers, though they may remain intact for a long time, but when ulceration does occur their tendency to fill up with exuberant pointed granulations (Fig. 4) often conceals their nature and causes them to pass for tuberculomata. Such infiltrations under suitable treatment may slowly but entirely disappear.

Next to the posterior commissure as a site of early changes is the vocal process, the posterior insertion of one cord, or the body of the cord itself. In the first case the cord at its posterior end is red, thickened and beefy (Figs. 3 and 5) and a small white ulcer tends finally to form and takes on a triangular shape, its apex forward at the vocal process, its base posteriorly at the commissure. When the cord itself is involved it is at first congested and slightly thickened (Fig. 8), and finally becomes fleshy and spindle-shaped (Fig. 10), a very typical condition in this disease, while if it begins to ulcerate the area where the ulcer is to form looks pale and thickened.

Ulcers of the cord, instead of being localized in one spot (Fig. 12) may be scattered along the edge, producing the characteristic nibbled-out appearance (Fig. 11). Tuberculous ulcers tend to be shallow, and of indefinite outline, to run together and to be multiple, and, if on

the cord, are usually in its posterior one-third (Fig. 6). A longitudinal ulcer along the free edge of the cord and giving the impression that the cord is double or split, is a common but not an early change. Quite an early change is the thickening and yellowing of the false cords or ventricular bands which partially or totally hide the underlying cord and are very effective in producing hoarseness (Fig. 9). The upper surface often shows erosions or shallow greyish-yellow ulcers, but not usually early in the course of the case.

Very early in the disease we find some involvement of the arytenoid region, either localized congestions or anteroposterior thickenings (Fig. 3). In my experience the cartilage of Wrisberg shows reddening sooner than that of Santorini. Another typical change in the posterior commissure is the formation of pointed or round tuberculomata which, though they can resemble soft granulations, are surprisingly hard and firm to the touch and may persist unaltered for years (Fig. 3). Thickening of the ary-epiglottic folds is a more advanced

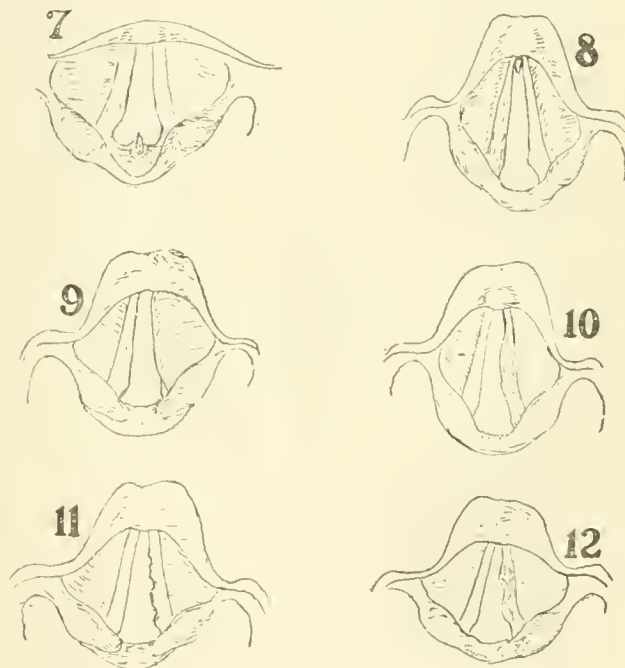


Fig. 7.—Hornlike growth in posterior commissure with reddening of posterior half of right cord.

Fig. 8.—Small growth protruding between cords in anterior commissure. Right cord is irregularly thickened and reddened.

Fig. 9.—Great thickening of left false cord which overlaps and hides the true cord. Arytenoids and posterior commissure somewhat thickened. Swelling and beginning ulcer on epiglottis.

Fig. 10.—Spindle-shaped thickening with reddening of the left cord. Reddening of petiolus of epiglottis.

Fig. 11.—Small ulcers on free border of left cord, giving characteristic nibbled-out appearance.

Fig. 12.—Spindle-shaped thickening and ulceration of left cord.

change, but when present is pathognomonic. Likewise changes in the epiglottis do not occur early, though sometimes they can be foreshadowed for a long time as areas of slight thickening and reddening of its edge or posterior surface (Figs. 5 and 9).

I might also mention as an early change, though a rare one, the protrusion of a small teat of red granulation beneath the anterior commissure (Fig. 8); when seen its diagnostic value is great.

Such are, I believe, the earliest changes to be found in the larynx in tuberculosis, and if the physician will examine every patient with pulmonary tuberculosis for laryngeal changes he will be surprised to find how large

a number show some alteration from the normal, the more conservative estimates placing this at 30 per cent. of all cases.

Regarding the therapeutics of this stage, first and foremost I would place absolute rest to the voice, though there is nothing so difficult as to induce a patient to stop talking absolutely, and to use only writing as a means of communication. Even whispering should not be allowed, as it is by no means compatible with rest of the larynx. Next is the avoidance of all irritants, notably smoke, dust and furnace-dried air, smoking being, I believe, absolutely harmful in these cases. Third is cleanliness, which I attend to by having the patient spray the larynx, and not the mouth, with an alkaline solution, using a proper long-stemmed atomizer with a tip at right angles and pointing downward. Fourth is the use of astringents. When there is much congestion or soreness I find an astringent spray of alumol 2 per cent. very useful, while if the throat is not too congested, one of the common mentholated oily sprays will be comforting. I have been able to teach my patients to spray their own throats very satisfactorily, and the relief to the symptoms and the improvement in signs are marked.

However, the drug which I have come to rely on more than any other to cure these cases is iodoform; not the ordinary amorphous form, but the fine crystalline form which is not usually found in drug stores. This I have the patient insufflate morning and night from a proper apparatus which, like the atomizer, must be long enough to reach over the top of the larynx and must have a tip which will blow the powder directly down into that organ. It is surprising what excellent results can be obtained in non-ulcerated or slightly ulcerated cases by the systematic and faithful use of this measure and how infiltrations can be absorbed or made inactive.

Since in early cases there is rarely dysphagia, the use of local anesthetics is not usually called for; when needed I have usually found insufflations of orthoform before meals very satisfactory, or when this is not sufficient solutions of acetate of morphin, 5 gr. to the ounce, taking care not to use it too freely.

Before closing, let me warn the physician who has not had careful training in making endolaryngeal applications with the cotton-tipped laryngeal sound, against resorting to them in the treatment of ulcerations. Of course for infiltrations they are of no use and would only do harm. Lactic acid so applied in moderately advanced cases is a valuable remedy, and I have seen many ulcers heal under its use, but unless one is familiar with the use of the laryngeal sound, it is easy to do great harm with it, and it should, therefore, only be used by the expert.

Finally, I am sure that if physicians will take the time and trouble thus to examine the throats of their tuberculous patients, they will find that the results fully justify the time and effort needed, and that through discovering the lesions early and treating them while yet they may be cured, they will come to take a less hopeless view of the prognosis of these cases than has hitherto been the case.

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Differential Diagnosis Between Herpes Genitalis and Venereal Lesions. In women, confluent herpetic ulcerations of the vulva may be mistaken for mucous syphilides or for condylomata, but the latter are vegetable-like erosions, instead of punched-out ulcers, and have also a peculiar fetid odor. C. F. Marshall, in the *Practitioner*.

ANTITYPHOID VACCINATION

AN INSTANCE ILLUSTRATING ITS EFFICACY*

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Typhoid fever has been the scourge of armies in campaign in every war of recent years. Our own army was crippled to a greater extent by this disease, during the Spanish-American War, than by all the other conditions combined that tend to decrease the morale and fighting efficiency of an army. During that short campaign there occurred 20,738 cases of typhoid fever among 107,973 men, with 1,580 deaths. In the Boer War the English had 31,000 cases, with 5,877 deaths; and during the Franco-Prussian War the Germans had 73,396 cases, with 8,789 deaths. Statistics as to the incidence of this disease in the Russo-Japanese War have never been published.

Sanitary campaigns have been waged against typhoid fever in our military service and civil communities with very material results; but, after exhausting every possible sanitary expedient, sporadic outbreaks continue to occur. The board of medical officers who investigated the origin and spread of typhoid fever in the U. S. military camps during the Spanish War, prophesied that, "with typhoid fever as widely disseminated as it is in this country, the chances are that if a regiment of 1,300 men should be assembled in any section and kept in a camp the sanitary conditions of which were perfect, one or more cases of typhoid fever would develop." This prophecy has been borne out, time and again, during the summer maneuvers of the army since that time.

Laboratory investigations have shown that 3 per cent. of those recovering from typhoid fever continue, indefinitely, to excrete typhoid bacilli capable of infecting others; and it must be conceded that, with these "carriers" acting as foci for the dissemination of the disease, "residual" typhoid will remain, despite the greatest sanitary vigilance. It is obvious, then, that some adjunct to the usual sanitary measures is necessary in an attempt to reduce still further the typhoid morbidity. Antityphoid vaccination seems to meet this necessity.

Protective inoculation against typhoid fever was instituted in the U. S. Army, in March, 1909; and over 12,000 persons have been inoculated up to this time (Oct. 1, 1910).

The vaccine is prepared at the U. S. Army Medical School, Washington, D. C. A non-virulent strain of the typhoid bacillus is grown on agar, slanted in flasks, for eighteen hours. The growth is then emulsified in sterile salt solution. The emulsion is standardized so as to contain 1,000,000,000 bacilli to the cubic centimeter, and sterilized at a uniform temperature of 56 C. for one hour. To insure its sterility, the vaccine is tested out aerobically and anaerobically; 0.25 per cent. of tricresol is added as a preservative, and it is put up in sterile glass ampoules (1 c.c. and 5 c.c.), in which form it is distributed for use. As a final test, before issue, the vaccine is proved innocuous by injection into guinea-pigs and mice.

A complete vaccination consists of three inoculations at ten-day intervals. The vaccine is administered hypodermatically, giving 0.5 c.c. (500,000,000 bacteria) as the initial dose, and a full cubic centimeter (1,000,000,000 bacteria) at each subsequent inoculation.

* Published with the permission of the Surgeon-General of the Army.

Therapeutics

INDIGESTION

This condition, sometimes called the American disease, is certainly not growing less frequent, and its results are becoming more serious because the general system does not seem to withstand irritants so well as it did even 25 or 50 years ago. The human being of to-day with his higher civilization is subjected to a series of unceasing irritations—irritations to almost every sense and every part of the nervous system—which tend to cause nervous tension and increased circulatory tension, and the results are arteriosclerosis and chronic nephritis. These two end-results are further caused and precipitated by the irritants that are absorbed from the alimentary tract. Normal digestion offers no such irritants; abnormal digestion, or indigestion, offers irritants which are more or less absorbed, which are for a long time tolerated, which are insidious in their results, and may for years cause no organic disturbances. There are, however, early and persistent symptoms of indigestion which the patient can recognize. Unfortunately, however, an adult for months may take no particular notice of disturbances that do not cause him distress.

There are so many causes of maldigestion that they could hardly all be enumerated in any one list. We may start out with the presumption that there is no organic trouble causing indigestion as a secondary condition. The first determination to be made when a patient complains of indigestion is that there is no circulatory or kidney excuse for the condition. The next determination should be as to whether the patient has simple indigestion or has an inflammation of some part of the digestive tract, and it is generally possible to decide whether simple dyspepsia or actual gastritis is present, or whether simple intestinal indigestion or an inflammation of some part of the intestinal canal is present. If it is determined that there is an inflammation of the mucous membrane, *i. e.*, gastritis, duodenitis, enteritis, or colitis, the treatment would be different than when there is simple disturbed digestion.

An acute inflammatory condition is readily recognized, and consequently correctly treated. A chronic inflammatory condition is not so readily determined, consequently more scientific examinations are necessary. The clinical history, signs, and an ordinary physical examination are not sufficient. The feces must be properly examined after a known diet.

Pediatricians for a long time have advised this method of determining the correct food for a given infant, and what he can digest. A few clinicians have long urged a more careful study of the stools of adults when there are disturbances of digestion, but the majority of practitioners take no notice of this aid in making a diagnosis and coming to a decision as to the proper food and proper treatment. It may readily be determined by such an examination of the feces which foods are best digested; whether the trouble is probably in the stomach or in the intestines; whether or not there is a deficiency of bile; whether or not there is an insufficient amount of pancreatic juice; whether there is a probable insufficient secretion from the intestinal walls and glands or not; whether peristalsis is delayed and the motility of the bowels sluggish; whether there is blood extravasated from some portion of the stomach and intestine; whether there is an abnormal amount of mucus; and last whether or not there is pus. Abnormality in the feces will give indications as to the etiology of the condition and the best line of treatment. If it seems probable that the

Following the vaccination, usually within six to eight hours, a hyperemic area, about the size of the palm of the hand, develops at the point of inoculation. Rarely, this hyperemia is attended with some brawny induration, with enlargement and tenderness of the axillary lymph-nodes, but suppuration never occurs. The local reaction may or may not be accompanied by systemic disturbances. When present, systemic reaction may be manifested by slight pyrexia and malaise, in mild cases; and rheumatoid pains, nausea, rigors, considerable pyrexia, profuse perspiration, herpes, or nervous disturbances in the severer reactions. I have seen one case of hysteria follow inoculation. The symptoms subside within forty-eight hours in the severest reactions—usually within twenty-four hours—and the records of over 31,000 inoculations show no serious untoward results.

Laboratory researches demonstrate that the agglutinin, opsonin, and bacteriolysin of the blood-serum are increased by antityphoid vaccination and that the increase is greater and more persistent than that conferred by an attack of typhoid fever. Typhoid outbreaks, in commands in which there were both inoculated and uninoculated individuals, have demonstrated, practically, what we should have expected from the laboratory evidence; and a recent typhoid situation at Washington Barracks, D. C., illustrates the efficacy of antityphoid vaccination so conclusively that it is deemed worthy of record.

On June 14, ten days prior to leaving Washington Barracks for the Gettysburg maneuvers, 92 members of Company A, First Battalion of Engineers, received the first antityphoid inoculation. On July 6, 52 of the above men received the second inoculation, and on July 16, 51 of these received the third inoculation. Of the remaining 26 men of the command, a few refused vaccination and others were on detached duty or temporarily absent when the first inoculation was given.

Two of the 26 uninoculated men gave a history of having had typhoid fever, and by virtue of that fact may be considered immune. This leaves 24 men, of the total strength of 118 men, who had not acquired an immunity to typhoid fever by either preventive inoculation or a previous attack of the disease.

On August 11, five days after the troops returned from Gettysburg, two of the uninoculated men developed typhoid fever, and, between August 20 and 23, four secondary cases occurred—also among the uninoculated. Not a single case occurred among those who had received the preventive inoculations, while 25 per cent. of the non-immune, living under exactly the same conditions, succumbed to infection.

Such figures as these are eloquent in calling attention to the practical application of antityphoid vaccine in the prevention of typhoid fever. With no serious results following over 31,000 inoculations in the army, we may say with certainty that the procedure is safe, and statistics available at this time show that the immunity conferred by vaccination lasts for at least three years.

About one-seventh of the personnel of the regular army have now been vaccinated, and a regulation requiring the vaccination of all recruits and all those presenting themselves for re-enlistment would result, within three years, in a regular army practically immune to typhoid fever. Furthermore, in the event of hostilities, should the vaccination of the reserve army—militia and volunteers—be made compulsory before mobilization, it is reasonable to prophesy that the medical history of our land forces in past wars, as regards the incidence of typhoid fever, would not repeat itself.

whole disturbance is in the stomach, or at least that a portion of the disturbance comes from the stomach, examination of a test breakfast by means of a stomach tube will show what part the stomach takes in the general disturbance that is present.

It will be conceded by every practitioner that if any of the above-named abnormalities can be determined by examination of the feces, it is certainly advisable; the only drawback is the difficulty with which such a determination is made. In other words, if an easy, quick method of making such a scientific examination can be offered, it will be adopted by the general practitioner.

The following method is one that has been devised by Dr. M. M. Scarborough, of New Haven, instructor in pharmacology at the Yale Medical School. The daily diet which he suggests that a patient should receive for three days before the examination of the feces is to be made is as follows: One quart of milk, one-fourth pound of bread, one-half pound of potato, one-fourth pound chopped beef. This represents about 100 grams of albumin, about 110 grams of fat, and about 200 grams of carbohydrate, amounting to about 2,225 calories in heat value, enough to meet the requirements of a man at light work. The following is the menu in detail:

Breakfast:—One soft boiled egg, 2 slices of toast with butter, 1 bowl of oat-meal with sugar and cream, 1 glass of milk, and 1 cup of coffee. If coffee is not desired, another glass of milk may be substituted.

Dinner:—A quarter pound of finely chopped round steak (very slightly broiled so that most of it is rare) $\frac{1}{2}$ pound of mashed potato, 2 slices of white bread or toast, plenty of butter, and 1 or 2 glasses of milk.

Supper:—Same as the breakfast.

A patient is put rigidly on the above diet for three or four days. At the beginning of the diet he is given a tablet or capsule containing 0.30 gram (5 grains) of pure willow charcoal. This dose of charcoal is repeated at the end of the diet. The consequent black stools from these two doses of charcoal will mark the beginning and end of the period of special diet. The length of time it takes the charcoal to go through the intestines will determine their activity and whether the food is delayed or not in its passage through the alimentary tract. The second dose of charcoal is useful only to determine whether the activity of the canal has changed during the rigid diet. The stool which is to be taken for examination should be at the end of the third 24-hour period of the diet and before the administration of the second dose of charcoal. The stool desired is collected in a wide-mouthed jar and examined immediately, and the examination may be divided into macroscopic, microscopic and chemical.

Macroscopically, under normal conditions, we find a soft-formed stool, light-brown in color and of uniform consistency. A liquid stool usually denotes a too rapid passage of food through the tract; a tarry stool indicates blood coming from the stomach or high up in the intestine. Flakes of mucus, blood, pus, etc., are pathologic. Next a piece of feces the size of a walnut is ground up in a mortar with a little water and then spread out on a glass plate in a thin layer. The normal feces appear perfectly homogeneous except for here and there small broken, brownish points of cellulose from the oatmeal eaten. In this preparation may be seen food remains which are abnormal. Firm whitish or yellowish strings of connective tissue, and small brown-colored rods of muscle fiber, appearing like splinters of wood, may be seen here and there, denoting improper digestion of the meat. Starch granules in the form of glassy transpar-

ent globules like sago grains, may be present and must be distinguished from shiny, ragged flakes of mucus.

The microscopic examination, which is made to confirm the preceding, is very simple. A small mass of feces is pressed out in a thin layer on a slide by means of a cover-glass. Normal excrement from the test-diet appears as a fine detritus of granules, globules and bacteria, interspersed here and there with fragments of muscle fibers, small, irregular, yellowish flakes of calcium salts and less numerous skeletal remains of potato cells, besides the chaffy particles from the oatmeal. On a second slide a small piece of feces is stirred up with two drops of a 35 per cent. solution of acetic acid, heated over a flame until bubbles arise, and then set to cool. The process causes a liberation of the free fatty acids which flock out on the surface of the preparation, giving a rough index to the amount of fat in the stool.

It should be remembered that fat is a united compound of a fatty acid radical and glycerin. Under the action of pancreatic secretion the glycerin is separated from the fatty acid radical. Then, and not before the glycerin is so separated, can the bile act on the fatty acid radical to change it into a fatty acid that can be absorbed. Without the action of bile the original fat can not be absorbed, and the fatty acid resulting from the breaking up of the fat from the action of the pancreatic juice also can not be absorbed. In the presence of potassium or sodium the fatty acid can be converted by means of the bile into a soap. It will thus be seen that, either from imperfect pancreatic juice or from imperfect bile, fat may not be absorbed, and will appear in the stools as such. If the pancreatic juice acts normally on a fatty food and the bile is not secreted or does not act, then crystals of fatty acids and perhaps soaps will appear in the feces.

On a third slide an iodine solution (liquor iodi compositus, Lugol's solution, diluted with equal part of water) is used, which stains the starch, yeast and other fungi that may be present. The microscopic examination may reveal the following pathologic components: fragments of muscle fibers large in size and in good state of preservation; clusters of undigested starch grains; numerous needles and crystals of fatty acids and soaps; and occasionally various fungi.

The chemical tests are very simple. The litmus reaction is taken; normal stools are faintly alkaline or at least feebly acid. Next a little of the stool is mixed with a strong bichlorid solution (a saturated solution of corrosive sublimate in water, which is, in cold water, not far from 7 per cent.); normal feces give a red reaction, while feces that have passed through the tract so rapidly that the bile has not been reduced give a greenish reaction. The bile should be digested in the intestine, if present; consequently the greenish color is abnormal and shows that undigested bile pigments have passed entirely through the intestinal tract. The last test is the amount of gas that the stool will give off. If there is produced a large amount of gas and the feces become acid it usually indicates an excess of carbohydrates in the stool; if there is produced a moderate amount of gas and the stool becomes alkaline and foul it usually indicates an excess of protein in the stool. The normal feces should produce only a small amount of gas with only slight change in reaction. An accurate gas determination can only be made after a portion of the feces has stood for 24 hours in a bottle so that the gas given off from the bacterial action in the fecal material, without the addition of any substance, may be collected and measured. This determination, therefore, takes time, re-

quires a properly graduated and constructed bottle for the gas determination, and is hardly practical for the rapid clinical examination of the feces which is being described.

The significance of pathologic findings may now be briefly rehearsed. Mucus in the stool means the existence of an inflammatory condition of the mucous membrane. Almost always it comes from the large intestine or rectum. The mucus from the stomach and small intestine is dissolved by the digestive fluids unless the passage through the canal is very rapid. Unchanged bile pigment, as detected by the bichlorid test, indicates a very rapid passage of intestinal contents; absence of bile pigment denotes complete obstruction of the biliary duct. Excess of fat in the stool may be due to its incomplete digestion on account of a diminished amount of bile, or to a disturbance of the pancreatic secretion.

The finding of meat remains is of great significance. Connective tissue never appears in the feces after the test diet unless there is a disturbance of digestion in the stomach, a diminished gastric juice. The trouble once located in the stomach can be further studied by the well-known methods of gastric analysis. The other structures of the meat (the muscle fibers) are not digested in the stomach. Even in complete achylia gastrica muscle fragments never appear in the stool. The presence of muscle fibers in a good state of preservation always means trouble in the small intestine, due to one or more of the following conditions: the pancreatic juice may be insufficient; or the active enterokinase of the secretions of the small intestine may be absent; or, finally, there may be a marked hypermobility, too rapid peristalsis, of the small intestine, thus not allowing time for digestion of these elements. A method for the investigation of the exact cause of intestinal indigestion of meat fibers has not yet been satisfactorily worked out. However, as the nuclei of tissue cells are digested only by the pancreatic secretion, Schmidt has devised his nuclei test, which consists in giving a small cube of meat placed in a small porous silk bag. The bag almost always contains remains of the tissue after passing through the gastrointestinal tract. If undigested nuclei are present, it is safe to conclude that there is an unsatisfactory functioning of the pancreas.

The presence of starch elements indicates its incomplete digestion in the small intestine and shows a disturbance of the pancreatic secretion and of the intestinal juice. Insufficiency of starch digestion is further confirmed by the fermentation test and by the finding in the stool of organisms that stain blue or violet with iodine.

It seems to be a fact that when there is constipation in individuals otherwise well, that there are but few food fragments in the feces. Even the cellulose of the potato cells and of oatmeal disappear. This probably means that the longer time that these food products remain in the intestine, the more complete is the digestion. In such instances of constipation with otherwise good health there is often but little gas or fermentation discovered by examination of the feces. Constipation in such individuals is due to the too complete absorption of the liquid portion of the intestinal contents and such a complete digestion of food products as to inhibit the development of normal bacteria. Consequently, there is less gas and less liquid and the normal stimuli to peristalsis are absent. This form of constipation is generally improved by the agar-agar treatment. Agar-agar can be obtained in granulated form, and may be eaten in the morning with cream and sugar, similar to a cereal, and even bread may be made of agar-agar. Ordinary gelatin is also of advantage in this kind of

constipation; also are ripe bananas. The action of these food products is mechanical; they absorb water, retain it, prevent the fecal debris from becoming dry, and give a larger bulk for normal peristalsis.

The absence or diminution of bile coloring matter in the stools of course points to deficient liver activity or to some obstruction to the bile ducts. If there is a large amount of mucus in the fecal matters, and if there are shreds of membrane or actual pus, it shows an abnormally increased secretion of mucus or an actual inflammation in some part of the alimentary canal. If there is much mucus or mucopus in the stools, it is generally due to catarrh of the large intestine. Such a condition generally gives frequent small bowel movements.

To a small portion of feces in a test tube add three drops of freshly made tincture of guaiac, then add a layer of half an inch, or so, of peroxid of hydrogen solution. If blood is present, there will be a ring of blue foam between the peroxid solution and the fecal solution. If this is thoroughly shaken, of course the whole of the peroxid solution becomes blue if blood is present. This is a test for occult blood, *i. e.*, hidden or digested blood. Blood in large amount, or if evident macroscopically, requires no such test. The diagnostic findings and the indications for treatment may be summed up as follows:

1. If the charcoal is slow in passing through the alimentary canal, *i. e.*, more than thirty-six hours after ingestion, intestinal peristalsis is sluggish.

2. If the fecal matters are very dry, there is too great absorption of liquid from the intestines.

3. If the stools are very liquid, there is generally too rapid peristalsis.

4. If the fecal matters are distinctly or very acid, there is an imperfect intestinal digestion.

5. If there is much gas in the feces, there is maldigestion of some kind; it may be purin maldigestion or carbohydrate maldigestion. Whichever it is otherwise determined that it is, that particular kind of food should be limited.

6. If there is undigested connective tissue found microscopically, the trouble lies in the stomach, which should then be studied by means of the test breakfast and examination of the stomach contents withdrawn an hour after the test breakfast has been taken. If there are undigested muscle fibers present, there is insufficient pancreatic secretion, and meat should be diminished or temporarily withdrawn from the diet.

7. If there is a large amount of undigested starch particles, the pancreatic juice is deficient, at least in its starch digestion properties; consequently the starch in the diet should be diminished.

8. If the bile pigments are absent, of course the bile is not secreted (or excreted) into the alimentary tract. If there is a large amount of bubbling from the liberation of fatty acids during the acetic acid test, or if there is a large amount of fat in the stool, it would show deficient bile secretion, and the amount of fat ingested should be greatly diminished.

9. Abnormal bacteria, or an abnormal amount of bacteria, or specific bacteria would suggest various diets, bowel antiseptics, purgings, and various systemic treatments, depending on the findings.

10. Much mucus or pus would suggest the treatment, depending on the region from which it was supposed to come; colon washings or colon treatments, if the colon was at fault.

11. If there is blood in the stool, evident or occult, it must be determined, if possible, from what part of the tract it comes.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 DEARBORN AVENUE . . . CHICAGO, ILL.

Cable Address . . . "Medic, Chicago"

Subscription price Five dollars per annum in advance

[For other information see second page following reading matter]

SATURDAY, NOVEMBER 19, 1910

FLIES AND TYPHOID FEVER

It is sometimes easier to implant a new idea in the human mind than to extract it or modify it when it has once taken firm root. The notion that bad smells from faulty sewers give rise to specific infections such as diphtheria and typhoid fever, or that piles of garbage "breed disease" are cases in point. In the public mind methods of garbage disposal and elaborate plumbing ordinances often loom large as the chief weapons of combating disease. Too often attention is diverted from really significant and tangible dangers to health by the cry that the garbage dump or the sewage manhole is emitting vile odors. It is of course well known to physicians that there is no evidence that disease can be spread by odors, although foul air may possibly impair health and render the body less resistant to disease.

Many sanitarians are beginning to fear that a similar misapplication or misunderstanding of the relation of the house-fly to typhoid fever is coming about. No one questions that the house-fly is an unmitigated nuisance. Neither is there any doubt that under certain conditions such as prevail in military or mining camps or on many a country farm, or even in cities that allow the crude type of privy, the house-fly is an exceedingly important agent in the transmission of infection. This has been abundantly proved. There is observable, however, a tendency to assume a connection much wider than this and to attribute to fly infection a portion, sometimes the major portion, of the typhoid fever occurring in large and well-sewered cities. Several instances of this misguided enthusiasm have come to notice within the last few months. It need hardly be pointed out that the house-fly, no matter how disgusting its origin or habits, cannot convey the specific germ of typhoid fever to any food substance unless it has access both to food substance and to typhoid germ. Those amateur investigators who assume that they have discovered the origin of a typhoid epidemic if they observe a few piles of horse-manure in the alleys of a city take a wide leap over logical difficulties. Their mode of reasoning seems to be this: Flies can breed in horse dung, flies can convey typhoid fever, therefore flies bred in these dungheaps have caused or are about to cause

typhoid fever. One other essential condition, namely, the existence of infected material to which the flies have access, is left out of account in such hasty judgments. As a matter of fact, grave as is the danger of fly transmission of typhoid under rural conditions, it does not seem to be an important factor in the production of urban typhoid. As is well known, the intensive study of typhoid fever in Washington, D. C., which extended over several years, yielded no evidence that fly-transmission had any noteworthy share in typhoid fever causation in that city.

One of the most experienced American health officers has taken a decided stand on this question in a book recently published.¹ While recognizing the desirability of treating garbage in such a way as to prevent a nuisance, and admitting the possibility of fly-borne infection where open privy vaults exist, he declares very plainly that "there is no evidence that in the average city the house-fly is a factor of great moment in the dissemination of disease." There can be no doubt that in any reasonably clean and well-sewered city the cases of typhoid infection due to direct fly transmission are relatively very few compared with the number due to water, to milk and to contact (including contact with carriers). As one writer has said in discussing this question "we need more scientific knowledge and less repetitious babble of sentiment in dealing with flies or any other nuisance."

SUNLIGHT, BAREHEADEDNESS AND BALDNESS

Recently we called attention to the observations of Grawitz² that too much indulgence in sun baths is prejudicial to the human organism and causes irritability and nervousness, cardiac and circulatory disturbances, and more or less serious dermal lesions. Recent observations confirm these findings and show that the skin and its appendages are peculiarly susceptible to the sun's rays.

During the past few summers there has been a widespread and growing tendency among young people to discard head coverings of all kinds, and to go about under the open sun bareheaded. Indeed in college communities, the bare-head habit has not been limited to summer, and it has apparently been considered modish to go about hatless in weather which caused older and less faddish heads to seek the shelter of furs and ear muffs. This custom has received not a little encouragement from the wide-spread belief, which is probably well warranted, that baldness is commonly caused by the obstruction to the circulation of the scalp by the pressure of hat-bands; therefore to escape this unwholesome pressure and at the same time to secure the stimulating effects of sunlight seemed an ideal method for insuring a permanent and luxuriant head of hair.

1. Chapin, Charles V.: Sources and Modes of Infection, New York, 1910.

2. THE JOURNAL, Aug. 6, 1910, p. 506.

That the results of the habit are not always so favorable, but often quite the reverse, was pointed out at the meeting of the American Dermatological Association in Boston by Dr. George F. Harding and others.² Dr. Harding said that his deductions from the observation of 312 cases of alopecia in young people between the ages of twelve and twenty years, would indicate that exposure to the sun was harmful rather than beneficial to the hair and scalp. The alopecia affected chiefly blonds (293 of the 312 cases), presumably because of the finer texture and lack of pigmentary protection, and when following a single season's exposure showed itself from four to six weeks after the return of the patients from seaside or country to the city. If the custom is persisted in for several seasons the baldness becomes marked and the prognosis unfavorable. Other dermatologists concurred in this unfavorable opinion of the influence of direct sunlight on the scalp, and pointed out the similarity of the effects of the highly actinic rays of the sun and the x-rays, whose depilatory powers are well recognized and often used.

The time was when we thought that man could not possibly get too much sunlight, but we are learning, especially through our friends in the tropics, that for the white man at least the limit of advantageous exposure to the sun is quickly reached. It is all a question of dosage, and those who would go back to Nature and the bare-headed state of man must be warned of the necessity of moderation even in this simple indulgence.

MEDICAL RESEARCH AND MEDICAL EDUCATION

Elsewhere in this issue comment is made on a recent gift to a medical teaching institution, for the encouragement of medical research. This aid to the investigation of new problems is gratifying. Through medical research the known facts connected with medicine have increased to an enormous extent, and many practical methods of prevention, diagnosis and treatment of disease have been evolved. The good work is still going on. But it should not stop here. For while it is impossible to give too much financial encouragement to medical research, still it is to be regretted that the importance of encouraging a higher standard of medical education is not being appreciated to a like extent. It does not seem to be realized that this newer knowledge in medicine is of little worth unless it be practically applied by physicians, and that its vast importance requires of them far broader knowledge, and therefore a much higher standard of education than was necessary before the recent remarkable development of scientific medicine.

Medical progress has been so rapid that medical schools have found difficulty in keeping pace with it. The leading schools have been striving to provide a course that would meet the requirements. The medical course has been extended from two years of six or seven months

each to four years of eight or nine months each. Such subjects as bacteriology, pathology, physiologic chemistry, pharmacology, etc., hardly thought of a little while ago, have become fundamental and essential.

And so it has developed that to teach modern medicine requires the college to provide extensively equipped laboratories and to employ specially trained teachers with salaries that will permit them to devote their entire time to the work. But this means an enormous additional expense—so enormous that many teaching institutions have been unable to meet it.

Again, the modern medical course requires that the students who enter, in order to master the newer subjects, must have a much broader preliminary training than was formerly necessary. And this deters many who would otherwise enter on the study of medicine.

On the one hand, therefore, the medical school is put to an enormously increased expense; while on the other hand, by the prolonged medical course and by exacting higher entrance requirements, the number of students who can meet the requirements has been greatly reduced. Hence it has become financially impossible for a medical school dependent solely on students' fees to teach modern medicine as it should be taught. Medical schools to-day simply must have outside support, either by private endowment or by state aid.

It is to be hoped, therefore, that the recent generous gifts for medical research merely foreshadow equally generous gifts for medical education, so that the knowledge that results from medical research may be practically applied in the prevention of sickness and in the treatment of disease. No investment will bring greater returns in the extension of health and happiness than financial support given to those medical schools which are honestly and unselfishly striving to educate men for the practice of modern medicine.

Current Comment

MEDICAL EXPERT TESTIMONY

Medical expert testimony is a puzzling problem for physicians, lawyers and judges. It has been repeatedly discussed at various medical meetings, at the annual sessions of the National Legislative Council of the American Medical Association and at the meetings of the American Bar Association. An effort is now being made in Missouri to secure some tangible results, through cooperation between the State Medical Association and the Missouri Bar Association. A joint committee representing both of these bodies has drafted a proposed law with a view to improving the status of expert medical testimony in the courts. The bill, if passed, will empower any judge of any court of record, on his own motion or on that of either party in the case, when the ends of justice seem to require it, to appoint one or more disinterested, skilled persons to serve as expert witnesses, the fees of such witnesses to be fixed by the judge and to be paid by the party asking for the

² Boston Med. and Surg. Jour., 1910, clxiii, 478. White, C. J.: THE JOURNAL, Sept. 24, 1910, p. 1074.

appointment of such experts. In criminal cases, on the request of the defendant, expert witnesses may be furnished at the expense of the state. The bill provides that these witnesses shall examine such persons, matters or things as the court shall direct, and report their findings in writing, not as evidence, but as a basis for their examination by the court or by counsel for either party. They will not be regarded as witnesses for either party. In personal injury suits, the judge may require the person alleged as injured to submit to a reasonable examination, physical or mental, by the experts so appointed. There are at present only two states which have enacted an expert testimony law, Michigan and Rhode Island. No one will deny that the present condition of medical expert testimony is most unsatisfactory. The solution of the problem will require the united efforts of both the medical and legal professions. Neither alone can solve it. The recognition of this fact by the Missouri State Medical Association, and the effort to cooperate with the State Bar Association are steps in the right direction.

THE CHICAGO CLINICAL MEETING

A series of surgical clinics, carefully planned and covering two weeks, has just terminated in Chicago. In an item in the news department appears the statement that perhaps 1,000 surgeons from outside the city have attended these clinics. This remarkable showing clearly demonstrates three things: first, that physicians are to-day more anxious than ever to fit themselves for better work and are willing to spend time and money for that purpose; second, that owing to multiplication of societies and meetings, the writing and reading of papers have been relatively overdone and that fewer and better meetings with fewer, shorter and better papers and more clinics should be the aim; third, that the medical profession of Chicago to-day faces an almost unprecedented opportunity to make that city one of the greatest medical educational centers of the country.

INTERSTATE COMMERCE IN MEDICAL SERVICES

The power of the state to regulate the practice of medicine through the exercise of its police power has been repeatedly stated and emphasized. As the practice of medicine is ordinarily a local function, it has been generally assumed that state regulation is sufficient. A case has recently come to light, however, which shows that in regulating the practice of medicine, as in regulating railroads and express companies, there must be something additional and supplementary to state regulation, if the public is to be protected. In the case referred to: an individual residing in one of our larger cities, who is not licensed and who cannot obtain a license to practice medicine in the state in which he lives, has been doing an extensive business by mail with "patients" located in other states; he has been treating their ailments and prescribing for them by mail, regardless of the fact that he was not legally qualified to practice medicine either in the state in which he lives or in the various states in which his "patients" live. It is apparently difficult if not impossible to indict him in either state. Under existing federal laws, he can, if

proven guilty, be punished for using the United States mails for fraudulent purposes, but he cannot be arraigned in a federal court for practicing medicine illegally, since there is no federal enactment regulating the interstate practice of medicine. It is a legal axiom in this country that the power of the federal government begins where the power of the state ends. It seems clear that there should be some way of preventing a citizen of one state from performing any act in another state which he could not legally do in the state in which he resides.

ANOTHER GIFT FOR MEDICAL RESEARCH

Medical research has received much encouragement of late through generous donations from men of wealth. Every week or two announcements are made of large gifts for the endowing of this important work. The latest instance is the gift of \$200,000 from Mr. James A. Patten to endow a chair of medical research at the Northwestern University Medical School, Chicago. The chief object of this gift is the investigation of tuberculosis, a brother of the donor having recently died of this disease. By a wise provision, however, the fund will not be limited to this particular work but will be used in any field which promises results in preventive medicine and in the treatment of disease. The gift is considered adequate to secure the services of a skilled investigator and to initiate the work, although further funds will doubtless be available as the work proceeds.

CHINESE HAIR AND AMERICAN RATS

The British Consul at Swatow, China, reports that Chinese exports of human hair have nearly doubled in value, the cause being the change in style of ladies' hair-dressing in America and Europe. The Chinese have not been slow to take advantage of this sudden development of the business. The consul states that all classes of natives have invested money in the business, and that the poor have found a paying occupation in collecting combings and preparing them for the market. In view of the alleged fondness of some Chinese for rats, one could almost construct a joke out of this exportation of hair for "rats" for American and European women.

THE PLAGUE IN ENGLAND

Mention is made by our London correspondent in this issue of the occurrence of a number of cases of what was supposed to be pneumonic plague. According to the Local Government Board,¹ there occurred four deaths at Freston in Suffolk, which, it was believed, could be ascribed to plague of the pneumonic type. A bacteriologic examination of material taken from two of the patients apparently confirmed the clinical diagnosis. Subsequently, rats and hares found dead or dying in the same locality were examined, and found to be infected with plague. As result of these findings, a very systematic effort was inaugurated to destroy rats and remove accumulations of refuse. The result has been a most satisfactory one, no cases of human illness suspicious of

1. The Mysterious Disease in Suffolk, *Lancet*, London, Oct. 29, 1910, p. 1295.

plague having occurred since the latter part of September. Fortunately, public apprehension was not aroused by these deaths; in fact, little opportunity was given the public to become frightened. The local health authorities proceeded with the work of prevention so quickly and so admirably that all danger of spread of the contagion had passed before the presence of the plague became generally known. This certainly was most desirable, inasmuch as it left the authorities unhampered in their endeavor to check the contagion.

ROSES INSTEAD OF TAGS

We are becoming accustomed to the use of the little stamps sold at Christmas time, the proceeds of which go to aid in the eradication of tuberculosis. In many of our cities "tag day" has become an established institution as a means of raising money for local charities. These methods of raising funds for worthy causes have been accepted by the public to such an extent that on a recent "tag day" in one of our large cities, it was practically impossible by evening to find any one on the down-town streets who did not wear a little pasteboard tag as an evidence of contribution to the designated charities. While our methods are effective so far as results are concerned, our European neighbors have evidently improved on the American plan, from an esthetic standpoint. Laurence Sterne observed, long ago, in another connection, that "they do these things better in France." Evidently, Belgium has profited by intercourse with her artistic neighbor. A dispatch from Brussels states that the fight against tuberculosis in that country is aided by a "rose day," on which occasion the *rose de la reine* is the decoration which everyone is expected to wear. Sunday, the queen's day, is designated as rose day and hundreds of thousands of little roses, sold for the benefit of the *Oeuvre contre la Tuberculose*, are seen in buttonholes and on dresses and hats. One of the three rose bazaars in Brussels sold this year over 150,000 roses and would have sold more had it been possible to secure them. This plan of raising funds for a worthy object is practically the same as ours, but the substitution of the rose for the pasteboard tag is a beautiful improvement which is commended to our charity workers for consideration.

Medical News

COLORADO

Gifts to Hospitals.—The National Jewish Hospital for Consumptives and the Jewish Relief Society for Consumptives each received a gift of \$1,000 from Louis J. Aaron, Pittsburg, Pa.

New Building for Physicians.—The new Metropolitan Building, Sixteenth Street and Court Place, which has been adopted for the permanent home of the Denver City and County Society, is ready for occupancy. About 100 physicians and dentists have moved or are moving into the building. The building will also contain the library of the society and a lecture room.

Personal.—Dr. Eleanor Lawney, Denver, has been elected president of the board of directors of the Visiting Nurses' Association.—Dr. John R. Robinson, Colorado Springs, who was operated on for appendicitis, is reported to be improving.

—Dr. John W. Webb, Denver, on trial for the murder of Mrs. Georgia Slaughter Erby, for an alleged illegal operation, was found not guilty by the jury, November 4.

CONNECTICUT

Personal.—Dr. John E. Farrell, Waterbury, announces that he will hereafter limit his practice to the treatment of diseases of children.

Health Board Needs.—The Board of Public Health of Waterbury has asked for an appropriation of \$11,710 for its 1911 expenses, an increase over the appropriation for this year of \$5,210. The estimated expense of garbage removal for the year is \$23,000.

Gifts to Medical Society and Hospital.—By the will of Mrs. Mary Bacon, widow of Dr. William T. Bacon, Hartford, \$100,000 is devised to the Hartford Medical Society, and \$5,000 to the Hartford Hospital to provide for a free bed for patients suffering from diseases of the eye or ear.

GEORGIA

Wish New Hospital for Rome.—Several physicians of Rome appeared before the city council recently, and offered to erect a city hospital to cost \$50,000, provided the city would provide for the maintenance of the institution.

Entrance Requirements.—Entrance requirements to medical colleges was an interesting part of the program of the Association of Colleges and Preparatory Schools of the Southern States which held its sixteenth annual meeting at the University of Georgia, Athens, November 3 to 5. Papers on immediate and ultimate standards of preliminary education for admission to medical schools were presented by Dr. Richard H. Whitehead, dean of the Medical Department of the University of Virginia and Dr. Nathan P. Colwell, secretary of the Council on Medical Education of the American Medical Association. A number of physicians were present including Dr. Alfred L. Gray and Dr. J. Allison Hodges of the University College of Medicine, Richmond, Va., who participated in the discussion.

Personal.—Dr. John H. Phillips, Oakhurst, Atlanta, who was arraigned November 1, charged with violating the contagious disease ordinance by tearing down a diphtheria card from a house, is said to have been found guilty, and fined \$25 and costs.—In the case of George Williamson, a farmer near Butler, who sued Dr. Wanzie W. Edwards, for alleged malicious malpractice, the jury, after being out fifteen minutes, brought in a verdict in favor of Dr. Edwards.—Dr. Leo Reich has been appointed lecturer on diseases of the skin in the Medical College of Georgia, Augusta, and also consulting physician to the Children's Hospital.—Dr. J. Scott Todd, Atlanta, who underwent operation in St. Joseph's Infirmary recently is reported to be doing well.—Dr. William H. Doughty has succeeded Dr. Joseph E. Allen as dean of the Medical College of Georgia, Augusta.—Dr. William J. McNaughton, Covena, Swainsboro, charged with the murder of Fred Flanders, is said to have been found guilty and sentenced to be hanged December 9. A motion for a new trial has been filed.

ILLINOIS

Personal.—Dr. Harold D. Singer, Hospital, has sailed for England.—Dr. Joseph De Silva and Albert N. Mueller have been appointed trustees of the Rock Island Municipal Tuberculosis Hospital.—Dr. Sumner M. Miller has been elected president of the medical staff of Deaconess Hospital, Peoria.

State Board Decisions.—The Illinois State Board of Health at its last meeting again declared the St. Louis College of Physicians and Surgeons not in good standing.—On November 3, the superior court of Cook County dismissed the personal damage suit brought by the National Medical University against the State Board of Health for its action in declaring the National Medical University not in good standing. The plaintiff appealed to the appellate court.

Illinois Physicians' Meeting.—The Aesculapian Society of the Wabash Valley held its sixty-fourth annual meeting in Paris, October 27, and elected the following officers: president, Dr. Finis E. Bell, Mattoon; vice-president, Dr. H. P. Canatta, Vernon; secretary-treasurer, Dr. Herbert N. Rafferty, Robinson, and censors, Drs. Albert T. Summers, Mattoon, Frank Dunham, Robinson, Myron A. Boor, Terre Haute, Ind., William H. Ten Broeck, Paris, and Stephen C. Glidden, Danville. The next semi-annual meeting will be held in Danville in April.—

The annual meeting of the Western Medical Society of Illinois was held in Alton, October 28. The following officers were elected: Dr. N. Gerhard Taphorn, Alton, president; Drs. Levin H. A. Nickerson, Quincy, and Elmer L. Crouch, Jacksonville, vice-presidents, and Dr. William P. Duncan, Jacksonville, secretary-treasurer.—The Illinois State Hospital Medical Association was organized in Chicago, October 27. Dr. Harold D. Singer, director of the Psychopathic Institute at the Kankakee State Hospital, was elected president, and Dr. Edward A. Foley, of the Anna State Hospital, secretary.—The Southern Illinois Medical Association held its annual meeting in Centralia, November 3 and 4, and selected Mount Vernon as its place of meeting for next year. The following officers were elected: president, Dr. Edward W. Feigenbaum, Edwardsville; vice-presidents, Drs. Andy Hall, Mount Vernon, and Harry E. Wilson, Centralia; secretary, Dr. Charles W. Lillie, East St. Louis; assistant secretary, Dr. Harry W. Dale, McLeansboro, and treasurer, Dr. Alexis T. Telford, Olney.—At the ninety-first annual meeting of the Fox River Valley Medical Association, held in Aurora, November 8, the following officers were elected: president, Dr. Charles H. Franz, Aurora; vice-president, Dr. Dwight E. Burlingame, Elgin; secretary-treasurer, Dr. William H. Schwingel, Aurora; censors, Drs. James A. Rutledge, Elgin, William P. Sherman, Aurora, and George W. Jaan, Aurora; delegate to the Illinois State Medical Society, Dr. George F. Allen, Aurora, and alternate, Dr. Frank H. Jenks, Elgin.

Chicago

Higher Entrance Requirements.—The dean of Northwestern University Medical School announces that hereafter the institution will require two years of collegiate work as requisite for admission instead of one year as heretofore.

Physician Shot.—Dr. Jacques Holinger, a specialist in diseases of the throat, while in his office November 9, was seriously wounded by a patient, who shot him three times, once through the nose and twice through the arm. The patient then killed himself. Dr. Holinger is progressing favorably.

Plan for Open Air Schools.—Members of the Chicago Permanent School Extension Committee, composed of delegates of ninety women's clubs of Cook County passed resolutions at its meeting, held in Chicago, October 29, to begin the systematic work of introducing open-air school rooms in as many Chicago schools as possible. The committee furthermore decided to raise funds to defray the expenses of providing the supplementary food and clothing for the children who are to be given the open-air instruction and treatment.

The Clinical Convention.—Chicago's medical population has been temporarily increased by nearly 1,000 physicians from all over the country who have been in attendance on the series of clinics held by the surgeons of Chicago in most of the hospitals, colleges and postgraduate schools. In connection with the clinics, special meetings of the various medical societies of the city are being held, at which many eminent surgeons from outside of Chicago are appearing on the programs. The occasion has furnished many practitioners the opportunity to refresh their knowledge of the details of many operations. One valuable feature has been a series of reviews of "borderland surgery," in which were discussed the differential diagnoses of many conditions in which it is often difficult to determine whether or not operation should be performed. Some of the prominent subjects taken up have been repair of intestinal wounds, grafting and transplanting, blood-vessel anastomosis (on which an article appears in this issue of THE JOURNAL), correction of results of infantile paralysis, removal of goiter, Cesarean section, wiring of fractures, etc. To give a list of those who have held clinics and assisted in them would be almost to give a catalogue of the active professors of surgery, hospital surgical staffs, etc., of the city, so general has been the cooperation, while a list of the subjects covered would rival the table of contents of an up-to-date treatise on surgery. Dr. Franklin H. Martin and those who have assisted him are being warmly congratulated on the success of the clinics. Some of those who were most optimistic in advance have been surprised to see how generally the plan has been taken up and carried through. Medical men have come from the Atlantic Coast and the Pacific States, from the South and from the North. One pleasant feature made possible by the presence here of many prominent surgeons from other cities has been the banquets, receptions and smokers given in their honor.

INDIANA

Indianapolis to Open School for Defectives.—The City Board of Health of Indianapolis expects to open a school for defectives and to segregate all children whose eyesight or hearing may be impaired or who are mentally incapable of keeping pace with the brighter pupils.

Young Physicians Meet.—The Younger Physicians' Club of Indianapolis, which met October 28, reelected the following officers: president, Dr. Alfred Henry; vice-president, Dr. Harrison S. Thurston, and secretary-treasurer, Dr. John H. Eberwein. This is said to be the only social medical society in Indiana and holds five meetings a year, and at each a special talk is given on a subject relating to medical science, followed by vaudeville and smoker.

Personal.—Drs. Daniel S. Quickel and B. H. Reed, Anderson, were painfully injured in an automobile accident, November 2.—The office of Dr. George W. Brown, Frankfort, was damaged by fire November 9.—Dr. Jesse M. Jones, Catawact, suffered a cerebral hemorrhage recently.—Dr. Joseph R. Whalen, Carlisle, is reported to be critically ill with cerebral hemorrhage.—Dr. Lewis N. Davis, Farmland, was painfully injured by the explosion of a medicine bottle, November 6.

Communicable Diseases.—Infantile paralysis has been reported from a number of cities in the state. Logansport alone has more than a dozen cases, and strict sanitary precautions have been taken to prevent an epidemic. Recent analysis of the city water supply shows a large number of colon bacilli. The city health authorities are progressive and are endeavoring to stamp out both scarlet fever and diphtheria, which have lately appeared in epidemic form. Notice has been served on the school board and city council that unless another high school building be secured within thirty days, the present school will be closed. The board of health has stopped two "rummage" sales which were believed to spread infection. Hereafter all clothing at "rummage" sales must be previously sterilized.

Health Clubs to be Organized.—Under the patronage of Dr. John N. Hurty, secretary of the State Board of Health, health clubs are being organized throughout the state. The first was organized at Brazil with a membership of thirty. The clubs devote much of their time to the study of hygiene, and to giving assistance to state and local health authorities in the enforcement of public health laws. Health days are planned to be held once or twice each year, in each of the public schools, and on these days teachers will be asked to address the students on hygiene and sanitation and the necessity of keeping back yards and alleys clean. Health weeks are to be held throughout the state, commencing in Warsaw, following which the different county seats will be visited. The state board will place specimens and charts on exhibition and give addresses on the manner of the prevention of diseases, more particularly tuberculosis. Dr. William F. King, Columbia City, is in charge of the work. The first rural medical and dental inspection of schools was taken November 3 around Princetown, Ind. Medical inspection has been so successful in cities that school patrons in the rural districts have petitioned for it.

KENTUCKY

Tuberculosis Cottage Built by Fraternal Order.—A completely equipped shack for the treatment of tuberculosis is to be erected on the grounds of the Hazelwood Sanatorium by the Louisville lodge of Elks, to cost about \$4,000.

Reverses Order of Board of Health.—Governor Willson is said to have ordered that a license be granted to Dr. Frank A. Clark, Newport, who was refused a license to practice medicine by the State Board of Health, because, under the law, the school from which Dr. Clark was graduated is not recognized. An appeal was taken to the governor.

Personal.—Dr. Isadore N. Bloom has been elected a school commissioner of Louisville.—Dr. John D. Jackson, Danville, has decided to retire and will eventually locate in southern California.—Dr. George P. Bentel, Jr., Louisville, has returned from abroad.—Dr. W. Ed. Grant, health officer of Louisville, has gone to Pass Christian, Miss., for a month on account of his health.

New Hospital.—The vote in Louisville for the hospital bond proposition received more than the necessary two-thirds vote. Bonds for \$1,000,000 will be issued by the Hospital Commission and active work will be begun for the plans at once. The hospital building will be torn down, the sick of the city being cared for in private institutions, and the new hospital will be erected on the present site. The validity of the vote for the bond issue is to be tested by the courts by a friendly suit.

Tuberculosis Dispensary Busy.—There are at present 300 patients under the care of the dispensary of the Louisville Anti-tuberculosis Association, and it is estimated that there are 2,500 cases of tuberculosis in the city. New cases are being enrolled at the dispensary at the rate of 900 a year. Of the six nurses now on duty, one is at the tuberculosis Day Camp, the tuberculosis annex of the City Hospital; one is giving a course of lectures in the public schools of the city, and one follows up all deaths to see to the fumigation of the premises and to secure for the vital statistics bureau of the health department such sociologic information as is required. More than 1,000 visits monthly are made by the nurses.

Fireworks Ordinance.—At the last meeting of the Louisville General Council an ordinance was introduced prohibiting the sale of giant firecrackers, toy pistols, blank cartridges, explosive canes, ammunition for the canes and all explosives containing chlorate of potash, and providing as a penalty for violation thereof a fine of any sum up to \$100 and a jail sentence up to thirty days, or both, at the discretion of the judge. The author of the ordinance stated that this committee had conferred with all the prominent dealers in fireworks in the city and that they were in favor of the passage of the ordinance. One councilman, in opposing the ordinance, said in substance that he was in favor of giving the small boy all the opportunity he desired to celebrate the patriotic holidays as he might please. He admitted that there had been a deplorable loss of life throughout the country in the hands of celebrators, but he tried to argue that such results were necessary to the greater good of instilling patriotism in the hearts of the American youth and giving him the knowledge of firearms and explosives. The measure passed by a vote of fourteen to six, and then was referred to the upper board and by that board to the cemeteries committee.

MARYLAND

Anti-Spitting Ordinance Passed.—The city council of Lonaconing has passed an anti-spitting ordinance with penalty of a fine of \$1 to \$10 or imprisonment not to exceed fifteen days.

Medical Society Election.—Washington County Medical Society, at its annual meeting, November 10, elected the following officers: Dr. William A. Quinn, Chewsville, president; Dr. J. Royer Laughlin, Hagerstown, vice-president; Dr. Samuel M. Wagaman, Hagerstown, secretary, and Dr. Luther H. Keller, Hagerstown, censor.

Baltimore

Founds Medical Scholarship.—Dr. J. Randolph Winslow has given \$2,500 to found a medical scholarship at the University of Maryland, to be conferred on some worthy student of the second, third, or fourth year class.

Abbott Lectures.—Prof. Alexander C. Abbott, of the University of Pennsylvania, delivered two lectures at the University of Maryland, November 9 and 10, on "The Functions of the Municipality in Public Preventive Medicine" and "Interdependence Between the Laboratory and the Clinical Investigators."

NEW YORK

Annual Reports Issued.—The annual reports of the president and treasurer of Cornell University were issued November 12. In it President Selurman presents in his forceful way the various problems of research, the teacher, the student, the curriculum and university finances.

Another Tuberculosis Sanitarium.—At a recent meeting of the Poughkeepsie Academy of Medicine resolutions were adopted indorsing the action of the Board of Health of the city of Poughkeepsie in making a move to establish a tuberculosis hospital on the Pendell farm. Dr. Alva L. Peckham was elected president of the institution.

Increase in Insanity.—According to the report of the State Lunacy Commission, the number of insane in the state in hospitals has increased during the past twenty years from 16,006 to 32,650. In recent years the annual increase has been about 1,200 patients. The commission states that the rate to persons paying for the care of relatives in the state hospitals has been increased from \$3.50 to \$5.00 a week.

Precautions Against Typhoid Urged.—The monthly bulletin of the State Department of Health publishes a special warning to health officers, advising them to exercise more than usual precautions against typhoid fever, as the first rains after the prolonged drought may wash infected material into water supplies. It is suggested that local health boards advise consumers to boil their water. The department also urges immediate notification to the local health officer if any patient is suspected of having cholera.

Lunacy Board Retrenches.—The State Lunacy Commission recommends radical steps for the purpose of cutting down expenses. It is suggested that a single commissioner be substituted for the three present members. It is also suggested that instead of each hospital having its own attorney the work be assigned to deputies in the attorney-general's office. The commission also proposes to replace the three alienists who examine immigrants at the port of New York, by one alienist with two lay deputies. The insane in the state are increasing at the rate of about 1,200 per year and cost the state \$8,000,000 last year.

September Mortality.—The death rate in the state for September was 15.4 per 1,000, the lowest for any month thus far for the year, excepting June, when there were 350 fewer deaths than in September, when there were 11,233. There were 1,400 deaths of infants under two years of age as against 600 for June. Epidemic diseases caused 4.2 per cent. of the deaths of September. Typhoid fever has been the chief contributor to this, causing 185 of the 476 deaths from these causes. Diphtheria has only 100 deaths while in the months preceding the deaths from this cause numbered from 150 to 250. Poliomyelitis has been the reported cause of 21 deaths and numerous epidemics exist.

Rabies in New York State.—Statistics of the State Department of Health show that this state has for 2 or 3 years been suffering from an epidemic of rabies. Statistics compiled up to April 1, 1910, show that at that time the disease existed in sixteen counties, and the State Department had quarantined two villages, seven cities and fifty-one townships. During the years 1908, 1909 and 1910, to date, the records show that 105 persons have been bitten by rabid animals, 12 of whom died; 10 horses were bitten, of which 5 died; 68 cattle were bitten, of which 38 died; 11 swine bitten, 10 of which died. This does not include hundreds of dogs that have died of rabies or have been killed because of showing some symptoms of the disease. These figures are very large when the fact that the disease has been stamped out by proper methods of control in some other countries is considered.

Society Meetings.—The annual meeting of the Medical Association of Central New York was held in Syracuse, October 20 and 21. Dr. Wesley T. Mulligan, Rochester, was elected president; Dr. William G. Johnson, vice-president; John J. Buettner, Syracuse, secretary, and Dr. Charles O. Boswell, Rochester, treasurer. The next meeting will be held in Rochester. —The Fifth District Branch of the Medical Society of the State of New York held its annual meeting in Syracuse, October 19, and the following officers were elected: president, Dr. Arthur A. Gillette, Rome; vice-president, Dr. Conway W. Frost, Utica; secretary, Dr. Frederick H. Flaherty, Syracuse, and treasurer, Dr. Henry A. Hoyt, Watertown. —At the annual meeting of the Orleans County Medical Society, held in Albion, October 4, the following officers were elected: president, Dr. John H. Taylor, Holley; vice-president, Dr. Fremont W. Scott, Medina; secretary-treasurer, Dr. Ralph E. Brodie, Albion, and censors, Drs. Edward Munson, Medina, John Dugan, Albion, and George Post, Holley (since deceased). —The Eighth District Branch of the Medical Society of the State of New York held its meeting in Buffalo, September 30, and elected the following officers: president, Dr. Thomas H. McKee, Buffalo; vice-presidents, Drs. Henry A. Eastman, Jamestown, and Arthur G. Bennett, Buffalo; secretary, Dr. Carl S. Tompkins, Buffalo, and treasurer, Dr. Charles A. Wall, Buffalo.

New York City

Awarded Verdict.—A jury in the supreme court before Justice Ford is said to have returned a verdict of \$3,000 in favor of Mrs. Freda Lazarowitz, who sued Dr. Philip Sussman, alleging lack of care in the use of chloroform was responsible for the death of her son.

Measles on Ocean Steamer.—The steamer *Ultonia*, which reached New York from Trieste, November 3, was detained at quarantine on account of measles. Fifty passengers, including many mothers and children, were transferred to Hoffman Island for observation and treatment.

Tuberculosis Hospital of Metropolitan Life Insurance Company.—This company has decided to change the location of its proposed tuberculosis sanitarium from Sullivan to Saratoga County. An application has been filed with the State Health Commissioner for permission to construct a sanitarium at Mount McGregor.

Harvey Lecture.—The third of the present course of Harvey lectures to be delivered on November 19 in Hosack Hall, New York Academy of Medicine, at 8:15, is by Prof. Jacques Leeb

of the Rockefeller Institute of Medical Research, on "The Prevention of the Toxic Action of Various Agencies Through the Prevention of Oxidation in the Cell."

Street and Yard Singing.—Numerous complaints have been received by the health board of the annoyance caused by singing in back yards and streets, which under the present ordinance the health department is powerless to remedy. Some of the health board officers voice the opinion that the ordinance should be so amended as to do away with the singing nuisance and also enforce quiet in the neighborhood of schools.

Personal.—Dr. Edmund L. Coeks has been appointed consulting dermatologist to Harlem Hospital.—Dr. J. Riddle Goffe has obtained from the appellate division of the supreme court the reversal of the judgment for \$9,201.70 in favor of Ella H. Brown, who claimed "careless and negligent treatment." Justice Scott in presenting the opinion of the supreme court stated that Dr. Goffe was not allowed at the trial to answer a perfectly proper question as to what instructions he had given the hospital staff of physicians with reference to the care of the plaintiff.

City Druggists Protest.—Delegates from the societies representing all the retail druggists in this city met recently at the College of Pharmacy to discuss means of fighting the ordinance passed last August prohibiting the sale at retail of any preparation containing morphin except upon the prescription of a physician. The ordinance was aimed at the sale of paregoric and cholera cure. The druggists prepared a resolution to the effect that these preparations properly labeled ought to be sold without prescription, but action on this was deferred.

For the New Montefiore Home.—At the annual meeting of the board of trustees of the Montefiore Home for Chronic Invalids it was announced that \$850,000 had been subscribed toward the new buildings for this institution. It was also stated that funds sufficient to bring the amount up to \$1,500,000 would soon be available. The new buildings will be erected on Gunhill Road in the Bronx, where property equivalent to 162 city lots has been purchased. The new buildings will probably accommodate 600 patients and will be ready for occupancy in about two years. The institution realized \$525,000 from the sale of its old buildings.

OREGON

Personal.—Drs. Alvin F. Sether and George E. Honck have been elected aldermen of Roseburg.—Prof. Emile F. Pernot has succeeded Dr. Ralph C. Matson, Portland, as bacteriologist of the State Board of Health.—Dr. Malcolm Bronson, Hood River, was seriously injured in a fall from a cliff recently.

Hospital Notes.—Seven lots in upper Albina have been purchased by the Swedish Hospital Company which expects to erect thereon in the near future a large hospital.—At a meeting of the directors of the new Peninsula Hospital, Portland, Dr. George E. Christmas was elected vice-president; Drs. William M. Killingsworth and Charles S. Hosmer, directors.

State Sanatorium Opens.—The large brick building in Salem, formerly occupied by the State Mute School, was opened October 1, for indigent sufferers from tuberculosis. The site consists of 110 acres located about 5 miles east of Salem, and was transferred by the State Board of Health to the State Tuberculosis Commission for this purpose. The institution will accommodate fifty patients.

PENNSYLVANIA

Personal.—Drs. Lawrence Litchfield, Irwin J. Moyer, John W. Boyce, Thomas D. Davis and Percival J. Eaton have been appointed members of the examining board of the Civil Service of Pittsburg.—Dr. William A. Nealon, Pittsburg, was thrown from his automobile November 6, and sustained a slight injury to the hip.—Dr. Cornelius C. Wholey has been appointed a member of the staff of St. Francis Hospital, Pittsburg, in charge of the inebriate department.

Meeting of Northeastern Jefferson Alumni.—The Jefferson Alumni Association of Northeastern Pennsylvania held its annual meeting and banquet at Wilkes-Barre, November 10. There were sixty-five alumni present. Drs. W. M. Late Coplin and John H. Gibbon represented the faculty. The following officers were elected: president, Dr. Granville T. Matlack, Wilkes-Barre; vice-presidents, Drs. Henry M. Neale, Upper Lehigh, Daniel H. Lockard, Plymouth, and Harry W. Albertson, Scranton; secretary, Dr. J. Norman White, Scranton, and treasurer, Dr. Connell E. Murrin, Scranton.

Philadelphia

Personal. Dr. James Tyson has been made emeritus professor of medicine, and Dr. Louis A. Duhring emeritus pro-

fessor of dermatology of the University of Pennsylvania.—Dr. James E. Talley, who has been confined to the house because of injuries received in an automobile collision, is able to be out again.—Dr. Horatio C. Wood, Jr., has been appointed professor of materia medica and therapeutics in the Medico-Chirurgical College to fill the vacancy caused by the death of Dr. John V. Shoemaker.

Bequests.—Robert Steele provides in his will that his estate, amounting to \$20,786, shall be placed in trust and that the income go to the widow, Amelia Steele, and following her death, the principal is to be divided among three charities. The Presbyterian Hospital is to receive \$5,000 to establish a free bed in that institution, and the Presbyterian Home for Widows and Single Women, \$3,000.—The will of the late James Brown provides that his estate, valued at \$12,500, be placed in trust for the benefit of his widow during her life. At her death the Philadelphia Home for Incurables will receive \$1,500.

Work of the Food Inspectors.—Deputy United States Marshal Myers and W. H. Jenkins, a federal food and drug inspector, seized 1,200 bottles of an alleged counterfeit "patent medicine" in the warehouse of Carbone & Co., which are said to have been purchased for the genuine from the Italian Trading Company. The medicine has had an extensive sale in the Italian section of the city, the genuine "bitters" being much used in Italy and manufactured in Milan. The food inspectors say that the Italian Trading Company recently sent representatives to the dealers in the "bitters," offering to sell them the same article at much less than they would have to pay for the imported. On this information government officials began an investigation. Samples were sent to Washington, where it was found that for grain alcohol in the genuine article, wood alcohol had been substituted and that it existed in such degree as to be extremely dangerous. On the same day 10 barrels of putrid tomato pulp were seized at the plant of the Philadelphia Pickling Co. It had been shipped here from Cambridge, Md.

Dr. Keen Operated On.—Dr. W. W. Keen has been operated on for abdominal complications and is making excellent progress toward recovery. Knowing the interest that his many friends and former pupils have in his health, THE JOURNAL secured from an authoritative source the following statement: While abroad last summer, Dr. Keen experienced some symptoms of intestinal trouble. He was examined by Dr. George A. Gibson in Edinburgh, by Dr. W. Hale White and Mr. Mummery in London, and later in Berlin by Prof. Eiselsberg of Vienna. All of them discovered an obscure tumor in the left lower abdomen. On having these facts confirmed and after consultation with his advisers, Dr. Keen decided that an abdominal section was the only positive way to determine whether the mass was a carcinoma, as seemed most likely at his age, or was non-malignant in character, and whether or not it was operable. Accordingly, as soon as possible after his return he went to Rochester, Minn., and was operated on November 9. It was found that the tumor was due to a perforating diverticulitis of the sigmoid with dense adhesions and moderate obstruction. There were two fecal stones, one of which had perforated and lay in a pocket outside the intestinal wall. It was necessary to remove a portion of the sigmoid.

VIRGINIA

Antituberculosis League Organized.—The Antituberculosis League of Petersburg was organized October 20. Dr. William F. Drewry was elected first vice-president. The principal speaker of the evening was Dr. Douglas S. Freeman, Richmond, executive secretary of the State Antituberculosis Society.

Conference on Tuberculosis.—A conference on tuberculosis will be held in Richmond, December 15 and 16. During the conference the annual business meeting of the State Antituberculosis Association will be held. At the first meeting the medical aspects of tuberculosis will be discussed. Dr. Emunio C. Williams, Richmond, state health commissioner, will preside at the first meeting. Open-air treatment will be the topic of the second meeting and tuberculosis in the cities will be that of the third session, and the fourth session will be given up to the consideration of tuberculosis, education and publicity.

WASHINGTON

Physician Leaves Bequest for Trade School.—About \$100,000 is provided by the will of the late Dr. Marcel Pietrzycki, Dayton, for the building of and endowment of a trade school in Dayton.

Healers Plead Guilty.—Mrs. E. V. C. Robinson, Tacoma, a healer charged with practicing medicine without a license, is said to have pleaded guilty. Sentence was deferred.—In the case of Alexander McMasters, Spokane, charged with practicing medicine without a license, the defendant is said to have pleaded guilty, and to have been fined \$50 and costs.

Personal.—Drs. Christian Quevli and Edward A. Trommald, Tacoma, have returned from Europe.—Dr. Philip Donohoo has sold his interest in the Dayton Hospital to Dr. Arthur F. Barnett, Walla Walla.—Dr. Nellie M. Baker, Urbana, Ill., has been made resident physician at a hospital in Yakima.—Dr. Frederick W. Southworth, Tacoma, who has been seriously ill, is reported to be convalescent.

GENERAL NEWS

Rush Men in Kansas and Missouri Assemble.—At the annual meeting and banquet of Rush Medical College alumni of Kansas and Missouri a permanent organization was effected. Dr. David E. Broderick, Kansas City, Mo., was elected president, and Lyman L. Uhls, Osawatomie, Kan., vice-president.

Ohio Valley Physicians Meet.—The twelfth annual meeting of the Ohio Valley Medical Association was held in Evansville, Ind., November 9 and 10. The following officers were elected: president, Dr. William D. Haines, Cincinnati; vice-presidents, Drs. Louis D. Brose, Evansville, Ind., Daniel N. Eisendrath, Chicago, and Henry R. Allburger, Bloomington, Ind., and secretary-treasurer, Dr. Benjamin L. W. Floyd, Evansville, Ind.

Cotton Belt Surgeons Elect.—The Association of Surgeons of the Cotton Belt System held its annual meeting at the general hospital of the company, Texarkana, Tex., November 1, and elected the following officers: Dr. John L. Jelks, Memphis, Tenn., president; Drs. Jesse S. Rinehart, Camden, Ark., Warren B. DeJernett, Commerce, Tex., Oscar Dowling, New Orleans, La., Homer E. Beall, Malden, Mo., and William F. Grinstead, Cairo, Ill., vice-presidents, and Dr. Harvey H. Smiley, Texarkana, Tex., secretary-treasurer (re-elected).

Meeting of American Physicians Practicing in Mexico.—The International Medical Association, composed of American physicians in practice in Mexico, met in El Paso, Texas, October 27, as guests of the El Paso County Medical Society. The following officers were elected: Dr. R. H. L. Bibb, Saltillo, Coahuila, president; Dr. J. S. Steele, Monterey, president-elect; Dr. F. W. Taube, Zacatecas, vice-president; Dr. H. S. Hodgson, Tampico, secretary-treasurer, and Dr. G. C. English, Guanajuato, censor. The next meeting will be held in Saltillo.

Occupation for Chronic Invalids and "Shut-Ins."—Passed Assistant Surgeon John M. Holt, U. S. P. H. and M. H. Service, Astoria, Ore., suggests that many chronic invalids and "shut-ins" may secure much mental rest and pleasant occupation of long hours, by becoming acquainted with the fascination of collecting, studying, sorting, and arranging postage stamps. A number of those interested in this pastime have agreed to make up Christmas packages containing stamps, albums, stickers, etc., for gratuitous distribution during the holiday season. Dr. Holt requests members of the profession all over the United States to furnish him with names and addresses of individuals who might be entertained by such remembrances.

National Meetings to Come.—The American Public Health Association will hold its next meeting in Havana, Cuba, December 4-9, 1911. The Academy of Medicine has offered its building for the general sessions and the Hotel Cevilla will be headquarters. Local physicians ask that tuberculosis be given the most prominent place on the program. It is expected that at this meeting the recently organized sociologic section and the section on sanitary engineering may be put on a substantial foundation.—The American Association for the Advancement of Science will hold its annual meeting in Minneapolis, December 27 to January 1. The majority of the meetings will be held in the halls of the University of Minnesota. One day will be given to St. Paul and the State Agriculture College.

Birth Registration Propaganda.—At the first meeting of the advisory board recently appointed by Health Commissioner Lederle, New York City, to prepare recommendations for the improvement of vital statistics in that city, a recommendation was adopted unanimously that the most important improvement which could be made consisted in the verification of the birth registration of every infant who dies under one year of age, in order to detect omissions and to cause strict enforcement of the law providing a penalty for omission to record a birth in every case thus brought to light. The census bureau is greatly interested in this movement because one of the greatest defects of American vital statistics is the entire lack of reliable rates of infant mortality due to defective birth registration.

Aim to Prolong Infant Life.—The second annual Congress of the American Association for the Study and Prevention of Infant Mortality was held in Baltimore, November 9-11. The following officers were elected: president, Prof. Charles R. Henderson, University of Chicago; president-elect, Dr. Cressy L. Wilbur, Washington, D. C.; vice-presidents, Harold McCormick, Chicago, and Dr. Henry L. Coit, Newark, N. J.; secretary, Dr. Frank S. Churchill, Chicago; executive secretary, Miss Gertrude B. Knipp, Baltimore; treasurer, Austin McLanahan, Baltimore, and executive committee, Drs. J. H. Mason Knoux, Jr., Baltimore, Joseph S. Neff, Philadelphia, John S. Fulton, Baltimore, Mary Sherwood, Baltimore, and Helen C. Putnam, Providence, R. I. Chicago was chosen as the place for next meeting. Baltimore will continue to be headquarters of the national organization.

Physicians of the South in Convention.—The fourth annual meeting of the Southern Medical Association was held in Nashville, Tenn., November 8-10, under the presidency of Dr. Walter W. Crawford, Hattiesburg, Miss. The following officers were elected: president, Dr. Isadore Dyer, New Orleans; vice-presidents, Drs. William Litterer, Nashville, Tenn., William P. Adamson, Tampa, Fla., William C. Lyle, Augusta, Ga., Thomas D. Parke, Birmingham, Ala., James B. Guthrie, New Orleans, La., and Andrew G. Paine, Greenville, Miss.; and secretary-treasurer, Dr. Seale Harris, Mobile, Ala. The association adopted resolutions urging congress to establish a national department of health, and also urging the legislatures of the different southern states to pass laws compelling the inspection of school children at stated intervals. The association will meet next year in Hattiesburg, Miss.

MANILA LETTER

(From Our Regular Correspondent)

MANILA, Oct. 4, 1910.

Residence in the Tropics

The effect of residence in the tropics on one's physical and mental self is a subject of not infrequent conversation in Manila. Especially is this the case, since the Americans are not altogether living up to the custom of the quiet, easy-going life, with a siesta in the middle of the day, of the average European in the tropics, nor to the Filipino motto of *manana* (to-morrow). To what extent continued residence in the tropics exerts a deleterious effect on the average individual reared in the temperate climates is a difficult matter to determine, and there is little direct evidence to confirm this supposition, which is so common a belief among the average Europeans and Americans who come to the Philippines. It is true that many women do not enjoy good health here and there are relatively a large number of children more or less anemic, and the predisposition to develop "Philippinitis" (a more or less indefinite term designed to excuse inefficiency, absentmindedness, and a general lack of ambitious endeavor) seems more or less common. But it is not known just how much all of these are due to a lack of sufficient exercise, to association, to the newness and not highly organized condition of the country and to the fact that, as middle life is approached, one becomes less and less inclined to venture into new fields and feels oneself prone to slacken one's nervous pace and perhaps to become somewhat lazy. In addition, the fact that the climate does not permit of so much strenuous exercise, is little indication that one's mental activities are in the least circumscribed. All the rush and hustle and nervousness of the larger American cities does not imply that, from a creative standpoint, the most is being accomplished. It is perhaps comparison along this line which makes life in the tropics seem slower and one feels himself apparently capable of less endeavor. It must be remembered that in the point of numbers of the white population, all Oriental tropical cities are comparatively small towns, and competition and incentive are less. In the case of the medical man, Manila (with 9,000 whites) probably furnishes as much stimulus and incentive as any town of from 40,000 to 80,000 inhabitants in the United States, and the local medical men perhaps keep as well posted in the advancement of medical science as similar men in these towns. Such considerations must be borne in mind before the tropics as a place of residence are condemned. After all it may be just as logical for the Filipino to shy at living in Chicago, from fear of developing heart disease and nervous disintegration, as it is for the American to shun life in Manila on account of the "deleterious effect of a continued residence in the tropics." Nevertheless, after long experience in both India and Egypt, many prominent British physicians long have been convinced of the validity of this supposition, and some

investigation to determine the underlying cause has been made here in the Philippines. Dr. W. E. Musgrave, professor of clinical medicine in the Philippine Medical School and the American physician of longest residence in the Philippines, sums up his convictions on the subject as follows: "The lot of one transiently present in the Philippines is not a particularly hazardous one. Such a person's chances of avoiding infectious diseases and otherwise of maintaining good health are equal to his chances in most countries of the world, and are far better than they are in any other tropical far eastern or Asiatic country. However, prolonged or permanent residence in these islands or in any other tropical country certainly produces deleterious effects on people, be they of native or foreign birth. The usually accepted statement that the tropics exert any especially bad influence on the foreigner from which the native escapes is, so far as my observations go, not borne out by the facts. But it is a fact that prolonged residence produces, or is intimately connected with, certain disease conditions which are not particular to any race, nationality or complexion, and these irregularities are cured only by at least a temporary change of climate and surroundings. In the case of natives of the tropics, generations of residence has produced, to say the least, a more or less uniform dwarfing of energy and efficiency; and with this have developed altered standards of measurements in which the inaccuracy of the normal is only noticed by comparison. This comparison may be made with foreigners or, still better, and the results are just as striking, in born natives of the tropics who have been removed to temperate climates." The principal change is thought to be a tendency toward a condition of general sluggishness of mind and body. But "in the case of children the problem is a more important one. . . . Among medical men of experience in the tropics I believe the opinion is a very general one that children should not reside in the tropics during the formative period of years. The exact etiologic factor in these conditions is not known: heat, the actinic rays of the sun, and many other agents have been incriminated, but it is probable that the cause is really broader and more complex and has to do with the peculiar arrangement of the natural laws governing health and disease."

At the Bureau of Science a physical analysis has been made of the tropical sunlight and a determination of the total yearly and the average daily amount of sunlight of different qualities is still in progress. After completing this study it is hoped to get data of this kind from various countries in the temperate climate for comparison. The question of the so-called actinic rays of the sun will probably be greatly elucidated by such investigations.

LONDON LETTER

(From Our Regular Correspondents)

LONDON, Nov. 5, 1910.

Plague in England

In a previous letter to THE JOURNAL [November 5, p. 1658] cases of plague in ships which arrived in the Thames have been reported. It has now been found that plague prevails extensively among rats in part of Suffolk, one of the eastern counties of England, and that a few cases have occurred in man. Hares and rabbits also have been attacked. The outbreak seems to be due to the landing of an infected rat or rats from one of the many grain-vessels which enter the river Orwell from plague-infected countries. The immense overseas trade of this country causes wonder that such an event has not occurred previously. Improved sanitation has much diminished the danger, however. There has been no epidemic of plague in this country since the great plague of the reign of Charles II, so graphically described by Defoe. The greatest vigilance is practiced in all our ports to exclude plague-infected rats. Whenever dead rats are discovered in a ship the vessel is disinfected and the holds are cleared out; in addition the docks are overhauled at intervals. Last year many rats affected with plague died in a warehouse in one of the London docks, but the disease was completely controlled by the sanitary authorities. The same thing has occurred in other ports on a small scale. In the infected district of Suffolk (about 20,000 acres) a most energetic campaign is being carried on for the destruction of rats by the health authorities and the inhabitants, and many thousands of rats are being killed daily by rat-catchers, dogs, guns, ferrets and poison. A rat, which was shot and buried because it was looking ill, was unearthed by the health authorities and bacteriologic examination made, which showed the presence of plague bacilli. So far only four cases have occurred in man. At the scattered little village of Freston 4 miles from Ipswich, the capital of

the county, four persons died from a mysterious illness. The outbreak began in a child who was fondling a pet cat before her seizure. She died on the fourth day with symptoms of very acute septic pneumonia. On the day after her burial her mother, who had nursed her, was taken ill with similar pneumonic symptoms and died after forty-eight hours. Then the second patient's husband and a woman who nursed her were attacked and died on the fourth day. Before the death of the mother her physician entertained suspicions as to the nature of the disease and had a bacteriologic examination made of her blood and of expectoration which revealed the plague bacillus.

Poster Campaign Against Tuberculosis

A poster campaign against tuberculosis has been begun in the United Kingdom by the National Association for the Prevention of Consumption. On the boardings are displayed large posters measuring 10 by 7½ feet, on which are printed the main facts in regard to the disease and an appeal for funds to stamp it out. The precautionary measures to prevent attacks and the course to be followed in the earliest stages are stated.

The New Building for the Royal Society of Medicine

The Royal Society of Medicine, which, as stated in previous letters to THE JOURNAL, has been formed by the amalgamation of nearly all the medical societies of the metropolis and is therefore in a way the largest medical society, is erecting a new building into which it will move when completed, at the Cavendish Square end of Wimpole Street. The cost will be upwards of \$150,000. Toward this the medical profession has subscribed \$42,000 and an appeal is now being made to the public for subscriptions through a committee of which the Lord Mayor of London is chairman. He points out that for many years the society has been engaged in work of the utmost value not only to the state but to mankind, and that its fellows have not spared time, trouble, or expense in carrying out a really national and philanthropic work, which is not of the slightest personal advantage to the individual workers. If no less than \$130,000 is contributed from without the society will be able to provide all the income necessary for continuing and enlarging its beneficent labors. It has now 3,200 fellows and members and a library of nearly 100,000 volumes. It was founded in 1805 under the name of "The Royal Medical and Chirurgical Society."

Divorce and Insanity

A royal commission appointed by the government to investigate the question of divorce is now sitting. The bearing of insanity on divorce was the subject on which evidence was taken at the last sitting. The British Medical Association appointed a number of eminent alienists to give evidence on the recognition of insanity as a ground for divorce. These were Dr. Smith Clouston, lecturer on mental diseases, Edinburgh University; Dr. Robert Jones, lecturer on mental diseases, St. Bartholomew's Hospital, and Dr. T. R. Hyslop, resident physician, Bethlehem Hospital. Dr. Smith Clouston was of opinion that there were certain forms of mental diseases for which the law should be so altered as to redress the present hardships to husbands and wives, and especially make provision for the better guardianship of children and prevent the birth of children with an undue liability to mental disease. Divorce should be applicable only to persons proved to labor under incurable mental disease, except in certain cases. One of the main proofs of incurability was the length of time during which a patient had suffered continuously from mental disease. In very few cases would Dr. Clouston feel justified in giving an opinion that a patient was incurable within twelve months of the onset of the disease, whatever the symptoms. In most cases no divorce proceedings should be allowed within from three to five years after the commencement of the mental disease. Dr. Clouston absolutely disapproved of the marriage of epileptics on medical and eugenic grounds. The disease was hereditary in a high degree and epileptics almost certainly had insane, epileptic, and idiotic progeny. If marriage was contracted a remedy should be possible by means of divorce. The congenitally feeble-minded, as distinguished from imbeciles and idiots, frequently married and a large number of the females produced illegitimate children. Divorce should always be obtainable and the most stringent means should be taken to prevent pregnancy in such feeble-minded young women. They were the source of vast amount of insanity, crime and pauperism. In alcoholic dementia divorce should always be applicable, because not only was the condition incurable but the subjects had brought it on

by their own acts. Dipsomaniacs should also come under any alteration in the divorce law, but he would give them ten years in which to recover. At a subsequent sitting Sir James Crichton Browne has stated that though the majority of doctors would be in agreement with these witnesses, a strong body of opinion in the profession holds a different view. The proposal that insanity of any kind should be a ground for divorce seemed to him highly objectionable. It would encourage imprudence in marriage, conduce to instability of the matrimonial state, and further impair the sanctity of family life. Insanity was simply a bodily disease manifesting itself by a mental derangement, and if it was to be recognized as a sufficient reason for divorce he did not see why other diseases should not be recognized also. It was suggested that only incurable insanity would be a ground for divorce, but what was to be the test? Nothing had struck him more in his experience as a commissioner in lunacy than the way in which complete recovery occasionally took place in cases of insanity regarded by experts as utterly hopeless.

An Ideal Meeting Room

There has been fitted up at the rooms of the Society of Medical Officers of Health, London, what is said by the society to be the most hygienic meeting place in London. The room, which can accommodate 150 persons, has been designed to demonstrate the working of ventilating, warming and lighting patents, and also to show the proper arrangement of a hygienic assembly room. By means of levers the temperature can be raised or lowered immediately. The air is drawn from outside by means of electric fans and carried along a shaft to radiators which warm it to the desired temperature. It is then forced along another shaft to the sides of the room and diffused by a patent diffusing apparatus. Meanwhile a powerful electric fan extracts the foul air. Artificial light is supplied by gas, an enclosed globe like an electric arc lamp being suspended from the center of the ceiling, and governed by a patent vacuum switch which connects it with the by-pass. It is claimed that, however dense the fog outside, the air in the room will remain perfectly clear and pure. In recognition of his services in connection with the Panama Canal sanitation work, the society has decided to elect Mr. Roosevelt a fellow.

Seventeenth International Congress of Medicine

The seventeenth International Congress of Medicine will be held in London in the summer of 1913. At a meeting of the General Medical Council, Sir Thomas Barlow, president of the Royal College of Physicians, was elected president of the congress, Mr. G. H. Makins, treasurer, and Dr. Herringham, secretary. An influential organizing committee representative of all the medical bodies in the country was also appointed. It was resolved that distinguished laymen should be invited to associate themselves with the work of the congress. The date led to considerable discussion. It was proposed to hold it at some date from July 29 to August 6, but as the British Medical Association always meets at that time it was decided to leave the president and executive officers to settle the date and to give them liberty to confer with the officers of the British Medical Association.

The Right to Efficient Ventilation at Sea

The right to efficient ventilation at sea has been established in the courts by the following important case. Two passengers returning from South Africa by the Union Castle Mail Steamship Co. complained that their cabin was unventilated and paid \$18 to occupy another cabin, as "a cabin without a fan was quite intolerable." The company in their booklet stated that a complete system of ventilation had been adopted and that electricity was brought to bear on the cabins, saloons, etc., by a large number of electric fans. The judge said that anyone reading the booklet would think that all the cabins had electric fans. As the discarded cabin had no fan he gave judgment for the passengers and ordered the company to return the money paid for the change of cabins.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Nov. 4, 1910.

Statistics of the Population of France

The *Journal Officiel* has just published the statistics of the population of France for the first six months of 1910. The results, without being satisfactory, are less unfavorable than those of the corresponding six months of the previous year. While in the first six months of 1909 an excess of 28,203 deaths was recorded, during the first six months of 1910 there was

an excess of 21,189 births. The births have not increased appreciably. The birth-rate still remains low: 399,669 in 1910 in place of 398,710 in 1909. But the deaths have decreased considerably: 378,480 instead of 426,913. As for marriages, their number has remained stationary: 156,761 in place of 156,258; and the divorcees continue to increase: 6,383 against 6,148. As for the Department of Seine, during the first six months of the present year, 37,319 births, 38,567 deaths, 20,389 marriages, and 1,365 divorces have been recorded.

Death of M. Herri Dunant

Hardly two and a half months have elapsed since the death of Miss Florence Nightingale, the celebrated organizer of the hospital and ambulance service of the Crimean war, and now Henri Dunant, one of the founders of the Red Cross, has just died. Inspired by the example of Florence Nightingale, in 1859, during the war with Italy, he conceived the idea of organizing, by private initiative, an international service of aid to the wounded, which was rendered necessary by the inadequacy of the military ambulance service. Born in 1828, Henri Dunant was 31 years old when the accidents of a pleasure journey brought him on the battle-field of Solferino, strewn with dead and wounded, who were not picked up or cared for until two or three days had passed. The brochure which Dunant published on this subject, in 1862 ("*Un Souvenir de Solferino*"), created an extraordinary sensation, and it was in great part owing to the propaganda of this apostle of charity that there was held in Geneva, October 26-29, 1863, the celebrated international conference which had for results the meeting of the diplomatic congress of August 8-22, 1864, and the conclusion of the convention of Geneva for the improvement of the condition of soldiers wounded during a campaign. In 1867, Henri Dunant lost his fortune, and for twenty-five years led a life of restriction and privation. In 1901 he was awarded one of the Nobel prizes. He died at Heiden, Appenzell, Switzerland, on the shores of Lake Constance, where he had lived for several years.

Conference on Social Hygiene

The sixth annual meeting of the Alliance d'hygiène sociale, which has just been held at Marseilles, unanimously passed a resolution for the prohibition of the manufacture and sale of absinthe and the limitation of the number of licenses. The assembly, moreover, adopted the following resolutions: (1) that all bills for the protection of children should be submitted to the parliamentary commission of hygiene; (2) that it was most desirable to pass a law against depopulation, for the protection of maternity and early childhood, and the awarding of aid to large families.

Pharmacist Condemned for Fraud

A pharmacist has been condemned by the court of Amiens, Somme, to pay damages to the *syndicat* of the pharmacists of the region for having sold syrup of ipecac to which he had added tartar emetic. The delivery, under the name of syrup of ipecac, of another preparation, the court held, constituted fraud. Moreover, the court recognized the fact that a professional association (*syndicat*) of pharmacists legally organized to prevent any injury to the moral interests of pharmacy had an indisputable moral interest in upholding its standards, which justified its intervention as civil party to the suit and the awarding of damages.

Clergymen in the Campaign Against Tuberculosis

The *Oeuvre de la tuberculose humaine*, which has organized anti-tuberculosis leagues among all classes (teachers, postal employees, members of benefit societies, agents of the railways, public functionaries, etc.), has just written to French clergymen of all faiths, asking them to devote one or two sermons annually to the cause represented by the society. In each parish the inhabitants would then be initiated in the principles of hygiene and of sanitary prophylaxis.

Bacillus Carriers

M. Chéron, assistant secretary of the navy, has addressed to the maritime prefects a circular on the prophylaxis of the various forms of typhoidal infections and the means of contagion. The circular calls the attention of the sanitary service to the necessity of isolating bacillus-carriers, and recommends that sailors be informed of the daily dangers which threaten them in the places that they are required to frequent. M. Chéron requires that he be informed every six months of the measures taken for the application of his instructions and the results obtained.

Nursing-Bottles with Tubes

Dr. Savary, inspector of public charities, draws attention to a regrettable omission in the law recently passed (THE JOURNAL Oct. 1, 1910, p. 1211) which prohibits the putting on sale, the exhibition and importation of nursing-bottles with tubes. Their use, however, has not been expressly prohibited, so that the inspectors of the public charities have no recourse against the nurses who persist in the old ways. The pharmacists have ceased to sell such apparatus, but the nurses who want to use the tube nursing-bottles because of the freedom which it leaves them make the apparatus themselves. A medical inspector, on a tour of inspection, saw several nursing-bottles with tubes made by nurses, and once found two babies, one of which had hereditary syphilis, in the same cradle sucking from a nursing-bottle with two tubes which the nurse had arranged. The nipples were frequently exchanged. Such facts show how important it is to amend the present law.

Death of Dr. Armand Trousseau

Dr. Armand Trousseau, head physician of the clinic of the Hospice des Quinze-Vingts and of the Rothschild ophthalmologic institution, has just died, aged 54, from an automobile accident. Dr. Trousseau was born in Paris in 1856. He was formerly an intern of the hospitals and specialized from the beginning of his career in diseases of the eye. In 1886 he entered the clinic of the Hospice des Quinze-Vingts, becoming head physician three years later. Having been called to attend Baron Adolphe de Rothschild, he advised the great banker to found the institution which bears his name. Baron de Rothschild in his will appointed Dr. Trousseau to direct this foundation. Dr. Trousseau was the grandson of the famous clinician who died in 1867.

Diminution of Cases of Hydrophobia

Dr. Maurice Letulle, *agrégé* professor at the Paris medical college, during the last session of the Council of Hygiene and Salubrity, made a report on hydrophobia during the period from 1904 to 1909, setting forth the success obtained in the prophylaxis of rabies. While in Paris and the Department of the Seine, the number of biting animals remains about the same from one year to another, the proportion of animals in which hydrophobia has been recognized is continually and rapidly decreasing. While 474 animals were affected with hydrophobia in 1902, there were only 172 in 1904, 120 in 1905, 74 in 1906, 46 in 1907, 55 in 1908, and 13 in 1909. Of all animals the one most to be feared is the dog. In 1909, of 1,903 biting animals there were 833 dogs, 247 horses, 6 cats and 7 miscellaneous. Cases of hydrophobia are more frequent in the suburbs than in Paris, since in the six years studied, Paris has had only 211 cases, while the suburbs have had 249. It is at the Pasteur Institute, especially, that the progress of the prophylaxis of hydrophobia can be estimated. From 1904 to 1909 the number of persons bitten in the Department of the Seine amounted to 7,576, of whom 307 were bitten by animals known to be mad (183 in the suburbs and 124 in Paris). The number bitten by rabid animals was about 87 in 1904, and about 90 in 1905. It has progressively decreased to 65 in 1906, 35 in 1907, 24 in 1908, and 6 in 1909. Out of the 1,069 individuals cared for since 1904, fortunately there has been only one fatal case, which occurred in 1904. This was the last victim of the scourge in the region of Paris. Within six years only two cases of hydrophobia have been found in more than 68,000 stray dogs captured at the Fourrière (establishment where stray and abandoned dogs are received). Previously there was an average of 26 a year (155 from 1898 to 1903). Human hydrophobia, which caused twenty-two deaths as late as 1885, and twelve in 1901, has caused none for five years.

To what is this progressive disappearance of endemic rabies in Paris due? Dr. Letulle does not hesitate to attribute it to administrative measures. The capture of stray dogs in Paris has rendered valuable service because it has been carried on with great zeal and strictness. According as the pursuit is carried on methodically and without cessation, or relaxes for one reason or another, hydrophobia diminishes, seems to become extinguished, or revives and multiplies the number of its victims. It is necessary, then, to persist without slackening in the annual capture of twelve or fourteen thousand stray dogs in Paris if we wish to extirpate hydrophobia.

The Value of Tuberculin Therapy

The treatment of tuberculosis by tuberculin, which has been the subject of many recent investigations in Germany, has, up to the present, found few advocates among French physicians.

The discussion held at the Congress of Internal Medicine proves that a change in this respect is now taking place. Dr. Louis Rénon, physician of the hospitals of Paris, declares that tuberculin, while constituting only a partial treatment of tuberculosis, still exercises an undeniable action in certain cases, notably in incipient tuberculosis and in torpid tuberculosis already treated or ameliorated by the usual medications and climate. Relative absence of fever is a necessary condition for the use of tuberculin in the patients not in hospitals. All tuberculins may be used on condition that one begins with relatively weak doses (1/500 mg.), increasing to 1/20 mg. It is necessary to avoid all apparent local or general reaction and to modify the injections according to the data furnished by the clinical examination. Dr. Bauer of Neufchâteau also recommends, in using tuberculin therapy, the greatest care in the observation of the individual reactions which cannot be foreseen. Dr. Mantoux of Cannes drew attention to the favorable results from tuberculin therapy in tuberculous lesions of the urinary organs; 48 per cent. of the patients improved and 33 per cent. were cured. Tuberculin therapy ought to be employed in cases in which the lesions are limited to the bladder in bilateral or unilateral renal tuberculosis at the beginning. Prof. J. Teissier of Lyons observed a very serious case of renal tuberculosis with numerous Koch bacilli in the urine in which tuberculin therapy led not only to disappearance of all the clinical phenomena and the improvement of the general condition, but also to the complete disappearance of the tubercle bacilli in the urine.

A New Diagnostic Sign in Pleuropulmonary Affections

On October 18, Dr. Hirtz, physician at the Necker Hospital, reported at the Académie de Médecine a diagnostic sign of some affections of the pleura or the lungs obtained by the percussion of the thorax under sustained inspiration. When the patient breathes normally percussion shows a dullness at the base of one or both lungs. One thinks of double or single pleurisy, but after making the patient take a forced and sustained inspiration, one percusses the thorax again, and finds that the point which seemed dull has become sonorous. It is not then an effusion; it is the pulmonary element which is incriminated. This sign permits the differentiation, without exploratory puncture, of congestion and pulmonary edema or spleno-pneumonia with pleural effusion. It makes it possible to say, then, in the course of pleurisy, if liquid is present or not. In short, certain apparently tuberculous congestions of the apex of the lung, in subjects of Bright's disease or heart disease, may receive their true interpretation through this new sign. In such case everything conspires to lead the clinician into error: the general condition of the patient, some anterior hemoptyses, and dyspnea; and in ordinary respiration, the dullness of the apices of the lungs appears incontestable and inclines the diagnosis toward tuberculosis; but as soon as percussion, under forced and sustained inspiration, is used, the tone becomes resonant and the error is avoided.

The Number of Fetal Heart-Beats and the Sex of the Child

At the Congrès de gynécologie, d'obstétrique et de pédiatrie, held at Toulouse, Dr. Fieux, *agrégé* at the Bordeaux medical college, communicated the results of investigations which he has made on fifty women, to find out what relation the number of the fetal heart-beats bears to the sex of the child. He presents his results in two tables. In the first, the fetal heart-beats never exceed 136; in the second they never fall below this figure. The first table gives seventeen boys (or 60 per cent.) and eleven girls (or 40 per cent.). The second table gives fifteen girls (or 68 per cent.) and seven boys (or 32 per cent.). Among the subjects with very high rhythms (160-180) girls are found almost exclusively. It is necessary to make the mother rest for some minutes before practicing auscultation and to auscultate the fetus during a period of calm. If these rules are observed the variations between the results of the various auscultations of one fetus are very slight, and the figure remains almost the same from the moment when the heart-beats are clearly perceptible to the end of the pregnancy.

Dangers of Poppy Decoctions

The employment of decoctions of the poppy-head as a soporific is very general in certain parts of France, especially in the north. Recently, near Lille, the physician who had made out the death certificate of an infant of 4 months refused to permit the burial without an inquest because he attributed the death to poisoning by poppy heads. The grandmother confessed that

within 8 days the child had absorbed an infusion of three poppy heads in 1 liter (about a quart) of water. The autopsy showed no disease which might account for the death, but did disclose some signs of habitual opium intoxication, and on chemical analysis the viscera were found to contain a toxic quantity of morphin. In reporting the case at the last session of the Société de médecine légale, Dr. Dutilleul and M. Bonn, a chemist, remarked that it was strange that while morphin and the other alkaloids of opium are among the poisonous substances which the pharmacist can deliver only on receipt of a medical prescription, the substance from which these alkaloids are obtained is freely sold, not only by pharmacists, but by grocers, seedsmen and herb dealers. A check on the sale of poppy-heads would prevent the death of many children each year.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Oct. 28, 1910.

Personal

Professor Brandenburg, director of the internal department of the district hospital of Grosslichterfeld, has been appointed head physician of the second internal department of the Rudolf Virchow hospital. He is the successor of Professor L. Kuttner, who, as previously announced, has been appointed director of the department.

Professor Kossel, director of the physiologic institute at Heidelberg, has been awarded the Nobel prize in medicine for this year. Kossel, a pupil of Dubois Reymond, has especially distinguished himself by his valuable investigations of the melein metabolism in the cells.

Professor Zangemeister, a pupil of Professor Winter of Königsberg, has been called to Marburg as director of the gynecologic clinic to succeed Professor Stückel.—Professor v. Leube of Würzburg celebrated the completion of his twenty-fifth year as regular professor, October 31.

Semicentennial of the Berlin Medical Society

Oct. 26 the Berliner medizinische Gesellschaft celebrated its semicentennial. The memorial meeting was of peculiar importance, as this society is not only the largest medical association in Berlin, but also one of the most noted and largest in Germany and can look back on a notable past. The society was formed by the union of two Berlin societies. The older of these was founded in 1844 as a society for scientific medicine, and the younger was the Verein Berliner Aerzte, founded in 1858. In order to obviate any difficulties arising from the union of the two societies, which took place in 1860, Rudolf Virchow resigned his position as president of the society for scientific medicine, in favor of Albrecht v. Gräfe, the president of the other society. The Berlin Medical Society, in spite of the separation from it of numerous special associations, of which that founded by v. Leyden as the Verein für innere Medizin was the first, has still remained the central point of scientific medical activity in Berlin, and almost every Berlin physician considers it his duty to belong to it, so that at present it has more than 1,600 members. As a result of the participation of the university teachers, the scientific proceedings are always valuable and a number of important discoveries have been presented here for the first time. As successors of v. Gräfe, Bernhard von Langenbeck, Rudolf Virchow, Ernst v. Bergmann, and finally H. Senator have held the office of president. Robert Koch, Helmholz and Pasteur were made honorary members, a distinction which has seldom been bestowed. On the occasion of the semicentennial the number of honorary members was considerably increased, including in addition to two living members of the society, two physicians practicing in Berlin, Professor Waldeyer and the surgeon general of the Prussian army, v. Schjerning, Naunyn (Baden-Baden), Exner and Fuchs (Vienna), Golgi, Armauer-Hansen (Christiania), Abraham Jacobi (New York), Fr. Koranyi (Budapest), Keen (Philadelphia), Kitasato (Tokio), Laveran (Paris), Lépine (Lyons), Lister, Murri (Bologna), Pawlow (St. Petersburg), Ramon y Cajal (Madrid), Retzius (Stockholm), Salomonsen (Copenhagen), and Röntgen (Munich). Senator was elected honorary president. On the festival day it was announced that so far \$15,000 (63,000 marks) had been subscribed by the members for the building of the projected Virchow House which is to be the special home of the society. The widow of Virchow on the same occasion announced that she would make over to the new building the private collections and valuable memorials of Virchow.

Statistics of Hydrophobia for Prussia for 1909

In 1909 there were 406 injuries of human beings in Prussia by rabid animals or those suspected to be rabid. The greatest number occurred as formerly in the eastern provinces, in those districts which touch the Russian boundary to the greatest extent. The wounds were inflicted mostly by dogs, but to far less extent by cats, horses, cattle and deer. Nineteen persons received wounds while tending two hydrophobic patients; 252 of the wounds were inflicted by animals which were certainly rabid; 374 of the wounded received the Pasteur inoculation in Berlin and Breslau. Of the 374 inoculated, eight died (2.13 per cent.). Of the thirty-two who were not inoculated, two died (6.25 per cent.); the latter were included among the twenty-two persons who were bitten by animals certainly rabid, which gives a mortality of 9.1 per cent.

Communication of Typhoid by Butter and Cheese

Professor Gaffky, director of the institute for infectious diseases, in a report to the minister of education, states that there are no published accounts of the transmission of typhoid by butter and cheese. Theoretically it may be said that according to previously published investigations, typhoid bacilli may remain viable in artificially infected butter from 21 to 27 days and that they pass for the most part into the cream that is used for butter when separated by the centrifuge. In the curd obtained from milk (cheese made from sweet milk), the bacilli added to the milk are found, but they are rapidly killed by the acids that form in the curd, so that they cannot be demonstrated after the third day. Gaffky therefore comes to the conclusion that butter made from sour cream, the curds from sour milk, and matured cheese are not likely to communicate typhoid. To avoid communication by butter from sweet cream and cheese made from the same material, pasteurization of the milk is to be recommended, since a temperature of 60 C. is sufficient to kill the typhoid bacilli in milk and does not affect the preparation or the taste of the products made from it.

Carbohydrates in the Diet of Children

At the last session of the German pediatric society, Professor Langstein, head physician of the Augusta Victoria institute for prevention of infant mortality, made an interesting address on the rôle of carbohydrates in infant-feeding. The nutrition of the healthy child is to be sharply distinguished from that of the sick child. For the improvement of artificial nutrition, it is necessary to determine the healthy infant's absolute requirement of carbohydrates. For the artificial nutrition of the healthy child, no other viewpoint is appropriate except to furnish in a volume which as nearly as possible corresponds to the natural, as much nourishment as the law of energy requires for infants. The natural flour suffices for the nutrition of healthy infants and it is not necessary to employ flour prepared for infants. Overfeeding with sugar, even if there are no alarming symptoms referable to the gastro-intestinal tract, appears to be capable of leading to severe injury of the child's organism. Exclusive nourishment with flour, if long continued, may lead to severe disturbances of nutrition. Disproportionate nourishment with flour appears to lead to a chemical degeneration of the organism that involves a loss of immunity. In the proper amount the carbohydrates are indispensable for the treatment of disturbances of nutrition in infants. The enrichment of the diet by carbohydrates is of the greatest importance in the so-called milk-diet diseases (*Milchnährschaden*). The importance of carbohydrates in these cases is due to the fact that they hinder the formation of soaps in the intestine. The various carbohydrates behave quite differently in reference to this power. Milk-sugar is the carbohydrate which is least adapted to the child whose nutrition is disturbed. Cane sugar appears more efficient in these cases. The best combination seems to be that of flour and malted preparations. A complete loss of tolerance for carbohydrates is incompatible with the continuance of life.

Statistics of Physicians in the German Empire

In the period from 1885-1907, while the population of the German Empire increased 32 per cent. (from 16,700,000 to 22,100,000), the number of physicians increased 102 per cent. (from 15,764 to 31,864). The percentage increase of physicians is thus more than three times as great as that of the population. In 1885 the ratio was 3.4 physicians to 10,000 inhabitants; in 1907 it was 5.2. Professional incomes, diminished for this reason, have been still more reduced by the social legislation which has included a large part of the private patients among the insured.

Sleeping-Sickness

A discussion of the etiology and treatment of sleeping-sickness was held in the third Deutsche Kolonialkongress and the fourth International Congress for the Care of the Insane which are now in session in Berlin. At the first-named meeting, in the division on tropical medicine and tropical hygiene, the surgeon-general of the defense corps of the imperial colonial office, Professor Stendel, made a thorough report on the spread of sleeping-sickness. An increased spread of this disease, which had been known for more than a hundred years, was first noticed in the last decade of the last century in Angola on the Congo and finally on Victoria Lake. On Victoria Lake in German East Africa there are two foci, one in the district Bukoba with about a thousand patients. A wider spread is not to be feared as the tsetse fly is lacking in this district. The second focus is in the district of Schirati, close to the English border which has 800 or 1,000 patients. A limit to the further spread of the disease has also been surely established here through the extensive labors of sanitarians. At the third and largest sleeping-sickness focus in German East Africa to the north of Lake Tanganyika, the number of patients amounts to several thousand. The extermination of disease in this focus will require a great deal of work. In Kamerun single cases of sleeping-sickness have been repeatedly observed in the government hospital from the neighborhood of Duala; but no distinct focus of the disease could be found. In Togo there is a very old focus of sleeping-sickness, chiefly on the boundary river Volta. It appears that the disease in this old focus follows in general a milder course and shows less tendency to an epidemic character than on the Congo and in German East Africa. So far about 230 patients have been found. Dr. Hoffmann of Berlin gave his views of the etiology of sleeping-sickness. While some other possibilities of transmission are not entirely excluded, transmission by the bite of the fly *Glossina palpalis* is the only mode of importance for the epidemic spread of the disease. It has been shown that human beings may harbor infectious trypanosomes in the blood for as long as a year without signs of illness. These people are dangerous carriers and probably play the predominant rôle in the spread of the disease, as new flies may constantly receive the germs of the disease from them and spread them. In severely infected districts, half or two-thirds of the population are infected in this way and become carriers. The knowledge of the cause of the disease has already led to a well-planned and successful attack on this pest and promises to be still further successful. Privy-Councillor Uhlenhuth of Berlin described the treatment of sleeping-sickness. Arsenical preparations are of greatest importance.

The first successful treatment was inaugurated by the introduction of atoxyl by Thomas of Liverpool in 1905. Atoxyl is to-day at the center of medical interest. According to Uhlenhuth, atoxyl acts on the cells of the body and the leukocytes which produce substances which destroy the trypanosomes and prevent their multiplication. The knowledge of the action of atoxyl, regarding which opinions are not yet entirely clear, will be of great service in the search for new remedies. As Dr. Meixner says, the campaign against sleeping-sickness will be carried out on the lines laid down by R. Koch being directed against trypanosomes circulating in the blood and the flies which convey the disease. For the first purpose the patients must be collected at central stations, of which there are at present ten in the German colonies. From the beginning, under the supervision of nine physicians and sixteen sanitary assistants, 6,167 patients with sleeping-sickness have been treated. Ambulant treatment, as well as hospital treatment, has been extensively carried out. A large part is played by sanitary measures, consisting in trimming out the brush and cutting down the reeds, by which means the sensitive flies are destroyed. In addition the capture of flies and the destruction of crocodiles which form the sources of food for the flies are recommended. The natives, moreover, are transported to places free from these flies. Control of traffic and similar measures which hinder the spread of the disease are useful. Complete success is to be expected only after some years, but the results, especially of sanitary measures, are so far very satisfactory.

At the congress for the care of the insane Ehrlich delivered an address on his studies in the treatment of sleeping-sickness which was received with great interest. The similarity between paralysis and sleeping-sickness depends on the fact that the exciting causes of the two are similar in many respects and are influenced by the same remedy, and this influence is only a very partial one. Koch first succeeded by use of atoxyl, but the blindness arising from atoxyl in certain

cases must be taken into account. A greater disadvantage of the atoxyl treatment is the fact that in only 10 per cent. of cases does a permanent cure result. Ehrlich tried to better these results by forming arsenic preparations which would act on the chemoceptor of the parasites without affecting the cells. This was effected by arsenophenylglycin, but great difficulties are experienced in the treatment of sleeping-sickness in this way because the response of parasites in various localities to treatment is not entirely uniform. While those in Togo are easily influenced by arsenicals, those at Kamerun and on the Congo are affected with difficulty; and while the patients on the Togo and the Congo are slightly susceptible to arsenic, those in East Africa are very susceptible, and, besides, the negroes resort to treatment too late. The changes in the spinal fluid are important for prognosis; and of greater importance is the fact that the races of trypanosomes which appear in relapses are biologically of different kind from the original and form different antibodies which do not prevent new infection and the number of these relapsing races is very large. A discontinuous treatment with arsenophenylglycin has not been successful because a hypersusceptibility to the parasite set in and symptoms of arsenic poisoning appeared, symptoms which are less prominent with "606." With the treatment styled by Ehrlich *therapia magna sterilisans*, by which the germ of the disease is supposed to be killed at one stroke, there are only three possibilities: (1) a fraction of the dose which can be tolerated is used and healing secured; or (2) very large doses, which may be dangerous, must be used, or (3) even these dangerous doses fail. In Togo a *sterilisatio magna* could be secured with doses which in East Africa did not result in a cure, and still endangered life, while in Leopoldville on the Congo, this amount would not produce a cure and yet was not dangerous to life.

As Ehrlich had taken these possibilities into consideration he brought his reserves into the fight against the trypanosomes by combining trypanred with the arsenic treatment. By this combined attack which had already been successful in animal experimentation, a cure was obtained which has already in some cases lasted for eight months. The similarity of paralysis and of sleeping-sickness is also shown in the fact that both are very difficult to influence if the germs, have already invaded the spinal fluid, because the endothelium of the spinal meninges hinders the passage into this fluid of remedies with high molecular weight. The discovery of new remedies with greater penetrating power will assist in the solution of the problem of curing sleeping-sickness and paralysis. Ehrlich hopes to attain this solution with the assistance of psychiatrists. Professor Mott of London, director of the institute for sleeping-sickness in the English colonies, exhibited numerous instructive microscopic preparations which very distinctly showed the changes in the brain and in the lymph-vessels. Mott regards sleeping-sickness merely as a clinical phase of a general trypanosome infection, which manifests itself in the brain as a perivascular infiltration in the course of the brain vessels. For that reason he would like to see the name "sleeping-sickness" changed to "human trypanosomiasis." He also calls attention to the fact that in all human beings the same trypanosomes are present and the same insect is a conveyor of the disease. In the discussion Régis of Bordeaux emphasized the fact that the clinical difference between paralysis and sleeping-sickness is only slight. Professor A. Marie of Paris showed with the lantern a series of sleeping-sickness patients in the various stages of the disease and exhibited with the cinematograph living and moving trypanosomes and the spirochetes of chicken spirillosis, of syphilis and of relapsing fever.

BUDAPEST LETTER

BUDAPEST, Oct. 22, 1910.

The Re-Inoculation of Persons Repeatedly Bitten by a Rabid Animal

Sometimes a person previously bitten and inoculated against rabies is again bitten by a mad dog. The question naturally arises whether inoculation should be done *de novo*, or whether it is superfluous? The same question presents itself also in regard to small-pox.

Before giving an answer to this very important question we must decide, said Professor Tangl in an address delivered before the Budapest Medical Society, whether the artificially produced immunity lasts for life or lapses after a certain time. In the latter case, obviously, a fresh inoculation is required. Jenner himself held the opinion that immunity

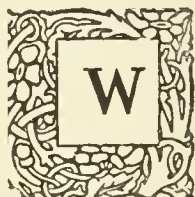
once produced against small-pox infection lasted for life. Therefore he advised inoculation being performed in the first year of life. But experience has taught that the immunity disappears after a certain time; and a formerly protected person in a fresh small-pox epidemic easily contracts the disease anew, though in a milder form. For decades science was unable to clear up this question, because observations were taken only from statistics. Nowadays, experimental observations enable similar questions to be settled more quickly. We know, for example, that the immunity afforded by variola lasts about ten years. According to Haffkine, the immunity against plague commences within eight days of inoculation and lasts about as many months. It is important to know also the relations of the immunity produced against rabies.

The only information on this subject comes to us from Paris and from the Budapest Pasteur Institute. Pasteur kept his immune dogs under observation for many years. From time to time he tested their immunity against a lethal dose of the rabies virus. The immune dogs, when injected intraocularly with rabies virus, did not develop the disease, but the control dogs similarly infected with the same virus became mad. Pasteur mentions in one of his publications that in a certain dog immunity lasted at least 5 years.

In 1892 Dr. Högyes, late professor of general pathology in the University of Budapest, published an article dealing with the question of the duration of immunity. He described his observations on eight immune dogs, on which Dr. Tangl repeated the test injections with rabies virus, after days, months, and after several years. The average result was that after the antirabic inoculation the immunity developed in a very short time (in one case after seven days) and lasted from four to seven years. A dog which was inoculated on Jan. 20, 1898, resisted the test-infection perfectly in February, 1901, so that it was absolutely immune after three years, even against the strongest virus. On July 31, 1907, i. e., after nine and a half years, it was again inoculated with rabies virus, but this time it became infected, and died on Aug. 27, 1907, with symptoms of paralytic rabies. A hare inoculated on the same day with the virus taken from the brain of the dead dog died after three days' illness on Sept. 27, 1907. The immunity, therefore, still existed after three years, but came to an end some time between three and nine and a half years. Another dog had the antirabic inoculations on Jan. 27, 1898. In 1901 Dr. Tangl found the dog absolutely immune. On Oct. 25, 1903, it died, with mild symptoms of rabies, confirmed by inoculation of a hare with the virus taken from the dog's brain. This dog, then, which

A Prayer for Doctors and Nurses

BY WALTER RAUSCHENBUSCH



*W*e praise thee, O God, for our friends, the doctors and nurses, who seek the healing of our bodies. We bless thee for their gentleness and patience, for their knowledge and skill. We remember the hours of our suffering when they brought relief, and the days of our fear and anguish at the bedside of our dear ones, when they came as ministers of thee. May we reward their fidelity and devotion by our loving gratitude, and do thou uphold them by the satisfaction of work well done.

*W*e rejoice in the tireless daring with which some are now tracking the great slayers of mankind by the white light of science. Grant that under their teaching we may grope with the sins which have ever dealt death to the race, and that we may so order the life of our communities that none may be doomed to an untimely death for lack of the simple gifts which thou hast given in abundance. Make thou our doctors the prophets and soldiers of thy kingdom, which is the reign of cleanliness and self-restraint and the dominion of health and joyous life.

*W*hile in their whole profession, strengthen the consciousness that their calling is holy and that they too are disciples of the saving Christ. May they never through the pressure of need or ambition surrender the sense of a divine mission and become hirelings who serve only for money. Make them doubly faithful in the service of the poor who need their help most sorely and may the children of the workingman be as precious to them as the children of the rich. Though they deal with the frail body of man, may they have an abiding sense of the eternal value of the life residing in it, that by the call of faith and hope they may summon to their aid the powers of thy all-pervading life.

—American Magazine, November, 1910.

after thirty-two months proved to be immune had lost its immunity after 5 years and 4 months.

So far these are the only experimental data bearing on the duration of immunity in the literature of the subject. From the results of these two experiments it appears that the average duration of immunity is between three and five years. Naturally individual factors play a certain rôle in this connection, because after two or three years all the eight dogs examined proved to be immune; we are therefore at liberty to suppose that the average limit of immunity may even exceed four years.

Up to the present time we have no data to indicate how far these facts hold good for human beings.

On account of the close relationship which exists between human and animal, (particularly dog) rabies, both in the occurrence of the symptoms and in its course, we are justified in supposing that the process of immunity is analogous in men and dogs, and that, as Professor Högyes stated fifteen years ago, in all probability the immunity against rabies in man also expires after a certain time. Tangl concludes, therefore, that in the event of fresh bites by a mad dog revaccination is advisable in every instance, and is superfluous only when the fresh bite occurs at a very short interval after the previous antirabic inoculation.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Oct. 26, 1910.

Abundance of Congresses on Food and Nourishment

Vienna, or rather Austria, has witnessed this year quite an unusual series of scientific congresses, which had some bearing on medicine. Apart from the physiologists [THE JOURNAL, October 29, p. 1570] there was a congress of the balneologists, of those engaged in the refrigerating industry, and of those engaged in hunting and cattle feeding. Some points of interest to members of our profession were brought out. Thus, in the hunting congress, held in the Grand Hunting and Sports Exhibition in Vienna, a few weeks ago, the question of the failing meat-supply for our cities, with its consequences of rise in price of that article, was referred to in several papers. The possibility of furnishing ample meat-supplies from the forests of our country was shown, as there are sufficient stocks of hares, pheasants, partridges, roe and other venison, if only the population could be induced to form the habit of using them. Rabbits are hardly known here as food, while in France they are eaten in enormous quantities. The rapid industrialization of this country requires the supply of cheap nitrogenous and albumin containing food. Fish were also shown to be a very good and cheap food for our country, if

only popular prejudices were dispersed. From a medical point of view, this lecture was most useful, and in combination with another lecture, that on modern methods of freezing meat, it will form a starting-point for the modern provisioning of Vienna.

The scarcity of meat, or rather its high price, has called forth here the cry for frozen meat from Argentina. The quality of such food has been questioned, but the congress had opportunity to show that sound meat could be made to keep for months in a frozen state without the least injurious effect on the consumer. In the same manner, eggs, milk, fish and butter could be brought over and thus increase the regular intake by the individual of the requirements of a hard-working life.

This will, of course, be very important for the practitioner; for since tuberculosis is so frequent in the poorer classes of this city, cheap food will mean better chances of recuperation of many of his patients.

Marriages

JAMES M. MARSH, M.D., to Miss May Bell Knight, both of Elkhorn, Wis., October 6.

DWIGHT MACKEY, M.D., to Miss Ruth Bullock, both of Hobart, Ind., November 2.

GAEL M. ADAIR, M.D., Anita, Iowa, to Miss Lela J. Dutton of Atlantic, Iowa, November 2.

PETER GEORGE WOODS, M.D., Versailles, Mo., to Mrs. Osborn of High Point, Mo., October 26.

ELMER HILL, M.D., Huntsville, Wash., to Miss Bertha Dinsmore of Troy, Kan., October 26.

FRANK S. MARNELL, M.D., to Miss Fay Forbes, both of Nebraska City, Neb., November 4.

CHARLES SCUDDER POOL, M.D., to Miss Adelaide Chauncey, both of Brooklyn, N. Y., November 3.

PAUL FREDERICK STRAUB, M.D., U. S. Army, to Miss Susan Olinger, at Dubuque, Iowa, November 3.

WALTER E. WRIGHT, M.D., Tulsa, Okla., to Miss Katherine Griggsby of Bardstown, Ky., November 1.

JEROME T. QUIRK, M.D., New York City, to Miss Anne Darlington, at New York City, October 22.

FRANCIS MARION SHOOK, M.D., U. S. Navy, to Mrs. Cornelia Gordon Upham, at New York City, November 3.

OSCAR HUNTER McCLUNG, M.D., Fairfield, Va., to Miss Eugenia Harman of Richmond, Va., November 2.

PAUL P. ALLEN, M.D., Chambersburg, Pa., to Miss Gertrude Wheeler of Germantown, Philadelphia, October 27.

CARL D. CHAPPELL, M.D., Flint, Mich., to Miss Elizabeth M. Carroll of New Orleans, at Flint, November 2.

THOMAS JOSEPH NORTON, M.D., Pittsfield, Mass., to Miss Teresa Manning of Worcester, Mass., November 15.

GEORGE TORANCE CROSBIE, M.D., Belle Vernon, Pa., to Miss Anna Mae Myers of North Charleroi, Pa., October 26.

GEORGE CANNING WANKEL, M.D., Deerfield, N. Y., to Miss Adelaide Pelletier of Bloomingdale, N. Y., October 27.

PETER ALOYSIUS SLATTERY, M.D., White Earth, Minn., to Miss Nelley Evelyn Utman of Minneapolis, October 9.

EDWARD MELVERTON TRAINOR, M.D., Stanley, N. Dak., to Miss Lillian Victorin Lundquist of Minneapolis, October 25.

GEORGE W. PUGSLEY, M.D., Panama, Iowa, to Miss Grace Thomas of Plattsmouth, Neb., at Daykin, Neb., October 26.

WILLIAM H. McBEAN, M.D., Los Angeles, to ANNA M. GUTZWILLER, M.D., of Eldridge, Cal., at Los Angeles, October 19.

JAMES BOURKE, M.D., U. S. Army, to Miss Josephine Margaret Ott of Leavenworth, Kan., at Jefferson City, Mo., November 3.

CHARLES MILTON MURRELL, M.D., Elida, N. Mex., to Miss Clara Loraine Rademacher of Clinton, Iowa, at Savannah, Ill., October 26.

Deaths

John Marshall Allen, M.D. St. Louis Medical College, 1854; a member, and in 1899 third vice-president of the American Medical Association; died at his home in Liberty, Mo., November 1, from pneumonia, aged 77. Dr. Allen represented Clay County in the legislature in 1884 and 1885; served throughout the Civil War in the State Guard of Missouri and the Confederate service as brigade surgeon and finally as chief surgeon of the district of Mississippi and Louisiana. He was one of the organizers and professor of diseases of the abdomen in the University Medical College of Kansas City, and later president of the college.

Adrian Snyder Polbemus, M.D. Bellevue Hospital Medical College, 1882; major and surgeon, U. S. Army, retired; died in Portland, Ore., October 28, from nephritis, aged 53. He was appointed an assistant surgeon in the Army in December, 1883, and was promoted to captain in 1888. During the war with Spain he served as brigade surgeon of volunteers; was promoted to major and surgeon in the regular establishment in 1901, and was retired on account of disability in line of duty, December 5, 1904.

Edgar Henry Douglas, M.D. Dartmouth Medical School, Hanover, N. H., 1890; of Little Falls, N. Y.; a member of the American Medical Association and of the New York and New England Association of Railway Surgeons; formerly mayor and health officer of Little Falls; local surgeon of the New York Central Railroad, and a member of the Board of U. S. Pension Examiners, and of the staff of the Little Falls Hospital; died in the Utica Hospital, October 29, from cholelithiasis, aged 43.

Michael Brown Van Buskirk, M.D. University of Pennsylvania, Philadelphia, 1866; of Aurora, N. Y.; a member of the Medical Society of the State of New York; formerly health officer of Ledyard, N. Y.; a veteran of the Civil War; a member of the New York legislature in 1884 and 1885; died at the home of his daughter in New York City, October 31, from arteriosclerosis, aged 70.

Anselm D. Price, M.D. University of Louisville, 1865; a member of the American Medical Association, and a member of the House of Delegates from Kentucky; formerly president of the Kentucky State Medical Society; medical referee for Mercer County and a member of the county board of health for several years; died at his home in Harrodsburg, November 11, from nephritis, aged 70.

Addison Julius Tanner, M.D. New York University, New York City, 1894; of Meriden; a member of the Connecticut State Medical Society; vice-president of the Meriden City Medical Association; for several years town physician; while crossing an electric railway track in Berlin, Conn., in his automobile, October 29, was struck by a car and instantly killed, aged 40.

Edward Holman Hamill, M.D. New York University, New York City; 1869; consulting medical director of the Prudential Insurance Company, Newark, N. J.; a Confederate veteran; at one time president of the Association of Life Insurance Medical Directors of America; died at his home in Chatham, N. J., October 30, aged 66.

Walter E. Delabarre, M.D. New York Homeopathic Medical College, New York City, 1891; formerly of New York City; assistant surgeon of the New York Ophthalmic Hospital; medical director of Rosemont Springs Sanitarium, White Plains, N. Y.; died at his home in White Plains, October 30, from interstitial nephritis, aged 52.

John Edwin Allen, M.D. Bellevue Medical College, 1875; for twenty-five years connected with the department of health of New York City; at one time professor of anatomy in his alma mater; for twenty years surgeon of the Seventy-First Infantry, N. G., N. Y.; died at his home in New York City, October 25, from nephritis, aged 63.

James D. MacGaughey, M.D. Jefferson Medical College, 1870; a member of the American Medical Association; a member of the Connecticut State Legislature in 1880, and for nine years medical examiner and registrar of vital statistics of Wallingford; died at his home, October 31, from bronchopneumonia, aged 62.

William Richard Hobbs, M.D. Detroit College of Medicine, 1893; a member of the Nebraska State Medical Association; of Omaha; an eye, ear, nose and throat specialist of Omaha; and surgeon to the Douglas County and Swedish Mission Hospitals; died at his old home in Guelph, Ont., October 17, aged 49.

Louis Marshall, M.D. Medical College of Ohio, Cincinnati, 1904; a member of the Kentucky State Medical Association; of Washington, Ky.; health officer and a member of the board of health of Mason County, Ky.; died in Fort Worth, Texas, November 2, from hemorrhage of the lungs, aged 37.

Thomas V. B. Embree, M.D. Willamette University, Salem, Ore., 1882; a pioneer physician of Polk County, Ore., and commander of the Oregon Indian War Veterans on account of service in the Yakima Indian War of 1855 and 1856; died at his home in Dallas, October 26, from nephritis, aged 74.

William F. Scott, M.D. Transylvania University, Lexington, 1850; of Somerset; surgeon in the Federal service during the Civil War, and at one time superintendent of the Eastern Kentucky Hospital for the Insane, Lexington; died in the Somerset Sanitarium, October 26, from senile debility, aged 91.

Harris Burton Lochhead, M.D. Jefferson Medical College, Philadelphia, 1902; a member of the Medical Society of the State of Pennsylvania; of Pittston, Pa.; a member of the staff of the Pittston Hospital; died in the White Plains, N. Y., Hospital, October 25, aged 35.

John Campbell Flynn, M.D. Pulte Medical College, Cincinnati, 1879; Cincinnati College of Medicine and Surgery, 1886; health officer of Warren village and township, Macomb County, Mich.; died at his home in Warren, October 15, from chronic gastritis, aged 60.

Nelson G. Coffin, M.D. Medical College of Ohio, Cincinnati, 1847; Illinois Army Board, 1862; assistant surgeon of the One Hundredth and Seventh Illinois Volunteer Infantry during the Civil War; died at his home in Monticello, Ill., November 1, aged 90.

William Wilberforce Baldwin, M.D. Long Island College Hospital, Brooklyn, N. Y., 1876; for more than twenty-five years a practitioner of Rome and Florence, Italy; died at the family home in Great Bend, Pa., October 17, from cerebral hemorrhage, aged 60.

George Austin Bowen, M.D. New York University, New York City, 1863; for several terms a member of the Connecticut legislature; surgeon-general of the state in 1895 and 1896; died at his home in Woodstock, October 30, from nephritis, aged 69.

Garrett Beverly Blackwell, M.D. Eclectic Medical Institute, Cincinnati, 1885; of Scotts Mills, Ore.; while apparently asleep on a railway track between Woodburn and Hubbard, Ore., September 6, was struck by a train and instantly killed, aged 55.

John B. Stevens (license, New Hampshire, 1897); for many years a practitioner of Lowell, Mass., and surgeon of the Thirteenth New Hampshire Volunteer Infantry during the Civil War; died at his home in Merrill, N. H., May 8, 1909, aged 77.

John M. B. Rogers, M.D. College of Physicians and Surgeons, Baltimore, 1877; of Ellicott City; a member of the Medical and Chirurgical Faculty of Maryland; died at the home of his sister in Govans, Md., October 31, from typhoid fever, aged 62.

Samuel H. Friend, M.D. University of Pennsylvania, Philadelphia, 1888; formerly a member of the American Medical Association; a member of the State Medical Society of Wisconsin; died at his home in Milwaukee, October 30, aged 48.

Rufus O. Snider, M.D. Trinity Medical College, Toronto, Ont., 1896; of Toronto; who was injured in a collision between his automobile and a street car a year ago, was found dead in bed, September 16, from cerebral hemorrhage, aged 45.

Joseph Lacy Brayshaw, M.D. College of Physicians and Surgeons, Baltimore, 1888; of Friendship, Md., a member of the Medical and Chirurgical Faculty of Maryland; died in Sibley Hospital, Washington, D. C., October 30, aged 55.

William Henry Meyers, M.D. Philadelphia University of Medicine and Surgery, 1861; for many years surgeon of the Baltimore and Ohio Railroad, at Myersdale, Pa.; died at his home in that place, October 30, from diabetes, aged 70.

William James Telfer, M.D. McGill University, Montreal, 1890; a member of the Montreal Medico-Chirurgical Society; and demonstrator of chemistry in his alma mater; died recently in Burgoyne, Que., aged 46.

Alexander C. Harlan, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1886; formerly of McCook, Neb.; a

veteran of the Civil War; died at the home of his niece near Hillsboro, Iowa, October 23, aged 67.

William Perry Baird, M.D. University of Michigan, Ann Arbor, 1858; acting assistant surgeon in the Navy during the Civil War; died at his home in Northboro, Mass., September 10, from angina pectoris, aged 80.

Joseph Frank Geenan, M.D. Rush Medical College, 1893; formerly of Toluca, Ill.; for four years coroner of Marshall County; died at his home in Beloit, Kan., October 20, from disease of the kidney, aged 42.

Samuel W. Edmonds, M.D. University of Michigan, Ann Arbor, 1868; of Alexander, Ill.; a veteran of the Civil War; died in Passavant Hospital, Jacksonville, November 2, from typhoid fever, aged 70.

Robert Dunlop, M.D. Hospital College of Medicine, Louisville, 1884; for many years physician to the Little Sisters of the Poor; died at his home in Louisville, November 9; from uremia, aged 57.

Gilbert Potter Bennett, M.D. Hahnemann Medical College, Chicago, 1881; formerly of Sedalia, Mo., and San Bernardino, Cal.; a veteran of the Civil War; died at his home, October 18, aged 80.

P. A. Gastonguay, M.D. Laval University, Quebec, 1904; of Quebec; while canoeing on the Jacques Cartier River, near St. Catherine, Que., October 9, was drowned by the upsetting of his canoe.

Norman McLeod Carter, M.D. College of Physicians and Surgeons, New York City, 1904; of Huntington, L. I.; died at Saranac Lake, N. Y., November 2, from tuberculosis, aged 34.

Oliver Cromwell Kirby, M.D. College of Physicians and Surgeons, Chicago, 1909; of Avondale, Chicago; died in the University Hospital, Chicago, October 29, from typhoid fever, aged 25.

Robert Swepson Sims, M.D. Missouri Medical College, St. Louis, 1883; formerly of Fruitland, Texas; died at his home in Fayetteville, Ark., January 1, from gastric ulcer, aged 69.

Ernest Stuart Albee, M.D. Rush Medical College, 1900; a member of the State Medical Society of Wisconsin; died at his home in Oshkosh, November 1, from nephritis, aged 34.

David Sanford Watson, M.D. Reform Medical College of Georgia, Macon, 1860; a Confederate veteran; died at his home near Anderson, S. C., April 19, 1909, aged 79.

Benjamin Russell Walker (license, Iowa, years of practice, 1886); of Decatur County, Iowa; died in the County House, Leon, Dec. 21, 1909, from arteriosclerosis, aged 80.

William Thomas Hutchins, M.D. Memphis (Tenn.) Hospital Medical College, 1889; died at his home in Gulfport, Miss., September 24, from cirrhosis of the liver, aged 51.

Royal E. Cochrane, M.D. University of Buffalo, N. Y., 1872; a veteran of the Civil War; died at his home in Penfield, N. Y., October 22, from angina pectoris, aged 66.

David N. Fansler, M.D. University of Wooster, Medical Department, Cleveland, 1874; died at his home in Marion, Ind., September 5, from senile debility, aged 80.

Lewis William Krieger, M.D. Jefferson Medical College, 1892; of Peoria, Ill.; died at St. Francis Hospital in that city, October 23, from cerebral hemorrhage, aged 51.

James Edgar Wall, M.D. University of Louisville, 1880; for four years health officer of Panola County; died at his home in Carthage, Texas, October 22, aged 53.

John P. Cloyd, M.D. Rush Medical College, 1869; of Georgetown, Ill.; died at the home of his daughter in that place, October 29, from senile debility, aged 72.

Eady Stevenson, M.D. Cleveland University of Medicine and Surgery, 1859; M.R.C.P. and S., Ontario, 1879; of Vancouver, B. C.; died recently.

Frederick W. Neal, M.D. Rush Medical College, 1891; died at his home in Grand Rapids, Mich., May 27, from sarcoma of the hip, aged 43.

Charles Henry Shepard, M.D. New York Medical College, New York City, 1859; died at his home in Brooklyn, N. Y., October 29, aged 85.

Emma M. Linden, M.D. Willamette University, Salem, 1899; died at her home in Portland, Ore., October 25, aged 52.

Correspondence

Practical Demonstration of the Dangers of Optometry

To the Editor:—Knowing the active interest of the Association in the wide-spread agitation for laws licensing opticians to examine for refractile errors and prescribe glasses, I have thought that a striking instance of the dangers of this proceeding which has just come to my notice might well be recorded. A man of 34 consulted me this week because of a severe and increasing headache of three months' duration. Three weeks ago he went to one of the large opticians of New York because of some trouble with his eyesight, and had glasses prescribed for him by an optometrist. He did not have a refractile error of consequence, but a high grade of choked disc in both eyes and was suffering from brain tumor. Of course, a decompression operation three weeks ago would have preserved much more sight than can be expected now, and the blame for the loss of this valuable time is to be placed wholly on the legal recognition of optometrists, which was given in New York State last winter.

The optometry question is in my opinion but one phase of a larger problem which must eventually be settled rightly in this country, but which we can scarcely expect to have so settled until general education in the fundamental facts of physiology and pathology is much more wide-spread, and perhaps not until our therapeutic resources become more comparable with our diagnostic ones. No person, whether he styles himself optometrist, osteopath, mental healer, or any other sectarian name, should be recognized by law as competent to treat disease until he has been thoroughly trained in the science of diagnosis. This, for every specialty, no matter how small, demands, as a minimum training, the present course of instruction in the whole of medicine required of candidates for license as physicians. No part of the human body can be arbitrarily separated from its vital connection with the whole organism. The sooner the public recognizes this fact the better.

THEODORE C. JANEWAY, New York.

Hexamethylenamin in Pellagra

To the Editor:—In THE JOURNAL, November 5, p. 1663, Dr. Bagby discusses the hexamethylenamin treatment of pellagra. I have used the same remedy in two cases, giving a dose of 5 grains three times a day. The progress of each patient, while not nearly so remarkable as in Dr. Bagby's case, was very satisfactory. A week ago, however, one of them, who had had an organic heart lesion for years, died suddenly while talking to some friends. This patient had so far recovered as to be able to work half a day at a time. The other patient is improving rapidly. The arsenic treatment has been kept up, and I have been doubtful whether the improvement was due to the hexamethylenamin, the arsenic, or the time of the year, or to these three combined. I began the hexamethylenamin at the suggestion of Dr. Manfred Call of Richmond, who has, I think, been using it for several months.

WALTER E. VEST, Meherrin, Va.

Chinosol—A Correction

To the Editor:—In an article by Dr. Wilbur E. Post and myself on "The Comparative Efficiency of Some Common Germicides" which appeared in THE JOURNAL, Nov. 5, 1910, the value of chinosol as a germicide was the subject of criticism. Since the publication of the article, my attention has been called to the fact that chinosol is no longer advertised as a germicide nor has it been since the Council on Pharmacy and Chemistry proved to the satisfaction of its manufacturer that, while it possessed antiseptic powers, its germicidal action was practically nil. Our criticisms of this preparation, therefore, were without foundation. Chinosol was examined by us because at the time our experiments were made this product was advertised and sold as a germicide. In publishing the results of our work reference to chinosol should, of course, have been omitted.

HOMER K. NICOLL, M.D., Chicago.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PLANS FOR HOSPITALS

To the Editor:—I desire information regarding the size, cost of building and arrangement of a hospital in a small city. Articles have been published in THE JOURNAL on this subject. Please give me the dates.

WILLIAM F. ROSS, New Kensington, Pa.

ANSWER.—The following original articles and abstracts have appeared in THE JOURNAL:

Adams, H. P.: Construction of Cottage Hospitals, *Brit. Med. Jour.*, June 20, 1908; abstr. in THE JOURNAL, July 18, 1908, p. 261.

Ochsner, A. J.: Practical Points of Economy in Hospital Construction, THE JOURNAL, Sept. 21, 1907, p. 990.

Sturm, M. J.: Planning and Construction of Hospitals for Smaller Cities and Towns, THE JOURNAL, Feb. 20, 1909, p. 610; Construction of Hospitals for Tuberculosis, *Tr. Internat. Cong. on Tuberc.*, 1908; abstr. in THE JOURNAL, Oct. 3, 1908, p. 1174.

Thompson, W. G.: Modern Hospital Construction, THE JOURNAL, Sept. 21, 1907, p. 993.

Holmes, Bayard: The Hospital Problem, THE JOURNAL, Aug. 4, 1906, p. 318; A Suggestive Plan for a Modern General Metropolitan Hospital of Five Hundred Beds, THE JOURNAL, March 28, 1908, p. 1025.

The following books and articles also may be found of assistance: Galton: *Healthy Hospitals*, Oxford University Press, 91 Fifth Ave., New York, \$2.75.

Ochsner and Sturm: *Organization, Construction and Management of Hospitals*, Cleveland Press, Chicago, \$7.

Aikens, Charlotte A.: Some Common Blunders in Hospital Construction, *Nat. Hosp. Rec.*, 1907, x, 16.

Beilhack, P. H.: Natural versus Mechanical Ventilation of Hospitals, *Mil. Surg.*, 1907, xx, 199.

Goldwater, S. S.: Cost of Modern Hospitals, *New York Med. Rec.*, Oct. 14, 1905.

Goodrich, Annie W.: Some Common Points of Weakness in Hospital Construction, *Am. Jour. Nursing*, 1903-4, iv, 93.

Hucker, A. B.: Notes on the Requirements of Modern Hospital Architecture, *St. Paul Med. Jour.*, February, 1904.

McMullen, B. H.: Small Hospitals for Small Places, *Jour. Michigan Med. Soc.*, July, 1908.

Ochsner, A. J.: Hospital Construction in American Cities and Towns, *Cincinnati Lancet-Clinic*, Nov. 12, 1904; Hospital Construction, *Illinois Med. Jour.*, October, 1908.

Simpson, W. J.: Infectious Hospitals, *Jour. State Med.*, London, 1903, xi, 521; Plans for a Model Modern Hospital, *Nat. Hosp. Rec.*, 1907, x, 10.

Smith, G. A.: Application of the Cottage System to the New Hospitals, *Mil. Surg.*, 1907, xx, 199.

Vander Veer, Albert: The Essentials of Modern Hospital Construction, *Albany Med. Ann.*, July, 1902.

SWELLING OF NOSE AND UPPER LIP

To the Editor:—I have a patient, a woman, aged about 35, in good health, who yet has marked swelling of nose and upper lip every morning. This goes down slightly toward evening and appears again in the morning. There is scarcely any redness of the skin. I have examined all the organs and find no cause for the phenomenon. I have tried various treatments with no effect. The only symptom is the swelling. Probably you could suggest some line of treatment.

INQUIRER.

ANSWER.—It would be impossible to give intelligent advice without knowing more about the case. Is the condition due to some error in diet, to derangement of digestion from other causes, to some medicine the patient may be taking, to some condition of sleeping apartment, to late supper, to anemia, to malaria, to angioneurotic edema, etc.? It would not be safe in such a case to accept as final the statement that the patient is in good health.

The Public Service

Medical Department, U. S. Army

Changes during the week ended Nov. 12, 1910.

Mason, George E., D.S., Nov. 1, left Fort Snelling, Minn., en route to Fort Lincoln, N. D., for temporary duty.

Leslie, Samuel H., D.S., Oct. 27, reported for temporary duty at Fort Robinson, Neb.

Stallman, George E., D.S., Nov. 2, reported for temporary duty at Fort McIntosh, Texas.

Ford, Clyde S., major, Nov. 1, reported for temporary duty at Fort Yellowstone, Wyo.

Wilcox, Charles, major, Nov. 3, relieved from duty at Fort Totten, N. Y., and ordered to Fort Sheridan, Ill., for duty.

Dougherty, James C., M.R.C., Nov. 3, granted two months' leave of absence.
 Cutliffe, William O., M.R.C., Nov. 3, ordered to Walter Reed General Hospital, Takoma Park, D. C., for observation and treatment.
 Church, James R., major, Nov. 5, relieved from duty at Fort Ontario, N. Y., and ordered to Fort Williams, Me., for duty.
 Miller, Edgar W., captain, Nov. 5, relieved from duty at Fort Williams, Me., and ordered to Fort Ontario, N. Y., for duty.
 Bartlett, C. J., captain, Nov. 5, granted twenty-one days' leave of absence.
 Shaw, Henry A., major, Nov. 7, granted leave of absence to include Dec. 5, 1910.
 Bernheim, J. R., D.S., Nov. 8, granted two months' leave of absence on arrival at San Francisco.
 Perley, Harry O., colonel, Nov. 3, left Denver on thirty days' leave of absence.
 Crabtree, George H., captain, Nov. 4, reports on forty-two days' leave of absence from Culebra, Canal Zone.
 Sherwood, J. W., M.R.C., Nov. 9, reported for temporary duty at Fort Andrews, Mass.
 Babister, John M., colonel, Nov. 9, on his own application is retired from active service on Dec. 31, 1910, after more than thirty-one years' service.
 Porter, Ralph S., captain, Nov. 9, granted four months' leave of absence.
 Hereford, John R., M.R.C., Nov. 10, granted leave of absence for one month and twenty days.
 McKimney, Garfield L., lieutenant, Nov. 9, on arrival at San Francisco will report to commanding officer, Army General Hospital, at that place, for duty.

Medical Corps, U. S. Navy

Changes during the week ended Nov. 12, 1910.

Green, E. H., medical director, detached from command of the naval hospital, New York, and ordered to duty at the naval recruiting station, New York.
 Gatewood, J. D., medical inspector, ordered to duty as president of the naval examining and naval medical examining boards, at the naval medical school, Washington, D. C.
 Byrnes, J. C., medical inspector, detached from command of the naval hospital, Newport, R. I., and ordered to command the naval hospital, New York.
 Biehl, O., medical inspector, ordered to command the naval hospital, Newport, R. I.
 Farenholt, A., surgeon, detached from the *California* and ordered to command the naval hospital, Puget Sound, Wash.
 Morris, L., surgeon, ordered to the naval medical supply depot, New York.
 Parker, E. G., surgeon, detached from the *South Dakota* and ordered home to await orders.
 Shipp, E. M., surgeon, detached from duty as president of the naval examining and naval medical examining boards at the naval medical school, Washington, D. C., and ordered to continue other duties.
 Vickery, E. A., passed asst.-surgeon, detached from the *Solace* and ordered to the *Maryland*.
 Dollard, H. L., passed asst.-surgeon, detached from the naval hospital, Mare Island, Cal., and ordered to the navy recruiting station, Kansas City, Mo.
 May, H. A., passed asst.-surgeon, detached from the bureau of medicine and surgery, Navy Department, and ordered to duty at the naval hospital, Las Animas, Colo.
 Eytling, E. O. J., passed asst.-surgeon, detached from the naval hospital, Norfolk, Va., and ordered to the *South Dakota*.
 Baker, M. W., passed asst.-surgeon, ordered to duty at the naval hospital, New York.
 Camerer, C. B., asst.-surgeon, detached from the naval hospital, Las Animas, Colo., and ordered to the *California*.
 Thompson, F. W., asst.-surgeon, detached from the navy recruiting station, Kansas City, Mo., and ordered to the *Montgomery*.
 Bunker, C. W. O., asst.-surgeon, detached from the *Montgomery* and ordered to duty at the naval hospital, Mare Island, Cal.
 Garrison, H. A., asst.-surgeon, ordered to duty at the naval hospital, Norfolk, Va.
 Taylor, J. L., passed asst.-surgeon, detached from the naval hospital, Las Animas, Colo., and ordered to duty at the naval hospital, Naval Home, Philadelphia.
 Guest, M. S., surgeon, detached from command of the naval hospital, Pensacola, Fla., and ordered to continue other duties.
 Seaman, W., surgeon, detached from the navy recruiting station, New York, and ordered to command the naval hospital, Pensacola, Fla.
 Dykes, J. R., passed asst.-surgeon, ordered to duty at the Naval Medical School Hospital, Washington, D. C.
 Woodward, J. S., passed asst.-surgeon, detached from the *Birmingham* and ordered home to await orders.
 Brooks, F. H., passed asst.-surgeon, detached from the navy recruiting station, Omaha, and ordered to the *Birmingham*.
 Straeten, R. J., passed asst.-surgeon, detached from the naval proving ground, Indian Head, Md., and ordered to the navy recruiting station, Omaha.
 Higgins, M. E., asst.-surgeon, ordered to the naval proving ground, Indian Head, Md.

U. S. Public Health and Marine-Hospital Service

Changes for the seven days ended Nov. 9, 1910.

Mead, Frank W., surgeon, on being relieved by Surgeon J. B. Stoner, directed to proceed to Vineyard Haven, Mass., and assume command.
 Carrington, Paul M., surgeon, relieved from duty at San Diego, Cal., and directed to proceed to Port Townsend, Wash., and assume command.
 McIntosh, W. P., surgeon, bureau order dated Oct. 27, 1910, detailing him as chairman of board to examine officer of Revenue Cutter Service, revoked.

Stoner, James B., surgeon, on being relieved by Surgeon P. M. Carrington, directed to proceed to Savannah, Ga., and assume command.
 Guiteras, G. M., surgeon, on being relieved by Passed Assistant Surgeon R. H. von Ezdorf, directed to proceed to Galveston, Texas, and assume charge.
 Oakley, James H., surgeon, on being relieved by Passed Assistant Surgeon B. H. Earle, directed to proceed to Philadelphia and report to Surgeon W. G. Stimpson for duty in the medical examination of arriving aliens.
 Wickes, Henry W., surgeon, relieved from duty at New Orleans and directed to proceed to Cairo, Ill., and assume command.
 Clark, Taliaferro, P. A., surgeon, relieved from duty at Philadelphia and directed to proceed to Evansville, Ind., and assume command.
 Von Ezdorf, R. H., P. A. surgeon, relieved from duty at New Orleans Quarantine Station, and directed to proceed to Mobile and assume command.
 Moore, Dunlop, P. A. surgeon, detailed as chairman of board to examine officer of Revenue Cutter Service.
 Copput, G. M., P. A. surgeon, relieved from duty at Galveston, Texas, and directed to proceed to New Orleans Quarantine Station and assume command.
 Goldberger, Joseph, P. A. surgeon, leave of absence for one month and 4 days from Sept. 26, 1910, amended to read twenty-six days from Sept. 26, 1910.
 Gwyn, M. K., P. A. surgeon, detailed as recorder of board to examine officer of Revenue Cutter Service.
 Wilson, Robert L., P. A. surgeon, on being relieved by Surgeon Henry W. Wickes, directed to proceed to Charleston Quarantine Station and assume command.
 Earle, B. H., P. A. surgeon, on being relieved by Passed Assistant Surgeon R. L. Wilson, directed to proceed to Port Townsend Quarantine Station and assume command.
 Lloyd, B. J., P. A. surgeon, relieved from duty at the Hygienic Laboratory, and directed to proceed to Seattle, Wash., and assume charge.
 McCoy, George W., P. A. surgeon, relieved from duty at San Francisco, and directed to proceed to Honolulu, T. H., and report to the Director of the Leprosy Investigation Station for duty.
 Chapin, C. W., asst.-surgeon, on being relieved by Passed Assistant Surgeon B. J. Lloyd, directed to proceed to San Francisco and report to Surgeon Rupert Blue for duty.
 Grimm, R. M., asst.-surgeon, on being relieved by Passed Assistant Surgeon Taliaferro Clark, directed to proceed to Washington, D. C., and report to the Director of the Hygienic Laboratory for duty.
 Thompson, L. R., asst.-surgeon, directed to proceed to Washington, D. C., and report to the Director of the Hygienic Laboratory for temporary duty.

Medical Economics

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
 BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Fourth Month—Second Weekly Meeting

ACQUIRED DEFORMITIES OF THE SPINE

SCOLIOSIS

ETIOLOGY: Congenital or acquired, habitual or fixed deformity. Age and sex. Faulty attitudes, occupations, unequal vision or hearing, torticollis, empyema, rickets, heart disease, etc.
SYMPTOMS: 1. Postural or functional scoliosis. Deformity, convexity of spine, shoulders, hips. Effect of bending forward, of suspension. Location of convexity. Results. 2. Structural or fixed scoliosis. One or more curves, usual locations, prominences, depressions, rotation. Effect of bending forward and of suspension. Shoulders and hips. General symptoms, pain, dyspnea, impaired health.
TREATMENT: 1. Postural cases: hygiene, gymnastics, etc. 2. Structural cases: (a) Correct deformity by active exercises, by apparatus, jackets, etc.; (b) retention of improved position.

NON-TUBERCULOUS AFFECTIONS OF THE SPINE

ACUTE OSTEOMYELITIS: Etiology. Symptoms. Treatment.
SYPHILIS OF THE SPINE: Diagnosis. Treatment.
INFECTIOUS ARTHRITIS OF THE SPINE: TYPHOID SPINE: Pathology, diagnosis. **GONORRHEAL SPINE:** Diagnosis, treatment.
RIGIDITY OF THE SPINE: 1. Spondylitis deformans: Pathology; diagnosis. 2. Chronic ankylosing inflammation of the spine: Etiology, pathology, clinical types. 3. Muscular spinal rigidity. 4. Traumatic spinal rigidity.

State Boards of Registration

COMING EXAMINATIONS

CALIFORNIA: Los Angeles, December 6-9. Sec., Dr. Charles L. Tisdale, 929 Butler Bldg., San Francisco.

DELAWARE: Regular, Dover, December 13-15; Homeopathic, Wilmington, December 13-15. Secretary of the Medical Council, Dr. H. W. Briggs, Wilmington.

KENTUCKY: Louisville, December 15-17. Sec., Dr. J. N. McCormack, Bowling Green.

MARYLAND: 1211 Cathedral St., Baltimore, December 13-16. Sec., Dr. J. McPherson Scott, Hagerstown.

OHIO: Cincinnati, December 6-8. Sec., Dr. George H. Matson, State House, Columbus.

PENNSYLVANIA: Regular and Homeopathic, Philadelphia, December 6-9; Eclectic, Harrisburg, December 6-9. Secretary of the Medical Council, Dr. Nathan C. Schaeffer, Harrisburg.

TEXAS: Palestine, November 22-24. Sec., Dr. R. H. McLeod.

VIRGINIA: Lynchburg, Dec. 20-23. Sec., Dr. R. S. Martin, Stuart.

Preliminary Educational Requirement in Texas

The following communication has been received from Dr. M. E. Daniel, Honey Grove, Texas, chairman of the college and reciprocity committee of the Texas State Board of Medical Examiners:

"This is to notify prospective medical students and all concerned, that before matriculation in the medical colleges of Texas is permissible, it is necessary to procure an entrance certificate from the State Board of Medical Examiners. This means that the authorities of the several medical colleges no longer pass on the literary credentials of applicants for matriculation. This function is now exercised by the State Board of Medical Examiners.

"To be eligible for examination or reciprocity, all Texas students matriculating in other states since 1908, must comply with this requirement. Non-residents desiring matriculation are required to comply with this regulation whether they expect to take the state medical board examination or not. Texas medical colleges are required to matriculate resident and non-resident students on equal terms.

"Residents and non-residents alike, who comply with the entrance requirements in such states as have reciprocal relations with Texas, will be accepted for matriculation, examination or reciprocity, provided literary credentials are acted on and credits determined by the State Medical Examining Board or other legally designated authority independent of medical college authorities or faculties.

"Residents and non-residents matriculating in states other than reciprocal states, and who expect future legalization in Texas; must comply with this regulation, but matriculants of such of these states as maintain and enforce an educational standard equal to our own, will be accepted. But those matriculating in states which maintain no fixed literary prerequisite, where the college faculties have the sole prerogative of passing on and determining the literary qualifications of medical students, will be barred unless they possess an entrance certificate issued by this board or from some other state having reciprocal relations with Texas. It is not sufficient to possess the necessary literary credential with the view of submitting it after graduation; the required entrance certificate must be procured before matriculation.

"Texas now reciprocates with the following states: Arkansas, Missouri, Illinois, Indiana, Iowa, Michigan, Kentucky, Maine, Nebraska, Minnesota, District of Columbia, West Virginia, Virginia, Maryland, Wisconsin, Vermont, North Dakota, Ohio, New Jersey, Kansas and Nevada.

"Full particulars can be had by addressing the secretary of the board, Dr. R. H. McLeod, Palestine, Texas."

Arizona October Report

Dr. Aniel Martin, secretary of the Board of Medical Examiners of Arizona, reports the written examination held at Phoenix, October 3-4, 1910. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 4, of whom 3 passed and 1 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Tulane University of Louisiana	(1893)	75.2
Baltimore Medical College	(1906)	79.2
University of Pennsylvania	(1891)	75

College	FAILED	Year Grad.	Per Cent.
Medical College of South Carolina	(1910)	71.2

Indiana Reciprocity Report

Dr. W. T. Gott, secretary of the Indiana Board of Medical Registration and Examination, reports that thirty-one candidates have been licensed through reciprocity from January 1 to October 15, 1910. The following colleges were represented:

LICENSED THROUGH RECIPROACITY

College	Year Grad.	Reciprocity with
George Washington University	(1901)	Illinois
Rush Medical College	(1906)	Illinois
Illinois Medical College	(1905)	Illinois
Coll. of Physicians and Surgeons, Chicago	(1907)	Illinois
Jenner Medical College	(1904)	Illinois
Northwestern University Med. School	(1906) (2, 1908)	Illinois
American College of Medicine and Surgery	(1903)	Illinois
American Medical Missionary College	(1902)	Kansas
Medical College of Indiana	(1907)	Colorado
Fort Wayne College of Medicine	(1882) (1886)	Ohio
University of Iowa, College of Medicine	(1898)	Iowa
Louisville Medical College	(1907)	Kentucky
University of Louisville	(1903) (1908)	Kentucky
Louisville and Hospital Medical College	(2, 1908)	Kentucky
Hospital College of Medicine, Louisville	(1900)	Kentucky
College of Physicians and Surgeons, Baltimore	(1896)	Virginia
Detroit College of Medicine	(1897)	Michigan
University of Michigan, Dept. of Med. and Surg.	(1908)	Michigan
Eclectic Medical University, Kansas City	(1906)	Missouri
Beaumont Hospital Medical College	(1900)	Kansas
Western Reserve University	(1908)	Ohio
Eclectic Medical College, Cincinnati	(1901)	Ohio
Vanderbilt University	(1896)	Kentucky
University of Tennessee	(1899)	Kentucky

Utah October Report

Dr. G. F. Harding, secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, October 3-4, 1910. The number of subjects examined in was 22; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 10, all of whom passed. Seven candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Northwestern University Medical School	(1910)	75.3
Rush Medical College	(1910)	80.4, 80.9
St. Louis University	(1910)	82
St. Louis College of Physicians and Surgeons	(1910)	75.1
Western Reserve University	(1910)	83.6
University of Pennsylvania	(1909)	77
Jefferson Medical College	(1909) 78.3; (1910)	80.9, 82.4

LICENSED THROUGH RECIPROACITY

College	Year Grad.	Reciprocity with
Rush Medical College	(1892)	Illinois
Northwestern University Medical School	(1909)	Illinois
Louisville and Hospital Medical College	(1908)	Kentucky
University of Michigan, Dept. of Med. and Surg.	(1889)	Michigan
Albany Medical College	(1898)	New York
Jefferson Medical College	(1865)	Kentucky
Victoria University, Ontario	(1865)	Michigan

Wisconsin October Report

Dr. John M. Belfel, secretary of the Wisconsin State Board of Medical Examiners, reports that at the meeting held at LaCrosse, October 6, 1910, nineteen candidates were licensed through reciprocity and one by examination. The following colleges were represented:

LICENSED THROUGH RECIPROACITY

College	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago	(1902) (2, 1903) (1908)	Illinois
Chicago College of Medicine and Surgery	(1909)	Illinois
Rush Medical College	(2, 1908)	Illinois
Northwestern University Medical School	(1907) (1909)	Illinois
Chicago Homeopathic Medical College	(1895)	Indiana
Medical College of Indiana	(1884)	Minnesota
University of Louisville	(1909)	Kentucky
University of Maryland	(1908)	Maryland
Johns Hopkins University	(1908)	Maryland
College of Physicians and Surgeons, Baltimore	(1900)	New York
University of Michigan, Dept. of Med. and Surg.	(1909)	Michigan
St. Louis University	(1909)	Illinois
Chattanooga Medical College	(1908)	Tennessee

LICENSED BY EXAMINATION

College	Year Grad.	Per Cent.
Marquette University	(1909)	78

Book Notices

AN INTRODUCTION TO THE STUDY OF HYPNOTISM, EXPERIMENTAL AND THERAPEUTIC. By H. E. Wingfield, M.A., M.D., B.C., Cantab., Consulting Physician, Royal Hanpts County Hospital. Cloth. Price, \$2. Pp. 175. New York: William Wood & Co., 1910.

A few years ago this little book would have been hailed with delight by both specialist and general practitioner. To-day, treatment by means of hypnosis is rarely resorted to by those best qualified to apply it. The great expectations attached to the study and practice of this fascinating method of treatment have failed of realization. The study of hypnotism has, nevertheless, been fruitful of results in the study and diagnosis of the neuroses. The entire field of psycho-analysis owes its revelations principally to hypnotism, though other methods have recently come into vogue. As a means of therapy hypnotism is but seldom practiced these days. Suggestion in the waking state, persuasion and mental reeducation have largely supplanted it. From the point of view of the therapist, the study of hypnotism has merely historical and educational values. For practical purposes, therefore, the book comes too late. To those who wish to begin the study of hypnotism the book can be recommended as a safe guide. The author is extremely conservative, has put forth no extravagant claims and has written a readable book. As stated by him in the preface, there is nothing new for those already familiar with the subject, but the book of about 175 pages is intended solely for those who as yet know nothing of hypnotism. To such inquirers it may prove of some service.

A TEXT-BOOK ON THE THERAPEUTIC ACTION OF LIGHT. Including the Rho Rays, Solar and Violet Rays, Electric Arc Light, The Light Cabinet. By Corydon E. Rogers, M.D. Cloth. Price, \$3.50. Pp. 323, with illustrations. New York: C. E. Rogers, 382 Second Avenue, (1910).

This is a book which deals with the peculiar theories of the author in regard to the therapeutic action of certain rays of light which he calls "Rho" rays. The work hinges on "Rho" rays. But no adequate description of the "Rho" rays is given, and, in fact, no proof of any scientific value is furnished to establish their existence. In our humble opinion there are no such rays. The supposed rays are produced by a high candle-power incandescent lamp of the author's invention. This is an elaboration and an enlarged type of the therapeutic lamp with a parabolic or conical reflector of which the Rogers' therapeutic lamp of a few years ago (perhaps by the same inventor) was a type. The agent is recommended in almost all sorts of conditions from impetigo to optic atrophy. The work is entitled to no scientific consideration.

A TEXT-BOOK OF PHARMACOLOGY AND THERAPEUTICS. Or the Action of Drugs in Health and Disease. By Arthur R. Cushny, M.D., Professor of Pharmacology in the University of London. Fifth Edition. Cloth. Price, \$3.75 net. Pp. 744, with 61 illustrations. Philadelphia: Lea & Febiger, 1910.

The necessity of a new edition of this text-book has led the author to make a thorough revision of the whole work. The decrease in the use of some of the minor remedies is noted and the space given to them is correspondingly reduced, some of them being entirely discarded. A chapter on anti-toxins and their uses has been added. The investigations of recent years have made possible more positive statements regarding the action of some remedies and such groups as that of digitalis receive thorough treatment. New remedies receive appropriate notice. The new edition will continue to maintain the position of the work in the first rank among standard authorities on pharmacology.

THE IRON MUSE. By John C. Underwood. Cloth. Price, \$1.25 net. Pp. 196. New York: G. P. Putnam's Sons, 1910.

A well-named collection of virile verses. Here is a splendid thrill of vigorous combat with the world's various problems. Several of the poems have a medical bearing; "The Consulting Room" is a graphic picture from a layman's viewpoint. The cogent appeal in "The Real Thing," addressed to one who may think he is down and out, is a tonic, while, of quite another sort, "The Mirror" has a mystic tenderness, which by contrast with the majority of poems, shows the breadth of the author's feelings.

Medicolegal**Distinctions and Liabilities in Actions for Malpractice**

The Court of Appeals of Kentucky says, in *Randolph's Administrator vs. Snyder* (129 S. W. R. 562), that William Randolph, a miner who had paid \$1 a month for medical treatment for himself and family, first brought suit individually against the defendant physician for alleged refusal to come and treat his child, which had been badly burned and subsequently died. Then the said Randolph had himself appointed administrator of the child's estate and sought, by the amendment of his petition, to recover damages for the alleged negligent treatment of the case by the physician after he came and took charge of it.

If the physician made a contract with the plaintiff to treat him and his family, as alleged in the petition and amended petition, and simply broke the contract by refusing to come when sent for to undertake the case, the right of action would be simply for the breach of the contract, and there would be no right of action in tort, as it is called, which means for a wrongful act or alleged negligent treatment. But if the physician came and undertook the case, and, having undertaken it, was negligent in his treatment, then a cause of action in tort might be maintained for the non-performance of the duty which the law cast on him when he undertook to treat the case. The rule has often been applied in the case of innkeepers, carriers, attorneys, physicians, etc. They all rest on the same ground.

The plaintiff having finally elected to sue in tort must recover, if at all, on the latter ground. Moreover, while the administrator might recover for the pain and suffering of the child caused by the negligence of the physician, or for his death if caused thereby, he could not recover for both, and might be required to elect which he would sue for.

If an injury is inflicted by a physician negligently on his patient and death ensues therefrom, he is liable for such death under the Kentucky statute, just as any other person would be whose negligence causes the death of another, *Blackburn vs. Curd*, 32 Ky. Law R. 789. In the case referred to the defendant operated on the patient, and then failed to give him the necessary treatment, by reason of which he died. It was held on those facts that the defendant was liable to the administrator of the patient's estate for the patient's death. In the case here before the court the physician did not operate on the child so far as was shown by the petition; but if he undertook to treat him, and negligently failed to give him proper treatment, this was an injury inflicted on him within the meaning of the statute; and if his death resulted from such negligence, the plaintiff might recover therefor. This case cannot be distinguished from the one cited. By section 6 of the Kentucky Statutes, which follows section 241 of the constitution, whenever the death of a person results from an injury inflicted by negligence or wrongful act, damages may be recovered therefor. The statute is remedial and should be liberally construed to effectuate its objects. The filing of the amended petition was in effect the bringing of a new suit, and an abandonment of the cause of action which had been stated in the original petition, and it should not have been allowed to be filed.

Releases Executed in Reliance on Statements made by Physicians

The Supreme Court of Minnesota holds, in the personal injury case of *Nelson vs. Chicago & Northwestern Railroad Co.* (126 N. W. R. 902), that a release of a claim for personal injuries, executed in reliance on fraudulent and false representations of probability of recovery, made to the injured person by an attending physician in the employ of persons sought to be charged therewith, is voidable. Such release may also be avoided when its execution is due to a mutual mistake of the injured person and of such a physician, who has assisted in procuring the settlement. The court says that the courts have generally viewed releases obtained by the physician, acting as assistant claim agent, with extreme suspicion, and in many cases in which the physician has acted in the dual capacity of claim agent and physician, or

in which he has violated the proprieties of the situation and has expressed his opinion with reference to or in connection with a settlement then pending, the courts have avoided releases on the ground of mutual mistake, where subsequent experience has shown that the physician was in fact wrong. But it does not at all follow that in every case wherein there is a subsequent discovery of mutual mistake made by the defendant's physician as to the subsequent course of the plaintiff's injury, that a release executed after the mistake has been made is void. Into which class a particular case under consideration should properly fall must depend on its peculiar circumstances. Where an attending physician in the course of treatment expresses a mistaken, but honest, opinion as to the period within which the injured person, suffering from a known injury, would recover, and where that expression of opinion, when made, had no connection whatever with a settlement, or with negotiations for a settlement, a release executed in reliance on his statement, may in certain cases properly be held valid.

Society Proceedings

COMING MEETINGS

Hawaiian Territorial Med. Assn., Honolulu, November 26-28.
Southern Surg. and Gyn. Assn., Nashville, Dec. 13-15.
Western Surg. and Gyn. Assn., Chicago, Dec. 19-20.

MINNESOTA STATE MEDICAL ASSOCIATION

Annual Meeting, held at Minneapolis, Oct. 6-7, 1910

The President, DR. W. A. JONES, Minneapolis, in the Chair

Address of the President: The State Medical Association and Its Relationship to the Problems of the Day

DR. W. A. JONES, Minneapolis: The first problem suggested for consideration is how to secure a live interest and discussion on the yearly program. The men in the country are either over-modest or indifferent, and the burden of preparing papers falls on a few men from the chief cities in the state. The man in the country is often a man of ideas, gleaned from hard-earned experience and worked out without assistance, and the busiest man is the man who usually finds time for literary work outside of the hours devoted to practice.

Another problem is suggested by the inability of medical men, organized into associations or societies, to secure the creation of a national department of health. This is an illustration of the need of further systematic effort to impress legislators and congressmen with the necessity of safeguarding the public health. The opposition to this movement is composed of a cosmopolitan crowd, who fear restraint or loss of their illegal means of livelihood by the manufacture and sale of fraudulent remedies, nostrums or appliances. It is further supplemented by narrow-minded people, who through ignorance or superstition exploit the new fads and cults incidental to the century, including opposition to vaccination, vivisection and other methods of advancing scientific information. The national and local League of Medical Freedom, supported by a few sensational newspapers, is striving to arouse public sentiment against medical, sanitary and hygienic progress. In spite of this opposition, a campaign of education by medical men must go on relentlessly. Much good has already been accomplished by the exposure of fraudulent remedies and fakers, who live on the misfortunes of the sick. The greatest difficulty is to get this information before the laymen. Physicians know of these frauds, but cannot always present proofs to their patients. The only remedy lies in the education of the masses to separate the good from the bad.

I strongly urge the employment of a journalist, who will acquaint himself with the fundamental needs of the people as advocated by physicians, and who will use his journalistic attainments and become a medical press agent. As physicians, we must learn to attend strictly to our own professional

work and suspend personal abuse of fakers and newspapers, until we have the confidence of the people and the press. Legislators should enact laws for the protection of the sick against cults, charlatans and nostrums. Indecisive fear on the part of the law-maker is responsible for the present unenviable condition that so widely prevails.

All departments in the state which have to do with public health measures should be asked to send representatives to confer with a legislative committee composed of representatives from the state medical association, the board of health, the university alumni and the sanitary conference. The members of the Minnesota State Medical Association should take more active interest in and familiarize themselves with the work of the state hospitals and institutions. The medical school of the state university deserves the support of all of Minnesota's medical men.

Case of Metastatic Gonorrhoeal Conjunctivitis

DR. WILLIAM R. MURRAY, Minneapolis: This was a case of a simultaneous bilateral conjunctivitis occurring in a patient the subject of gonorrhoea. There was no involvement of the intraocular structures. The lids were considerably swollen, there was a moderate conjunctival discharge, the bulbar conjunctiva was edematous, and an arthritis of the wrist joint accompanied the conjunctivitis. The first attack of conjunctivitis lasted ten days and subsided and after an interval of several days was followed by a second attack of conjunctivitis, involving both eyes, which was also attended by an arthritis. There was no intraocular involvement during either attack of conjunctivitis. No gonococci could be found in the conjunctival discharge. A diagnosis of the metastatic origin of a gonorrhoeal conjunctivitis is based on the bilateral involvement of the eyes, moderate amount of discharge, slight swelling of the lids, chemosis of the bulbar conjunctiva, comparative mild course of the disease, tendency to recur, absence of gonococci in the conjunctival discharge, and evidence of a systemic gonorrhoea.

DR. C. D. CONKEY, Duluth: The case reported by Dr. Murray must have been of a metastatic nature, for microscopic examinations of the eye secretions were frequently made all through the attack without discovery of gonococci. The method of infection is probably by the direct entrance of the gonococci into the blood-stream from the urethral tract. I have under my care at present a case of gonorrhoeal iritis with an arthritis of the right knee in which I administered three injections, two of 25,000,000 and one of 50,000,000 gonococci. The larger dose was followed by a decided reaction, the malaise lasting for several days, the joint affection being decidedly bettered, but no effect was produced on the inflamed eye.

The Heart in Diseases of the Thyroid

DR. J. S. GILFILLAN, St. Paul: That a relationship existed between the thyroid and the heart has long been known. The credit, however, for bringing the subject prominently before the profession belongs to Professor Rose, who, in 1877, read before the German Surgical Congress a paper in which he established the influence of tracheal obstruction on the right heart.

Since a paper in 1899 by Professor Kraus it has been generally conceded that, aside from any respiratory obstruction, the thyroid may produce cardiac changes through certain toxic influences. Goiter-heart may be classified as: mechanical, or Rose's heart, and toxic, or the goiter-heart of Kraus.

The symptoms of the mechanical variety are those of dilatation and insufficiency of the right heart in addition to those of tracheal obstruction. This form of cardiac disease is not peculiar to goiter but may be produced by pressure by any tumor.

The type of heart described by Kraus is produced by the altered or increased secretion of the thyroid acting on the regulatory mechanism. This may occur in any form of goiter. Symptoms consist in strong and rapid heart action, with at times other evidences of hyperthyroidism. In many cases there is enlargement of the left ventricle, which can be seen with the fluoroscope to be due to an increased diastolic disten-

tion. Kraus tries to draw a distinct line between these cases and Basedow's disease. Kocher includes in the same class all cases presenting symptoms of thyroid intoxication. Cardiac symptoms are very common in goiter patients. Monnier found 25 per cent. showing distinct heart symptoms. Kocher calls attention to the fact that during or after the administration of iodine in any form for goiter, symptoms of thyroid intoxication may develop, due to hypersecretion of the gland stimulated by the iodine. In goiter heart the ordinary heart remedies are of but little value. Iodine should be used with great care if at all. Toxic cases may be treated with rest, diet, sodium phosphate, etc., but here as in mechanical cases operation should not be too long deferred.

Intraspinal Injections of Magnesium Sulphate in Tetanus

DR. CARL J. HOLMAN, Mankato: Two cases of tetanus were treated by magnesium sulphate injection. One came on nine or ten days after a crushing injury to the ring and middle fingers of the left hand, necessitating amputation. The symptoms of tetanus developed about the tenth day and the patient was given two doses of magnesium sulphate into the spinal canal, dying four hours after the last dose. Case 2 was an appendiceal abscess. The patient developed tetanus on the eleventh or twelfth day after the operation and received in all twenty-five doses of magnesium sulphate into the spinal canal. He made a good recovery and is now well, performing farm labor.

(To be continued)

IDAHO STATE MEDICAL ASSOCIATION

Eighteenth Annual Meeting, Held at Boise, Oct. 6-7, 1910

The President, DR. JOHN M. TAYLOR, Boise, in the Chair

Hon. J. T. Pence, Mayor of Boise, made an address of welcome, which was responded to by Dr. J. L. Stewart of Boise.

Officers Elected

The following officers were elected for the ensuing year: president, Dr. John W. Givens, Orofino; vice-president, Dr. George O. A. Kellogg, Nampa; chairman committee on arrangements, Dr. J. W. Gue, Caldwell; chairman committee on legislation, Dr. J. M. Taylor, Boise; chairman committee on nominations, Dr. J. C. Woodward, Fayette; chairman committee on public health, Dr. G. H. Coulthard, Idaho Falls; trustees for *Northwest Medicine*, Dr. R. L. Nourse, Boise (reelected); Dr. J. W. Givens, Orofino (reelected), and Dr. W. T. Drysdale, New Plymouth; delegate to American Medical Association, Dr. A. A. Higgs, Boise; alternate, Dr. C. L. Dutton, Meridian.

Boise was selected as the place of the next meeting.

President's Address: Principles in Etiology and Treatment of Disease

DR. JOHN M. TAYLOR, Boise, read his annual address on the above subject.

DISCUSSION

DR. W. T. WILLIAMSON, Portland: The profession has done much in developing the study of medical subjects among the laity. Public education along the lines of personal hygiene and unhealthful habits is of great importance. Physicians must reach the young through the teachers in the schools. A competent member of the profession should be in attendance at all gatherings of teachers and lose no opportunity of instilling these thoughts into their minds.

DR. GEORGE E. HYDE, Rexburg: It is evident to all that we are getting away from the era of superstition; medicine, through education, is less a mystery.

Spinal Anesthesia

DR. C. C. SNYDER, Salt Lake City: I have confined the use of spinal anesthesia to cases in which a general anesthetic was unsuitable. With the use of strychnin and atropin in connection with the spinal injections, there seemed to be less

headache and nausea following. I prefer tropaeocain to other cocaine preparations, but it does not act so well above the diaphragm as does the hydrochlorate of cocaine. In my experience the chief contra-indication to spinal anesthesia is a possible idiosyncrasy to the drug.

DISCUSSION

DR. A. E. ROCKEY, Portland: In a series of 25 or 30 cases in which I used cocaine, I had 2 cases of anuria. Subsequently I used tropaeocain in about an equal number of cases, and found it to be safer, but it did not seem so active as an anesthetic.

Surgery of the Large Intestines

DR. A. E. ROCKEY, Portland, read this paper.

DISCUSSION

DR. E. K. SCOTT, Boise: Very few cases of malignant disease of the lower bowel are seen early enough to justify resection. I have seen many such operations, and know of but one case in which satisfactory results followed resection for malignant disease. In spite of the objectionable features of colotomy, I prefer to advise it in advanced cases. In treatment of colitis, irrigations and local treatment through the rectum can be done more easily and with the same good results as Dr. Rockey reports from appendicostomy.

DR. J. L. STEWART, Boise: I have done several resections for malignant disease of large bowel; I agree with Dr. Scott in believing that resection in these cases, unless the growth is low down, is not usually satisfactory.

DR. J. M. TAYLOR, Boise: Which incision does Dr. Rockey consider most advantageous, and would ptosis of the abdominal organs complicate the operation?

DR. A. E. ROCKEY, Portland: The remarks of Dr. Scott refer more to the older methods of operating. By the newer methods, posterior incision, removal of coccyx, etc., I have found it easy to get room for removal of the tumor and to bring the bowel down. Prolapse of the sigmoid does not complicate the technic; if anything, it makes it easier. I have been using the transverse incision for some time in all appendectomies, and only through accident discovered its advantages in exposing the large bowel.

Important Facts Concerning Myopia in Children

DR. EDWARD E. MAXEY, Boise, read this paper.

DISCUSSION

DR. R. L. NOURSE, Boise: Myopia is one of the penalties of civilization. Aborigines are not myopic. Students and those who apply their eyes closely for near work are apt to become myopic. Unless astigmatic, low degrees of myopia do not need glasses for comfort, as is often the case in low degrees of hyperopia; hence they are often undetected until fairly well advanced.

DR. W. T. WILLIAMSON, Portland: There are a considerable number of nervous conditions caused by errors of refraction, especially in school children. For various reasons, school inspection is of vital importance to the child, especially inspection into the condition of the eyes, and, it is needless to say, these examinations should be made by competent men and repeated at frequent intervals.

DR. E. VAN NOTE, Boise: In the examination of children's eyes we should emphasize the tendency myopia has of progressing, as very few parents understand its seriousness.

DR. J. W. GIVENS, Orofino: In almost all forms of insanity very little help is to be had by correcting defects of vision. However, the relation of errors of refraction to headaches should be constantly kept in mind in treating mental conditions.

DR. E. E. MAXEY, Boise: Children of myopic parents are predisposed to myopia. Such children, after they reach the school age, should be examined once or twice a year. Low degrees of myopia, especially if astigmatic, should be fully corrected and glasses changed as often as necessary. All examinations and reexaminations should be made under a reliable mydriatic, preferably atropin. If the myopia is progressing in spite of proper glasses, the child should be

taken out of school and near-work materially curtailed or prohibited entirely.

Application of Modern Methods in the Early Diagnosis of Pulmonary Tuberculosis

DR. RAY W. MATSON, Portland: A continuous afternoon fever is always suspicious of tuberculosis, and I have invariably found a material rise in temperature after exercise, which was a little higher and remained longer than in the absence of tuberculosis. The tuberculin test in the human being is exactly the same and just as reliable as it is in cattle. Both von Pirquet's and the subcutaneous methods of using tuberculin give a positive reaction in the presence of an active or a healed lesion, while the eye test, being less sensitive, gives a positive reaction only when an active lesion is present. Therefore, if the physical examination, the x-ray and laboratory findings lead us to believe that an active lesion is present, the tuberculin test should be applied by either von Pirquet's method (preferably) or subcutaneously. In all my examinations, the physical and laboratory findings are invariably controlled by x-ray examination.

DISCUSSION

DR. R. C. FAUST, Deary: Recently I heard of a new sign of incipient tuberculosis, *viz.*, that if the temperature be taken before and after examining the patient we would find a rise of from 1 to 1.5 degrees F. at the conclusion of the examination, but I am not prepared to express an opinion as to the value of this sign.

DR. J. M. TAYLOR, Boise: The early diagnosis of this condition depends in a great measure on the experience and delicate technic of the examiner.

The Recent Epidemic of Infantile Paralysis

DR. W. T. WILLIAMSON, Portland, delivered an extemporaneous talk, more particularly to the laity, many of whom were present to hear him.

While the disease has been known to exist for the last forty years, it is only within three years, or even one year, that much has been learned about it. That the cause is a living organism is positive, but it is so small that it has not yet been discovered by the microscope. Experiments have been made on various animals, the only two responding to injections of blood containing the poisons of this disease being sheep and monkeys, the former in a very mild degree, while the latter proved so susceptible that many experiments have been made on them, but nothing definite by way of a solution has yet resulted, the inoculation in some instances, but not all, making the animal immune. The early symptoms presented marked differences from other infectious diseases: three symptoms which usually accompanied the disease are increased perspiration in children, great sensitiveness to touch, and change in the number of white blood cells. As remedies for the disease may be suggested calomel followed by hot water enemas, and hot external applications for the pain. I would advise against allowing a child suffering from this disease to lie on the back, as this position is apt to aid in producing congestion of the spinal cord and thus may increase the severity of the resulting paralysis. While we can not yet cure the disease, we can do much in preventing deformity. Treatments should be kept up for years, if necessary, and by so doing much of the deformity, if not all, can be eliminated. Rest both during and after the disease must be insisted on in order to prevent paralysis.

DISCUSSION

DR. RALPH FALK, Boise, secretary of the State Board of Health: The Board of Health has thought it advisable to consider this disease of sufficient virulence to require reporting and quarantine, and the length of quarantine has been fixed at three weeks. By the end of this month there will probably be at least 100 cases of this mysterious disease reported in Idaho, 57 cases having already been reported. Most of these cases are in Idaho County, and they have been investigated personally by Dr. Hyde, president of the board.

DR. GEORGE E. HYDE, Rexburg, president of the State Board of Health: In investigating the cases in Idaho County, I found most among the Germans. In from 60 to 70 per cent. of the cases, obstinate constipation was present, and the acute symptoms almost invariably subsided on removing the constipation. Fourteen of the cases were abortive, 5 patients died, and 30 per cent. developed paralysis in the left leg, these usually recovering. The disease occurs during the hot, dry season, the dust apparently irritating the nasopharyngeal mucous membranes and thus enabling the virus to enter the system. The period of incubation is from four to sixteen days. I have been able to determine that 14 of the patients contracted the disease by direct infection, while in 12 cases the infectious material had been carried by a third person. As prophylactic measures, the board has recommended quarantine for 3 weeks and the frequent use of antiseptic washes for the nose and mouth.

DR. C. F. EIKENBARY, Spokane, Wash.: There could hardly be any doubt as to the contagious nature of this disease, yet we find occasional sporadic cases. In this recent epidemic, it seemed that the child was sick longer than usual before paralysis developed, and this would seem to suggest the possible prevention of paralysis. It is important to prevent deformity of paralyzed limbs by the use of splints.

[The splint or brace mentioned by Dr. Eikenbary is made of stockinette or some such woven material, saturated with celluloid. The celluloid is prepared by dissolving small pieces of celluloid in commercial acetone until a solution the consistency of mucilage is obtained. A plaster cast is made of the limb or part of the body where the splint or brace is to be worn. When this is prepared, the stockinette is stretched over the cast and plastered with the celluloid paste; then another layer of stockinette is added, plastered with celluloid paste, and so on until the desired thickness is obtained. To prevent curling and wrinkling, the splint is left on the cast for one week, or until thoroughly dry. The splint is then cut from the cast, trimmed to desired shape and size, and the edges bound to make them smooth.]

DR. J. W. GIVENS, Orofino: Climatic and atmospheric conditions have much to do in lowering the vitality of children. Children should not be exposed unnecessarily. They should be kept off the damp ground or grass in the evenings. As an intestinal cleansing agent, the old fashioned Epsom salts are excellent, given in small doses three times a day.

DR. J. A. PETTIT, Portland: Our greatest work should be along the line of investigating and determining the cause. The nasal theory appears to me to be rather overdrawn. The brain is not affected in infantile paralysis at all, yet if the infection gains entrance through the nasal mucous membrane one would naturally expect extension by continuity of tissues to the brain or its membranes. The spinal cord is affected and the paralysis shows that the diseased condition never extends higher than the motor cells of the fourth ventricle.

DR. L. P. MCCALLA, Boise: The profession should use greater moderation in discussing this disease, and consider the evil effects of unnecessarily alarming the public. The fear and dread of this disease is worse on the mothers of children than the disease itself. Many of these so-called abortive cases are not infantile paralysis at all, but cases of auto-intoxication due to gastro-intestinal disturbances. But granting that all of the cases reported are infantile paralysis, the disease is no more severe than whooping-cough, and we do not think that serious enough either to report or to quarantine. The disease may be infectious, but it is not proved to be contagious, and I think that the profession should frown down the newspaper notoriety recently given to this disease.

DR. RAY W. MATSON, Portland: Predisposition to disease in general is a probable important factor in the causation of this disease. The germs of various diseases are constantly present in the mouths and noses of most of us, but being more or less immune to these organisms, we are not affected by them. We have not yet been able to determine the specific organism of infantile paralysis, because the organism of this disease is what we term ultramicroscopic, like that of scarlet fever, and, therefore, invisible to present methods of examination.

DR. W. T. DRYSDALE, New Plymouth: In view of the extensive publicity given this disease and the doubtful prognosis in the cases reported, the State Board of Health should be commended for the position it has taken in the matter of quarantine.

DR. E. VAN NOTE, Boise: Some diseases increase in virulence, while others decrease, as in the case of small-pox. Have we the same old active poliomyelitis, or is it less active; and, if less active, will it remain so? Flexner's experiments seem to show that the virulence of this disease is increased by transmission in the monkey, so we may have the disease worse than now, and it is our duty to watch for this increase in virulence.

DR. G. E. HYDE, Rexburg: I do not believe in scaring people over trivial matters, but the condition existing in Idaho County, where in one district 10 per cent. of the children are ill with this disease, is no longer a trivial matter.

MR. EDGAR WILSON, Boise: From a layman's point of view, and from my experience as a member of school boards, I would like to endorse the remarks made by Dr. McCalla. I regret the tendency of newspapers to "scare-head" these health conditions. It can do no good, and often does a real harm. Public health matters are and have been very well handled.

DR. C. L. DUTTON, Meridian: It is not impossible for this condition to be due to more than a single specific infection. The state board is right in trying to prevent extension of this disease.

DR. W. T. WILLIAMSON, Portland: It is easy to believe that we have been having sporadic cases of this disease, caused by some different form of infection, but these are probably not due to the same cause as the epidemic cases. Flies, mosquitoes, and other insects, are possible carriers of the disease. The treatment must be begun early, for if the disease is allowed to progress we soon have what might be called "an organized disorganization," producing permanent lesions. The tendency of epidemics is to regress or diminish in severity, and we are not justified in expecting an increase in virulence of this disease simply because inoculation of monkeys produced a disease of increased virulence. It is hard to collect evidence of the contagiousness of a disease when we do not know the cause. Therefore, we should uphold the health boards in the matter of quarantine, until such time as we can determine the true specific cause.

Surgical Treatment of Cancer of the Prostate

DR. GEORGE S. WHITESIDE, Portland, read this article.

DISCUSSION

DR. A. A. HIGGS, Gooding: Early diagnosis is of importance in these cases if operation is to be of any value. If a case is at all suspicious of cancer, the patient should be referred early to a competent specialist for diagnosis and treatment.

DR. A. E. ROCKEY, Portland: I have done Young's operation for cancer and think it a splendid method, but I prefer to combine it with suprapubic incision. In most simple enucleations of prostate I prefer the suprapubic route.

DR. G. WHITESIDE, Portland: Suprapubic incision is not necessary, as the bladder is very easily brought forward. Hemorrhage is not a prominent symptom in early cancer. If present it is frequently due to irritation from catheterization. Success of operation depends on attention to thorough asepsis, both before and after operation, and the use of continuous irrigation for several days after.

DR. L. P. McCALLA, Boise: Metastasis to the bones frequently occurs in cancer of prostate, and metastasis of cancer of the thyroid to the prostate is not uncommon. In regard to method of operating, each operator develops a technic of his own which for him is best. For five years I have used continuous irrigation with excellent results except in one case.

DR. H. GOODFRIEND, Albion: On the pathologic examination of several hundred cases of diseased prostate, about 2 per cent. of the specimens in one series were found to be malignant, while in a second series from another operator about 6 per cent. were malignant.

DR. G. WHITESIDE, Portland: I am familiar with the figures just given and the claims made by certain operators,

but I think that 10 per cent. is nearer the right figure of percentage for malignant cases.

Tubal Pregnancy

DR. J. A. PETTIT, Portland, read this paper.

DISCUSSION

DR. W. T. DRYSDALE: Is it advisable to postpone operation until after recovery from shock? In my opinion there is a considerable percentage of patients who do not die from the initial hemorrhage and shock, and most of them have a better chance for ultimate recovery if we wait until after recovery from shock before operating.

DR. L. P. McCALLA, Boise: It is important to diagnose these cases early and to be prepared for the impending trouble. Most of these patients give a history of former pelvic inflammation and irregularity of menstruation, usually being from 2 to 10 days over-time rather than under-time. If gestation is located near the uterus we can usually find decidua membrane if the microscope is used. The pain is different in character from any the patient has before experienced. The best time to operate depends on the case, but not all patients should be operated on without preparation or recovery from shock. When it is possible to do so, these patients should be referred to an experienced surgeon. It is unusual for them to die if not operated on during profound prostration of shock. The points of especial assistance in making an early diagnosis are: (1) a history of past pelvic inflammation; (2) irregular menstruation, usually going overtime; (3) difference in type of pain, and (4) mucous type of discharge, often containing decidua cells.

DR. G. WHITESIDE, Portland: It is very interesting to me, as a genito-urinary specialist, to learn that human spermatozoa might remain active in the tube for as long as 3 weeks, and that the bat's spermatozoa might remain active for 6 months. It is interesting, also, to think of the possible medicolegal complications that might arise from these facts.

DR. VAN NOTE, Boise: It is usually taught that operation should be done in these cases of extra-uterine pregnancy as early as possible, but we often lose sight of the fact that the shock stops the hemorrhage. However, the hemorrhage is apt to recur on revival of the patient, and beginning of the recurrence would appear to be the ideal time for operation.

DR. G. H. COULTHARD, Idaho Falls: All these patients should be operated on as soon and as quickly as possible, clamps being used if necessary, and left on until it is safe to remove them.

DR. L. P. McCALLA, Boise: I do not wish to be misunderstood as to my position in the matter of time to operate. A reason for postponing operation is the frequent unpreparedness in these cases, with lack of proper hospital facilities and skill in operating. Personally, I operate in all cases, but I probably have better advantages than the physician who sees his case in the country. It is safer to wait for proper preparation than to undertake an operation like this under improper surroundings and without proper preparation.

DR. J. A. PETTIT, Portland: I always operate as soon as a patient can be removed to hospital, as I have found that the operation itself causes no shock. It is the hemorrhage that causes death. Tubes that bleed freely are easy to remove or tie off, as they are not bound down by adhesions, and we must remember too that shock does not always stop the hemorrhage. I know of no way of estimating the percentage of these patients who would recover without operation, and it is also so difficult to diagnose the presence of a decidua vera that it is hard to say what size it might become.

Diagnosis and Treatment of Certain Hip-Joint Diseases

DR. C. F. EIKENBARY, Spokane, read this paper.

DISCUSSION

DR. L. P. McCALLA, Boise: I am surprised to learn that many of these fractures occurred in younger people, as I have been of the impression that most of them were in old women.

Breaking up the adhesions under anesthesia is of great importance in securing a useful limb. I use the x-ray in these and all other fracture cases as a routine practice.

DR. E. VAN NOTE: I have obtained considerable assistance in determining the amount of tilting of the pelvis by placing a yard-stick or rule across the pelvis on the anterior superior spinous processes.

DR. W. R. DRYSDALE: We frequently are in doubt for some time as to whether or not a fracture is really present, and, in my opinion, such cases should be treated as fractures until we are sure of diagnosis.

DR. EIKENBARY: We should not depend too much on the x-ray findings, as they may lead to error. The length of time that hip-joint disease should be treated must necessarily differ in different cases, but it should usually cover a period of from 2 to 3 or more years.

Hygienic Laboratory for State Board of Health

DR. RALPH FALK, secretary of Idaho State Board of Health, read a report on the needs the state had for such a laboratory, and asked the association to endorse the board's petition to the legislature, asking for a sufficient appropriation to equip and maintain such a laboratory.

After considerable favorable comment on the advantages to be derived from such a laboratory, the association, on motion of Dr. E. W. Kleinman, endorsed the plan for a state hygienic laboratory and unanimously joined with the State Board of Health in asking the legislature to appropriate sufficient money for its maintenance in an efficient and practical manner.

INDIANA STATE MEDICAL ASSOCIATION

Annual Meeting, held at Fort Wayne, Sept. 18-30, 1910

(Continued from page 1759)

Rabies—History and Treatment

DRS. H. S. THURSTON and H. R. MCKINSTRY, Indianapolis: Rabies was known as far back as the time of Aristotle, and was described by Galen and Celsus. In Berlin, rabies was common prior to 1875. Since then a law has been enforced requiring the killing of dogs suspected of rabies, and the muzzling and leading of dogs when in public places. There have been no cases of rabies there since 1883. Previous to Pasteur's work, treatment was ineffective. The method I follow is Pasteur's with the Calmette modification. In my opinion, the muzzling of all dogs will prevent 90 per cent. of human rabies. As a result of the Pasteur treatment, in 26,000 patients treated in Paris from 1886 to 1901, less than 1 per cent. died from hydrophobia. A similar ratio is shown in New York and other places.

DISCUSSION

DR. J. P. SIMONDS, Indianapolis: Rabies or hydrophobia is, in many ways, one of the most peculiar diseases known. It is classed among the infectious diseases, but there is probably no other infection in which the incubation period is so variable, in which so few persons (probably not more than 10 per cent.) inoculated with the virus actually develop the disease, and which is so uniformly fatal when once the symptoms have appeared. Of recent work on this perplexing disease, that of Paltanuf is the most enlightening. He had the rare opportunity to perform autopsies on seven persons who had been bitten by rabid dogs, but died of some other cause. Four of these had not taken Pasteur treatment. Although they had shown no symptom of hydrophobia up to the time of their sudden deaths, their brains were proved to contain the rabie virus by the production of the disease in rabbits inoculated with them. The other three had taken Pasteur treatment and their brains were not virulent for rabbits. Paltanuf's conclusions were that in infected persons the virus usually reached the brain and cord only to be destroyed there, in nine cases out of ten, by the natural protective mechanism of the body. The institution of Pasteur treatment merely rendered this natural defensive mechanism more effective. It is now less

than ten years since Negri discovered certain granular "bodies" in the brain cells of infected animals, and thus made possible a quick and accurate diagnosis of this disease. There has been much dispute as to the real nature of these "Negri bodies," and at least four theories have been advanced to explain them. Negri and others believe that they are protozoa, belonging to the microsporidia, and that they are the immediate cause of the disease. They base this conclusion on the internal structure and staining properties of the bodies. The specificity of these bodies for rabies is now generally accepted. Pool collected the statistics from six European laboratories in which the microscopic examination of 550 dogs' brains had been controlled by animal inoculation. In 334, Negri bodies were found, and all the guinea-pigs inoculated with these brains developed rabies. In the remaining 206 cases, no Negri bodies were found, but eleven guinea-pigs injected with these brains developed the disease. Hence this general principle has come to be accepted as expressing the truth: The finding of Negri bodies in a brain may be accepted as positive proof that the animal had rabies, but failure to find them does not prove absolutely that the animal was free from the disease. During the last 4 years an extensive epidemic of rabies has existed in Indiana. At the Indiana State Laboratory during this time the brains of 376 animals have been examined, and of these, 213, or 56.6 per cent., showed positive evidence of rabies. This by no means represents the actual number of cases of the disease, for many animals known to have been infected die of the disease and their heads are not sent to the laboratory at all. Our method of diagnosis is as follows: Stained smears from Ammon's horn and the cerebellar cortex are examined for Negri bodies. If these are found the case is pronounced positive at once. If Negri bodies are not found and the dog has bitten some human being, a guinea-pig is injected subdurally with an emulsion of the brain. It has been only a very rare occurrence that the guinea-pig test has proved positive when no Negri bodies were found with the microscope.

It is impossible to measure accurately the amount of damage done in this state by rabid animals. Our records show that 165 persons have been bitten, but this probably does not represent half the actual number. The loss of live stock has been very great. A dairyman at Richmond lost fourteen fine milk cows as the result of the ravages of one dog. Similar stories of large individual loss have come from other parts of the state. Early this year there were indications that the epidemic was abating. But since May a large number of cases have developed in territory hitherto free from the disease. In the north central part of the state there is a newly infected district, including Howard, Carroll, Tippecanoe and Benton counties, the chief foci being about Kokomo and Lafayette. In the south central portion is another strip of recently infected territory, extending from Wayne county southwest through Fayette, Rush, Shelby and Decatur counties. At present the outlook for subsidence of the infection is not very promising.

DR. HELEN KNABE, Indianapolis: Those who have followed the work of the Indiana State Laboratory through the last five years, especially since 1906, will know that everything has been tried to eradicate this epidemic of rabies. In 1906, especially, the epidemic was widespread. Few portions of the state did not suffer damage on account of it.

Those who have stood, as I have, at the death-bed of a person dying from hydrophobia, will never forget it. Usually the greatest trouble is with the people who believe that every one's dog is liable to harbor the infection except their own. Occasionally a community will pass a muzzling order. Muzzling is the only way to stop the spread of this infection; but my experience has been that such laws are very imperfectly enforced, and that enforcement is not persisted in long enough to do any good. These sporadic efforts, however, are of no value. Any measure to be effective must be state wide. There must be no place where the dogs are not muzzled. Half our measures are worse than none at all, and only tend to bring into discredit the only method which brings any results if persisted in. If we would only muzzle every dog that is worth the cost of a muzzle, and destroy all the rest, we

could soon get rid of the infection; but at the end of a year or two, were we to relax our vigor, the infection would soon be carried all through the state again.

Fracture of the Patella

DR. PAUL J. BARCUS, Crawfordsville: Fractures of the patella constitute 1.4 per cent. of all fractures, and this bone is refractured more frequently than any other; 88 per cent. of these fractures occur in males, most frequently between the ages of 30 and 50. They are caused by direct violence, such as a gunshot wound or a fall or blow on the knee; or by indirect violence—muscular strain. The relative frequency of these causes is a matter on which there is the widest difference of opinion. The treatment is operative and non-operative. Non-operative treatment is limited to cases in which operative treatment is contra-indicated. The time of operation is a subject of debate. The tendency at present is to wait five or seven days after the injury before operating, in order to permit the joint to acquire a certain degree of immunity that follows a hemorrhage into the joint, and to permit swelling and immediate reaction in a measure to subside. In an ordinary case, if seen early, I can see no good reason for delaying operation beyond a few hours. Indeed, delay is an acknowledgment of lack of confidence in our surgical technic, and delay protracts convalescence the number of days delayed. The institution of passive motion at as early a date as possible, massage and careful use of the knee, are of the greatest importance in the after-care.

DISCUSSION

DR. H. R. ALLEN, Indianapolis: In repairing these cases it is important to run the purse-string suture close to the patella—to get as close to the bone as possible. If this is not done there will be limitation of motion.

Silk or linen sutures lubricated with petrolatum should never be used. They will not hold. Wire should be used. My preference is medium soft steel wire, polished bright and sterilized. The patient should lie flexed at the hips, in order to relax the tension of the extensor muscles. I do not use plaster of Paris; I prefer wire splints, because they are easily removed to permit inspection. In order to avoid adhesion, begin passive motion at the end of the first week. Begin flexion later on. Be sure by the time the fibroid structure is established that motion has been established; at the best you can do, not all of your cases will come out perfect.

(To be continued)

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

Sixtieth Annual Meeting, held at Pittsburg, Oct. 3-6, 1910

(Concluded from page 1758)

Oration on Surgery: Surgery, Past, Present and Future

DR. JOHN B. DEAYER, Philadelphia: If we pause at any moment to assess the present or gaze into the future, our safest guide is a knowledge of the past. Every race in every age has flattered itself that it was the true age of progress and believed that the like could never be seen again. The surest antidote to such complacency is to realize how often this has proved false in the past. The surgery of the past was notable chiefly for the establishment of a few underlying principles on which all our modern practice is based. For centuries men were content to have pus and even praised it if it were of that consistency and character which was thought proper. Then, as now, the object of the surgeon was to get his patient well, and he gave less thought to originating epoch-making innovations applicable to all surgery than to the individual problem presented by his patient. It was accordingly only after ages of groping among details that principles began to emerge. The period did not lack for men of boldness and ingenuity, but they suffered from a lack of these underlying essentials of successful surgery.

The present era of surgery dates from the discovery of anesthesia by Morton and the practical recognition by Lister of Pasteur's discoveries. The surgery of the present is remark-

able for the elaboration of method and technic and the rise of surgical pathology. With the introduction of new methods surgery found its main field in the body cavities, regions previously secure from entrance. Also operations for cancer and on the vascular system have been vastly improved. Abdominal surgery has been opened up as a new field. The surgery of the pylorus and the pancreas is being rapidly developed. Dyspepsia has been found to rest usually on an organic basis. The surgery of the pelvic organs and the genito-urinary tract has reached a plane of efficiency where it waits on improvement in diagnosis and early reference of patients. The surgery of the head has advanced *pari passu*; it responds to the same principle as in surgery elsewhere. The surgery of the thoracic cavity has lagged behind on account of the difficulties of practical application of surgical principles. This problem belongs to the future. The treatment of infections will be greatly aided in the future by serums and vaccination. As yet, the early application of the aseptic scalpel reigns supreme in the cure of tumors benign and malignant. Every tumor, especially of the breast, uterus or stomach, should be considered malignant until proved benign.

Pathology and Treatment of Acute Bone and Joint Infections

DR. J. B. MURPHY, Chicago: Ankylosis of joints occurs only where the bony surfaces come into contact. Therefore, in acute joint affections to prevent ankylosis extension should be put on. Tension must be relieved, not by incision, as that leads to obliteration of the cavity, but by aspiration. Following aspiration there is injected into the joint a 2 per cent. dilution of liquor formaldehydi in glycerin. In acute osteomyelitis in order to prevent destruction of the bone, it is essential to relieve pressure at once. This the physician can do with a knife and an ordinary gimlet. In case the bone is destroyed it can be restored by transplanting.

Acute Dilatation of the Stomach: Report of a Remarkable Case

DR. E. LAPLACE, Philadelphia: Acute dilatation of the stomach is very fatal, 63.5 per cent. of individuals so affected dying. It is not so rare as the literature leads us to believe. This is shown by the rapid increase in the number of cases reported, since the subject has become better known. The stomach tube is the immediate remedy. When, however, the condition is more accentuated, a large gastro-enterostomy should be performed to drain the stomach effectually and permanently. The rarity of this condition should be no excuse for our overlooking its possible existence in a given case, for an early diagnosis, followed by washing out the stomach, might prevent a condition which otherwise would prove fatal in a few hours.

Chronic Gastroduodenal Dilatation

DR. G. P. MÜLLER, Philadelphia: The etiology of post-operative dilatation of the stomach is still obscure; dilatation of the stomach being considered by some as primary and by others as secondary to compression or kinking of the duodenum. The chronic type has been reported in only a few instances, but may have a similar etiology.

Discussion on Dilatation of the Stomach

DR. JOHN H. MESSER, Philadelphia: The only case of dilatation of the stomach I have seen was one that appeared to be due to defective innervation. I have been on the lookout for gastroduodenal dilatation, but I must confess that I cannot during life make the diagnosis of the condition.

Diffuse and General Peritonitis

DR. JOHN J. BUCHANAN, Pittsburg: The best treatment of peritonitis is its prevention. The bulk of cases are usually the result of perforative appendicitis and can be prevented by removal of the appendix within a few hours or a day of access of the first pains. Purgation is the most deadly medication that can be employed in acute appendicitis or diffuse peritonitis. Immediate operation, or at least during the first twenty-four hours, dry mopping and closure of abdomen with-

out drainage can be relied on to effect a cure in almost every case of free, diffuse or spreading peritonitis from perforative appendicitis. Treatment by irrigation is disseminative of septic products and should not be employed. Even the earliest operations cannot yet be relied on to check the spread of peritonitis from perforated gastric ulcer, and in these cases the delay of a few hours may mean death for the patient.

DR. J. B. MURPHY, Chicago: I have had sixty-four consecutive cases of perforative peritonitis with sixty-two recoveries. This does not include the appendiceal abscesses or appendicitis cases with large quantities of pus that did not communicate directly from the alimentary tract into the free peritoneal cavity. I feel that we as a profession must come up to the standard that all cases of appendiceal peritonitis with the exception of 1 per cent. of primary perforations are avoidable. The diagnosis can and should be made before the perforation.

Diagnosis of Duodenal Ulcer: Indications for Operative Intervention

DR. J. H. GIBSON, Philadelphia: The pain of duodenal ulcer comes on in from two to four hours after ingestion of food and is apt to keep up until the next meal is taken. The pain is a steady ache and may be referred to the back or right mammary region, and is accompanied by a sense of fullness in the upper abdomen. The pain is also relieved somewhat by eructations of gas, vomiting, lavage and alkalies. The pain will last from a few days to a few weeks with an interval of comfort. Blood in the vomitus or stools is a late symptom and diagnosis should be made before this occurs. Gastric analysis is of very little value. Every patient with chronic duodenal ulcer should be subjected to surgical treatment. In early cases a cure may be obtained by medical treatment. No operation should be done on the gastro-intestinal tract for ulcer unless ulcer can be plainly demonstrated.

The Indications and Technic of Partial Gastrectomy

DR. C. H. FRAZIER, Philadelphia: The resort to gastrojejunostomy in all cases is undesirable. This operation is suitable for ulcers of the pylorus when causing obstructive symptoms. Prepyloric ulcer and saddle-back ulcer not causing obstruction should be removed by resecting the pyloric portion of the stomach. Ulcers far distant from the pylorus, as in the fundus, should be removed by partial excision. In the development of the radical operation for carcinoma of the pyloric portion of the stomach, too little attention is paid to the topographic anatomy of the lymph nodes. Operation to be radical should include removal of the six primary lymph chains, namely, the suprapyloric, inferior coronary, right paracardial, gastro-epiploic, subpyloric or retropyloric and the suprapancreatic. The retropyloric ulcers are the most frequently overlooked and the suprapancreatic are the most difficult to remove.

Delayed vs. Immediate Operation for Extruterine Pregnancy

DR. C. A. STILLWAGEN, Pittsburg: Hemorrhage and shock in terminated ectopic pregnancy are rarely severe enough to cause death. In cases in which hemorrhage is severe and persistent, death not infrequently results before operative treatment can be instituted. Patients who survive the initial hemorrhage, but are profoundly shocked and anemic, can be more safely treated by delaying operation until the condition improves, than by immediate laparotomy. Operation should be performed as soon as possible after termination of ectopic pregnancy, provided it can be done with safety to the patient. In selecting the time, every surgeon will, of course, use his own judgment, but he must show a low mortality in order to justify any given plan of procedure.

Surgery as a Prophylactic Measure Against Intestinal Complications in Typhoid

DR. L. J. HAMMOND, Philadelphia: When, during the course of typhoid, there is reasonable certainty of the existence of bands or adhesions especially affecting the functions of the intestinal tract at any of its flexures and sufficient to pro-

duce severe abdominal symptoms, exploratory laparotomy should be done with a view to removal of mechanical barriers to intestinal activity which favor ulcerative processes going to perforation.

DISCUSSION

DR. G. L. HAYS, Pittsburg: In my experience in about fifty cases of operation for complications of typhoid none have shown any preperforative signs. While it is possible, I doubt if these signs are very frequent. Of course, if we can prevent this condition by any kind of operation, I think it would be a very good thing to do, but I do not believe that we will ever be able to perform an operation which will completely eradicate these conditions.

Relative Value of the Various Methods for the Determination of Kidney Sufficiency

DR. B. A. THOMAS, Philadelphia: The most accurate and dependable test for determination of renal function is that by quantitative metabolic study, but such study is usually impossible. Any test dependent on synchronous catheterization of the two ureters has a limited field of application. The cystoscope, together with one of the anilin dye tests, notably indigo carmin, affords the most practicable means of kidney diagnosis.

Results of Gall-Stones

DR. J. A. MCGLINN, Philadelphia: In eight out of eleven cases of cancer of the bile ducts stones were present. In a series of autopsy records of gall-stone cases various related lesions were noted. While it cannot be said that all these lesions were due to gall-stones, many undoubtedly were. These lesions can be prevented only by early operation in gall-stone cases.

The Pelvic Fascia and the Operation for Cystocele

DR. R. E. BRENNEMAN, Pittsburg: The bladder and anterior vaginal wall are attached to the white line which gives rise to the levator ani, and by cutting these attachments, a cystocele is produced by downward pressure. These protrusions of the anterior vaginal wall, either lateral, bilateral, complete or partial, must be considered true hernias and are produced by a variety of causes. These are repaired by restoring the normal anatomy so far as possible. This is best done by the method of White of Savannah, which I have used in several cases with success.

Cecostomy vs. Appendicostomy for Colonic Irrigation

DR. W. M. BEACH, Pittsburg: The comparative safety of cecostomy is apparent. Cecostomy or appendicostomy should always be considered as an adjuvant to medical measures to be invoked in order to treat local conditions locally. It should be considered a legitimate treatment of toxemias of intestinal origin, amebic dysentery, obstinate colitis and constipation, tuberculosis and syphilis, and it is believed to be justified as an adjuvant to medical measures in anemia, intussusception and typhoid. It is of value in acute septic peritonitis, in order that ice may be applied both internally and externally.

Oration on Obstetrics: A Plea for the More Intelligent Care of the Pregnant and Lying-in Woman

DR. H. F. TOMB, Johnstown: Let us endeavor to have every one of these patients under the guidance of a physician from the very beginning of pregnancy. Let us make an effort to obtain better nursing and by procuring the better care and nursing get rid of the midwife and her class. Let us give to our labor cases more time and care, both during labor and the puerperium, and never discharge a patient of this kind until we have made a thorough examination.

SYMPOSIUM ON GONORRHEA

Prophylaxis of Gonorrhoea

DR. M. F. BATES, U. S. N.: In the Navy general preventive measures, such as mental and physical exercises and diversions and instruction by lectures and leaflets, have been employed to the fullest extent. Prophylactic treatment after exposure has been used in the last few years with excellent results. If

administered within eight hours of exposure protection is almost certain, but even after forty-eight hours it is sometimes of value.

Abortive Treatment of Gonorrhoea

DR. MACY BROOKS, Philadelphia: Gonorrhoea cured within two or three weeks is to be considered aborted. Abortive treatment is seldom effective later than when the discharge is just becoming mucopurulent, and there is at most a slight burning on urination. Injections too strong or too frequent are harmful. A daily injection by the surgeon is sufficient. Should abortive treatment fail, treatment can be continued as in the usual case.

Treatment of Acute Gonorrhoea

DR. W. F. DONALDSON, Pittsburg: When acute gonorrhoea is recognized and treated more as a pathologic condition and less as a social disease, it will take its place among curable diseases and not rank among the leading disseminators of death and destruction. If it be true that acute gonorrhoea is curable, it is time that we cease to be alarmists and rather educate the public that the unfortunate individual with acute gonorrhoea may with early intelligent and diligent treatment be cured. I would urge physicians to deal with patients infected with acute gonorrhoea in such a sympathetic and dignified manner that in the course of time all such sufferers will early seek medical advice and follow it until a cure has been effected.

Diagnosis and Treatment of Chronic Gonorrhoea

DR. T. L. DISQUE, Pittsburg: For the diagnosis of chronic urethritis it is necessary to determine the character of the discharge, make a microscopic examination of the discharge, investigate the urine and make a careful local examination of the urethra itself. In the treatment disinfection by lavage with potassium permanganate is carried out until the discharge is stopped; this procedure is then followed by instillations of silver nitrate. If there is infiltration of the submucosa, dilatation and massage must be practiced. Of internal remedies, the balsams and disinfectants are of value when the urine is turbid and the diluents when there is concentration and acidity.

Discussion on Gonorrhoea

DR. H. M. CHRISTIAN, Philadelphia: In the early stages of gonorrhoea in local treatment, I believe that there is nothing better than the use of permanganate of potassium, though I do not believe that it will ever cure a case of gonorrhoea. To cure a case of gonorrhoea something is required that acts on the mucous membrane of the urethra like an astringent. I agree with what Dr. Brooks said of the abortive treatment. I feel that all chronic gonorrhoea is found in the prostate. I am coming to leave the anterior urethra almost out of the question, unless there is present in the anterior urethra a stricture or some other involvement, but I believe that in 75 or 80 per cent. of chronic urethral discharge there is prostatic involvement.

DR. S. W. MOORHEAD, Philadelphia: I have reluctantly come to the conclusion that the microscopic examination is in itself insufficient to demonstrate whether or not gonococci are present in a discharge and that recourse should be had to cultures. This necessitates a large amount of laboratory work and equipment, but it is a work which ought to be done and which I believe will have to be done in very many cases.

DR. W. C. BRYANT, Pittsburg: I think we make the mistake sometimes of being over-zealous in treatment. There is no doubt that acute inflammation is a beneficent process and while it may not last very long there is a time in treating some cases of gonorrhoea, at least, when the urethra is better left alone. Permanganate of potassium should never be in stronger solution than 1/5,000.

DR. T. L. DISQUE, Pittsburg: What Dr. Christian has said in regard to the rôle of the prostate is well taken. While the prostate is a marked feature in the prolongation of chronic urethritis and probably the greatest hiding place of the gonococci, it is not the only one and we should not neglect other portions of the urethra or the genital tract.

Clinical Results Following the Use of Vaccines and Serums in Treatment of Gonorrhoea and its Complications

DR. W. H. MACKINNEY, Philadelphia: The bacterial vaccines have not demonstrated their value in the treatment of acute or chronic gonorrhoea or its acute complications. In metastatic infections, chiefly arthritis, they have given good results in a few cases but the results cannot be compared to those obtained from the serum. In the treatment of metastatic gonorrhoea both the serum and the vaccine are of considerable value though they are not specifics.

The Question of Marriage Following Gonorrhoea

DR. GEORGE A. HOLLIDAY, Pittsburg: Gonorrhoea is the married woman's most common disease. The double standard of morality must be frowned on. The girls should be taught that venereal infection will ruin her health and, therefore, that she must demand a clean bill of health from her prospective husband. Most of the sterility in women is due to gonorrhoea and 50 per cent. of infected women are sterile. Men should be instructed in prophylaxis. Physicians are responsible for a large percentage of innocently infected wives because they do not thoroughly treat gonorrhoea and its complications in the male.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below

Boston Medical and Surgical Journal

November 2

- 1 Etiology of Cholecystic Gall-Stones. W. I. Clark, Worcester, Mass.
- 2 A Fallacy in Psychotherapy. J. E. Donley, Providence, R. I.
- 3 Spontaneous Dislocation of the Hip-Joint Following Acute Infectious Diseases. C. G. Cunston, Boston.
- 4 *Technic of Arthrotoomy. C. F. Painter and A. P. Cornwall, Boston.
- 5 Stomach Diseases from a Medical Standpoint. G. A. McEvoy, Boston.

4. **Technic of Arthrotoomy.** Among the series of thirty excisions reported by Painter and Cornwall were one case of chondroma, three of infantile paralysis and two of infectious arthritis; one of these was a polyarthritis. There was one death attributable directly to the operation, that being in the case of infectious polyarthritis. There were three infected joints, but no serious consequences resulted. Convalescence was not even retarded by it in any case. There was one other case in which there was a stitch abscess. Twenty-four of the excisions were for tuberculosis. Two of these patients died some months after the operation, one from miliary tuberculosis and one from phthisis. One patient had a partial excision, one femoral and the corresponding tibial condyle; she secured a good degree of motion in the joint, and after having an osteotomy to correct her knock-knee, she had a very serviceable articulation. Two patients already referred to had secondary excisions. Only one was lost sight of before union was complete. Only one did not have satisfactory position. In three only of these cases were metal sutures used; in two of these they were removed, and in one there was slight necrosis about the stitch. One patient still has the wire in place.

A small series of excisions follow. Most of these were performed for tuberculous disease. The technic of getting at the interior of the joint is not in any way dissimilar from the technic used in the excision operation. The operation is not, in the author's opinion, to be compared in its beneficial effects with the operation of excision. Whether it be accomplished by sawing through the patella and flexing the knee, or by dividing the patellar tendon and reflecting back the patella, thus exposing the quadriceps pouch, the convalescence is protracted to such an extent by the union of the bone or the tendon (whichever method is employed) that there is very little likelihood of obtaining enough motion to justify the operation in such an articulation as the knee. In other joints it might be used in selected cases, but seldom in the knee. The diffi-

culty is not in securing a pathologic cure, but in procuring enough function to justify the operation. One of the things that has been brought out from a study of these cases and the excisions is that tuberculosis in the knee, at any rate, starts very much more frequently than has generally been supposed from the synovial membrane, and is likely to invade the cartilage and bones if a tuberculous synovial pannus be allowed to lie too long in contact with such structures. In certain selected cases erosion and the procurement of a pathologic cure, even though very little motion should be secured, the patient might be subjected later to an arthroplasty to secure motion. Several of these patients have had 20 degrees of motion for a year or so after the operation, but have gradually lost it and have been a great deal better off when ankylosis had taken place.

Medical Record, New York

November 5

- 6 The Ehrlich-Hata "606." J. B. Stein, New York.
- 7 Custodianship of the Watch and Bible of Dr. Benjamin Rush. R. Abbe, New York.
- 8 Complete Subparietal Rupture of the Kidney. H. G. Bugbee, New York.
- 9 Nonentity of Acute Dilatation of the Stomach. G. E. Barnes, Herkimer, N. Y.
- 10 Tetanus Following Vaccination. C. D. Scott, St. Louis.
- 11 Asthma and the Lung Reflexes of Abrams. A. Abrams, San Francisco.

New York Medical Journal

November 5

- 12 Use of the Ehrlich-Hata "606" in Syphilis. J. A. Fordyce, New York.
- 13 Vital Statistics in the Promotion of Public Health. W. H. Guilfooy, New York.
- 14 Tuberculosis of Bones and Joints. E. M. Brown, Chicago.
- 15 Diagnosis and Treatment of Tuberculous Joints. P. P. Swett, Hartford, Conn.
- 16 Rational Basis for the Treatment of Narcotic Drug Addiction. G. E. Pettey, Memphis, Tenn.
- 17 The Kind of Inebriate Who Needs State Care and the Kind Who Needs the Private Sanatorium. C. C. Wholey, Pittsburgh, Pa.
- 18 Tissue Cell Evolution. I. L. Nascher, New York.
- 19 Modern Neurology of Spiritualism and Possession. T. A. Williams, Washington, D. C.
- 20 A Blood-Pressure Record. A. K. Sallom, Philadelphia.
- 21 Cerebrospinal Fluid in Acute Anterior Poliomyelitis. W. H. Hough and G. R. Lafora, Washington, D. C.

Lancet-Clinic, Cincinnati

November 5

- 22 Conclusive Researches in Medicine as Seen Through the Eyes of a General Practitioner. A. A. Arthur, Marshfield, Mass.
- 23 What Should the Public Do With and For the Tuberculous? C. A. Hough, Lebanon, Ohio.
- 24 Symptoms of Exophthalmic Goiter. H. L. Woodward, Cincinnati.
- 25 Surgical Treatment of Exophthalmic Goiter. W. D. Haines, Cincinnati.
- 26 Ocular Symptoms of Exophthalmic Goiter. V. Ray, Cincinnati.

Cleveland Medical Journal

October

- 27 Senescence and Natural Death. W. T. Howard, Cleveland.
- 28 *Sacro-Iliac Strains. G. N. Morrill, Cleveland.
- 29 Surgical Aspect of Tuberculous Cervical Lymph Nodes in Children. A. F. House, Cleveland.
- 30 Chronic Lead Poisoning as a Diagnostic Factor in Appendicitis. I. I. Yoder, Cleveland.
- 31 Exophoria, with Reference to Its Causes, Reflex Disturbances and Treatment. E. Lauder, Cleveland.
- 32 Pasteur Contribution to Preventive Medicine and Bacterial Invasion. R. J. Cary, Cleveland.
- 33 Pellagra. C. A. King, Newark, Ohio.
- 34 Parasitology and Pathogenesis of Syphilis. O. T. Schultz, Cleveland.

28. **Sacro-Iliac Strains.**—In a greater number of the acute strains of the sacro-iliac joints, Morrill found that only one side is affected, and that by pressure one can generally tell which it is. The motions of the body are more or less guarded, depending on the severity of the case, especially those motions that bring any strain on the injured joint. Thus, in forward bending, the patient will lean slightly toward the opposite side, thus removing any strain from the injured side, and lateral bending is also restricted in the lower portion of the spine in leaning toward the well side, while toward the injured side it is included in the general curve. This is caused by the spasm of the erector spine muscles on the affected side. In backward bending the entire trunk is often held rigid, and it may be impossible for the patient to regain an upright position. Often in severe cases the greater part

of the body weight is thrown on the sound side and one may find a marked curve in the lower spine, with perhaps a compensatory one higher up, caused by the tilting of the pelvis laterally to relieve the injured joint. In these cases the hip on the affected side is the more prominent, and the leg seems longer, the patient standing with the knee bent. With the normal individual it is possible, with the patient either seated or lying down with the knee extended, to raise the leg to a right angle; but in sacro-iliac injuries this motion is limited on the affected side. The most common causes for acute strains are said to be in rising suddenly from a stooping position while lifting a heavy object, or in suddenly putting the entire weight on one leg before the muscles holding the sacro-iliac joints have had time to contract; as in stepping into a hole or slipping when lifting anything. In these cases there may be a partial dislocation, which may or may not reduce itself. With the female this is much more apt to occur during the menstrual period, as at these times the sacro-iliac joints naturally loosen. These joints account for the sciatica that is so often noticed in pregnant women, and a great improvement usually follows the application of a properly fitting apparatus which holds the joints together and yet does not press on the abdominal wall. Most chronic cases are due to unreduced dislocations or to a bad poise of the body either natural to the individual or assumed; good examples of the latter are found in severe cases of painful flatfoot. In the acute cases an adhesive plaster strapping is applied to the back, to hold the joints together until a properly fitting belt can be made. This is done to rest the muscles and to aid them in regaining their normal strength. Later, certain exercises are necessary. If in the severe cases the treatment does not relieve the patient, the joint should be carefully manipulated; this usually requires ether, as nitrous oxid does not entirely relax the muscles. A plaster jacket is then put on, great care being taken to obtain the normal lordosis and to fit the jacket sufficiently to the pelvis so that the joint will not slip out. Sometimes nothing is accomplished at the first manipulation except the stretching of the adhesions. Often it will be found necessary to apply a light spring back brace, after the plaster jacket is removed, to assure oneself that the trouble will not return again from bad posture, and also to retain the normal lordosis until the patient learns to stand properly. There is one important thing that Morrill calls attention to, namely, that ordinarily when a patient is placed on an operating table under an anesthetic no provision is made to maintain the normal curves of the spine. When the muscles are relaxed these curves are lost, and with the legs extended or perhaps tied down, the psoas and iliacus must stretch. Now, if a small pillow is placed under the lumbar spine and a larger one beneath the knees this cannot happen. The surgeon has this advantage: if this is followed out, the abdominal muscles are lax and therefore can be retracted more easily and the pelvic organs are more nearly in their normal positions. The pelvis is, of course, slightly deeper, but the patient will not have the troublesome backache with perhaps sciatica, that so often causes suffering after an operation.

Journal of the Indiana State Medical Association, Fort Wayne

October 15

- 35 Advancing Standards in Medical Practice. T. C. Kennedy, Indianapolis.
- 36 Carcinoma of the Frontal Sinus. G. W. Spohn, Elkhart.
- 37 The Man at Your Elbow. H. Miller, Marion.
- 38 Sketches of the Medical History of Indiana. G. W. H. Kemper, Muncie.
- 39 The Nature of Insanity. G. Rowland, Covington.
- 40 Mental Defects of Children, and Their Prevention. P. Woolery, Heltonville.
- 41 The Secretary of the County Medical Society. C. N. Howard, Warsaw.

Bulletin of the Manila Medical Society

September

- 42 *Multiple Neuritis of Fowls Due to Inanition. E. D. Kilbourne, U. S. Army.
- 43 *Tuberculosis of Infants and Children in the Philippines. A. G. Slson, Manila.
- 44 Etiology of Beriberi in Nursing Infants. M. S. Guerrero, Manila.
- 45 Unbilical Tetanus. L. Shapiro, Manila.
- 46 Prevalence of Respiratory Affections Among Filipino Children. R. Parfsh, Manila.

42. **Multiple Neuritis of Fowls.**—In one of Kilbourne's experiments a fowl, fed on a reduced amount of neuritis-preventing, undermilled rice, died with signs and symptoms of neuritis. And microscopic examination showed degeneration of its nerves. From the signs and symptoms exhibited, Kilbourne believes that another fowl, as a result of starvation for twenty-three days, developed multiple neuritis. This fowl was chloroformed and its nerves examined after standing in osmic acid and teasing in glycerin. Degeneration was found. Spasticity, Kilbourne says, is a late development of neuritis in fowls. He is now conducting further experiments with a larger series of birds.

43. **Tuberculosis of Infants and Children.**—According to statistics taken from the last annual report of the Bureau of Health of the Philippine Islands, the total mortality of infants, from birth to 1 year old, in Manila, caused by miscellaneous diseases was 4,090. Thirty-nine of these died of tuberculosis, distributed as follows: seventeen died of pulmonary tuberculosis; three of tuberculous peritonitis and nineteen of tuberculous meningitis. Of the 4,090, 764 died of infantile beriberi, and 199 of gastro-intestinal diseases. The total mortality of children from 1 year to 5 years old for the same fiscal year of 1910, is 1,194. Of this number, 114 died of tuberculosis in its different manifestations, and 157 of gastro-intestinal diseases. From the above figures Sison obtains the following percentage of mortality: Death from tuberculosis in infants 0 days to 1 year old is 0.95 per cent.; and for children of 1 year to 5 years old is 9.50 per cent.; in other words, the mortality from tuberculosis in children is ten times greater than it is in infants. He says that the incidence of tuberculosis in children cannot be estimated properly from the aforesaid figures, because they represent only those who died directly from the disease, and do not include those tuberculous infants who died from some intercurrent illness. The most important factors responsible for such widespread tuberculosis in children are, in Sison's opinion: 1. Relatively, there are more persons in this country affected with tuberculosis than anywhere else, as is shown by the statistics taken in the dispensary of the Philippine Medical School. Over one-third of the patients who apply for treatment in this dispensary are suffering from tuberculosis. This wide distribution of the disease is of itself an important factor in increasing the liability of our infants and children to acquire the infection. 2. The *modus vivendi* of the lower class is exceedingly favorable to the spread of the infection. 3. The general frequency of congenital debility in children born from tuberculous parents, and the well-known inherited predisposition to tuberculosis transmitted from the parents to their offspring, are factors that answer for the ease with which the disease is propagated to infants and children. 4. Many debilitating diseases such as gastritis, gastro-enteritis, ileocolitis, produced either by errors in diet or by infections, specially common here, undermine the vital resistance of infants and children previously healthy and naturally strong, and make their organism a well-fertilized soil to receive the germ of the disease. 5. The careless and obnoxious habit of many, but particularly of the ignorant class, of spitting anywhere in the house is another source of many of the infections in children.

Ophthalmic Record, Chicago

October

- 47 Etiology, Prevention, Treatment and Cure of Trachoma. F. B. Eaton, Portland, Ore.

Monthly Cyclopedia and Medical Bulletin, Philadelphia

October

- 48 Colica Mucosa and Its Treatment. J. A. Storck, New Orleans.
49 Points in Bacterial Therapy. F. E. Stewart, Germantown, Pa.
50 Immediate and After Management of the Puerperal Woman. J. Shoup, Washington, D. C.

Journal Experimental Medicine, Lancaster, Pa.

November

- 51 *Compensatory Hyperplasia of the Intima. O. Klotz, Pittsburg, Pa.
52 *The Noguchi Modification of the Wassermann Complement Fixation Test in Diagnosis of Syphilis in the Military Service. C. F. Craig, U. S. Army.

- 53 *Distribution of Fat in the Liver. J. McCrae and O. Klotz, Montreal.

- 54 Action of Salts on the Catalase of the Blood in Rabbits. M. C. Winternitz and W. B. Rogers, Baltimore.

51. **Compensatory Hyperplasia of the Intima.**—Klotz conducted an elaborate series of experiments for the purpose of determining the exact nature of compensatory hypertrophy of the intima. He agrees with Jores and others that not one but many factors may be at work leading to intimal hyperplasia. Among these factors are mentioned infection, bacterial toxins, organic poisons, inflammation and increased arterial tension. The theory of Thoma that the connective tissue developed in the intima is compensatory, Klotz does not sustain. From the evidence which he has at hand, he says that it is not possible to state that the proliferative changes in the intima are uniformly secondary to the weakening of the media. Common influences may act simultaneously on the media and the intima. Progressive medial degeneration of the peripheral arteries (Moenekeberg's sclerosis) he regards as the result of muscle fatigue coupled with nutritional disturbance.

52. **Diagnosis of Syphilis in the Military Service.**—In the majority of cases examined by Craig in the laboratory of the office of the Surgeon-General, the result of the Wassermann test was simply confirmatory of the clinical findings. There were, however, numerous suspicious cases, or cases in which symptoms were present and the patient denied a specific history, in which the test was of the greatest value, and it is in such instances, perhaps, that it may be regarded as "the court of last resort" in arriving at a conclusion regarding the nature of the condition present. Certainly if there is any value in experience and statistics, we are justified in regarding this test as the most valuable means we possess of diagnosing lues, and our experience with the Noguchi modification of the test has justified all that has been claimed for that method. Craig believes that his results have proved that by the use of the complement-fixation test in the military service it is possible to prevent the enlistment of men suffering from latent lues who would otherwise be enlisted; to control specific treatment by using it as index of the efficiency of such treatment; to clear up the diagnosis of obscure or suspicious cases; and to enable the surgeon to avoid mistakes in discharges for disability in cases suspected of this disease. Owing to the facilities with which clinical observations can be made in armies, and the control that is possible of tested individuals, Craig hopes that the Noguchi modification of the complement-fixation test will be more widely used than it has been in the military services, for which he believes it is especially adapted. So far as Craig is aware, the Medical Department of the United States Army is the first to adopt this test as a routine diagnostic procedure and to apply it in the case of applicants for enlistment.

53. **Distribution of Fat in the Liver.**—The authors have endeavored in the work on which this paper is based to obtain some information relative to the fat which appears in the liver at death, as well as its nature and distribution. Fat which can be stained and recognized as such appears in a large percentage of all cases, irrespective of age; in the 100 cases comprised in this series, ninety-eight showed a recognizable amount of it; of twenty successive cases taken from the autopsy series, all showed it. In 100 cases, fourteen times fat was present in extreme amount, a condition certainly pathologic, for in thirteen of these when mention was made of the point, the macroscopic appearance was abnormal; thirty-two times it was considerable in quantity, which condition is probably pathologic, for it is attended by an undue friability of the organ; often, too, the lobules are much less distinct than in the normal liver. In fifty-two cases the fat was slight in amount, and twice it could not be demonstrated. These fifty-four cases are open to the interpretation that the fat is merely the expression of low vitality of the cell which is in some way prevented from carrying out completely its metabolism. The authors distinguish four types of fatty deposits in the lobules of the liver: (1) fat deposits in which globules alone are present in the lobules; (2) fat deposits in which granules alone are present; (3) fat deposits in which granules and

globules are found in the same lobule; (4) fat deposits in which globules and granules are found in the same cell. They suppose that granules indicate the (protoplasmic) change commonly spoken of as fatty degeneration, and that globules of small size are excess of fat, stored up by reason of some pathologic change which may be merely temporary. Fat is oftenest central, least often in the mid-zone. A heavy deposit of fat is compatible with a competent liver. Intense fattiness, generally globular, occurs with intoxications of bacterial and chemical nature, as well as in cases in which a complex toxin is manufactured by the body cells. Granular fat occurs oftener than globular; it affects most often the central zone; globular affects most often the peripheral. "Accidental" masses of globular fat are found at times, and appear to follow no rule of position: these are comparable to lipomata, which are evidently the result of a pathologic process. The authors found no deposit of fat characteristic of uremia. The authors know of no analysis of the liver fats in the granular and globular states, respectively; it seems to have been taken for granted that the deposits were one and the same.

Mississippi Medical Monthly, Vicksburg

November

- 55 Etiology and Early Diagnosis of Syphilis. J. M. Acker, Aberdeen.
56 The County Society. W. Locke, Carriere.
57 Gonorrhoea in the Male. T. G. Hughes, Clarksdale.
58 Ergot. F. E. Lee, Aberdeen.

Journal of the Tennessee State Medical Association, Nashville

October

- 59 *Diagnosis of Retroperitoneal Enlargements. W. H. Allport, Chicago.
60 Home Treatment of Tuberculosis. D. L. Wilder, Knoxville.
61 *The Nervous Unfit. S. S. Crockett, Nashville.

59. This article appeared in THE JOURNAL, June 18, 1910.

61. Abstracted in THE JOURNAL, May 7, 1910, p. 1572.

Military Surgeon, Washington, D. C.

November

- 62 Medical Notes from the Recent Nicaraguan Campaign. W. S. Pugh, Jr., and D. G. Sutton, U. S. Navy.
63 Prevention of Disease in the Army. F. Smith.
64 Experience of the German Army with Defectives and the Simple-Minded. R. L. Richards, U. S. Army.
65 Suggested Reorganization of the United States Naval Medical and Hospital Corps. R. R. Richardson, U. S. Navy.
66 Report of the Board for the Study of Tropical Diseases in the Philippine Islands. W. P. Chamberlain, H. D. Bloomer and E. D. Kilbourne, U. S. Army.
67 Hospitals in the Field. J. J. Boaz, Medical Corps, Indiana.
68 A Portable Mosquito-Proof Room. E. B. Vedder, U. S. Army.
69 Modified Caldwell Kitchen Incinerator for Field Use. R. C. Patterson, U. S. Army.
70 *Abdominal Diphtheria. F. Schmitter, U. S. Army.

70. **Abdominal Diphtheria.**—The patient entered the hospital complaining of abdominal pain. When seen, he was vomiting bile-stained fluid. Examination showed both recti muscles rigid and contracting spasmodically and equally on both sides. There was tenderness all over the abdomen, but slightly more localized in the epigastrium. The source of the trouble could not be localized in any definite organ. Temperature and pulse were normal, yet the patient was very much prostrated. Leukocytes numbered 14,000. The second day the temperature and pulse were slightly elevated. Prostration and biliary vomiting continued. Pain became slightly more localized in the epigastrium. A suspicion of diphtheria was aroused by the low fever and prostration resembling that of several other diphtheria patients in the hospital at the same time. Patient's throat examination was negative clinically, but Schmitter had found diphtheria organisms in the throats of several persons of normal appearance. Hence cultures were made from the throat of this man. On the third day, a twelve-hour culture showed abundant diphtheria organisms. Bowels, which were very constipated, were moved with calomel and enema. The movements had the foul odor characteristic of diphtheria. Antitoxin was prescribed, 4,000 units every six hours. On the fourth day the patient was improved; mind was clearer, and he had less pain. There was also decreased rigidity of the recti. By the eleventh day all symptoms had gone. Culture from throat still showed diphtheria organisms.

St. Paul Medical Journal

November

- 71 Cosmetic Surgery of the Nose. H. A. Beaudoux, St. Paul.
72 Examination of the Surgical Kidney. W. F. Braasch, Rochester, Minn.
73 Necessity of Institutional Care for the Tuberculous. E. L. Touhy, Duluth.

Laryngoscope, St. Louis

October

- 74 *Inflammation of the Sinus Maxillaris with Special Reference to Empyema: The Surgical Pathology, Diagnosis and Treatment. J. P. Tunis, Philadelphia.
75 *Primary Intralaryngeal Actinomycosis. H. Arrowsmith, Brooklyn, N. Y.
76 Hemilaryngectomy for Epithelioma. T. P. Berens.
77 *Unusual Foreign Body in Right Bronchus Removed by Lower Bronchoscopy. C. W. Richardson, Washington, D. C.
78 Labyrinthine Disease Following Chronic Suppuration (Cholesteatoma). N. H. Pierce, Chicago.
79 Erysipelas as a Complication of Mastoid Disease. G. L. Richards, Fall River, Mass.
80 Etiology, Pathology, Symptoms and Diagnosis of Phlebitis and Thrombosis of the Blood-Vessels when Complicating Purulent Otitis Media. W. C. Phillips, New York.
81 Abscess of the Left Temporoparietal Lobe. A. O. Pfingst, Louisville.

74. **Maxillary Sinus.**—In an examination of 100 heads in the necropsy room, Tunis found that 37 per cent. showed some evidence of pathologic changes in the maxillary antra. Of these thirty-seven cases, eleven were examples of edema; twelve were examples of chronic inflammation or empyema; one was an example of an alveolar or dental cyst, and thirteen were examples of retention cyst. With one or two exceptions, all of these cases were undiagnosed during life. The presence of a large amount of pus in ten out of twelve of these cases of empyema, Tunis thinks, may have played an active part in causing the death of the patients. In this series there was no particular disease with which inflammatory conditions of the antra were associated. The cause of death in twenty-one of these 100 cases was tuberculosis, either of the respiratory or intestinal tract. Nevertheless, there was only one example of a tuberculous condition of the antral mucous membrane. All the cases of retention cyst were associated with a mild form of chronic atrophic catarrh, while several of the cases showed under the microscope a combination of a severe chronic inflammation and retention cyst. In the author's opinion the importance of antral inflammation as a factor in causing such diseases as inflammatory rheumatism, hay-fever, asthma and pneumonia is frequently overlooked.

75. **Intralaryngeal Actinomycosis.**—The patient in this case, aged 19, a shoe-stainer by occupation, at home had lived on a farm and worked among horses and cattle. His family history was entirely negative, as was also his previous personal history. He first noticed a slight hoarseness, which gradually increased until he could speak only in a whisper; it was for this symptom alone that he sought relief. There was at times a slight "stinging" in the throat, which had never been more than disagreeable. There had been a slight cough and some dyspnea on exertion. His only antecedent nose and throat symptoms had been an occasional trilling epistaxis from the right nostril. Examination of the thorax was negative; the sputum was negative and the urine showed no deviation from the normal; temperature was normal; weight was 119 pounds; general appearance was good. The nose, pharynx and tonsils were absolutely normal and the teeth were in excellent condition and well cared for. The epiglottis was slightly thickened, and to the right of the median line, on the laryngeal surface, there was a small, whitish deposit. In the region of both true cords and completely covering and concealing them, were irregular masses of dirty white tissue, more than half occluding the cleft of the glottis. The same sort of tissue lined the trachea as far down as Arrowsmith could see, which was but a short distance, by reason of the encroachment on its lumen by this adventitious material. The man was given vigorous antisyphilitic treatment for a month, without improvement. After he had been under observation for about three months, several portions of the laryngeal mass were removed and examined microscopically. The diagnosis of actinomycosis was then made. The patient was put on increasing doses of potassium iodid without apparent improvement, although there soon was no evidence of actinomycosis in the sputum. There were present occasional tubercle bacilli,

streptococci and groups of staphylococci. This condition gradually became worse. Physical signs of consolidation were discoverable in the right upper lobe. There was some cough, emaciation, irregularity of temperature, anorexia and digestive derangement. At the last examination, there was an area in the vault of the pharynx which presented an appearance identical with that in the larynx—previously there had been absolutely no lesion discoverable elsewhere than within the larynx. The physical signs then present were the classical ones of early pulmonary tuberculosis.

77. **Foreign Body in Right Bronchus.**—The foreign body in this case was a piece of a large rubber ink eraser.

Wisconsin Medical Journal, Milwaukee

October

- 82 *Wassermann Reaction in the Pathology, Diagnosis and Treatment of Syphilis. R. M. Pearce, New York.
- 83 *Results of Heredity and Their Bearing on Poverty, Crime and Disease. A. W. Wilmarth, Chippewa Falls.
- 84 Value of Orthodontia Appliances in Treating Fractures of the Maxillary Bones. M. N. Federspiel, Milwaukee.
- 85 *Practical Medicinal Therapeutics as It Appears from the Prescription File. J. Noer, Stoughton.

82, 83, 85. Abstracted in THE JOURNAL, July 23, 1910, pp. 343, 344.

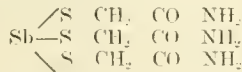
Journal of Pharmacology and Experimental Therapeutics, Baltimore

October

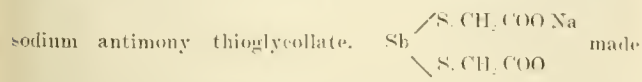
- 86 *Action of Magnesium Sulphate. S. A. Matthews and C. Brooks, Chicago.
- 87 *Efficacy of Antimony-Thioglycollic Acid Compounds in the Treatment of Experimental Trypanosomiasis. L. G. Rowntree and J. J. Abel, Baltimore.
- 88 Immunization of Animals to the Poisons in Fungi. W. W. Ford, Baltimore.
- 89 *Expectorants. V. E. Henderson and A. H. Taylor, Toronto, Canada.

86. **Action of Magnesium Sulphate.**—The experiments made by Matthews and Brooks tend to confirm the curare-like action of magnesium sulphate, particularly as described by the French authors. Magnesium sulphate in doses sufficient to give marked action on the motor endings, produces little effect on the respiratory center; but in larger doses it causes depression of the center. When administered to the unanesthetized dog, primary stimulation of the respiratory movements was observed. The action of magnesium on the heart is explained as that of a depression of the cardiac nervous mechanism, involving particularly the accelerators.

87. **Experimental Trypanosomiasis.**—Incident to the search for a specific against trypanosomiasis, Abel has prepared the triamid of antimony thioglycollic acid.



This compound is obtained in the form of a thick syrup or semiresinous body, which is soluble in water in all proportions, is powerfully trypanocidal, and may be administered subcutaneously in solutions 0.010 gm. to the cubic centimeter without signs of pain or local irritation. The compound tends to deposit a little sulphid of antimony on long standing, and this is readily removed by filtration. Abel says that only solutions that have been made perfectly clear by filtration should be injected subcutaneously or intravenously. As in the case of antimonials in general, only extremely dilute solutions, that is, only such as contain one-half or at most 1 milligram in the cubic centimeter, should be injected intravenously if one wishes to avoid untoward effects. Another compound used was



according to the directions of Klason and Carlson and of L. Ramberg. Sodium antimony thioglycollate and the triamid of antimony thioglycollic acid were used in the treatment of white rats experimentally infected with various species of trypanosomes as *T. brucei*, *T. evansi* (both surra of India and surra of Mauritius) or *T. equiperdum*. The nagana (*T. brucei*) strain used was exceedingly virulent, killing the rats in from twenty-two to eighty-four hours regularly. The surra of

India strain was practically just as virulent, while that of Mauritius and that of dourine were much less virulent. An attempt was made to protect rats against infection by administering sodium antimony thioglycollate twenty-four hours previous to the intraperitoneal inoculation with trypanosomes. No protection at all was afforded, each of the three animals so treated developing the disease in the usual time. It was found, however, that the administration of either of these drugs subcutaneously at the time of the injection of the trypanosomes was always an absolute protection against infection. The time elapsing between the date of inoculation and the beginning of treatment is the most important factor in determining the results obtained in treatment; the longer the period before the institution of treatment, the smaller the degree of success from the point of view of a radical cure; the shorter the period the greater the success. Sodium antimony thioglycollate given any time within twenty-four hours after intraperitoneal inoculation furnished an absolute protection in every instance in which it was tried. The triamid was tried similarly on two rats. One had a relapse on the twelfth day, but the other is still living after two months, and exhibits no evidence of the disease. When the treatment is deferred until forty-eight hours after the infection is given, the trypanosomes in the blood are very numerous. Administration of either drug at this time will completely remove all the trypanosomes from the blood in from one and one-half to two hours, but relapses will occur in nearly every instance unless repeated doses of the drug be administered. When a moderate dose of either preparation is given at the end of forty-eight hours and repeated on the fourth, sixth and eighth days after the infection, the blood remains free from trypanosomes for a period of two, three or four weeks, and in one instance the trypanosomes never returned.

But one experiment was made to test the efficacy of these drugs in preventing infection and that was carried out as follows: A small dose of the sodium salt was given subcutaneously at the same time with the intraperitoneal inoculation with nagana. A dose of moderate size of the same salt was given on the fifth day following and again on the tenth day. In this way the disease was entirely prevented, no trypanosomes appeared in the blood and repeated subinoculations into rats have given only negative results. Rabbits tolerate the antimonials better than the dog. These results in the way of treatment compare so favorably with those obtained by others in the use of the antimonials or arsenicals of the day in experimental trypanosomiasis that a trial of the antimony thioglycollates in human trypanosomiasis and in the trypanosomic diseases of the larger animals would seem to be justified. The authors claim that in the case of the equine and bovine these drugs may be found to be of service as prophylactic agents during periods of exposure to infection in traversing a "fly region." Their relatively low cost and their ability to induce drug resistance in trypanosomes are factors worthy of consideration in this connection. It is not claimed that these antimonials are more efficacious in the long run as therapeutic agents than those hitherto used, but that it is certainly worth while to enlarge the number of trypanocidal drugs, especially if their toxicity is less marked than that of their predecessors, or if they are better adapted for subcutaneous injection.

89. **Expectorants.**—Henderson and Taylor found that if iodids produce an increase in bronchial secretion, it must be brought about reflexly. Ammonium compounds increase secretion reflexly and possibly to a limited extent by an action on the bronchial gland center if very large doses are given. Antimony and ipecac and senega produce bronchial secretion reflexly. Emetin has a central action as well. Apomorphin stimulates the bronchial gland center. Pilocarpin stimulates the bronchial glands peripherally and atropin depresses them.

Annals of Otolaryngology and Laryngology, St. Louis

September

- 90 Subperiosteal Abscess of the Mastoid Region. H. Mygind, Copenhagen.
- 91 Operative Procedure of Brain Abscess of Otic Origin. L. W. Dean, Iowa City.
- 92 Resection of Bony Deflections of the Nasal Septum. O. T. Freer, Chicago.

- 93 Laboratory Aids to Otologic Diagnosis. F. E. Sondern, New York.
- 94 Quinin and Urea Hydrochlorate as a Local Anesthetic. E. F. Ingals, Chicago.
- 95 Manifestations of Recurrent Influenza in the Nose and Throat. J. L. Goodale, Boston.
- 96 Laryngitis Dolorosa. W. Freudenthal, New York.
- 97 Physiology of the Cochlea. G. E. Shambaugh, Chicago.
- 98 Black Tongue: Lingua Nigra Villosa. C. H. Knight, New York.
- 99 Carcinoma of the Uvula. E. M. Holmes, Boston.
- 100 Syphilitic Stenosis of the Nasopharynx. J. M. Ingersoll, Cleveland.
- 101 Otitic Meningitis. J. E. Sheppard, Brooklyn.
- 102 Vincent's Angina Involving the Larynx Exclusively. H. Arrowsmith, Brooklyn.
- 103 Tympanic Vertigo. J. E. Sheppard, Brooklyn.
- 104 Diagnosis and Treatment of Acute Infection of the Larynx. F. E. Hopkins, Springfield, Mass.
- 105 Recurrent Papilloma of the Larynx. F. R. Packard, Philadelphia.
- 106 Submaxillary Abscess Caused by the Use of an Infected Toothpick. C. P. Jones, Newport News.
- 107 Respiratory and Vocal Symptoms in Papillomata of the Larynx. G. Hudson-Makuen, Philadelphia.
- 108 Tuning-Fork Tests with a Special Auscultation Tube. L. M. Tubby, New York.
- 109 Abducent Paralysis and Suppurative Otitis Media. C. E. Perkins, New York.
- 110 Abscess of the Larynx. J. S. Waterman, Brooklyn.

Montreal Medical Journal

October

- 111 *Pneumococcus Polyarthritidis. A. H. MacCordick, Montreal.
- 112 Theories on the Nature of Shnek. E. H. Falconer.
- 113 *Accidental Division of Ureter with End-to-End Anastomosis. E. J. Williams, Sherbrooke, Quebec.
- 114 Anesthesia—The Psychologic Bugbear of Surgery. R. Monahan, Montreal.
- 115 Reactionary Teaching Concerning Summer Diarrheas. S. Ortenberg, Montreal.

111. **Pneumococcus Polyarthritidis.**—In four of the cases reported by MacCordick the patients had a previous history of acute rheumatism and one had chorea. In four the arthritis preceded other affections by an average period of about six days, and in one case the arthritis occurred three days after the onset of pneumonia. Two of these patients developed bronchopneumonia, one lobar pneumonia, and all had acute and chronic endocarditis. The two patients without pneumonia simulated closely in their course acute rheumatic fever. The organism isolated in this series of cases corresponds to the pneumococcus in every respect. The only points of special interest are low virulence for animals and unusual vitality on culture media in the case of the organisms obtained from fatal cases.

In reviewing the bacteriologic reports, it was found that only in two cases were the organisms found in blood cultures taken before death. In all it was isolated from the heart's blood after death. In the first four cases it was found in the fluid from the last affected joint. In two it was obtained from the pericardium: in one from the myocardium, and in one from the exudate over the brain and cord. From bacteriologic observations made on the cases reported and on several non-fatal cases in the wards, MacCordick says that it would appear that the disease was due to an organism of low virulence, which produces an arthritis from which it cannot easily be isolated, but that the virulence may increase so as to produce cardiac and pulmonary lesions and even death.

113. **Accidental Division of Ureter.**—This was a case of large multilocular cyst, the size of a fetal head, situated between the layers of the broad ligament on the right side. There were extensive adhesions to the pelvic brim and surrounding structures. In the attempt to free the adhesions from the pelvic brim, with round-pointed scissors, the ureter was divided completely. This was at a point 1 inch internal to its natural course. It was firmly adherent to the thick cyst wall. The ureter was dissected back for three-eighths of an inch in each direction, then tension sutures placed in the masses on either side, and drawn up, thus relieving all strain on the ureter. An end-to-end anastomosis was then done, using two interrupted sutures of fine silk on either side of the ureter, while a fine continuous suture of the same material was lightly applied around the line of division, passing through all the coats except the mucosa. The patient made an uneventful recovery, and has had absolutely no trouble referable to the pelvic or renal regions, up to one year after the operation.

Journal of Advanced Therapeutics, New York

October

- 116 Physics of Light and Electrotherapy. T. D. Crothers, Hartford, Conn.
- 117 *Physical Forces in Tuberculosis. C. Pope, Louisville, Ky.

117. Also published in the *Lancet-Clinic*, Oct. 8, 1910.

Detroit Medical Journal

October

- 118 Experiences in 300 Eye, Ear, Nose and Throat Surgical Cases. D. M. Campbell, Detroit.
- 119 The Tonsil Question. E. Amberg, Detroit.
- 120 The Wayne County Medical Society. A. D. Holmes, Detroit.
- 121 Fractures of the Patella. G. H. Palmerlee, Detroit.

Medical Fortnightly, St. Louis

October 25

- 122 *Rôle of Physician, Philanthropist, Publicist and Politician Regarding a Federal Department of Health. L. H. Montgomery, Chicago.
- 123 Is the Concept of Life Inclusive of Metabolism, or is Epigenesis in Force and in the Inclusion? J. Clements, Wichita, Kan.
- 124 A Newer Cleanliness. A. L. Benedict, Buffalo, N. Y.

122. Also published in the *Lancet-Clinic*, Oct. 22, 1910.

American Journal of Medical Sciences, New York

November

- 125 *Uric Acid in Gout. A. Magnus-Levy, Berlin.
- 126 *The Electrocardiogram in Clinical Medicine. W. B. James and H. B. Williams, New York.
- 127 *Ipecac in Treatment of Intestinal Amebiasis. W. V. Brem and A. H. Zeiler, Cristobal, Canal Zone.
- 128 Treatment of Arthritis Deformans. C. E. Skinner, New Haven, Conn.
- 129 *Leg and Arm Phenomena in Tetany. E. H. Pool, New York.
- 130 *Significance of Cardiorespiratory and Subclavian Artery Murmurs. H. R. M. Lauder and S. A. Munford, New York.
- 131 *Prognosis in Chronic Valvular Disease of the Heart. H. B. Allyn, Philadelphia.
- 132 Intestinal Obstruction. J. N. Hall, Denver, Colo.
- 133 Idiopathic Circumscribed Spinal Serous Meningitis. T. H. Weisenburg and G. P. Müller, Philadelphia.
- 134 Dermatitis Herpetiformis in Early Childhood. R. L. Sutton, Kansas City, Mo.
- 135 Retention Cysts of the Kidney. G. G. Ross, Philadelphia.

125. **Uric Acid in Gout.**—This is a review of present knowledge of gout, but nothing new is offered.

126. **Electrocardiogram in Clinical Medicine.**—According to James and Williams, the string galvanometer, as an instrument of precision for original study, leaves little to be desired. The ease with which it may be adjusted to standard sensitiveness, and the rapidity with which the photographic records may be made, presents a striking contrast to the technical difficulties of many physiologic methods. Once the apparatus is properly installed, comparatively little skill is required to manipulate it, and this may be readily acquired with practice. In common with all delicate and somewhat complicated physical apparatus, it is liable to occasional derangement, a liability which can be minimized by very careful attention to the original installation. When trouble does occur, it may require a rather intimate knowledge of the principles involved to ascertain its nature and make the necessary adjustments. To those who are interested in the prosecution of original study, and who are able and willing to devote a good deal of time to such work, the authors recommend the method as well worth while. It seems probable that its most important field of usefulness, so far as clinical medicine is concerned, will be the clearing up of morbid phenomena now little understood, and that once the explanations have been given, the clinician will no longer need this complicated apparatus to enable him to recognize and understand the conditions it has explained. Just how much information regarding the effect of treatment in disease of the heart can be obtained by the use of this method cannot as yet be stated, but it seems likely that there is opportunity for fruitful work in that direction. One of the chief merits of the method is that it makes possible the study of cardiac pathology from the functional as well as anatomic standpoint. That the galvanometer may prove a great aid in the diagnosis of an occasional obscure case, experience has shown; but considered simply as an aid to diagnosis, its cost and the time requisite to secure the necessary familiarity with its manipulation will preclude its extensive use.

127. **Intestinal Amebiasis.**—Brem and Zeiler have apparently cured fourteen amebic infections with ipecac: eight with dysentery, followed from six weeks to five and one-half months

with repeated examinations for amebæ; three with dysentery, followed less than six weeks; three without dysentery, followed from two to five months. They have failed to eradicate the infection in four cases, but these patients were not thoroughly treated. The thickness of the salol coat of the ipecac pills must be carefully regulated so as to prevent vomiting on the one hand, and on the other, the passage of intact pills through the intestinal canal. Probably the best dosage and method of administration is to begin with 60 or 80 grains at bedtime and decrease the dose 5 grains daily until a dose of 10 grains is reached. Rapid cures may sometimes be effected by giving 40 grains three times during twenty-four hours. The patient should be at rest in bed and on liquid diet; no solid food or milk should be given for at least six hours previous to the ipecac, and no liquids for three hours previous. No opiate is necessary. The authors' experience indicates that a large proportion of amebic infections can be eradicated by ipecac treatment.

129. **Leg and Arm Phenomena in Tetany.**—Pool again calls attention to a case reported in 1906, in which, among the significant features of the disease, were frequent attacks of symmetrical and bilateral tonic contractures of the hands and feet and the presence of Chvostek's and Trousseau's signs, the latter being characterized by slow contractions accompanied and preceded by cramp-like pains. Contractures also resulted from making the sciatic nerve tense by holding the patient in a sitting position, so that the trunk and thighs were flexed beyond a right angle, with the legs extended; or by putting the nerves of the brachial plexus on the stretch by elevating the arm above the head with the forearm extended (extreme abduction). The contracted muscles were always board-like to the touch.

130. **Cardiorespiratory Murmurs.**—In 228 apparently normal individuals (ninety-five males, 133 females) a cardiorespiratory murmur was heard in but two instances. These patients were examined but once, in the erect posture and during normal respiration and during deep breathing. Of twenty-six general medical cases (twenty-one males, five females), cardiorespiratory murmurs were heard seven times. In four instances the murmur seemed dependent on a tachycardia; two of these patients (females) had exophthalmic goiter, while the other two (males) had a murmur, apparently due to nervous palpitation, which disappeared as the heart quieted down. In the other three the condition present was chronic gastritis, aortic regurgitation, and a convalescent pneumonia in which the left base had been involved. Of seventy-four tuberculous cases, (forty-five males, twenty-nine females), a cardiorespiratory murmur was present twenty-nine times (twenty-three males, six females). Of 143 cases, representing a variety of conditions, but for the most part cases of tuberculosis, specifically examined for a cardiorespiratory murmur, the murmur was heard in thirty-two instances. Of this number, sixteen had undoubted tuberculosis. Observations were also made on 1,552 men entering the freshmen class of Cornell University in the fall of 1909. In the examination of these cases the excitement incident to the ordinary medical case is almost negligible. After auscultation of the heart and lungs, the students were required to "ehin" themselves as often as possible, and then the heart and lungs were again auscultated. In many instances murmurs were then heard which had not been noticed previously. Cardiorespiratory murmurs were heard in 181 instances (11.8 per cent.). In addition to these 181 transient cardiorespiratory murmurs, there were 117 instances of accidental murmurs, apparently endocardial in origin. In all, there were 131 cases in which a subclavian murmur was heard: males, twenty-three, females, eight; tuberculous cases, twenty; non-tuberculous cases, eleven; murmur on the right side only, eight; murmur on the left side only fourteen; murmur on both sides, nine; murmur during inspiration only, twenty-three; murmur during expiration only, six; murmur during both, two; tuberculous disease of the right apex, eight; tuberculous disease of the left apex, two; tuberculous disease of both apices, five. In two cases change of posture influenced the murmur: in one the murmur disappeared in the recumbent posture, while in the other the recumbent posture

brought the murmur out. In seven cases a cardiorespiratory murmur was also present.

131. **Prognosis in Chronic Valvular Disease.**—Allyn holds that the prognosis of chronic valvular disease of the heart in private practice is much better, both as to duration and capacity for work, than most persons realize. It is no uncommon experience to find persons who have sustained these lesions for ten, fifteen and twenty years, in some cases much longer, without either great discomfort or great impairment of activity. The patients who sustain these lesions longest and with least embarrassment are those of temperate habits and spare build who do not easily become angered or worried and who are controllable as to their mode of life and activities. Those who can lead a quiet, sheltered, protected life naturally live the longest. When death occurs it is usually the result of some accident or intercurrent disease, not directly from the heart. In estimating the prognosis in a particular case, Allyn says that one needs to keep in mind the distinction between a heart lesion and heart disease. So long as there is only a lesion the prognosis is good. A lesion ceases to exist and disease sets in when the heart enlarges and subjective symptoms appear. In his opinion, subjective symptoms are better guides to the functional energy of the heart and to its lasting power than are objective signs. In angina pectoris the duration may be five years instead of the conventional one or two, just as some cases of aortic insufficiency may, under favorable conditions, last for thirty or forty years instead of ten years.

Alabama Medical Journal, Birmingham

October

- 136 Toxemia of Pregnancy. M. D. Thomas, Birmingham.
- 137 Application of the Tuberculin Test in City Milk Inspection. E. M. Donean, Birmingham.
- 138 Poliomyelitis; Fallacies in Diagnosis; Misconception About Treatment. T. A. Williams, Washington, D. C.
- 139 Cutaneous Lesions of Syphilis. M. H. Jordan, Birmingham.

Woman's Medical Journal, Cincinnati

October

- 140 Labrador: Its Interests, Hospitals, etc. E. E. Musson, Philadelphia.
- 141 Physical Therapy. L. O. B. Burbank, Waltham, Mass.

Journal of the Michigan State Medical Association, Battle Creek

November

- 142 Cancer. G. W. Crile, Cleveland.
- 143 *Uses of Solid Carbon Dioxid and an Instrument for Collecting and Moulding the Snow. A. P. Biddle and R. A. C. Wollenberg, Detroit.
- 144 Tonsillectomy. B. R. Shurly, Detroit.
- 145 Gonorrhœal Salpingitis, Especially Prophylaxis and Treatment. T. A. McGraw, Detroit.
- 146 *Differential Diagnosis of Organic and Functional Diseases of the Stomach. J. E. Davis, Detroit.
- 147 Action and Uses of the Adrenal Principle. W. J. Wilson, Jr., Detroit.
- 148 *Family Physician Refracting as a Factor in Medical Practice, and Its Promotion During 1910. L. Connor, Detroit.

143. Abstracted in THE JOURNAL, Oct. 29, 1910, p. 1585.

146. Abstracted in THE JOURNAL, Nov. 5, 1910, p. 1674.

148. Also published in the *Lancet-Clinic*, Oct. 15, 1910.

Journal of the Medical Society of New Jersey, Orange

November

- 149 Surgical Mishaps. F. D. Gray, Jersey City.
- 150 Spontaneous Cure of Malignant Disease. A. Macey, Jr., Riverton.
- 151 Stenosis of the Respiratory Vestibule. E. Marvel, Atlantic City.
- 152 Milk. A. McAlister, Camden.
- 153 Cystitis Cœli in Women; Its Etiology, Symptomatology and Treatment. G. N. J. Sommer, Trenton.

American Journal of Surgery, New York

October

- 154 Bismuth Paste Injections in Nasal Accessory Sinus Diseases. J. H. Beck, Chicago.
- 155 Bismuth Paste Treatment of Chronic Sinuses. H. Aronow, New York.
- 156 Chronic Catarrhal Otitis Media and Otosclerosis. W. S. Bryant, New York.
- 157 Treatment of Chronic Catarrhal Otitis and Otosclerosis. E. P. Fowler, New York.
- 158 Importance of the Clinical Laboratory in Surgery. H. R. Harrower, Chicago.
- 159 Local Anesthesia. A. E. Hertzler, Kansas City, Mo.
- 160 Perforation of the Ileum, with Strangulated and Obstructed Hernias. A. E. Sellenings, New York.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

October 22

- 1 Scientific Observation. H. A. Miers.
- 2 *Intracranial Diseases Associated with Nasal, Aural and Laryngeal Symptoms. P. Stewart.
- 3 Injuries to the Eye. A. S. Percival.
- 4 Causes and Treatment of Dysmenorrhœa. G. E. Herman.
- 5 *Structure of the Stroma of the Endometrium. J. Young.
- 6 Treatment of Fibroids Complicating Pregnancy. W. W. H. Tate.
- 7 Origin and Prevention of Puerperal Fever. D. Döderlein.
- 8 Rupture of the Uterus. J. M. M. Kerr.
- 9 Air Embolism During Labor. J. Campbell.
- 10 Intra-peritoneal Hemorrhage in Uterine Myomata. A. J. Wallace.
- 11 Localized Necrosis of an Adenomyomatous Right Fallopian Tube, with a Left Tubal Mole and Fibroid Uterus. F. Ivens.
- 12 *Intestinal Obstruction Due to the Uterus. S. Gottschalk.
- 13 Causal Treatment of Dystocia in Pelvic Contraction. O. von Herff.
- 14 Fibroid Tumors of the Uterus as a Complication of Pregnancy. C. Lockyer.
- 15 Papillary Ovarian Cysts: Should Both Ovaries be Removed? W. Nagel.
- 16 Involution of the Uterus. C. N. Longridge.
- 17 Surgical Treatment of Fibrosis of the Uterus. A. L. Mellroy.
- 18 Insanity and Marriage. G. H. Savage.
- 19 Paranoid Symptoms at the Female Climacteric. L. D. Baugh.
- 20 Vestibular Apparatus and the Cerebellum. Dr. Bárány.
- 21 The Teaching of Psychiatry. D. G. Thomson.
- 22 Treatment of Tabes Dorsalis. J. S. R. Russell.
- 23 Psychologic Treatment of Certain Functional Conditions. E. Ash.
- 24 Knee-Jerk and Simple Reflexes. W. A. Jolly.
- 25 Sclerosis of the Adventitia. A. Bruce.

2. **Intracranial Diseases with Nasal Symptoms.**—Stewart relates the details of twelve cases of intracranial lesions in which the nasal, cochlear, vestibular, or laryngeal symptoms were of special diagnostic value.

Case 1.—Tumor in region of optic chiasm: There was optic atrophy in both eyes, with total blindness of the right eye and temporal hemianopia of the left—signs pathognomonic of a lesion of the optic chiasm. The pupil in the blind eye did not react to light, the other reacted sluggishly. All the other cranial nerves were normal.

Case 2.—Right-sided extracerebellar tumor arising from auditory nerve: There was intense double optic neuritis. The right eye was totally blind; vision in the left was reduced to 6/12. Hearing in the right ear was slightly diminished, both to aerial and to osseous conduction. The muscles of mastication, face, palate, and tongue were normal. There was no cutaneous anesthesia or analgesia; nor was there any motor weakness of the trunk or limbs. The gait was unsteady and reeling. The cerebellar gait and posture of the head, the slight deafness of the right ear, and dysdiadokokinesia of the right hand, inclined Stewart to a diagnosis of right-sided extracerebellar growth, which was confirmed at operation.

Case 3.—Bilateral extracerebellar tumors arising from auditory nerve: A glass-cutter, aged 40, noticed gradual deafness in both ears, more marked in the left ear, of about five years' duration. Twelve months ago he became frequently giddy and staggered in his walk, occasionally falling down. He had occasional occipital headache, but no nausea or vomiting and no disturbance of vision. He had optic neuritis in both eyes, more intense in the left. The pupils were equal and normal. There was nystagmus on lateral deviation to either side. There was nerve deafness of both ears, more marked in the left ear. He complained of vague bilateral tinnitus. There was moderate dysdiadokokinesia of the left upper limb. The gait was reeling and unsteady. The posture of the head was suggestive of cerebellar disease. The diagnosis made was that of left-sided extracerebellar growth.

Case 4.—Right-sided intracerebellar tumor: The patient had marked optic neuritis in both eyes. The visual fields were normal. Smell, taste, and hearing were acute on both sides. There was doubtful unsteadiness of the right hand

on touching the nose. The gait was reeling and unsteady, the patient lurching to the right, and the right leg was more unsteady than the left on touching the opposite knee. The reeling gait and the unsteadiness of the right arm and leg pointed to a right-sided cerebellar lesion, which was confirmed at operation.

Case 5.—Syringomyelia with nuclear paralysis of the larynx: This was a fairly typical case of syringomyelia, in which the gliomatous process had extended into that part of the vagal nuclei which supplies the laryngeal muscles.

Case 6.—Syringomyelia with nuclear paralysis of palate, larynx, and tongue. This was evidently a case of syringomyelia in which the gliomatous process extended upward in the medulla to the nuclei of the hypoglossal and vagus, being more marked on the right side.

Case 7.—Congenital unilateral intramedullary lesion of the medulla: The absence of the right sternomastoid and trapezius, together with the paralysis of the palate and vocal cord in the same side, led Stewart to diagnose a congenital lesion of the spinal accessory and vagal nuclei on the right side. Further, atrophy of the right half of the tongue, and absence of the depressor muscles of the hyoid bone, showed that the lesion extended downward through the hypoglossal nucleus to the anterior cornu of the upper two or three segments of the spinal cord. The patient died. There was absence of the motor nuclei of the vagus, spinal accessory, and hypoglossal on the right side, together with diminution in size of the anterior cornu on the right side of the upper cervical part of the spinal cord, and atrophy of the spinal root of the trigeminal nucleus.

Case 8.—Right-sided thrombosis of the medulla.

Case 9.—Left-sided bulbar thrombosis: The symptoms in this case pointed clearly to a lesion in the left ponto-medullary angle, apparently of the nature of a syphilitic thrombosis of the posterior inferior cerebellar artery, interrupting the path for temperature and pain from the opposite side of the body, and leaving unaffected that for tactile sense, which runs more mesially in the formatio reticularis. The lesion also implicated the part of the vagal nucleus (nucleus ambiguus) associated with the motor innervation of the palate, which cleared up, and of the vocal cord, which remained paralyzed. At the time of onset, the adjacent inferior peduncle of the cerebellum was also temporarily implicated, producing the reeling and forced movements to the left, nystagmus, and vertigo, while there appears to have been some interference with the pyramidal paths, which largely cleared up.

Case 10.—Left-sided thrombosis of medulla.

Case 11.—Right-sided extramedullary lesion; caries of sphenoid bone.

Case 12.—Extramedullary gumma of right side of medulla.

5. **Stroma of the Endometrium.**—The following summary of his paper is made by Young:

1. The stroma of the endometrium consists of a soft semifluid protoplasmic mass imperfectly differentiated into cellular elements.

2. The cells anastomose freely with each other by means of protoplasmic processes. They present many and varying alterations in shape, but these are easily dispelled, and the cells then approximate to the typical stellate shape. The differentiation of the stroma cells is thus probably more apparent than real.

3. The intercellular spaces, in all probability, do not communicate directly with one another. The anastomosing processes are not, as is usually stated, filaments, but films of protoplasm, which under ordinary circumstances close in the fluid cavities.

4. The intima and media of the vessels are nothing more than ordinary flattened stroma cells. This shape they easily lose.

5. Except in the deepest layers of the mucosa the vessels have no specialized supporting coats (muscle, elastic tissue).

6. The vessels are obviously so constructed as to allow a ready and universal opening up of their walls, and the structure and consistency of the stroma such as to permit its ready displacement by fluid or blood.

7. The edematous infiltration of the tissues which precedes the hemorrhagic escape, is due neither to a mechanical displacement or filtration of fluid from the vessels, nor to a secretory activity of the intimal cells. It is dependent on protoplasmic changes, which result in an active inhibition of fluid from the vessels, by a process of osmosis. So far as is at present known, this change is due to a widespread liberation of crystalloidal elements in the tissues.

8. The infiltration of the stroma with blood corpuscles is, in all probability, due to exactly the same cause. In consequence of its peculiar structure, the uterine mucosa must be looked on, throughout its entire extent, as a potential blood sponge.

In conclusion, Young states that his investigations have revealed that the peculiar structural conformation of the endometrium is intimately bound up with the changes which occur during pregnancy. The vascular gaping round the young ovum occurs in a manner identical in nature to, and differs only in degree from, the mode in which the vessels open up during menstruation.

12. **Intestinal Obstruction Due to the Uterus.**—The first case reported by Gottschalk was as follows: Four years ago the patient had undergone a laparotomy operation for right adnexal tumor, probably gonorrhoeal. The closed left Fallopian tube had been opened by salpingostomy in order to create a possibility for conception. The consequence was that on the left side numerous peritoneal adhesions formed, and the newly-formed ostium of the tube was again closed definitely through adhesion with the adjoining sigmoid flexure. The strong left peritoneal adhesions, easily inflamed, Gottschalk believes, allow the induction that from the artificial ostium infectious micro-organisms emigrated into the pelvic cavity in a secondary manner; the extended formation of adhesions had nothing to do directly with the laparotomy, otherwise, no doubt, they would have established themselves on the right side, where the diseased adnexa were removed, and in the neighborhood of the laparotomy wound. There was no sign of any adhesive formations. There remained a void space, because on the right side no adhesions formed; through this hole the loop of the ileum slipped into Douglas's pouch, which was surmounted by adhesions and by the retroverted and fixated uterus. The retroversion was formed in a secondary manner in connection with the operation, no doubt on account of the pelvic peritonitis of the left side. The case is of importance, not alone through the strangulation of the ileum by the retroverted uterus, but because it shows that salpingostomy is not without danger under certain circumstances—namely, that inflammatory micro-organisms may penetrate through the new ostium into the pelvic cavity. The case, therefore, serves as a warning example to be very careful with the indication for salpingostomy. It also shows how difficult it is to predict in advance whether an artificial tube ostium will remain open. In the second case reported obstruction was due to a retroverted puerperal uterus.

Lancet, London

October 22

- 26 Aspects of Heredity in Relation to Mind. H. B. Donkin.
- 27 The Royal Navy Medical Service. J. Durnford.
- 28 Further Experiences with Ehrlich's "606." J. E. R. McDonagh.
- 29 Benign Cyst of the Humerus. H. Lett.
- 30 Anaphylaxia in Hay-Fever, Nettlerash and Asthma. G. Billard.
- 31 *Three Cases of Thrombosis of the Lateral Sinus. J. W. Wood.
- 32 Treatment of Asiatic Cholera with an Anti-Endotoxic Serum. R. T. Hewlett.
- 33 Action of Chlorin on Water Containing the Cholera Vibrio. H. W. Harding.

31. **Thrombosis of the Lateral Sinus.**—The first case reported by Wood was a fairly typical case of thrombosis of the lateral sinus. The following are the main points of importance: (1) Cessation of discharge; (2) sudden onset of pain behind the ear; (3) tenderness along the internal jugular vein; (4) shivering (rigors); (5) Griesinger's symptom (tenderness and slight edema over the site of the emissary vein, although no tenderness or swelling over the mastoid antrum); (6) the disc normal; (7) consciousness unimpaired.

In the second case, a diagnosis of meningitis was made. Meningitis was present, but in addition there was a completely thrombosed sinus, a perisinus abscess and an extradural abscess. The points in favor of meningitis were: (1) continuous high fever and no rigors until after the operation; (2) the dull and drowsy condition of the patient; (3) the head retraction with pain on movement; (4) the lumbar puncture; (5) optic neuritis. During the further progress of the case several points suggested either an extradural abscess or a brain abscess. They were: the sub-normal

temperature and pulse; the ocular paresis; the condition of the reflexes; headache and vomiting; hemorrhage into the left optic disc; and the variable amount of discharge from the mastoid wound. The giddiness and the nystagmus were most likely due to a localized labyrinthitis caused by an injury to the labyrinth during the first operation. The absence of rigors with a totally blocked sinus is worthy of note.

The principal points of note in the third case were: (1) the remittent temperature with free perspiration, but absence of rigors; (2) the headache and sickness; (3) the absence of optic neuritis; (4) the presence of Kernig's sign, but no symptoms of meningitis beyond this; and (5) the absence of Griesinger's symptom. In none of these cases was the internal jugular vein tied. Wood says, should rigors continue after opening the lateral sinus and the removal of clot, whether septic or not, then, and not before, is the time to ligate the vein.

Journal of Tropical Medicine and Hygiene, London

October 15

- 34 *A Rare Case of Tumors. R. H. Castor.
- 35 Investigation of Pellagra. L. W. Sambon.

34. **Tumors.**—In this patient there were fibroma, "fibri-fyingsarcoma" (fibrosarcoma?), neurofibroma, and a large lipoma. One tumor was an ovoidal hard mass occupying the whole of the left shoulder and more. The skin over it was moveable. It was about the size of a large coconut, with a distinct lobulated feel. There was slight glandular enlargement in the axilla, but there was nothing to note in the glands of the neck. It was not tender to the touch, but adherent to the parts around. The joint was freely moveable in all directions. A second ovoidal mass occupied the root of the neck on the right side. There was only partial fixation of the neck on this side, but no enlarged glands were detected. The largest tumor in the series lay just below tumor No. 1 and descended in molluscum-like folds to below the left hip of the patient. At its base it was 8 inches long, and was practically a continuation of the anterior and posterior folds of the axilla. Its widest circumference was 30 inches, and its length from the spine of the scapula to the lowest point was 15 inches. It hung like an ordinary satchel, and when grasped and lifted weighed very heavy. The tumor was almost covered with nodules, much larger than those seen in tumors Nos. 1 and 2, and the largest was almost the size of a small apple. Many of them were soft to the touch and sessile, others were distinctly pedunculated, but all were covered with skin. Large blood-vessels were seen discursing over and around some parts of the tumor. The part of the tumor free from these nodules was that portion of it adjacent to the skin on the side of the patient where the skin was quite smooth.

Septic changes were chiefly seen in the middle folds of the tumor. It was on the whole firm and hard to the touch, but not tender. Its consistence varied, and some of the deeper portions of it were soft. A rather large, hard moveable tumor about the size of a small melon grew apparently from the under and lower portion of tumor No. 2, but was encapsuled and distinct from it. Tumor No. 5 was similar in appearance to No. 4. It was larger in size and partly obscured by No. 3 before it was removed. The skin over it was normal. It bore the usual clinical features of a fatty tumor. The four tumors first mentioned were removed, the patient making an uneventful recovery. The diagnosis was made microscopically.

Medical Press and Circular, London

October 19

- 36 Vision. W. R. MacDermott.
- 37 Symptoms and Treatment of Duodenal Ulcer. R. J. M. Buchanan.

Journal of Obstetrics and Gynecology of the British Empire, London

October

- 38 *Hemotoxic Nature of Eclampsia. H. L. Murray.
- 39 *Cysts of the Ovaries and Fallopian Tubes. A. Keith and A. Doran.
- 40 Annual Variation of the Birth-Rate in the Government Maternity Hospital, Madras. G. G. Giffard and H. L. Jones.

38. **Nature of Eclampsia.**—Experiments which he carried out in Murray's opinion, seemed to prove conclusively that it was the autolytic rather than the purely placental element which produced the anaphylaxis. Liver was substituted for placenta. Three guinea-pigs received intraperitoneally 0.5 c.c., 1 c.c., and 2 c.c. respectively of a fresh emulsion of one-half of a guinea-pig's liver, in 40 c.c. saline and three weeks later 10 c.c. of a fresh emulsion of guinea-pig's liver in 25 c.c. saline, without obvious result. On the other hand, two pigs-receiving, at the same interval of time, the same amounts of liver which had been allowed to autolyze in an incubator for twenty-four hours at 37 C. showed undoubted anaphylaxis, consisting of cough, nasal irritability, respiratory embarrassment, paralysis of the hind legs, and, in one case, of slight clonic convulsions. A control showed that the amount of autolyzed liver given was not directly toxic in a single dose. Two guinea-pigs were given intraperitoneally 3 c.c. and 4 c.c. respectively of the serum taken post-mortem from the heart of a fatal case of eclampsia. Two days later each received 10 c.c. of normal amniotic fluid, without result. A third guinea-pig, which received as a first dose 4 c.c. of the fluid from the peritoneal cavity and the above dose of amniotic fluid, remained quite unaffected. There is, then, says Murray, but little satisfactory evidence that eclampsia is anaphylactic in nature. Clinically, too, the picture of anaphylaxis does not greatly resemble it, and convulsions apart, they have little in common. A guinea-pig with the paralytic train of symptoms most marked is alive to external stimuli, and will endeavor to crawl toward its cage while any motor power remains—a marked contrast to the dazed mental state of eclampsia. The pre-eclamptic state, also, has no counterpart in the anaphylactic condition and, finally, undoubted anaphylaxis, as seen in the human subject, is very dissimilar to the laboratory picture.

39. **Cysts of Appendages.**—After careful study of specimens and consideration of the anatomy and embryology of all structures concerned, Keith and Doran classify broad ligament cysts as follows:

1. The cyst of the lower end of the ovarian fimbria, originating in a homologue of the rete testis in the male, some tubular or cystic relic in the hilum tissue of the ovary which extends into this part of the ovarian fimbria; From this cyst arises the common cystic tumor of the broad ligament, the "parovarian cyst" of gynecologists and surgeons.
2. The cyst of the Wolffian body, developed from one of its vertical tubes; This is, therefore, truly parovarian. No authentic instance of a cyst of this type becoming a large tumor has ever been reported.
3. The cyst of an accessory tubal ostium, the "accessory hydro-salpinx" of Handley.
4. Lastly, the "hydatid of Morgagni," and the similar pyriform pedunculated cyst running outward from the horizontal tube of the parovarium; The authors hold that these are neither Müllerian nor Wolffian, but are relics of the pronephros. To the same origin Kobelt's tubes may probably be traced.

Clinical Journal, London

October 19

- 41 Carcinoma of the Stomach. J. Sherrin.
42 Non-Malignant Stricture of the Rectum. F. C. Wallis.

Bulletin de l'Académie de Médecine, Paris

October 3, LXXIV, No. 30, pp. 119-174

- 43 *Detection of Simulated Deafness. (Contribution à la séméiologie de la surdité.) A. Weiss.
44 Hecline versus Ehrlich's "606" in Abortive Treatment of Syphilis. H. Hallopeau.
45 *Inflammatory Tuberculosis and Scoliosis. A. Poncet and R. Leriche.
46 *Ultimate Results of Gastrectomy. J. Boeckel.
47 *General Spinal Anesthesia. (La rachianesthésie générale.) T. Jonnesco.
October 11, No. 31, pp. 175-196
48 *Sea Air and Sunshine in Treatment of Tuberculosis in Children. Revillet and Debove.

43. **Detection of Simulated Deafness.**—Weiss calls attention to the discovery by Lombard of the fact that a totally deaf person does not raise his voice in speaking when a loud noise is made close to his ear, while a person with normal hearing does this unconsciously. He uses an electric apparatus which makes a loud noise close to the ear; with normal hearing the person being examined cannot help speaking louder, while

the noise is in progress, and this is rendered evident by suddenly shutting off the current, stopping the noise.

45. **Scoliosis the Result of Inflammatory Tuberculosis.**—Poncet believes that infection of any kind has a tendency to invite abnormal curvature by its softening action on the bones, the weakening of the supports and its enfeebling action in general. It is thus the essential cause of scoliosis, and infection with tuberculosis is generally the one responsible. Monod in examining fifty-one children with scoliosis, found unmistakable signs of tuberculosis in 20 per cent.; others had tuberculosis in the family and in others the tuberculin tests gave positive findings, although there was nothing except the scoliosis to suggest tuberculosis. The same softening of bone tissue from an inflammatory tuberculous process is evidently responsible, Poncet says, for many cases of deformity of the bones in the young, such as painful flat-foot, genu valgum, incurved radius, coxa vara, etc., which have hitherto been classed as "tardy rachitis."

46. **Remote Results of Gastrectomy.**—Boeckel reports the ultimate outcome in seventy-six cases of cancer of the stomach during the last ten years. In twenty-one cases the growth was inoperable, and only in eleven cases was a radical operation undertaken. Of these eleven patients seven were completely cured by this means; in the four other cases the operation was attempted merely as a last resort without much hope of permanent success. In the cured patients nine-tenths of the stomach had been removed; the age of the patients ranged from 38 to 75. Direct anastomosis between the stomach and duodenum was possible in all but one of these cases. Two of this group of seven cured patients have succumbed since to an intercurrent affection. The others are in good health to date, the interval being over five years in one case.

47. **Jonnesco's Method of Anesthesia.**—Jonnesco's method of "general spinal anesthesia" has been fully described in these columns. He here replies to the criticisms it has received in Europe and America, and reiterates his declaration that his technique or its equivalent is destined to be the method of anesthesia of the future, its simplicity, benignity and general superiority over inhalation anesthesia being now established, he says, beyond question. He has applied the method in 1,005 cases, and it has been used by others in an additional 1,958. The age of the 2,963 patients ranged from 1 month to 82 years; 433 of the operations were on or above the thorax. He has not had a fatality, but two have been reported by other operators who used doses much larger than he recommends. Transient arrest of respiration occurred seven times in his experience, but five cases were in the early tentative period. The minor by-effects are growing less frequent and milder as the technique is being perfected. He replies in detail to Moorhead's criticism of the method in THE JOURNAL, Jan. 22, 1910, page 281, stating that none of the anticipated dangers has been realized in his experience.

48. **Sea Air and Sunshine in Treatment of Tuberculosis in Children.**—This report states that over 52 per cent. were cured of the 888 children with scrofulo-tuberculosis treated at a sanatorium near Cannes on the shore of the Mediterranean. The mildness of the climate and the constant sunshine are important factors in these results. Marked improvement was evident in the other children, so that positive results were obtained in over 93 per cent.

Presse Médicale, Paris

October 8, XVIII, No. 81, pp. 745-760

- 49 *Indications and Technique for Transscrotal Orchidopexy in Children. L. Ombredanne.
October 15, No. 83, pp. 769-776
50 *Tuberculous Nephritis with Tendency to Edema. (La néphrite hydro-pigène tuberculeuse.) L. Bernard.
October 19, No. 84, pp. 777-784
51 Radiotherapy in Acute Adenitis. P. Jaugeas.

49. **Transscrotal Orchidopexy for Children.**—Ombredanne asserts that orchidopexy is indicated in every case in which the testicle can be felt in the inguinal region, but cannot be easily pushed down to the bottom of the scrotum, when the child is old enough to keep itself clean. He describes with seventeen illustrations his method of operating, which he says

is simple, practical, logical and rapidly executed; he has successfully applied it in twenty-one cases of unilateral and in four of bilateral undescended testicle.

50. **Tuberculous Nephritis with Edema.**—Bernard regards the form of tuberculous inflammation of the kidney inducing dropsy as practically incurable, but improvement may be realized by general treatment for the tuberculosis. As the kidney permeability is not impaired and there is no uremic intoxication, there is no need for a milk diet or its equivalent. On the contrary, the patient's diet should be the strengthening and meat diet of the tuberculous, except that the dropsy has to be combated by restriction of salt, and eggs are better avoided. Energetic revulsion by repeated cupping should be applied to the kidney region with measures to promote diuresis in general. The onset of the affection is generally insidious; the patient first notices on waking in the morning that his eyelids or hands are a little swollen, but this soon subsides to recur again occasionally and finally to become permanent; and there may be hydrothorax or other accumulation of fluid in some serous cavity. The urine may be abundant or scanty, but it always contains considerable albumin with some tubercasts and a few leukocytes and red corpuscles. The association of hematuria and dropsy suggests a tuberculous kidney affection, which is confirmed by the absence of symptoms on the part of the cardiovascular system and the increasing emaciation and anemia. The kidney affection may be primary or secondary, and it may prove fatal in from five to eight months, or may pass into a long chronic phase, especially in children; but the kidneys retain their permeability generally to the end, and the arterial tension persists low.

Revue de Chirurgie, Paris

October, XXX, No. 10, pp. 729-944

- 52 *Treatment of Arteriovenous Aneurysm. C. Monod and J. Vanverts.
53 *Operative Treatment of Compression of the Spinal Cord in Multiple Neurofibromatosis. (Intervention opératoire dans un cas de compression de la moelle cervicale au cours de la "maladie de Recklinghausen.") P. Guibal.
54 *Minor Traumatism of the Skull. (Petits traumatismes du crâne.) L. Imbert and G. Dugas.
55 Tearing Out of the Mesentery with Strangulated Hernia. J. Rabère and M. Charbonnel.

52. **Arteriovenous Aneurysms.**—Monod and Vanverts have compiled 161 cases that have been published in the literature since 1889, and summarize the details of the different groups according to the arteries involved. This was the femoral in eighty and the popliteal in thirty-five cases. The general impression left by the survey is that much better results are obtainable, as a rule, from operating directly on the sac than from ligatures. The main drawback to a complete cure is the frequent coexistence of nervous lesions complicating the aneurysm and generally solely responsible for the postoperative disturbances. Only when direct action on the sac is impossible, they assert, should ligatures be given the preference. Removal of the sac offers the same advantages over incision for the arteriovenous as for the arterial aneurysms. The eleven cases of arteriovenous aneurysm of the common carotid show that ligature alone is not so ineffectual nor so dangerous as might be believed. All of the three patients treated by a four-fold ligature were cured, as also in the four cases in which the sac was incised or removed.

53. **Operative Relief of Compression of the Spinal Cord in Multiple Neurofibromatosis.**—In Guibal's case symptoms developed in a woman of 40, with two grown children, suggesting compression of the spinal cord by a tumor, such as were observed in the arm, thigh, neck and elsewhere—typical neurofibromas. The total paraplegia and intense pains justified an attempt to remove the spinal tumor, although the nature of the affection warned that recurrence was more than likely. The tumor was readily exposed at the seventh cervical and first dorsal vertebra and it shelled out with ease. The patient succumbed six days later, however, with symptoms indicating that an accumulation of blood and serum at the site of the tumor was injuring still further the flattened spinal cord, the effects being like those of total transverse section of the cord. If the operation had been done when first advised, a year or so before, the results might have been better. The woman's hus-

band had been infected with syphilis ten years before, but the woman showed no traces of this infection.

54. **Minor Traumatism of the Skull.**—Imbert and Dugas discuss the accidents affecting the skull which do not seem of much importance at first, but entail serious consequences later, as, for instance, in a case they report in which a child was struck on the head with a ruler, this slight injury finally entailing idiocy. The idea of operative interference seems almost absurd for these slight injuries, but the physician should not be misled, they declare, by the apparent insignificance of the symptoms which may mask serious anatomic lesions. Imbert and Dugas do not advise trephining at once in every case of traumatism affecting the skull, but they do urge careful search for minor signs revealing the seriousness of the injury, such as changes in the cerebrospinal fluid and arterial tension, lowering of the temperature, venous congestion in the face, headache, vertigo, disturbances in pulse or respiration, or both, buzzing in the ears, drowsiness and changes in the fundus of the eye and in the ear. An apparently slight injury may be followed by a hematoma, which may do serious harm unless promptly evacuated, or the slight injury may become complicated with infection or mental disturbances later. Unless there is fracture they do not advise operative interference unless functional localization of the injury is possible. The seat of the fracture may be indicated by a hematoma or blood in the ear or vicinity, but when this is lacking an exploratory incision of the skin may reveal the seat of the trouble. If the bone is intact this does no harm, while if the bone shows signs of injury the proper point for trephining is thus located.

Semaine Médicale, Paris

October 19, XXX, No. 42, pp. 493-504

- 56 *Practical Results of Percussion-Palpation in Examination of the Heart. (Des résultats pratiques de l'examen du cœur d'après la méthode d'Orsi-Grocco.) C. Frugoni.

56. **Percussion-Palpation of the Heart.**—Frugoni states that the method of touch palpation for determining the outlines of the heart has been in use in Italy for thirty years. Orsi and Grocco having introduced and perfected the technic. He extols its extreme simplicity and the value of the information thus derived. It aims to determine the oblique and the transverse diameters of the heart. The finger applied to the chest should be pressed down firmly to reduce the vibrations of the wall. The lower end of the oblique diameter, the apex, is located by inspection, palpation and light, radiating percussion, while the upper end is determined by moderately strong percussion along the left margin of the sternum; it is generally just above the third costal cartilage, the total diameter averaging from 8.5 to 9 cm. in adults. This oblique diameter determines the size and direction of the left ventricle, showing any displacement or enlargement. The transverse diameter is determined by palpation starting at the fourth rib or interspace, at the junction of the left third and right two-thirds of the sternum, the line being carried to 1 cm. from the mammillary line. This diameter averages 7.5 or 8 cm. in the adult. The location of the right end of the transverse diameter is a faithful barometer, he says, of the contractile power of the right ventricle, and is thus extremely important for the prognosis in acute pulmonary disease and in all cases in which there is reason to fear degeneration or enfeeblement of the myocardium. When exophthalmic goiter is suspected, Grocco determines the transverse diameter on the patient at rest but standing, and then has him take some vigorous exercise, such as running, climbing the stairs, etc. The transverse diameter is then determined anew, and if a displacement of 1, 2 or 3 cm. toward the right is discovered, it is evident that there is acute dilatation of the right ventricle, as can be verified by the Roentgen rays. This readiness of the right heart to dilate after an effort is an early and almost constant symptom of exophthalmic goiter, he states, and the intensity of the phenomenon throws light also on the prognosis of the disease. Tachycardia is an entirely independent phenomenon, due to nervous influences, while the ready dilatability of the heart is a sign of muscular weakness. Another sign revealed by the percussion palpation is a band of dulness along the third left costal

cartilage in case of dilatation or hypertrophy or both of the left auricle, revealing a mitral lesion, especially mitral stenosis. Normally this horizontal band of dullness is about 1 cm. wide; the increase in width with enlargement of the left auricle has great diagnostic value in the course of acute pulmonary affections and symptomless valvular disease. Another sign brought out by percussion palpation is what he calls the pericardium hood (*capuchon péricardique*). An area of dullness fits over the base of the heart like a hood, and the clinical and post-mortem findings show that this is the sign of a special form of pericarditis at the base, with hyperplasia, in connection with the large vessels and the reflection to the aorta of the serous pericardium. This area of dullness thus fitting over the base of the heart indicates a fixed morbid process in the pericardium. When it appears in acute articular rheumatism it indicates that the heart is particularly vulnerable. It has also been found in some cases of chorea and in puerperal infection and in other diseases liable to be accompanied by the ordinary forms of pericarditis. The discovery of this area of dullness has sometimes explained otherwise mysterious fever or dyspnea. The bruits are of greater diagnostic importance than the palpation findings with disease of the aorta, he continues, and explains the reasons in detail.

Archiv für klinische Chirurgie, Berlin

XCIII, No. 2, pp. 293-556. List indexed, Oct. 22, p. 1507

- 57 Treatment of the Non-Traumatic Form of Epilepsy. F. Krause.
- 58 Surgery of the Esophagus. W. Wendel.
- 59 Operative Treatment of Orogenous Meningitis. H. Mygind.
- 60 Influence of Metabolic Disturbances and Intoxication on Healing of Wounds and Growth of Tumors. (Beeinflussung der Wundheilung und des Geschwulstwachstums durch Stoffwechselstörungen und Vergiftungen.) G. Schöne.
- 61 Fallopian Tubes and Ovaries in Inguinal Hernia. O. Fischer.
- 62 Suture of Bones. K. Ludloff.
- 63 Treatment of Callous Gastric Ulcer. H. Küttner.
- 64 Operative Treatment of Acute Hemorrhagic Pancreatitis. E. Bireher.
- 65 Pathogenesis, Pathologic Anatomy and Radical Operative Treatment of Round Gastric Ulcer. (Runder Magengeschwür.) E. Payr.
- 66 Explanation of Effect of Bullets on Skull. (Krönlein'sche Schädelsschüsse.) C. Franz.
- 67 Injuries of the Liver and Isolated Omentoplasties. (Leberverletzungen.) N. Boljarski.
- 68 *Method of Remedying Cicatricial Stenosis of the Rectum without Resection. S. P. v. Fedorow.
- 69 Operative Cure of Snapping Hip-Joint. (Zur Anatomie und Aetiologie der schnellenden Hüfte.) W. Kohn.

68. Treatment of Low Stenosis of the Rectum without Resection. Fedorow avoids the usual circular resection of a low cicatricial stricture in the rectum by drawing down the colon to form a new anus. He first mobilizes the pelvic colon through an opening in the sacrum. His technique is illustrated as he worked it out on the cadaver. It is simple and takes comparatively little time, and is a much less serious operation, he thinks, than resection of the rectum.

Beiträge zur klinischen Chirurgie, Tübingen

September, LXXI, No. 3, pp. 347-831

- 70 Conditions in Inguinal Region in Respect to Varicocele. (Einfluss der Leiste auf die Varicocele.) E. Schwarz.
- 71 Lipoma of Seminal Cord. (Lipome des Samenstrangs.) N. Beresnegowsky.
- 72 Retroperitoneal Lipoma. II. v. Vegeasack.
- 73 Successful Suture of Heart. (Zur Kasuistik der Herzchirurgie.) A. Fischer.
- 74 Idem. E. Magenau.
- 75 Resection of Chest Wall. (Brustwandresektionen.) B. Werner.
- 76 Meckel's Diverticulum in an Incarcerated Interparietal Hernia. F. Pabst.
- 77 Experimental Research on Etiology of Tumors. S. Löwenstein.
- 78 Rigidity of Abdominal Walls. (Ursachen, Zustandekommen und klinischer Wert der Bauchdeckenspannung.) A. Hoffmann.
- 79 Primary Carcinoma of Vater's Papilla. J. Oehler.
- 80 Plastic Operations on the Dura. G. v. Saar.
- 81 Benign Epithelial Tumors of the Skin, etc. (Gutartige epitheliale Geschwülste der Haut und verwandter Gebilde.) H. Borekhardt.
- 82 Intravenous Ether Anesthesia in 40 Cases; Local Thrombus in All. H. Schmitz-Peiffer.

Berliner klinische Wochenschrift

October 10, XLVII, No. 31, pp. 1861-1916

- 83 Development of Medical Instruction at University of Berlin: Centennial Sketches by Twenty-four of the Professors. (Entwicklung des medizinischen Unterrichts an der Universität Berlin).

Correspondenz-Blatt für Schweizer Aerzte, Basel

October 10, XI, No. 29, pp. 913-944

- 84 Tubercle Bacilli in Calcified Foci. (Tuberkelbazillengehalt verkalkter Herde.) C. Wegelin.
- October 20, No. 30, pp. 947-1024*
- 85 *Dangerous Intraperitoneal Hemorrhages with Uterine Myomas. F. Brunner.
- 86 Nature and Importance of the Diastole. M. Cloetta.
- 87 *Alcoholic Neuritis in Children. H. Eichhorst.
- 88 *Causal Treatment of Eye Disturbances. O. Haab.
- 89 *The New Tasks and the New Methods for the Organized Profession. (Ärztliche Kollektivaufgaben der Zukunft.) H. Häberlin.
- 90 *Hypertemia in General Practice. (Die Bier'sche Strömung des praktischen Arztes.) J. Michalski.
- 91 Importance of the Interstices in the Bone Marrow for General Disease of the Growing Skeleton. (Bedeutung der Knochenmarkkanäle für die Systemerkrankungen des wachsenden Skeletts.) M. B. Schmidt.
- 92 The School and Curvature of the Spine. (Schule und Rückgratsverkrümmung.) W. Schultze.
- 93 Importance of the Pathogenic Micro-Organisms. W. Silberschmidt.
- 94 *Allowing Parturients to Get Up Early. (Frühaufstehen der Wöchnerinnen.) T. Wyder.
- 95 *Industrial and Accidental Poisonings. (Vergiftungsfälle.) H. Zangger.

85. Profuse Intraperitoneal Hemorrhages with Uterine Myomas.—Brunner has been able to find only twelve other cases on record of this occurrence besides the one he reports, but he insists on the necessity for bearing this possibility in mind as prompt operative aid is the only means of relief. It is possible that this may sometimes have been responsible for fatalities ascribed to other causes. The symptoms are the same as with any sudden hemorrhage into the peritoneum; the knowledge of the existence of a fibroma should draw attention to this possible source for the hemorrhage; it is generally ascribed to tubal pregnancy or gastric ulcer. The correct diagnosis was made only in Brunner's case and in this not until nearly an hour had elapsed after the onset of the hemorrhage although the existence of a large fibroid tumor had long been known, the patient, aged 42, being a nurse in the hospital. Two and a half liters of fluid blood were removed from the abdominal cavity; the surface of the fibroid was a network of veins.

87. Alcoholic Neuritis in Children.—Eichhorst reports that he has encountered sixty-seven cases of alcohol neuritis at Zurich since 1884, all in patients over 20 except one boy of 8 who had complained for two years of pains in the lumbar region and increasing weakness in the muscles of the legs and back. The child was demonstrated before a class as an example of progressive pseudohypertrophy of the muscles with little hope of recovery, but the discovery that the boy stole out of his bed at night to drink the alcohol in the lamps, etc., cleared up the diagnosis, and under baths, massage and potassium iodid he was restored to health in a few months and he has since developed normally. The knee-jerk remained lively and there were no spontaneous pains or tenderness or paresthesias. The accumulation of fat in the paralyzed muscles was particularly evident in the calves and parts of the skin. The legs and lumbar muscles were the ones mainly affected, although there was some fibrillary twitching in the muscles of the arms. His father was a hard drinker.

88. Causal Treatment of Eye Disease.—Haab comments on the fact that the eye is practically part of the skin and thus shares the tendency of the skin to certain diseases, such as herpes, eczema, acne, variola and pemphigus, all of which may develop in the eye while other diseases may send their toxins to the eye. The more constitutional the origin of the morbid process in the eye, the greater the tendency to involvement of both eyes. The Wassermann reaction and the newer tuberculin tests have rendered great service in differentiating the true cause in certain cases of eye disease and preventing mistaken treatment; potassium iodid, for example, he says, may do great harm by its weakening effect when an eye process is of tuberculous origin although its aspect may be more that of a syphilitic lesion, and specific treatment is contraindicated and tuberculin and general measures required when the trouble is tuberculous. With serofulous eye affections systematic institutional treatment is indispensable, he affirms.

89. **The Tasks Now Before the Organized Profession.**—This issue of the *Correspondenz-Blatt* is a *Festnummer* on the occasion of the centennial of the medical society of the Zurich province, and Häberlin reviews the "collective tasks" now before the society. The trend of the times is toward organization, and this is especially incumbent on the medical profession in Europe on account of the extensive introduction of compulsory insurance of wage-earners against sickness. In the past it has been sufficient for physicians to refrain from injuring their colleagues in any way, but this negative ethical platform is no longer broad enough; positive concerted action to protect one and all against exploitation by outsiders has now become a necessity. Conditions within the profession are also altering so that it is no longer wise to ignore the small proportion of members of the profession who cast discredit on it by their unethical conduct; the profession must take more active measures against such men in the interests of the profession itself. Responsibility to the profession is constantly growing and developing and likewise responsibility in numerous control services, in pioneer work in many lines and fields for unremunerative, self-sacrificing services in various honorary positions. The development of wage-earners' insurance relieves the physicians of much of their unpaid work among the poor, thus giving them time for taking a leading part in the new and wide fields of effort in various lines.

90. **Hyperemia in General Practice.**—Michalski emphasizes the value of suction and constriction hyperemia in treatment of many affections in every-day practice, and he extols the simplicity and harmlessness of the technic. The cupping bells are the easiest to apply of the two methods, and five minutes' suction treatment daily may have a remarkable curative action. He has a water-jet vacuum pump for regulating the suction but the rubber bulb is almost as effectual. Boils and carbuncles are the most grateful field for this method of treatment. When seen early, before they are "ripe," the suction glass alone will sometimes cure them completely in two or three days. Later, it is preceded by a small incision under ethyl chlorid; the contents are sucked out by the cupping bell without pain and healing proceeds much more rapidly than by other technics. The suction hyperemia is also effectual in mastitis, and for pains in the scar after a laparotomy, but he warns against allowing the patient to use the cupping bell without supervision. The hyperemia induced by the elastic constricting band is particularly useful, he declares, for acute joint affections, especially gonorrhoeal, and for felons, after an incision to permit aspiration of pus. In surgical tuberculosis the constriction should be a little tighter than with other affections and great perseverance is needed; Bier regards nine months as the average length for the course of treatment, but it may cure without mutilating operations being necessary and this is worth striving for. Cold abscesses must be sought for and the contents aspirated early. The curette is rendered superfluous, he states, by hyperemic treatment either by suction or constriction, but heart disease, diabetes and arteriosclerosis are generally accepted as contra-indications for it.

94. **Allowing Parturients to Get Up Early.**—Wyder takes the practical ground that it is wisest to keep patients in bed for a time after childbirth as otherwise the laity will get the impression that women do not need to be treated as invalids after delivery. Household tasks will be resumed and the women will fail to get the needed rest and freedom from ordinary work and cares. Institutions should strive to keep the women as long as possible from their ordinary work, and this, he asserts, is the essential point, not the question as to whether they should be allowed to get up a day or so earlier.

95. **Industrial Poisonings.**—Since 1898 Zangger has been studying industrial poisoning in various industries in different countries, especially the nature of the chemicals used in certain industrial processes, and he here reviews his clinical experience at Zurich last year. The neurologic symptoms are often the first that attract the patient's attention, and the true diagnosis is often rendered difficult by the similarity between the effects of certain chronic intoxications and infectious

diseases, and by the great variability in the reaction of different individuals to the same poison, and by the difficulty in discovering the poison involved as it is frequently used in the industry under a fancy name or only for a certain brief period. Lead he has found used in 150 different industries, and many girls work with it without knowing that they have anything to do with lead, as in making or packing stiffened tissues, laces, fringes, bottle-stoppers, paints for china, papers, varnishes, cements, and repairs for parts of electric apparatus. Carbon monoxid poisoning from portable steam engines occurred in several workers in tunnels, and in others from salamanders used in drying new plaster. The escape of water gas into a factory room caused severe headache and vomiting with speedy recovery in some of the workmen but in others weakness in the legs developed, with total amnesia, the syndrome not subsiding for weeks. He has encountered forty-five cases of severe carbon monoxid poisoning in which the patients survived, the majority presented tardy symptoms. Anilin and nitrobenzol he found used in the manufacture of washing powders, hair oil, shoe blacking and various essential oils. These substances are particularly dangerous here as they are used under fancy and various names as perfumes and essences, so that no one suspects their poisonous nature. In two cases death was directly traceable to the nitrobenzol used in making a washing powder or shoe blacking, and in a third case a child had bloody urine the day after some shoe dressing had been applied to the bare feet. The less saturated the substance the greater the tendency to chronic disturbances, both local and general; benzol, for instance, has a lesser toxic action than benzol, and the toxic action increases in allyl alcohol, acrolein, etc. This explains why the acute intoxications often display peculiar features, due more to the special physical properties of the chemical; the chronic intoxications are more the result of the chemical properties than of the physical. The majority of industrial poisonous substances, he remarks in conclusion, are fatal only with relatively large doses but they induce special and often typical syndromes, particularly on the part of the nervous system, when the system is long subjected to their influence.

Deutsche medizinische Wochenschrift, Berlin

October 13, XXXVI, No. 41, pp. 1889-1936

- 96 *Ehrlich's "606" in Syphilis. A. Neisser, P. Ehrlich, K. Alt, E. Schreiber, J. Iversen, W. Wechseltmann, J. Orth, P. Uhlenhuth, C. Stern, L. Michaelis, K. Grouven and twenty others.

October 20, No. 42, pp. 1937-1984

- 97 Rudolf Virchow and Bacteriology. J. Orth.
98 Functional Diagnosis of the Heart. F. Kraus.
99 Etiology of Trachoma. (Natur des Trachomerregers.) H. Herzog.
100 Quartan Malaria in Germany. P. Mühlens.
101 Unusual Localization of the Blue Line in Chronic Lead Poisoning. H. Knierim.
102 *Transient Amaurosis. L. Pollnow.
103 Movable and Wandering Cecum. T. Hausmann.
104 *Muscular Rigidity as Sign of Tuberculous Apical Disease. F. M. Pottenger.

96. Ehrlich's "606" in Syphilis.—The substance of this symposium was given in *THE JOURNAL*, November 5, page 1656.

102. **Transient Blindness.**—Pollnow reports a case of transient blindness after vaccination, evidently the result of a special neuroretinitis, vision gradually becoming restored in the course of a few months. In two other cases the transient amaurosis followed scarlet fever. In all the cases the eye affection did not develop until several weeks after the apparently causal affection, and it was transient in all. In the scarlet fever patients, two brothers, the fundus showed merely retrolubular neuritis, while in the vaccination case there was choked disc in both eyes.

104. **Rigidity of the Chest Muscles as Early Sign of Tuberculous Apical Disease.**—The experiences in America and Europe seem to have confirmed the importance of Pottenger's sign of rigidity of the muscles of the chest as an early indication of disease in the apex. He here replies to some criticisms and theorizes to explain the mechanism of the sign. It is liable to be encountered, he says, with any incipient inflammatory affection of the lung or pleura, becoming apparent at the slightest inflammatory reaction within.

Deutsche Zeitschrift für Chirurgie, Leipsic

September, CVI, Nos. 4-6, pp. 507-620

- 105 Forty-Eight Cases of Intestinal Stenosis from Secondary Carcinoma. W. Damm.
 106 Resection of Lumbar Vertebrae. W. Kausch.
 107 Diagnosis of Appendicitis. P. Esau.
 108 Operative Displacement of the Thyroid: Six Cases. (Technik und Indikationen der Endothyreopexie.) E. Tavel.
 109 Bilateral Inguinal Hernia of the Double Uterus. M. Makkas.
 110 Movable Cecum as Cause of So-Called Chronic Appendicitis, and Advantages of Cecopexy: Fifty-Two Cases. E. Stielnig.
 111 *Cosmetic Removal of Tuberculous Glands in the Neck. H. Krüger.
 112 Advantages of Suture of Vessels Through Entire Wall. (Wert der einfachen, fortlaufenden, die ganze Gefässwand durchfassenden Gefässnaht.) K. v. Schiller and L. Lobstein.
 113 Surgery of Biliary Apparatus: 120 Operations in 1909. W. Eichmeyer.
 114 Endothelioma on Dermoid Nexas. F. Lafaro.
 115 Decompressive Craniectomy. A. Jannu.
 116 Hernia Involving Colon, Ileum and Cecum. A. Jannu.
 117 *Case of Symmetrical Neurotic Gangrene After Spinal Anesthesia. P. Sudeck.

111. Cosmetic Operations for Tuberculous Glands in the Neck.

—Krüger comments on the disfigurements frequently resulting from removal of enlarged glands in the neck, and then describes a non-disfiguring technic which he has successfully applied in forty cases. The incision is nearly hidden by the hair or collar, while it permits ample access to the diseased tissue. It starts at the edge of the hair on the level with and close to the mastoid process, follows the edge of the hair nearly to the back, then runs vertically down to the anterior margin of the trapezius muscle and curves with this to the clavicle and runs along above this to the sternocleidomastoid or beyond. Only a slight stretch of the vertical portion is visible, while the large flap that can thus be turned back exposes the glands fully to view.

117. Symmetrical Gangrene After Spinal Anesthesia.—

Sudeck states that a woman of 62 developed symmetrical gangrene in the dorsum of the feet and part of the toes. The anesthesia had been applied for an operation for incarcerated hernia, and the redness and blistering were observed the morning after the operation. Goldman has reported a somewhat similar case in which the symmetrical gangrene affected the heels.

Medizinische Klinik, Berlin

October 16, VI, No. 42, pp. 1643-1682

- 118 Stimulating Influence on Metabolism of Radium Emanations. (Radium und Stoffwechsel.) F. Gudzent.
 119 The Light of the Spectrum in Examination of the Eye. (Verwendung von Spektrallicht zur Augenuntersuchung.) R. Helmhold.
 120 *Practical Points in Diagnosis of Acute Otitis Media. S. Blum.
 121 Operative Removal of False Teeth from the Esophagus. (Zwei Fälle von verschlucktem Gebiss.) H. H. Dresemann.
 122 Ehrlich's "606" in Syphilis. O. Salomon.
 123 *Action of Ehrlich's "606" in Syphilis. E. Meirowsky.
 124 Somnambulism as Epileptic Equivalent. F. Kanngiesser.
 125 *Potassium Permanganate or Urochromogen Urine Test and Its Relation to the Diazo Reaction. (Neue Harnreaktion.) M. Weiss.

120. Symptom of Acute Otitis Media.—Blum reports that further experiences with 200 cases have confirmed his statements in regard to the early diagnosis of otitis media in children by local pressure. THE JOURNAL described the sign as follows, Nov. 30, 1907, page 1874: On placing the finger behind the angle of the jaw in the groove formed by the inferior maxillary bone and the anterior border of the sternomastoid of the affected side, and pressing upward and inward toward the auditory canal, decided evidence of pain is elicited. He says this symptom is constant in otitis media, and is of special diagnostic value in infants.

123. Ehrlich's "606" in Syphilis.—Meirowsky states that the "606" does not seem to have any irritating action on the kidneys. He observed rapidly transient albuminuria in only one of his eighty cases but in not less than six cases necrosis developed at the point of injection, painless for weeks until is opened outward; there was no suppuration.

125. Urochromogen Reaction in the Urine.—Weiss dilutes 1 part of fresh urine with 2 parts water and fills half of two test-tubes with the mixture. He then adds to one of the test-tubes 3 drops of a 1 to 1,000 solution of potassium permanganate in distilled water. In the presence of urochromogen, a yellowish tint develops, the intensity proportional to the diazo reaction.

Mitteilungen aus den Grenzgebieten der Med. und Chir., Jena

XVII, No. 1, pp. 1-172. Last indexed, Sept. 3, p. 897

- 126 *The Blood-Pressure During Narcosis plus Chilling. (Verhalten des Blutdruckes unter der Einwirkung von Temperaturerzöen in Aether und Chloroformnarkose und seine Bedeutung für die Entstehung der Nachkrankheiten.) H. Stursberg.
 127 Little if any Prophylactic Efficacy in Subcutaneous Injection of Nucleinic Acid before Laparotomies. E. v. Graff.
 128 Pathogenesis of Appendicitis. (Zur Klärung der Pathogenese der Wurmfortsatzentzündung auf Grund experimenteller und bakteriologischer Untersuchungen.) B. Heile.
 129 *Serotherapy in Hemophilia. E. Trembur.
 130 Slight Functional Consequences of Operative Removal of the Musculature of the Large Intestine and Rectum. A. Müller and O. Hesky.
 131 The Iron Metabolism in Leukemia and After Splenectomy and the Influence of Roentgen-Ray Treatment. (Eisenstoffwechsel im Falle von myeloischer Leukämie und Splenektomie.) R. Bayer.
 132 Actinomycosis of the Liver. L. Diehl.
 133 *Prognosis of Extensive Resection of the Small Intestine. W. Denk.
 134 Case of Biliary Peritonitis without Perforation of Biliary Apparatus. P. Clairmont and H. v. Haberer.
 135 Anuria after Gall-Stone Operations. P. Clairmont and H. v. Haberer.

126. Blood-Pressure During Narcosis Plus Chilling.—Stursberg reports experimental research on dogs which showed that under the influence of ether the application of cold caused a pronounced rise in the blood-pressure. When the dogs were under the influence of chloroform, there was no effect of this kind on the blood-pressure. These facts show that ether, in the dose necessary for general anesthesia, does not affect the vasomotor reflexes, while, on the other hand, chloroform evidently arrests this reflex action. In discussing the practical importance of these findings he compares the effect of ether in these experiments to that of "catching cold." Although the nature of "catching cold" is not fully understood, yet it is generally assumed that it is the result of the contraction of the vessels in the skin with consequent increased accumulation of the blood in the internal organs; in other words, it is the peripheral vascular reflexes which play the decisive part in the development of the "catching cold syndrome." Contraction of the vessels unless followed at once by a reaction of dilatation seems to be especially dangerous. The conditions are thus seen to be practically the same under the action of ether as from "catching cold;" the vessels contract under the influence of cold without the salutary reactive dilatation. This explanation harmonizes with the facts observed, namely, that the use of ether is followed by postoperative pneumonia, etc., much more frequently than when chloroform is used. The practical lesson from this research is that when ether is used great care should be taken to avoid cooling the skin at any point. He adds that this harmonizes with the conclusions of S. G. Davis, which he reached by another route, to the effect that postoperative pulmonary complications may be avoided by preventing any reduction of body temperature.

129. Serotherapy in Hemophilia.—Trembur describes the history of a girl with extreme hemophilia who was treated by rabbit serum. The child increased 17 pounds in five months and it was hoped that she would outgrow the tendency, but the onset of menstruation brought excessive losses of blood and although injection of 20 c.c. of rabbit serum had a strikingly favorable transient effect, the child succumbed to anemia. In a second case of hemophilia, in a boy of 9, the profuse hemorrhages were arrested at once by injection of 42 c.c. of fresh rabbit serum in two weeks. In both cases there was intense fetor ex ore for a few days before the onset of the hemorrhages. No by-effects were observed in either case; the favorable action of the serum is probably due to the leukocytosis which it induces. He warns, however, that the kind of serum used should be changed at the slightest indication of anaphylaxis.

133. Prognosis of Extensive Resection of Small Intestine.—Denk reports the ultimate outcome in fourteen cases in which over 3 and 4 meters (yards) of small intestine were resected, including one case from his own experience. All the patients who had not over one-half the total length of the small intestine resected, 3 meters, are in good health to date, from six to fourteen years afterward, but those with more extensive resection than this have all died with progressive marasmus.

Monatsschrift für Geburtshilfe und Gynäkologie, Berlin

October, XXXII, No. 4, pp. 385-516

- 136 Instruction in Obstetrics and Gynecology at Berlin Medical School, 1810-1916. A. Martin.
- 137 Combined Malformations in Kidneys and Uterus. (Zur Geuese kombinierter Nieren-Uterus-Missbildungen.) E. Holzbaeb.
- 138 *Tetany during Pregnancy. (Tetania gravidarum.) E. Frank.
- 139 *Ovarian Origin of Uterine Hemorrhage. Kaji.
- 140 Indications in regard to the Other Tube with Tubal Pregnancy. (Wie ist bei der Operation einer Tubargravidität die Tube der anderen Seite zu behandeln?) M. Rosenstein.
- 141 Suppurative Catarrh in the Fallopian Tube after Induced Abortion. K. Amersbach.
- 142 *Connection between Myoma and Internal Disease. (Zusammenhang von Myomen mit internen Erkrankungen.) A. Theilhaber.
- 143 Normal Standards for Size of Uterus. (Plastische Modelle zur Grössenbestimmung von Unterleibstumoren insb. der schwangeren Gebärmutter.) R. Schaeffer.
- 144 Treatment of Postpartum Hemorrhage. R. Hofstätter.

138. **Tetany During Pregnancy.**—Frank has found it necessary to interrupt the pregnancy in several cases of tetany developing during pregnancy and advocates this procedure in the severer cases, especially when there is a tendency for the tetany to recur with different pregnancies. In most cases the tetany can be conquered with the bromids but it is not always possible to determine positively the inherently mild cases. In four cases on record and in one of his own the tetany was the direct cause of death.

139. **Ovarian Origin of Uterine Hemorrhage.**—Kaji states that in seven cases no cause for the hemorrhage could be discovered in or around the uterus, but in every instance, one or both ovaries were found pathologic. He is convinced that uterine hemorrhage may be due to influences from the ovaries in certain cases.

142. **Connection Between Myoma and Internal Disease.**—Theilhaber reports seventeen cases in which uterine myomas coexisted with heart disease, contracted kidney or diabetes. The heart trouble was generally a myocarditis, and most of the patients were obese. He comments on the frequency of myoma in wealthy women, especially in Jewesses. The facts observed suggest that some metabolic disturbance with pronounced hyperemia of the uterus are the main factors in the development of myoma. There also seems to be a racial predisposition, and syphilis is certainly a predisposing cause. He warns that a gumma in the uterus may simulate a myoma, while it might subside under mercurial treatment. It might be wise to apply the Wassermann test, he adds, to patients with myoma and inaugurate a course of antisyphilitic treatment in case of a positive response. In conclusion he cites several cases in which there was slight cerebral hemorrhage with uterine myoma; Czerny has encountered five cases of paralysis with myoma.

Münchener medizinische Wochenschrift

October 11, LVII, No. 41, pp. 2121-2163

- 145 *The Importance of Abnormal Lime Metabolism in Origin of Rachitis. (Bedeutung der Kalkstoffwechselstörungen für die Entstehung der Rachitis.) W. Dibbelt.
- 146 *Laceration of the Dura During Delivery. (Tentoriumzerreissungen bei der Geburt.) R. Beneke.
- 147 *Stretching of the Dura in Relation to Chronic Brain Disease. (Bedeutung der Duraspannung für chronische Gehirnerkrankungen.) R. Beneke.
- 148 *Mechanism of the Delivery of the Skull and Protection of the Perineum. (Mechanik des Austrittes des kindlichen Schädels und Dammschutz.) H. C. A. Grube.
- 149 Technic for the Meiotagmin Reaction in Cancer. M. Ascoli.
- 150 Serodiagnosis of Syphilis, Frambesia and Malaria in Sumatra. (Die Wassermann-Neisser-Brucksche Reaktion in den Tropen.) G. Baermann and N. Wetter.
- 151 Simplification of the Wassermann Reaction. L. Kopinow.
- 152 Outcome of Treatment of Gynecologic Nervous Disturbances. E. Engelhorn.
- 153 *Puncture in Treatment of Gonorrheal Epididymitis. R. Frühwald.
- 154 Behavior of Ehrlich's "606" in the Rabbit Body. Schwartz and Flemming.
- 156 Ehrlich's "606" in Leprosy. E. Ehlers.
- 157 Centennial of the Berlin Medical Faculty. K. Sudhoff.

145. **Lime Metabolism and Rachitis.**—Dibbelt reports research which, he thinks, explains the origin of rachitis as a disturbance in the lime metabolism leading to increased excretion of the lime salts into the intestine. The rachitic bone changes are the consequence of this general metabolic disturbance, as he explains in detail.

146-147. **Pathologic Importance of Stretching the Dura.**—Beneke explains the mechanism with which any pressure on the sides of the head of an infant may stretch the dura so forcibly as to entail venous stasis in the ventricle region. During delivery, pressure of this kind may tear the tentorium in a characteristic manner and this, he believes, if it is not immediately fatal, explains certain brain affections in later life. Pressure on the temples of the head from a child cadaver closes the foramen magnum by forcing part of the cerebellum into it. The condition is seen to be the same as with chronic hydrocephalus in which the cerebellum is forced into the foramen and the communication with the spinal canal is obstructed. He found the tentorium lacerated thus in a number of children dying during delivery or soon after, even when the delivery had been rapid and easy, once even with a four-months' fetus. The possibility that fatal asphyxia may be due to this cause with normal delivery is important, from both the clinical and medicolegal standpoints. Pressure on the temples of the decapitated head from a child cadaver is seen to stretch the falx as well as the tentorium, and thus it entails compression of the straight sinus which must induce venous congestion in the region of the tela and choroid plexus. The same thing occurs when a child with still open sutures lies habitually on the side of its head; the weight of the brain alone has this effect of stretching the falx with the consequent tendency to venous congestion inviting hydrocephalus. Acute total occlusion of Galen's vein is liable to entail sudden death, as occurred in the case of a young man in Beneke's experience. Rachitis or softening of the bones of the skull in older children may also favor the stretching of the falx and tentorium as the child lies on the side of its head and this may be the explanation in many cases of chronic hydrocephalus, as the straight sinus and the longitudinal sinus are both liable to compression from this cause, with chronic hyperemia in the region as the result. It is a familiar fact that in children with rachitis the brain is unusually heavy, evidently the result of a special hyperemia; this hyperemia is now explainable, he declares, as the result of the lengthwise stretching of the dura by pressure on the side of the head.

148. **Prevention of Laceration of the Perineum.**—Grube comments on the necessity for preventing the parturient from slipping away from the hand protecting the perineum during delivery. This he accomplishes by having her lie on her back, the shoulders being held by another person; a small cushion is slipped under the buttocks close to the anus, the feet are supported or the thighs are flexed on the abdomen. The obstetrician's right hand should be protected by a coarse cotton mitten. The diameter of the fetal head from brow to back of the neck is brought into the median line, the right hand pushing back the perineum with the thumb while holding the forehead firm with the rest of the hand. The left index and middle fingers, at the same time, are worked into the angle toward the symphysis, and lift up the back of the head until the back of the neck enters the symphysis angle. With this technic he has successfully delivered fifty-two primiparæ including five over thirty years old; there was laceration of the perineum in only four cases, and in one of these the laceration occurred during the passage of the unusually broad shoulders, the head having emerged without injury. The few lacerations that did occur were all small, of the first degree, and were readily sutured at once.

153. **Puncture in Treatment of Gonorrheal Epididymitis.**—Frühwald gives comparative series of patients with gonorrheal epididymitis treated with puncture and without, the results demonstrating, he declares, that the immediate effect of the puncture is often a great relief, but that it has no durable curative action. The indications for it are consequently limited.

Therapie der Gegenwart, Berlin

October, LI, No. 10, pp. 433-480

- 158 *Duodenal Ulcer. (Zur Pathologie und Therapie des Duodenalgeschwürs.) F. Umber.
- 159 *Treatment of Acute Infectious Diseases in Children. A. Baginsky.
- 160 *Treatment of Asthma. O. Weiss.

158. **Duodenal Ulcer.**—Umber remarks that duodenal ulcer must be more frequent than is generally recognized as in none of his cases had the diagnosis been correct when the patients were referred to him; at one time he had five cases at once in his service. At the same time he expresses some skepticism in regard to the Mayo's report of more duodenal than gastric ulcers in a recent series of 200 cases. The wall of the duodenum may be apparently intact when examined without, and the symptoms often lead to false conclusions. The pains frequently simulate gall-stone trouble; one of his patients found relief by assuming the knee-elbow position during the attack. In this case the ulcer was in the rear wall of the duodenum and had become adherent to the pancreas. The pain seems to be dependent more on the quantity than the quality of the food. The stomach is generally functionally affected in sympathy. Treatment should be practically the same as for gastric ulcer unless profuse hemorrhages or unbearable pain demand operative interference. In one of his cases gastro-enterostomy alone did not prove sufficient to arrest the tendency to hemorrhage.

159. **Treatment of Acute Infectious Diseases in Children.**—Baginsky classifies the febrile cases in children in four categories: (1) those with a temperature between 40.5 and 41 C. (104 and 105.8 F.), but not of long duration; this is borne by children without much harm for a comparatively short time; (2) those in which the temperature fluctuates between 40 or 41 C. and 36 C. (104, 105.8 and 96.8 F.); this is the expression of septic infection and can seldom be influenced by antipyretic measure but only by removal of the septic focus; (3) cases with prolonged high temperature without much let-up, from 39 to 41 C. (102.2 to 105.8). This is especially dangerous for children. The fever is the expression of severe infection and, besides, exhausts the child's strength. If the fever keeps up for 5, 6, 8 or more days, it should be vigorously combated; the extent of surface on the child body ensures particularly favorable action with hydrotherapeutic measures for reducing the temperature; drugs should be avoided unless absolutely necessary. All antipyretic measures should be accompanied by tonics, and he regards wine as the best of these, and absolutely indispensable in infectious diseases in children, as it keeps their strength up owing to its complex composition, not solely by the alcohol content. He aims to keep the child's strength up during the febrile period with wine, milk, bouillon and raw eggs, believing that heart weakness in children is often the result of insufficient nourishment during the height of the disease. He prefers Greek wine or Bordeaux and sherry, giving from 25 to 100 gm. (½ to 3 ounces) daily to children from 5 to 14 years old. Even very sick children can be fed in this way and their strength and weight maintained so that they enter on a more favorable and shorter convalescence. Catarrhal conditions in the air passages and digestive tract and pathologic conditions of the kidneys are aggravated by defective functioning on the part of the heart, so that measures to keep the heart toned up act favorably on these other organs. Unless there is actual nephritis, elimination of toxins through the kidneys is promoted by subcutaneous injection (100 or 200 gm.) of a 3 to 1,000 salt solution, supplemented by alkaline mineral waters. Saline infusion is particularly useful also when diarrhea sets in; the diarrhea alone is frequently responsible for the serious collapse.

160. **Treatment of Asthma.**—Weiss endorses Brügelmann's explanation of asthma as invariably the result of irritation of the respiratory center, and his treatment based on this conception. Brügelmann has had 3,510 patients with asthma during the last thirty years, and has made a special study of the traumatic, reflex and toxic factors that may irritate the respiration center and thus induce asthma in the predisposed. The whole horde of reflexes may act on the respiratory center, reflexes from the eyes, ears, nose, throat, stomach, intestines, sexual organs, cold feet and skin, etc. The toxic action of the insufficiently oxidized blood, as with heart and kidney disease or after excessive exercise, dancing, running, etc., is a prominent factor in the development of the attack of asthma, but the greatest light was thrown on the

whole subject, he asserts, by his observation of the effect of inhalation of an atropin spray. This frequently arrested at once an attack of asthma, as also painting the nasal mucosa with atropin-cocain solution. The special points where the atropin exerted this action seem to be restricted to the region behind the uvula, the tonsils and their vicinity. The asthma is at once arrested and there is no further disturbance as long as the paralyzing action of the drug on the region lasts, no matter whether the asthma is of traumatic, reflex or toxic origin. This, he says, confirms the assumption that this region is the seat of the spasmodic contraction and, further, that the morbidly irritated respiration center elicits this spasmodic contraction as its normal reaction. The aim in treatment should be to free the respiration center from the injurious influence of morbid reflex stimuli and the action of toxins; consequently all the organs must be examined to discover the source of the reflexes and all put in good order and functional affections cured. The asthma specialist must therefore be skilled in rhinology, gynecology, electrotherapy and pneumatotherapy and be a master of suggestion to cure the purely functional disturbances. But success in the end will well repay his efforts.

Wiener klinische Wochenschrift, Vienna

October 6, XXIII, No. 40, pp. 1403-1438

- 161 T. Schwann, 1810-1882. V. v. Ebner.
 162 Regulation of the Respiration in Pathologic Conditions. O. Porges, A. Leimdorfer and E. Markovici.
 163 *Apparatus for Conservative Office Treatment of Fractures of the Patella, Olecranon and Calcaneum. E. Fischer.
 164 *Occurrence of Tonsillitis During Tuberculin Treatment. (Vorkommen von Anginen bei der Anwendung von Tuberkulinpräparaten.) R. Krämer.
 165 Successful Suture of Ulnar Nerve Thirteen Years After Trauma. G. Steffler.
 October 13, No. 41, pp. 1439-1470
 166 *Fibrous Sclerotic Paranephritis. O. Zuckerkandl.
 167 Elimination of Sugar After Partial Removal of the Pancreas. (Zuckerausscheidung nach partieller Pankreasexstirpation.) F. Reach.
 168 Oxydasis and Peroxydasis. C. Kreibich.
 169 *Hepato-Duodenostomy. (Zur Chirurgie der Gallengänge.) Doherer.

163. **Device for Ambulant Treatment of Fracture of the Patella, Olecranon and Calcaneum.**—Fischer prevents the loosening of the adhesive plaster dressing with these fractures by a spring device which holds the ends of the plaster taut. It can be improvised with a piece of hard wood about 1 foot long, ¼-inch wide and ¾ inch thick, with a spool fastened at each end. A cross-bar is stitched in the crossed ends of the adhesive plaster and a string from each passes over the spools at the end of the wood and is fastened to an iron ring. A rubber tube is used to tie the two rings together, the pressure applied being sufficient to bend the wood like a bow; this elastic pressure stretches the ends of the plaster with such force as to prevent any loosening. A similar device is made of two or three sheets of steel of the same shape, with prongs at each end to hold the crossed ends of the plaster dressing. This spring looks like a miniature wagon spring. There is no direct pressure on the limb but the device holds the stumps together with a permanent force that can be regulated, while the patient is able to be up and about. The joint can be moved under the spring device without spreading the stumps in apposition, thus obviating the danger of ankylosis. Another advantage is that the pressure is applied to the front of the fragments and thus prevents their tilting up. His article is accompanied by twenty illustrations showing the device as he has applied it in ten cases of fracture of the patella and in fracture of the olecranon or calcaneum. The diastasis was from 2 to 3.5 cm., but the fracture healed with consolidation of the bone and complete restitution of function in all the patella cases. He applies the plaster in three layers, slitting each part half way and spreading the slits to form a fan; a few stitches at the base of the slits holds them firm.

164. **Tonsillitis During Tuberculin Treatment.**—Krämer thinks that it is more than a mere coincidence that a process resembling follicular tonsillitis developed in sixteen out of seventy cases of various tuberculous eye affections in which the patients were being given tuberculin treatment. There was no apparent connection between the cases, either in time

or locality, and tonsillitis is rare in an eye clinic, and none of the other patients developed tonsillitis. These facts suggested that the angina was a local reaction to the tuberculin, some tuberculous process in the tonsils flaring up. This assumption is sustained, he declares, by Reimann's discovery of foci in the tonsils in every patient at his sanatorium with tubercle bacilli in the sputum and also in 6 per cent. of all the others. Spengler has recently called attention to a reaction angina under tuberculin treatment. The brief duration and the lesser general indisposition distinguish this angina from ordinary follicular tonsillitis.

166. **Treatment of Sclerotic Paranephritis.**—Zuckerkaudl calls attention to a special form of nephritis which requires a different treatment. The kidney becomes embedded in a fibrous mass of indurated tissue, and when this has occurred the organ has long since ceased normal functioning. It is generally small in comparison with the fibrous bed, but it is always completely destroyed, either by suppuration, induration or fatty degeneration. The discovery of the fibrous sclerosis around the kidney demonstrates that the organ within is profoundly degenerated, and often the seat of a latent process. Its removal is urgently indicated, but it is not necessary to remove the capsule. He has shelled out the kidney from its capsule in over a dozen cases of this kind, and the results have been constantly excellent, so that he commends this technic as the routine intracapsular nephrectomy procedure for fibrous sclerotic paranephritis. No harm, he says, results from leaving the indurated mass and the capsule.

169. **Hepato-Duodenostomy.**—Doberer gives an illustrated description of a case of bile fistula in which it was not possible to utilize the hepatic duct for drainage, and he consequently sutured the duodenum directly to the main intrahepatic biliary duct.

Zeitschrift für Urologie, Berlin

October 14, No. 10, pp. 729-808

- 170 Gas in the Urine. (Pneumaturia.) E. Sörensen.
- 171 Action of Prostate Extract. (Wirkung von Prostatapresssäften.) A. Gotz.
- 172 Three Refractory Cases of Gonorrhoea. E. Steffen.
- 173 *Treatment of Chronic Gonorrhoea with Vibration Massage. (Die Behandlung der chronischen Gonorrhoe mit Wasserdruckspülungen, Spülmassage und Wasserdruckmassage.) H. Drenw.
- 174 Improved Cystoscope. E. R. W. Frank.

173. **Vibration Massage in Treatment of Gonorrhoea.**—Drenw's method of applying the water jet vacuum pump in combination with a perforated catheter for rinsing out and massaging the urethra, was briefly described in THE JOURNAL, Oct. 1, 1910, page 1237. His experiences with it to date in twenty-one cases have been very encouraging, he states.

Zentralblatt für Chirurgie, Leipsic

October 15, XXXVII, No. 42, pp. 1361-1392

- 175 *Possible Dangers of Adrenalin-Saline Infusion. (Ist die Infusion von Adrenalin-Kochsalzlösung ungefährlich?) W. Merkens.

175. **Fatality After Adrenalin-Saline Infusion.**—Merkens' patient was a man of 50, with glycosuria for several years. The condition the day after an appendicectomy was grave but not hopeless, the pulse was 140, but regular, and there was occasional vomiting. One liter of physiologic salt solution was then infused into a vein in the arm, with ten drops of the ordinary adrenalin solution. The patient became pale and restless, a rigor soon followed, the pulse grew smaller and faster, and death ensued in a few hours. The adrenalin solution was not quite fresh; most of the contents of the bottle had been previously used, but the fluid was perfectly limpid.

Zentralblatt für Gynäkologie, Leipsic

October 15, XXXIV, No. 42, pp. 1345-1376

- 176 *Operative Treatment of Iysoparemia. K. D. Josphson.
- 177 Pernicious Vomiting of Pregnancy Arrested by Thyroid Treatment. (Das Schwangerschaftserbrechen, heilbar durch Thyroëdin.) A. Siegmund.

October 22, No. 43, pp. 1377-1408

- 178 Congenital Acute Nephritis with Universal Dropsy in Twins Born to Mother with Acute Nephritis. A. Sitzerfray.
- 179 Cervical Cesarean Section. (Zur Frage des cervicalen Kaiserschnittes.) W. v. Streit.
- 180 Thyroid Treatment for Stimulation of Lactal Secretion. (Der Milchmangel der Frauen, heilbar durch Thyroëdin.) A. Siegmund.

176. **Operative Enlargement of Infantile Vagina.**—None of the women in the three cases reported had vaginismus, and Josephson thinks that an anatomic basis for the latter could be discovered in many cases if sought for. In one of the women the smallness of the vagina was the result of cicatricial constriction, in the others it was a primary lack of development. His operation was a lengthwise incision carried through the vulva up into the vagina for about 3 cm., about a fingerbreadth on each side of the median line. The lips of each incision were then drawn sideways and sutured together again in such a way as to bring the incision across instead of lengthwise of the vagina. Between the two incisions is a stretch of intact vulvar mucosa, enlarging the vagina to this extent. The double incision respects the muscles better than a single incision, while the lumen is correspondingly enlarged. In one case he preceded the operation with progressive dilatation of the vagina, and in another he found three incisions necessary.

Gazzetta degli Ospedali e delle Cliniche, Milan

October 9, XXXI, No. 121, pp. 1273-1288

- 181 Comparative Tests of Stomach Functioning. (Intorno ad alcuni metodi proposti per lo studio delle funzioni gastriche.) M. V. Carletti.
- 182 Influenza Favors Development of and Aggravates Other Infections. A. Marazzano.
- October 11, No. 122, pp. 1289-1296
- 183 *Traumatic Neuroses. C. Mannini.
- October 16, No. 123, pp. 1305-1320
- 184 Five Cases of Fracture of the Skull. A. Fontana.
- October 18, No. 125, pp. 1321-1328
- 185 Plastic Operations on Vagina for Vesicovaginal Fistula. O. Betti.
- October 20, No. 126, pp. 1329-1336
- 186 Foreign Bodies in the Esophagus. C. Rusconi.

183. **Traumatic Neuroses.**—Mannini relates the particulars of a case which emphasizes the necessity for caution in examining and managing a patient after an accident. In his case one physician after another seems to have added his share of suggestion of symptoms and consequences of the trauma until the patient became an incurable invalid, presenting the clinical picture of a cerebellar disease and yet no anatomic cause could be found for the syndrome at necropsy. The aggravation of the syndrome after each visit to a physician was a noticeable feature of the case. Mannini warns that persons after an accident require the same circumspection and reticence on the part of physician as confirmed neurasthenics and hysterics. They are peculiarly liable to be affected by unintentional and even unconscious suggestion and imitation. This fact should be borne in mind in all intercourse with them, and it should also serve as a guide in treatment.

Policlinico, Rome

October 9, XVII, No. 41, pp. 1283-1314

- 187 *Cerebellar Tumors Without Special Symptoms. A. Ceconi.
- October 16, No. 42, pp. 1315-1346
- 188 Ehrlich's "606" in 156 Cases of Syphilis. P. de Favento.
- 189 Abdominal Inguinal Hernia with Ectopic Testicle. (Ernia inguinale-superficiale addominale con ectopia del testicolo da inserzione anomala del gubernaculum testis.) M. Fasano.
- 190 Epidemic of Diphtheria at Mierbia. G. Ungarelli.
- October, Medical Section No. 10, pp. 429-476
- 191 Favorable Action of Roentgen Rays on Experimental Tuberculous Joint and Gland Disease. P. Ghilarducci.
- 192 The Presystolic Murmur and the Duplication of the Second Sound in Mitral Stenosis. C. Pezzi.

187. **Cerebellar Tumors without Special Symptoms.**—In the case reported by Ceconi a young man had severe headache for six months with only occasional slight remissions. The headache involved the right parietal region, sometimes the whole right side of the head, or was diffuse, aggravated by movements or touch. During the last three months the vision had grown weaker, but there were no vomiting, vertigo or disturbances in the gait except slight weakness apparent in the left leg after walking. The knee-jerk was much exaggerated on the left side. The patient died forty days after entering the hospital, but there were no special cerebellar symptoms at any time. Necropsy revealed a large caseated tubercle occupying nearly the whole of the right hemisphere of the cerebellum, with a smaller tubercle in the center of the left. He discusses the differentiation of such cerebellar lesions and the localization of the tumor explaining the absence of ataxia

in some cases. Luciani's experiments have confirmed the assumption that other organs can vicariously substitute the lacking cerebellar functioning. Experience has also demonstrated that a gradually growing tumor may push the nerve fibers aside without really injuring them, so that normal functioning may long persist.

Riforma Medica, Naples

October 10, XXV, No. 41, 1121-1148

- 193 Anaphylaxis from Gastric Juice with Cancer. (Anaflassia da succo gastrico.) S. Livierato.
- 194 Decapsulation of the Kidney in Experimental Mercury-Bichlorid Intoxication. (Lo scapsulamento del rene nelle intossicazioni sperimentali da sublimato.) G. Ferrero.

Hospitalstidende, Copenhagen.

September 14, LIII, No. 37, pp. 1057-1080

- 195 Physiologic Fluctuations in Leukocyte Count. (Fysiologiske Svingsninger i Leukocytaltallet.) V. Ellermann and A. Erlandsen. Commenced in No. 36.

September 21, No. 38, pp. 1081-1104

- 196 Punctate Erosions on Uterine Cervix with Gonorrhoea. (Erosio punctata postvesiclosa colli uteri hos Gonorrhoeepatienter.) L. Nielsen.

October 5, No. 40, pp. 1129-1152

- 197 *New Safranin Test for Sugar in Urine. (En ny Metode til Sukkerbestemmelse i Urin.) K. A. Hasselbalch and J. Lindhard. Commenced in No. 39.

October 12, No. 41, pp. 1153-1176

- 198 Treatment of Acute Appendicitis. A. Møller.

197. Simple Test for Sugar in the Urine.—Hasselbalch and Lindhard describe a new test which they say makes it possible for the busy practitioner without laboratory facilities to determine readily whether the applicant for life insurance, for instance, has pathologic proportions of sugar in the urine. Their technic dispenses with the necessity for removing the albumin beforehand, and the error from the "autoreduction" of the urine is less, they assert, than with any other of the usual methods, the alkaline solution of safranin used not being reduced by uric acid or creatinin. The findings with this and the ordinary tests in long series of normal and glycosuric persons are tabulated for comparison, all apparently confirming the reliability of the test and the keeping properties of the reagent. This is a 1 to 10,000 solution of safranin; it does not seem to be affected by alkalis or heat, but the tint changes on the addition of sugar, the deep red tint fading away and the colorless fluid then assuming a yellow or pinkish yellow tint or fluorescence. One c.c. of the 1 to 10,000 safranin solution and 1 c.c. of a 1 per cent. solution of potassium hydrate are mixed and the urine added drop by drop, after which the glass is placed in the boiling water bath for three minutes. The above mixture of 1 c.c. of each fluid reduces about 0.25 mgm. of grape sugar, from which it is easy to compute the approximate urine proportion in the urine. The test may be regarded as giving negative findings if the characteristic change of tint does not follow when ten drops of urine are added to a mixture of 3 c.c. each of the safranin and the potassium hydrate solutions and the whole is heated in the boiling-water bath for three minutes. Certain other sugars give the reaction as well as grape sugar.

Nordiskt Medicinskt Arkiv, Stockholm

XI, III, Surgical Section, Nos. 1-2. Last indexed, Nov. 12, p. 1772

- 199 *Kidney Stone. (Zur Diagnose und Therapie der Nephrolithiasis.) B. Floderus. Commenced in vol. xlii.

199. Kidney Stone. Floderus here makes a contribution to the study of nephrolithiasis, which he discusses from various points of view, his article embracing 261 pages, with summaries of fifty-six cases. The article is in German and is accompanied by sixteen plates and ten pages of alphabetically arranged bibliography. He remarks that in few surgical affections is the early and exact diagnosis more important for the ultimate outcome than with kidney stone. He discusses the Roentgen-ray findings and the sources of error from them, advising Roentgen examination after each attack of colic, and remarking that the stereoscopic picture is especially instructive in nephrolithiasis. If the size of the stone permits the likelihood of spontaneous expulsion, internal treatment is justified, as also in most cases in which the pain is

bearable and the hematuria slight, but an operation may be considered earlier in the young and robust.

Norsk Magazin for Lægevidenskaben, Christiania

October, LXXI, No. 10, pp. 1011-1130 and Supplement

- 200 Occurrence of Leprosy Bacilli in the Stools. (Om forekomsten af Leprabaciller i feces hos knudede Spidalske, disse bacillers kilde og senere skjæbne.) C. Boeck.
- 201 Trophoneurotic Changes in the Bones and Joints in Leprosy. F. Harbitz.
- 202 Cancer in the Samnanger District. (Lidt kræftstatistik fra Samnanger.) G. Gjestland.
- 203 Heredity of Cancer and Familial Cancer. (Omkring kræftspørgsmaalet; Arvelighed, Cancer à deux.) M. Sjøgaard.
- 204 Diabetes in Children. (7 dødsfald af diabetes mellitus hos børn hvoraf de 5 hos søsken.) T. Langaker.
- 205 Two Cases of Operative Cure of Invagination of the Descending Colon. W. Holst.
- 206 Distribution of Cancer According to Age as Basis for Study of Its Etiology. (Cancerens aldersfordeling.) K. Andersen.
- 207 The Thymus in Relation to the Growth. K. Andersen.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

A TEXT-BOOK OF BACTERIOLOGY. A Practical Treatise for Students and Practitioners of Medicine. By Philip H. Hiss, Jr., M.D., Professor of Bacteriology, College of Physicians and Surgeons, Columbia University, and Hans Zinsser, M.D., Associate Professor in Charge of Bacteriology, Leland Stanford, Jr., University, Palo Alto, Cal. Cloth. Price, \$3.75. Pp. 745, with 156 illustrations. New York: D. Appleton & Co., 1910.

ONYPATHE. Von Dr. Wilhelm Stoeltzner, Direktor der Universitäts-Poliklinik für Kinderkrankheiten in Halle a. S. Paper. Price, 3 marks. Berlin: S. Karger, Karlstrasse 15, 1911.

DIE PARALYSIS AGITANS. Eine Monographie von Dr. Kurt Mendel, Nervenarzt in Berlin. Paper. Price, 4 marks. Pp. 106. Berlin: S. Karger, 1911.

A STUDY OF THE AFTER-RESULTS OF ABDOMINAL OPERATIONS ON THE PELVIC ORGANS. Based on a Series of 1,000 Consecutive Cases. By Arthur E. Giles, M.D., Surgeon to the Chelsea Hospital for Women. Cloth. Price, 10 shillings 6 pence. Pp. 251. London: Baillière, Tindall & Cox, 5 Henrietta St., Covent Garden, 1910.

LES VÉRITABLES CENTRES OU MOUVEMENT ET L'INCITATION MOTRICE VOLONTAIRE (OU L'ACTE DE VOLONTÉ). Par le Professeur Dr. Albert Adamkiewicz. Traduit de l'Allemand par la Baronne Henri de Rothschild. Paper. Price, 1 franc 50. Pp. 77. Paris: Jules Roussel, 1 Rue Casimir-Delavigne, 1910.

DIE FAECES DES SÄUGLINGS UND DES KINDES. Die Bedeutung und Technik ihrer Untersuchung. Von Dr. Adolf F. Hecht, Kinderarzt in Wien. Mit einem Vorwort von Dr. Th. Escherich. Paper. Price, 8 marks. Pp. 186. Vienna: Urban & Schwarzenberg (American Agents, New York: Reiman Co.), 1910.

DISCURSO LEIDO EN LA SOLEMNE INAUGURACION DEL CURSO ACADÉMICO DE 1910 A 1911, UNIVERSIDAD CENTRAL. Por el Doctor D. José Andrés Inaeste, Catedrático de la Facultad de Ciencias. Paper. Pp. 44. Madrid: Imprenta Colonial (Estrada Hermanos) Calle de Fuencarralia, Num. 3, 1910.

LES ORGANISMES PRIMORDIAUX, LEUR ORIGINE, LEUR CONSTITUTION, LEUR GÉNÉRATION. Evolution et Transformisme, Tome Quatrième, Quatrième Partie. Par Albert et Alexandre Mary. Paper. Price, 3 francs 50. Pp. 395, with illustrations. Paris: Jules Roussel, 1911.

INTERNAL SECRETIONS FROM A PHYSIOLOGICAL AND THERAPEUTICAL STANDPOINT. By Isaac Ott, M.D., Professor of Physiology in the Medico-Chirurgical College of Philadelphia. Paper. Price, \$1. Pp. 133, with illustrations. Easton, Pa.: E. D. Vogel, 1910.

THE DISEASES OF INFANTS AND CHILDREN. By Edmund Cautley, M.D., Cantab., Senior Physician to the Belgrave Hospital for Children. Cloth. Price, \$7 net. Pp. 1042. New York: Paul B. Hoeber, 69 East 50th Street., 1910.

THE SEXUAL DISABILITIES OF MAN AND THEIR TREATMENT. By Arthur Cooper, Consulting Surgeon to the Westminster General Dispensary. Second Edition. Cloth. Price, \$2 net. Pp. 204. New York: Paul B. Hoeber, 1910.

THIRTY-THIRD ANNUAL REPORT OF THE BOARD OF HEALTH OF THE STATE OF NEW JERSEY, 1909, AND REPORT OF THE BUREAU OF VITAL STATISTICS. Cloth. Pp. 526, with illustrations. Bruce S. Kentor, Secretary, Trenton, N. J.

EINFÜHRUNG IN DIE EXPERIMENTELLE THERAPIE. Von Dr. Martin Jacoby, Professor der Pharmakologie a. d. Universität Heidelberg. Paper. Price, 5 marks. Pp. 180, with illustrations. Berlin: Julius Springer, 1910.

LA VACCINOTHÉRAPIE. Par Emm. Pozzi-Escot. Collection Les Actualités Chimiques et Biologiques, Tome XIII. Paper. Price, 1 franc 50. Pp. 106, with 10 illustrations. Paris: Jules Roussel, 1910.

E. MERCK'S ANNUAL REPORT OF RECENT ADVANCES IN PHARMACEUTICAL CHEMISTRY AND THERAPEUTICS. 1909, Vol. XXIII. Paper. Pp. 381. Darmstadt: E. Merck, Chemical Works, 1910.

THE LETTERS OF DR. BETTERMAN. By Charles E. Blanchard, M.D. Paper. Price, 75 cents. Pp. 140. Philadelphia: J. D. Albright, 1910.

MEDICAL CHAOS AND CRIME. By Norman Barnsby, M.D. Cloth. Price, \$2 net. Pp. 384. New York: Mitchell Kennerley, 1910.

The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOL. LV, No. 22

CHICAGO, ILLINOIS

NOVEMBER 26, 1910

ESOPHAGEAL STENOSIS FOLLOWING THE SWALLOWING OF CAUSTIC ALKALIES

NECESSITY FOR COMPULSORY LABELING OF POISONS SOLD
BY GROCERS *

CHEVALIER JACKSON, M.D.
PITTSBURG, PA.

Four little children threatened with starvation because of a cicatricial esophageal stenosis due to the swallowing of some form of caustic alkali to which the laxity of our laws permitted them to be exposed were under my observation within a year. These four cases are my excuse for addressing you on this subject. The law requires that the druggist shall label corrosive poisons "Poison" and the careful druggist adds antidotal advice. Next door to the druggist the grocer sells corrosive poisons having on the label not only no hint of caution, but having directly misleading statements, such as "won't injure the hands," "will not harm the most delicate fabric," etc. One brand of concentrated lye is marked "Caution." When I encountered this I thought, "At last I have found one preparation on the market whose manufacturer has a conscience that compels him to give some advice protective to little children." Alas, the underwriting, "Be sure to replace the lid after using," was intended only to prevent deliquescence of the granulated contents.

It is the general impression that concentrated lye is a relic of the old days of home-made soaps, but investigation shows that it is in common use in the household for labor-saving cleansing of all kinds. Its harmful effect on the hands conveys to the thoughtful some hint of the caustic nature of its contents. But the frequency with which patients with esophageal stricture, following the swallowing of concentrated lye, come in an almost fatal state of inanition to the esophagoscopist is an index to the thoughtlessness of the users of concentrated lye, and an urgent call for legislation that shall compel the manufacturer to label concentrated lye containers "Poison" and to state a few antidotes, even if this does diminish slightly the sale of such products.

Esophageal stricture from the swallowing of commercial lye has been for many years a lesion of common observation by those interested in the esophagus. The frequency declined with the more general substitution of cheap commercial soaps for the home-made product; but concentrated lye is still in extensive use for general scrubbing and cleansing purposes. Furthermore, strictures of the esophagus are again on the increase owing to the flooding of the market with a large number of proprietary "cleansers" for household use and "washing powders" for laundry use.

I have seen three cases of the most severe ulceration and sloughing of the esophagus from the swallowing of strong solutions of three of these proprietary preparations. I have had the preparations analyzed and all contained similar ingredients: an abrasive, a strong powdered soap, and a caustic alkali—soda ash. The proportions varied from 8 per cent. in the cleaners up to 40 and 50 per cent. in the laundry powders; but in none was the corrosive alkali so diluted as not to be caustic to the delicate esophageal mucosa of a child. And worst of all, the mixture was not thorough; therefore some portions were more concentrated than others, so that under certain conditions it would be possible for a child to get a concentrated dose of caustic. Another thing which doubtless contributes to the danger is the insoluble nature of the abrasive and the slower solubility of the soap. Thus a little water dissolves out the alkali in strong solution.

The accident in one case I have seen occurred through the child's swallowing the rinsings of the almost empty can. The economical mother was endeavoring to extract the dregs for use; and, totally unsuspecting of a preparation which could not "injure the most delicate fabric," set down the can within reach of the child. In another instance the cleansing powder had been sprinkled on the dishes in the dish-pan. From one cup it was not removed by rinsing, the powdered soap in its composition making it adherent, and from this cup the child drank. In the third instance the child drew water from a faucet into a cup that had been used to measure out a quantity of a proprietary washing powder for laundry use.

On not one of the containers of these three widely advertised proprietary caustic preparations was there one hint of the dangerous nature of the contents. There was no word of advice that some vinegar or oil or milk or cream might lessen the likelihood of the child dying of the agonizing burns, or the subsequent ulcerative esophagitis or stricture. On the contrary, the most misleading statements as to the harmlessness of the preparations are on every package, in every magazine, in every street car. One manufacturer's agent to whom I spoke said: "Why, if we labeled our goods 'poison' and gave an antidote nobody would buy them." Comment is unnecessary.

My reason for bringing this matter before this section is the hope that some of you will take the matter up and see that the laws that compel the druggist to label corrosives that go into the medicine closet "poison" shall likewise compel the manufacturer so to label the corrosives that are infinitely more dangerous because they go into the kitchen. Considering the cosmopolitan character of our population, and especially of our domestic servants, the caution label should be in many languages.

* Chairman's address before the Section on Laryngology and Otology of the American Medical Association, at the Sixty-first Annual Session, St. Louis, June 7-10, 1910.

If the existing laws do not apply to the grocer as well as to the druggist, then, you doubtless all agree with me in the opinion that the laws should be amended. I leave this to those better able than I.

In conclusion, I beg you to look into your own kitchens and find whether or not caustic alkalis are used with a reckless disregard of their poisonous nature.

1018 Westinghouse Building.

CHANGES IN THE NOSE AFTER WIDENING THE PALATAL ARCH *

L. W. DEAN, M.D.
IOWA CITY, IOWA

For some time we have known that widening the palatal arch resulted in widening of the nasal chambers. At least, we have had every reason to conclude this from the reports of many patients regarding the great improvement in breathing after this had been done. I am sure that all are familiar with the work of G. V. I. Brown and Nelson Black on the improvement in breathing of patients with contracted nares after widening the arch; also the influence it has had on the straightening of deviated septa.

In 1908 I showed before this Section by actual measurement the increase in the breathing-space of the nose in green skulls after widening the palatal arch. So far as I have been able to determine, these measurements have not been reported as having been made on a living subject. As there is still some skepticism regarding the increase of breathing space by widening the palatal arch I wish to report the measurements of a case.

As long as we depend on patients' expressions regarding their improvement there may be a slight basis for doubt. With the actual measurements before us there can be none. This method of measuring has been the result of several years' work. It has been tried repeatedly with constant results, on patients on whom no work has been done. To measure the nose I use a septimeter (see illustration) devised by myself for this purpose.

I will give the history and measurement of one case only, as that will serve as an illustration. I made no measurements myself; all were made at my request by Dr. W. F. Boiler, assistant rhinologic surgeon to the University Hospital, because I wished them to be made by one not interested in the results.

All measurements were made under the same conditions; namely, with the mucous membrane shrunken by continuous application of cocain 20 per cent. and adrenalin 1 to 1,000 for twenty minutes.

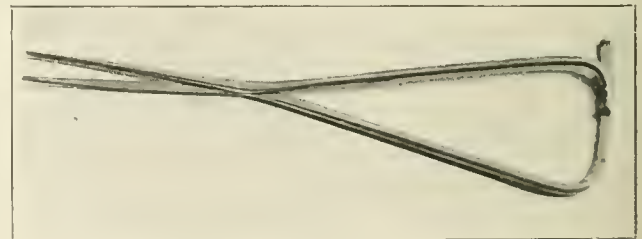
Patient.—Miss L. D. Y., aged 8, referred by Dr. Jones, of Kalona, Iowa. The patient gave a history of being a constant mouth-breather. She could not remember ever having been able to breathe through her nose. She suffered very much from temporal headache. This was not influenced by use of the eyes. The attacks of headache were not periodic. The headache was made worse by taking cold. She took cold very easily.

Examination.—Patient was very dull mentally. The face was narrow, owing to poor development of the superior maxilla. The nose was very thin. The turbinates were normal in size but pressed tightly against the septum. On the right side was a medium-sized posterior spur.

Treatment.—It was a typical case of the nasal breathing being impossible because of the nose being too narrow, not because of pathologic tissue. The spur was removed. Two

months later nasal breathing was little better than at first. The palatal arch was exceedingly high and narrow. As the turbinate tissue was normal there could be no excuse for removing it, entire or in part, so I asked Dr. G. V. I. Brown to widen the arch. Expansion bands were fitted to the teeth on each side and attached with rigid metal bars. Across the mouth a tube attached firmly to the connecting bar upon one side, fitted over a threaded bar, also solidly attached to the bar on the opposite side. A nut was adjusted, which when turned made pressure across the mouth. The appliance was cemented into place and when finally adjusted, was so arranged that pressure was applied directly across the palate at its narrowest portion with resistance against all the teeth from the cuspids to the molars upon each side. When the maxillary bones had been sufficiently separated and the nose correspondingly widened, an appliance was adjusted with a screw, nut and tube by which pressure was exerted from before backward. When the arch had been sufficiently lengthened on this side to admit it, the teeth which had previously occupied a portion of the palate, were drawn outward into proper line.

In the accompanying table are three sets of measurements: Column A shows the measurements before widening was begun; Column B, the measurements made during the widening process; the measurements in Column C were made after the widening was completed. The measurements are expressed in units as measured in the handle of the septimeter.



Septimeter for measuring the nose.

MEASUREMENTS BEFORE, DURING AND AFTER THE WIDENING PROCESS MAY 28, '09.

	R. A.		L. B.		R. C.		L. C.	
Anterior end inferior turbinate to septum.....	5	6	8	9	9	10		
Middle inferior turbinate to septum.....	5	4	7	6	7	6		
Posterior end inferior turbinate to septum.....	10	12	10	12	12	12		
Anterior end middle turbinate to septum.....	2	2	2	3	4	4		
Middle middle turbinate to septum.....	1	2	2	2	2	4		

Result.—The subjective improvement of the patient was the very best. She spoke of breathing comfortably for the first time during her life. The objective improvement was very manifest. She is now a nasal breather both by day and night. Her general health is better. She is certainly wonderfully improved mentally. Her face is broader.

The figures show that the widening effects the nose throughout antero-posteriorly. Also the middle meatus is affected as well as the inferior. Consequently the sense of smell should be benefited. I regret very much that observations along this line have not been made.

These measurements corroborate the measurements that were made on a green skull and reported to this Section two years ago.

ABSTRACT OF DISCUSSION

DR. EUGENE S. TALBOT, Chicago: These measurements show the actual conditions present when the dental arch is spread. One important point which should be emphasized is that the turbinates are not destroyed. While I am not a rhinologist, it seems to me that that is the last thing which should be done. The dental arch should be spread first, and

* Read in the Section on Stomatology of the American Medical Association, at the Sixty-first Annual Session, at St. Louis, June, 1910.

then if the rhinologist thinks there is plenty of room the operation should not be undertaken. It is important that as much mucous surface should remain in the nose as possible.

DR. M. H. FLETCHER, Cincinnati: In my own mind there is a question as to the solidity of the tissues when pressure is put on them. A suture, particularly of the skull, is particularly strong in its indentation. Is it always sure that division will occur in the suture between those two bones and divide in the nose? Have any of you had any experience in having separation at any other place than where you desired? It is impossible for us to see the thickness of the bone. I can conceive of a ease of very heavy bones, in which there would not be separation in the proper place. Have any of you had any such experience? I should be glad to have any light on the question whether or not a separation at any other place than the suture would have a good or a bad result. Separation must come on one side of the septum or the other, must it not?

DR. G. V. I. BROWN, Milwaukee, Wis.: No, the ideal condition is separation between the central incisors. In view of the fact that the premaxilla is completely divided from other divisions of the superior maxilla in early life, it is curious that ossification becomes so complete on each side, and the median suture so marked. There is no longer a question as to where and how the maxilla separate. One of the questions evidently applies to those cases in which the suture is dovetailed. My own opinion is that under such conditions the little interlocking portions of the suture are fractured.

In some few instances we have not had the outward and visible sign of maxillary division, which of course is indicated by separation of the incisors. In those cases we have usually had good results also, but they were not such unusual types as Dr. Dean's patient. Sometimes I think that the premaxilla does not always unite in exactly the same way, because the separation occasionally appears between the central and lateral instead of between the two centrals. This ultimately readjusts itself, because an increase on one side gives more freedom for the septum to adjust itself.

DR. L. W. DEAN, Iowa City, Iowa: I do not like to theorize in this matter, so far as changes in the nose are concerned. It has not been worked out completely, and I am afraid Dr. Brown and I would not agree as to how we get straightening of the septum after widening the arch. Work is being done, and a year from now it will be more definitely decided. I think this patient is going to have more breathing-space a year from now than she has at present. When I saw this patient after the first widening had been done, I could put a lead-pencil in between the incisors in front. I hastily wrote to Dr. Brown and got a letter from him that he was ready to have these teeth brought together. This was done very nicely. We have widened the arches of skulls of subjects over 40 years of age. They have all opened along the median line.

cerebellar tumor. The satisfactory use to which this simple apparatus has been put in the past two years by various Boston surgeons, both in operations for cerebellar exploration and cervical laminectomy, leads me to believe that as an aid in these operations the apparatus is worthy of mention.

DESCRIPTION

Figure 1 gives details of the head support. The apparatus consists of a base (Fig. 1), an extension (Fig. 2), a head support (Fig. 3), and two shoulder supports (Fig. 4).

The base (Fig. 1) is an oak plank, 17 by 8 by 1 1/4 inches. A semicircular piece, 8 inches in diameter, is cut out in front. There are two one-half inch holes, bored through the width of the plank 10 inches apart (a, a). These are to accommodate the extension. There are two set-screws, one at either corner in front (b, b), to receive the shoulder supports.

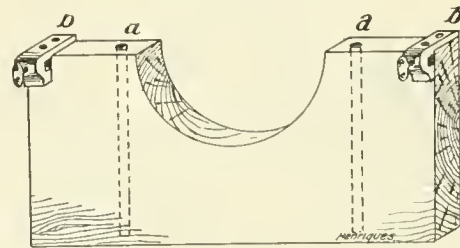


Fig. 1.

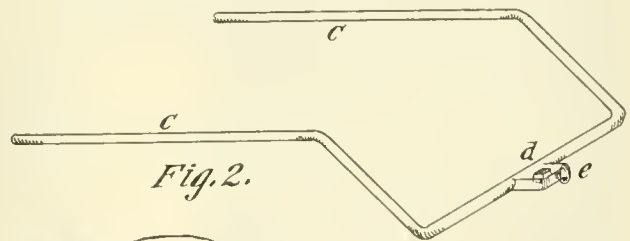


Fig. 2.

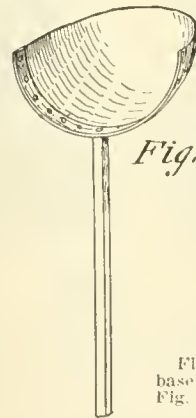


Fig. 3.

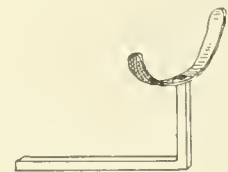


Fig. 4.

Figs. 1 to 4.—Details of head support. Fig. 1, base; Fig. 2, extension; Fig. 3, head support; Fig. 4, shoulder support.

The extension (Fig. 2) is a three-eighths-inch iron rod, 48 inches long, so bent as to form two horizontal arms 18 inches long (c, c), and a transverse rod (d) 10 inches long. The horizontal arms are bent downward at an angle of 45 degrees 13 inches from the ends. At the center of the transverse rod is a set-screw (e) to receive the head support.

The head support (Fig. 3) is a three-eighths-inch square iron rod 12 inches long, to one end of which is attached a semicircular piece of iron 7 inches in diameter and one-half inch wide. To this iron is riveted a heavy piece of mill-board which has been molded to make a quarter sphere.

The shoulder supports (Fig. 4), two in number, are three eighths-inch square iron rods 10 1/2 inches long, and bent at right angles 7 inches from the ends. To the short or upright arms are attached semicircular pieces of iron one-half inch wide and 4 inches in diameter.

AN APPARATUS FOR SUPPORTING AND HOLDING THE HEAD AND SHOULDERS IN CEREBELLAR AND HIGH SPINAL OPERATIONS

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The difficulties attending suboccipital and high spinal operations are largely due to the depth of the cerebellum and cord. Access to these parts is not easy on account of the difficulty of holding the patient's head and shoulders in a position that will allow a fixed field of operation, and at the same time not interfere with the patient's respiration and the administration of the anesthetic. This is especially true in trephining over the cerebellum with the patient in the prone position.

I devised the apparatus here described to obviate these difficulties. I first demonstrated its usefulness at the Boston Children's Hospital in an operation for

In use the head piece is covered with a sterile towel and the shoulder pieces are padded and bandaged. The apparatus is attached to the ordinary wooden operating table by two iron clamps.

The head piece, extension and shoulder pieces permit wide adjustment. The head of the patient can be raised, lowered, extended or flexed, and the shoulder pieces can be adjusted laterally to conform to the width of the patient's shoulders.

The illustration (Fig. 5) shows the apparatus complete. The diagram (Fig. 6) shows the position of a patient for operation.



Fig. 5.—Apparatus complete.

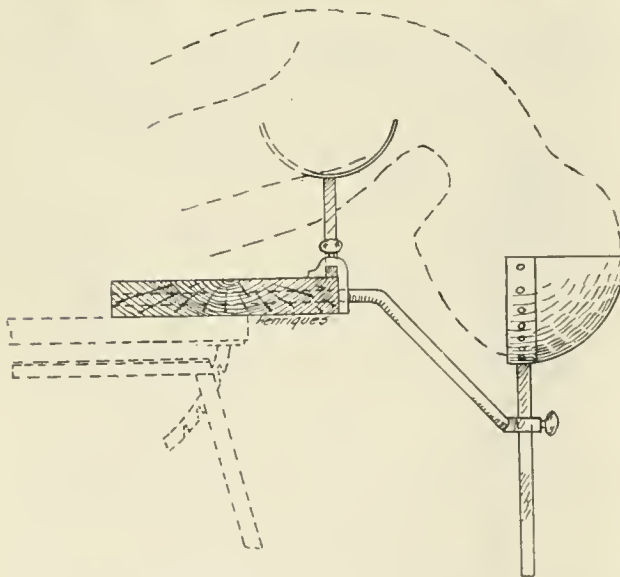


Fig. 6.—Diagram showing position of patient during operation.

THE ADVANTAGES OF THE APPARATUS

The head of the patient is held in such a position as to afford a firm, immovable base against which to work.

The patient's chest is supported, allowing free respiratory movements.

The anesthetist is relieved of trying to do two things at once, namely, to hold the patient's head and give the anesthetic.

The apparatus is simple, has a wide range of adjustability and is cheap. It could be made lighter and could be more beautifully finished, thereby adding to its cost without in any great degree increasing its efficiency.

620 Front Street.

ENTEROPTOSIS, WITH SPECIAL REFERENCE TO ITS ETIOLOGY AND DEVELOPMENT

AND REMARKS ON THE RESULTS OF EXAMINATION OF FOUR HUNDRED WOMEN WITH REFERENCE TO THIS CONDITION*

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The literature dealing with enteroptosis is a most voluminous one and I shall attempt nothing but a brief review of it. The subject is so unusually complex and presents so many different phases that it has led to much theoretical discussion, much of which has proven to be of little value. Our real advance and the best papers have come from those who have based their opinions on actual observations.

To Glénard,¹ who in 1885 published his paper which to-day is a classic, belongs the credit of calling the attention of the profession to the existence of this condition. Glénard believed that the whole trouble came from a sinking of the hepatic flexure of the colon. From this conception he built a most elaborate theory, which we know to-day has but little on which to stand. Glénard,



Fig. 1.—Typical enteroptotic figure. Fairly well-nourished. Muscular sufficiency poor. Thorax depth 17 cm., width 17.5 (1), index 94.5 (1), height 153 cm. (5 ft.), weight 94 lbs. Right kidney palpable; lower pole of stomach below umbilicus (gas). Pain in right side, well-marked neurasthenia. Note small size of thorax as compared with pelvis; small, long waist.

however, recognized the type of individual in which enteroptosis was found and his description of it remains a classical one.

For five years after this the discussion remained confined to the French literature. In 1890, however, Ewald,² in a thoughtful and conservative article, brought the matter before the German profession. He gave Glénard credit for his discovery, but criticized many of his conclusions.

Stiller,³ in 1896, pointed out the hereditary character of the condition and elaborated his floating tenth rib

* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Glénard: Application de la méthode naturelle à l'analyse de la dyspepsie nerveuse; détermination d'une espèce, Lyon méd., 1885, xvii., 492.

2. Ewald, C. A.: Ueber Enteroptose und Wanderniere, Berl klin. Wehnschr., 1890, xxvi., 277, 304.

3. Stiller, B.: Ueber Enteroptose im Lichte eines neuen Stigma Neurasthenicum, Arch. f. Verdauungskr., 1896, II, 285.

idea, which is often cited to-day. The profession has not verified the close association which Stiller seems to have found between enteroptosis and a floating tenth rib, but is inclined to look on it as an anomaly often occurring, to be sure, in the habitus enteroptoticus, but as well in other individuals and of too uncertain a connection to place much stress on. Stiller's two articles, however, reflect a most careful study and observation, and his work will always stand prominent in the history of enteroptosis.

Perhaps the next most notable piece of work done was that of Mathes,⁴ who, although particularly interested in the mechanical conditions leading to prolapse, gives a most excellent description of the habitus enteroptoticus and the body form and calls particular attention to the general nature of the trouble. Mathes' article is also based on four years of study and observation and marks a distinct advance in the study.

An article by Albu⁵ last year repeats and endorses much of what Mathes has said and is an excellent and useful piece of

An article by Martin,⁶ of Chicago, and one by Victor⁷ are well worthy of citation, since they reflect a belief that the condition points to an arrest in the development of the embryo or a reversion to a lower type.

My own interest in the subject began some five years ago and was considerably stimulated by Mathes' article. I began examining, as a matter of routine, whenever practicable, the women who came to us. Most, but not all of them, presented symptoms referable to the pelvis or abdomen. I have examined formally over 400 such women and casually many more. After the usual pelvic and abdominal examinations, the weight, height, amount and condition of adipose and muscular tissue were noted and the form of the thorax and abdomen. I then obtained the index of Becher and Lenhoff and sought to palpate the kidneys. In the standing position, the form of the trunk, back and abdomen were observed and with the pelvineter the depth of the chest at the end of the sternum and the width at the waist line were measured. I noted also the epigastric angle and the downward slant of the lower ribs. Lastly, the stomach was dilated and,



Fig. 2



Fig. 3



Fig. 4

Fig. 2.—Enteroptotic figure of very marked degree. Marked III nutrition; marked muscular insufficiency. Thorax depth 13 cm. (5), waist breadth 20 cm., index 97 (1), height 147½ cm. (4 ft., 10 in.), weight 74 lbs. Palpable right kidney, lower pole of stomach in pelvis and very marked prolapse of colon (x-ray). Marked digestive disturbance, extreme and apparently hopeless neurasthenia. Note slenderness of form, extremely poor nutrition, marked lack of lumbar lordosis, rounding of shoulders (but fairly sufficient anterior abdominal walls), also smallness and collapse of chest, downward slant of lower ribs and long neck.

Fig. 3.—Typical enteroptotic figure, fairly well-nourished, little muscular insufficiency, palpable right kidney, lower pole of stomach

two inches below umbilicus (gas method). Has good health. Note size of thorax and waist as compared with pelvis. Thorax depth 15 cm., width of waist 18 cm., index 88., height 170 cm. (5 ft., 6¾ in.), weight 116 lbs.

Fig. 4.—An enteroptotic figure with extreme emaciation, shown simply to bring out certain points referred to in text. Note small collapsed thorax, the sharp epigastric angle, the wide intercostal spaces above, the ribs lying close together below and slanting sharply downward and inward; the small waist with corresponding small upper abdominal cavity. Patient presents marked physical weakness, disturbances of many functions and is otherwise apparently a hopeless neurasthenic.

work. Albu has apparently fallen into error, however, when he concludes that because the kidneys and livers of a large number of new-born infants are palpable, the visceral prolapse itself is congenital and exists from childhood up. To this Butler, in a paper based on a study of one hundred and fifty-five children, has called attention.

in a prone position, its lower border, as obtained by this method, was recorded. In a considerable number photographs were obtained or other special examinations made. The mass of figures obtained became long since rather unwieldy and of but moderate value for statistical purposes. The study, however, has been a most interesting one and has yielded much that has been of

4. Mathes, P.: Ueber Enteroptose, nebst Bemerkungen über die Druckverhältnisse im Abdomen, Arch. f. Gynäk., 1906, lxxvii, No. 2, 337.

5. Albu: Die Bewertung der Visceralptose als Konstitutionsanomalie, Berl. Klin. Wchnschr., 1909, xlvi, 289.

6. Martin, F. H.: Visceral Prolapse: Some New Points in Etiology, Surg., Gynec. and Obst., 1908, vii, 638.

7. Victor, Agnes C.: Introduction to the Study of the Fundamental Cause of Spanchoptosis—Abdominal Incompetence: A Developmental Factor, Boston Med. and Surg. Jour., 1906, civ, 139.

value to me. Above all, it has served to give more accurate information as to the relationship existing between the various phenomena presented by the condition under discussion. In many phases of the matter, as in those that have been the special subject of our inquiry, I realize there is still much hard work to be done. The problems presented are most intricate, and I believe that little real advance will ever be made in them by theorizing or speculation.

The x-ray played a considerable part in my earlier study. With Dr. Henry Hulst,⁸ under the bismuth meal and the x-ray method, I studied some forty or fifty women; and, although perhaps this feature of the work was not exhaustive, it served to establish definitely the relationship of body form to the prolapse of the viscera and to revolutionize our ideas as to the position and form of the stomach and intestines. In an earlier publication⁹ are given the results of the x-ray examinations we had made up to that time and I have not materially changed my ideas since then.

From early observations I soon learned that the two terms "congenital" and "acquired," as belonging to the two supposed types of enteroptosis, were far from satisfying; the one varies from the other not only in the matter of etiology but in many other of its manifestations. The division, I believe, is apt to convey a wrong impression. I wish to discuss the acquired form briefly a little later and in its place, but for the present and for clearness it would seem best that it be put aside and that we deal simply with the true or essential condition.

It may be well first to give a brief description of the enteroptotic woman (Figs. 1, 2, 3, 4.) The first impression one gets of such a woman is that of frailness, expressed in the contour of her form and often in her features. She is slender and has but little adipose tissue; her form is angular; her muscles are thin; there is almost invariably a perceptible

laxness and softness of her tissues. She impresses one as being underdeveloped and lacking in vigor. These may be designated as fundamental characteristics. Associated with and largely dependent on these characteristics, one notes in such an individual that the neck is long, the chest undersized and showing distinct signs of collapse; that is, it is shallow, the upper ribs far apart, the lower ones slanting downward and inward and lying close together, and there is a distinct lessening of the capacity of the thoracic abdomen. The abdominal muscles are soft and lack resistance (muscular insufficiency) and there is a tendency for them to bulge forward. This bulging is rarely present to any marked extent in the nullipari and in a large number of cases it is practically lacking altogether. In the parous woman it is oftener present.¹⁰

The changes in the chest and upper abdomen above noted take place, largely at least, during the growth of the child to maturity—they are the permanent changes:



Fig. 5.—Typical enteroptotic figure of adult form in child of 12 years of age. Very poorly nourished, muscular insufficiencies well marked. Height 152 cm. (4 ft., 11½ in.), weight 73 lbs. (73½), thorax depth 14½ cm., waist breadth 17 cm., index 85. Right kidney palpable, lower pole of stomach ½ in. below umbilicus. Frail nervous child, otherwise in good health. (Left kidney had been recently removed for injury.) Note slenderness of form, lack of adipose tissue, small slender muscles and small thorax.



Fig. 6.—Figures of children, each 5 years of age. The one is frailer, less vigorous, less well muscled, less fat than the other. Shown to illustrate the type which we find in the history of the enteroptotic woman.

at least, they are the most difficult of any material correction. These women are peculiarly apt to suffer from muscular insufficiency. We see it very apparent in the lessening of the lumbar lordosis, in the rounding back, the forward droop of the shoulders and, not infrequently, in weak-foot. The last-named important changes in body configuration, due to muscular insufficiencies, are by no means always conspicuously present and are to be looked on, generally speaking, as signs of fatigue. They are less permanent in character and are frequently materially bettered as the woman improves in health. I have not been able to note any marked differ-

8. Hulst, H.: *Skiniography of the Stomach and Intestines*, Physician and Surgeon, Detroit and Ann Arbor, 1905, xxvii, 391.

9. Smith, R. R.: *Enteroptosis, with Special Reference to the Body Form: The Mechanical Conditions Governing the Abdominal Organs and the Use of the A-ray in Demonstrating Stomach and Intestines*, Surg., Gynec. and Obst., 1906, III, 130 (discussion).

10. The popular close association between enteroptosis and the size of the abdomen must be somewhat modified. The most marked prolapse often occurs in an abdomen that is nearly flat, and a bulging abdomen often encloses organs fairly well in place.

ence in the height of these women, although Mathes speaks of them as undersized and Albu as taller than others. One sees them short or tall, as are the more vigorous ones. In weight they are decidedly lacking, owing to the want of adipose tissue and the slenderness of other body structures.

In forming an estimate of the degree of body abnormality, I have laid some little dependence on the depth of the thorax (measured with pelvimeter from lower end of sternum directly to back). In doing so the height of the individual must always be taken into consideration. The depth ran from 13 to 17 cm. in enteroptotic women and from 16 to 20 cm. in the more vigorous ones. The relative capacity of the upper abdomen was obtained by securing the measurement above mentioned and combining it with the width of the waist. The index of Becher and Leuhoff, obtained by dividing the jugulo-pubic distance by the circumference of the waist and multiplying the result by 100, is also of much value in making this estimate. The higher the index the smaller the capacity of the thoracic abdomen and *vice versa*. The size and form of the thorax and abdomen as seen and

of the lower ribs and the epigastric angle (formed by the edge of the ribs, its apex being the lower end of the sternum) are useful and convenient signs in determining the collapse of the thorax and the size of the upper abdomen.¹¹

In making a general estimate of the individual, however, relative to the enteroptotic habit, no one sign or condition should be entirely relied upon. It is practical to consider the amount of adipose tissue present, the condition of the musculature, the size and depth of the thorax, the size of the thoracic abdomen, the position of the viscera and perhaps, above all, the stability of the nervous system and any signs of its failure in normal function.

In speaking of enteroptosis one must distinguish clearly between the physical condition and the symptoms which the enteroptotic woman frequently develops. It must be recognized definitely that enteroptosis and good health, as we ordinarily speak of it, are not necessarily incompatible. We see



Fig. 7.



Fig. 8.



Fig. 9.

Fig. 7.—Typical enteroptotic figure of the so-called acquired form, fairly well-nourished, muscular insufficiency well-marked. Thorax depth 17.5 cm., breadth of waist 22 cm., index 75. Right kidney palpable, lower pole of stomach above umbilicus (gas method). Marked digestive disturbance, pain in right side, neurasthenia. Note good size of thorax, low index, bulging anterior abdominal walls and rounding back (muscular insufficiency).

Fig. 8.—Statue of Venus de Milo. An ideal figure in Greek art.

illustrating perfection in development and vigor. Note the muscular development, the large deep thorax, the capacious middle zone of the trunk. One finds that women approaching this ideal have organs in normal position. Compare with enteroptotic figures.

Fig. 9.—Picture from Stratz. Figure of a vigorous woman, the opposite of the enteroptotic one. Note well-nourished body, with sufficient adipose tissue, also the size and depth of thorax. The waist is large, corresponding to capacious upper abdomen.

estimated externally will indicate closely the position of the abdominal viscera. One should note also the amount of adipose tissue in and about the abdomen, the condition of the body musculature and the retentive powers of the anterior abdominal wall. With these noted and with a little experience one may determine very closely the position of the viscera as a whole. One will find the prolapse of this or that organ sometimes varying considerably in relation to that of others, and one must not expect to make such estimates with mathematical exactness, but it is nevertheless true that the position of the viscera, as determined by palpation, percussion or the x-ray, corresponds very closely indeed to the outward signs above noted. The downward slant

11. As to the mechanical conditions producing prolapse, we note in such women certain conditions present: First, the lack of fat, which diminishes the volume of the abdominal contents and changes the contour of its cavity; second, the marked diminution in the size of the thoracic abdomen; and third, a laxness or hypotonus of the tissues of all the abdominal walls. The diminution in the size of the upper abdomen seems unquestionably due to a lack of usual strength or tone in the semirigid walls—call it muscular insufficiency if you will. The diminution in size becomes in turn a factor in the visceral prolapse. I may not here discuss the individual organs; suffice it to say the prolapse of each is evidently modified by the strength and mechanism of the structures which limit its motion. They are variously affected by the conditions named above. This matter of the mechanical cause is one about which there has been a great deal of speculation and little exact experiment or observation and I hesitate to enter into it. The factors I have mentioned seem to me, after a considerable study of the subject, those primarily concerned when considering mechanical causes and which I think must be fully considered in any argument on this phase of the subject. I should like to go into the many other theories advanced if time permitted.

constantly about us women of the most marked type who are in excellent health in the usual meaning of the term. They feel well, are free of pain and are able to take their places in society. As a class, however, they show less resistance to the strains of life than more vigorous women. Overwork, care and responsibility, indoor living, frequent child-bearing and poor food all bring enteroptotic women quickly to a state of fatigue, a lowered state of nutrition and an abnormal mental condition. With a few of them—the most exaggerated ones—the symptoms seem permanent and impossible of material alleviation. With many others the line between a satisfactory equilibrium and the existence of symptoms is narrow: the slightest strain is sufficient to disturb it. The symptoms that an enteroptotic woman develops are fairly well defined—pain in the back and groins, a feeling of weight and bearing down in the lower abdomen, disturbances of digestion, menstruation and urination, and a long series of disturbances psychoneurotic in character. It may, in fact, be said that the enteroptotic woman, when once her equilibrium is disturbed, develops symptoms principally neu-



Fig. 10.—Picture from Stratz. Figure of vigorous woman. Note the well-developed, well-nourished, muscular body, also the lumbar lordosis and size of the thorax.

rasthenic in character. Perhaps, however, they should not all be classified as such. The pain above referred to should, I believe, be ascribed largely to the muscular fatigue and, occasionally perhaps, to the strains and secondary phenomena which a faulty attitude induces.

In the study of enteroptotic women one early asks the question as to what part the prolapse of the organs themselves plays in the symptomatology; it is not uncommonly assumed that they are directly responsible for the pain, nervousness, disturbed function and ill health of the woman who has them. Here is a mechanical defect—what more simple than that it should cause the woman's symptoms? That this hardly reflects the truth is easy to determine. If we analyze the matter we find that, associated with visceral prolapse, we have first disturbances of digestion and, second, a feeling of weight and bearing down. In a large percentage of our cases at least, disturbances of function have plainly followed exhausting influences and are, I believe, to be regarded as symptoms of them. Although such disturbances

occur very frequently in enteroptosis, they are of the same general variety as those seen in other neurasthenic women. Nervous exhaustion is, I believe, the immediate cause of the disturbed function; at least, in most instances, and I have found it to correspond to such exhaustion rather than to the degree of prolapse. It is not, I am convinced, due in the vast majority of instances to any mechanical obstruction—for example, the inability of the prolapsed stomach to evacuate itself because its lower pole lies low in the abdomen, or of a colon to evacuate itself simply because of its position. One frequently sees women with stomach and bowels prolapsed to a marked degree whose digestions are to all appearances good. The *x*-ray ordinarily shows no definite signs that may be safely interpreted as mechanical obstructions of the alimentary canal, nor does examination at operation show hypertrophy or dilatation, such as one would expect as the result of such obstruction. It is, however, perfectly possible that certain secondary changes may take place in such a colon as may cause abnormal function, but this I believe is not the rule.

The prolapsed organs do not ordinarily cause the pain referred to above. In a state of exhaustion it is common for the enteroptotic woman to have pain which is usually assumed to be caused by a dragging of the viscera on their attachments. The thought lies near that the pain is due rather to an insufficiency of the trunk muscles. This is one of the points in the study that will bear further investigation. Mere expression of opinion cannot, of course, decide it.

In a study as to the cause of prolapse one naturally asks the question when in the life of the individual it began. I have questioned some 300 women carefully in regard to the state of their nutrition and health during childhood and, although it would be almost impossible to classify satisfactorily the answers obtained, I have gathered from them certain facts. The enteroptotic woman of pronounced degree may always trace certain primary characteristics—namely, the lack of nutrition and vigor—to her childhood (Figs. 5 and 6). It is unquestionably a fact, then, that the frail, thin, weakly girls, who remain so during much or all of their childhood, become later enteroptotic women. In a vast majority of cases the anomaly may be traced with directness to a similar bodily condition in her immediate progenitors; that is, there is here a fixed hereditary factor of considerable moment, and we believe that this factor is of the utmost importance, not only in the matter of cause but also in prognosis and management. Its universal recognition and correct valuation by the profession is, I believe, of the utmost importance. I have not been able to show that these children are more liable to infectious diseases; nor, except in very rare instances, could their weakness and ill health be traced to any one illness. It has been my experience that the child who is naturally vigorous and lives in ordinarily hygienic surroundings regains rapidly his usual state of vigor following any temporarily depressing influence, such as acute disease; and I believe that such diseases cannot be said to be a marked factor in the establishment of the enteroptotic habit. I believe, however, that long-continued bad hygiene or chronic diseases affecting the nutrition may be determining factors in early life in its establishment, but this, in my experience, has been exceptional. As a result of failure to recognize the hereditary fundamental constitutional tendencies, efforts have not been uncommonly directed to the relief of local symptoms as if they existed independently. I believe

also that bad hygiene has a marked influence on inherited frailness and, conversely, that the best of hygiene may considerably modify its tendencies.

If one questions as to the extent of the prolapse itself during childhood, one must admit that but few exact observations have been made along this line. Butler, of Chicago, in a carefully prepared and excellent paper, read in the Section on Diseases of Children, has examined some 155 children. I have, myself, entered enough into the study to show how different the mechanical conditions are and how little one may depend on the signs on which one is accustomed to rely in the adult. Butler has shown, however, that the fundamental characteristics of the enteroptotic habit are present in childhood—namely, the lack of nutrition and vigor—and that there is at least some tendency to the peculiar adult configuration of form and a displacement of the organs to be found at or near puberty. He has found that prolapse of stomach and kidneys in early infancy should not be looked on as signs of the enteroptotic habit. No extensive *x*-ray examinations have been made to definitely determine the position of stomach and intestines in infancy and childhood.

What shall we call the congenital factor above mentioned? Noble would frankly call it a degeneration and would class it broadly with those other degenerations well recognized and of greater degree. He is not alone in this opinion. Martin believes that it is an arrest at some point in development from embryo or a reversion to a lower type. Because of the differences of opinion as to what is meant by the term degeneration and for other reasons, I would prefer at present to merely define it in the terms of the phenomena which are exhibited; namely, a tendency to backwardness in physical development, to poor nutrition and an unstable nervous state.

Lack of nutrition and flabbiness of tissues may be said to be the chief underlying mechanical causes of visceral displacement. Later in life child-bearing becomes a factor to be recognized, since it strains the already weak anterior abdominal wall and tends to increase the general laxness of the tissues. In this connection I may speak of the so-called acquired type of enteroptosis (Fig. 7). The woman, however vigorous and well developed during childhood and girlhood, may, through hard work, child-bearing, or other untoward influences, bring about a laxness of tissues and bulging of her abdominal walls; and in such a woman it is not infrequent to find a palpable kidney and other organs downwardly displaced. It must be emphasized, however, that the degree of prolapse of the abdominal viscera in these cases is of much less degree than that found in true enteroptosis. It is common, however, to see the conditions mixed. In the already enteroptotic woman, if the cause above mentioned is added the prolapse is still further increased.

In a physical study of these four or five hundred women I have met women of almost every age, state of nutrition, habit, attitude and body configuration. From the viewpoint of enteroptosis it has served to bring out the fact that enteroptotic women form by no means a sharply defined group by themselves. On the contrary, there is nothing approaching a line of distinction. On rare occasions the physician sees a woman who has an almost ideal physique.¹² Such a woman has a figure

closely conforming to the ideal figure of Greek art—a deep, large thorax, a voluminous upper abdomen, tissues firm, muscles well developed and sufficient adipose tissue to round out her angles (Figs. 8, 9, 10). With this ideal at one end of the scale and the markedly enteroptotic woman at the other, one meets all gradations. The women that are commonly called enteroptotic are those in which the anomalies are well developed. As they advance in life many of them gain weight and in this state the fundamental defects in their constitution may be easily overlooked. An inspection of the thorax gives one the quickest hint as to the patient's true constitutional makeup. I have not been able to learn by *x*-ray evidence the effect of a gain in weight on the visceral prolapse but I believe it to be a considerable one for the better.

I have purposely left much to be considered by others. My idea here has been to give, if I could, a broad estimate of the subject in general, based largely on my individual study. Much remains to be done. The profession is slowly establishing a substantial basis for the more practical and useful problems that are to be met and dealt with. A clear recognition of the defects that these women have to contend with—their tendencies, the real nature of their symptoms and, above all, the early history of their lives—I hope, will lead to an intelligent management during childhood and more intelligently directed efforts later on.

Wonderly Building.

SURGICAL ASPECTS OF ENTEROPTOSIS *

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In order to obtain a useful and practical view of the surgical aspects of enteroptosis it seems important to refer at the outset to the causation and development and incidentally to prophylaxis.

Since enteroptosis as a definite condition was brought forcibly to the attention of clinicians by Glénard a quarter of a century ago, many careful observers have been convinced of the fact that patients who suffer from marked enteroptosis are as a rule congenitally deficient anatomically and that their deficiencies are constantly exaggerated during childhood and more especially in females during the increased physical and physiologic burdens of childbearing.

Four years ago, R. R. Smith¹ directed our attention to enteroptosis with special reference to body form; and recently Reynolds and Lovett have shown that the condition occurs in persons of peculiar postures whose bodies are not normally balanced when they are in the erect position. Round-shouldered patients with hollow backs, large pelvis and small chests are especially well formed for the development of enteroptosis. This naturally suggests an important field for prophylaxis through careful orthopedic treatment, especially of young women and children. Reed and Robinson²

* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Smith, R. R.: *Tr. Am. Gynec. Soc.*, Philadelphia, 1906.

2. Reed, Boardman, Robinson and Neal, Frank: *South. California Pract.*, November, 1908.

12. It must be understood that a large percentage of the women who come to the gynecologist are of less than the average vigor and that it is probable that a large number of ideal or nearly ideal women could be found in any community.

have observed gastroptosis in 37.6 per cent. of the tuberculous patients they had an opportunity to examine in a sanitarium.

Personally I have observed a very large number of children under the age of 12 who came under my care for the treatment of hernia produced from excessive intra-abdominal pressure in whom there was a marked degree of enteroptosis with diastasis of the recti muscles and pendulous abdomen.

The abnormal intra-abdominal pressure in these cases was due to one or more of the following causes: (a) digestive disturbances with gaseous distention of the stomach and intestines; (b) constipation; (c) phimosis with obstruction of the passage of urine; (d) chronic coughs complicating one or the other of the above conditions; (e) chronic appendicitis; (f) severe straining during the act of crying usually caused by pain due to one or more of the above conditions.

In these cases I have found that by removing the cause of the increased intra-abdominal pressure not only was it possible to cure the hernia without operation but the enteroptosis improved greatly in all cases and was entirely cured in many.

The intestines, no longer being overdistended, were able to contract to a normal size; the reduction in the amount of intestinal contents undoubtedly permitted the elongated mesentery to contract into its normal length; and the muscles of the abdominal wall were able to shorten and thicken and to hold the abdominal contents in their normal relation above instead of in front of the pelvis, especially when the treatment was instituted early enough to permit the diastasis of the recti muscles to disappear.

Aside from relieving the abnormal intra-abdominal pressure in these children, more especially by the regulation of time of feeding and quality of food and by this and other means overcoming constipation, their habits of rest were regulated so that they retired to their beds at 6. The foot of the bed was elevated so as to make an angle of 15 to 30 degrees between the planes of the bed and the floor. This virtually placed the patient during the hours of rest in the Trendelenburg position in order to force the abdominal viscera to gravitate toward the diaphragm, which enabled all of the supporting structures to recover from the strain to which they had been exposed by the abnormal intra-abdominal pressure.

The obstetrician has accepted his share of the prophylaxis and the orthopedist is at the present time eagerly searching out his share in this work. We must now ask the pediatrician and the dietitian to take their respective shares in reducing the number of these cases; then, after the gynecologist has disposed of those belonging to his especial field, the remaining cases must be viewed by the surgeon in a most critical way from several standpoints.

In the first place, in a vast majority of patients with enteroptosis this condition does not materially affect the disease from which the patient is suffering; and, in the second place, in a vast majority of patients in whom the presence of enteroptosis does affect or cause the disease from which they suffer, surgical treatment either fails altogether in producing relief or it introduces other conditions incidentally which in themselves cause abnormal conditions worse than those from which relief is sought.

Joseph Blake gives as an indication for operation the following conditions: First, it must be determined that the patient's suffering is due to enteroptosis; sec-

ond, it must be clear that the condition cannot be relieved without surgical interference; and third, it must be reasonably certain that the condition can actually be relieved by a surgical operation.

It seems that enteroptosis is the cause only in cases in which its presence produces obstruction. The obstruction may be caused simply by a more or less marked angulation, or even by torsion, especially if the enteroptosis is complicated with adhesions. A stomach whose ability to empty itself in the normal period of time has not been impaired should never be operated on for enteroptosis. If the latter condition causes obstruction of the pylorus surgical treatment should be considered; consequently the presence of gastroptosis in itself should never be considered an indication for surgical treatment. The same is true of nephroptosis. In the examination of a large number of foreign-born working women I was able to confirm the statement of Pavliek that 75 per cent. of the women of this class who have repeatedly borne children have right-sided nephroptosis; but I have also found that this condition is of no importance unless it gives rise to obstruction of the ureter and overdistention of the pelvis, a condition which is usually due to an abnormal arrangement of the blood-vessels of the kidney. In most cases it is possible to demonstrate the acute bending of the ureter over the abnormally placed vessel. But the number of these cases is very small in comparison with the number of cases of nephroptosis.

There is also a small class of patients in whom the nephroptosis interferes with the circulation of the kidney giving rise to albuminuria. In these cases nephrorrhaphy is also indicated.

Enteroptosis of the small intestines is still less important unless complicated with adhesions which may be simply a complication or in other cases these adhesions may be partly responsible for the enteroptosis.

The splenic and hepatic flexures of the colon are the only portions of that organ that are rarely involved in enteroptosis; the cecum, transverse and descending colon and the sigmoid flexure may be found at any level of the abdominal cavity. This is probably due in most cases to faulty fetal development, as shown by Babcock and others. Whenever the malposition of this organ is sufficient to cause so much obstruction to the passage of feces as to impair the patient's health because of the resultant malnutrition or auto-intoxication, the operation introduced by Mr. Lane for the removal of the offending portion of the colon is undoubtedly the most rational form of treatment, but in this country this operation is but rarely indicated, primarily because the habits of Americans preclude the conditions of fecal accumulation encountered in so many patients of the lower classes in some European cities. In the greatly exaggerated conditions encountered in Hirschsprung's disease, excision is of course invariably indicated, preferably by the simple method described by Judd.³

In our clinic we find ptosis of the transverse colon in more than 25 per cent. of patients operated on for other conditions in whom this condition has no relation to the disease of the patient and is undoubtedly either congenital or due to abnormal intra-abdominal pressure during childhood.

In case of obstruction to the ureter due to nephroptosis nephrorrhaphy is indicated by one or the other of several efficient methods which have been thoroughly tried. In gastroptosis, causing pyloric obstruction the operation for

3 Judd, E. S.: *Journal Lancet*, Jan. 1, 1909, St. Paul, Minn.

supporting the stomach introduced by Beyea⁴ is indicated, because, while it overcomes the mechanical difficulty in the case, it does not fix the organ. All operations which serve to fix intra-abdominal organs for the relief of enteroptosis are bad because they introduce a condition resulting in much more harm than is done by the enteroptosis itself. The intra-abdominal organs are normally in a floating condition which insures comfort to the patient and protects these organs against jarring, hence the necessity of maintaining this condition.

The relief of the condition of ptosis of the pelvic organs has been thoroughly studied and described by those interested, especially in the field of gynecology.

Here also the fixation of organs has been wisely condemned. One condition should be mentioned here because it is constantly encountered both by the surgeon and by the gynecologist, I refer to the pendulous abdomen which Quincke⁵ discussed fully in connection with all forms of enteroptosis. When present in connection with umbilical hernia it should be relieved by a very extensive sliding of transverse flaps introduced by W. J. Mayo for the treatment of umbilical hernia. When no umbilical hernia is present, then we should employ the method of overcoming the diastasis of the recti muscles introduced by Clarence Webster, consisting in laying bare the rectus abdominus muscle on either side of a median incision by laying open the fascia and then suturing all of the layers successively securing union between the internal edges of the recti muscles. In all cases, no matter what the condition may be, for which the patient has been subjected to an abdominal section in which enteroptosis and diastasis of the recti muscles are present, this operation is indicated.

The important point about this operation comes from the fact that it corrects the vertical relation of the intra-abdominal viscera to the pelvis, placing them above instead of in front of the pelvis.

We still have to account for a ptosis of liver, gall-bladder, urinary bladder and spleen.

In a moderate degree of ptosis of the liver relief can be obtained by making a longitudinal incision parallel with the right rectus abdominis muscle and splitting this muscle longitudinally for a distance of 5 cm. downward from the last rib and then suturing the gall-bladder to the edge of the wound, the sutures grasping peritoneum and transversalis fascia. The gall-bladder should be opened and drained for two or three weeks, which will usually result in a marked decrease in the size of the liver.

The same operation gives relief in patients suffering from ptosis of the gall-bladder, which is frequently accompanied with an accumulation of thick, viscid sandy bile or gall-stones in the gall-bladder with more or less obstruction of the cystic duct. These patients should cease wearing corsets and should wear their skirts suspended from their shoulders in order to remove the abdominal pressure from these sources.

In extreme cases of ptosis of the liver the anterior surface should be roughened by friction with dry gauze and a number of chromic catgut sutures should be used to unite the anterior surface of the liver with the parietal peritoneum. The fixation thus obtained is not nearly so satisfactory as the support obtained by the cholecystorrhaphy in the milder cases.

In ptosis of the spleen operation is indicated only when there is obstruction due to extreme mobility of

the organ suspended by a long pedicle. A pocket may be formed of the peritoneum into which the loose spleen is fastened. I have removed the spleen in such cases, but the experience in either of these operations is too small to be valuable.

In all cases of enteroptosis, dietetic and hygienic measures must be employed in the after-treatment in order to eliminate as far as possible, abnormal intra-abdominal pressure from every source, but especially from gaseous distention and constipation.

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ENTEROPTOSIS—THE PHYSICIAN'S VIEW-POINT*

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It is possible that there has been an exaggeration of the importance of congenital gastroenteroptosis as a factor in the production of symptoms. Investigations by modern methods, as the *x*-ray, show that this ptosis is of frequent occurrence when not suspected. The individual is without symptoms unless some complication, as an inflammatory lesion, arises. Independently of such complication, if symptoms are present, they can be demonstrated to be due to other factors. These factors of ill health in the large proportion of cases are the result of antagonistic environmental conditions, which in an individual handicapped by congenital insufficiencies, are not met by healthful reactions of the organism. In consequence the organism is overwhelmed. The environmental conditions are those which make for effeminacy in our life. Modern types of living, overstimulation of the nervous system by all forms of excitement, improper diet, foolish amusements, excesses and irregularities of all kinds are the factors productive of symptoms in gastroenteroptosis. This view seems to be supported by the fact that the laboring classes are not often victims of that symptom-complex of general and visceral neuroses, which is so common in the leisure classes. It may also be said that the victims of the neuroses with enteroptosis are usually members of a family in a period of involution. They are luckless survivors of a family about to become extinct. They may have stigmata of degeneracy and are almost sure to have the type of thorax known as the phthisical or paralytic. If one traces the morphology of antecedent generations, it can be seen that with each generation there is structural evidences of physical decline.

Moreover, one is supported by the clinical evidence and by the results of treatment in the view that the enteroptosis is only part of a general condition, and is not of itself sufficient to give rise to symptoms. Through the clinical evidence we learn that the morphologic condition and the clinical expression of any gastroenteric insufficiency is seen in the statement that from childhood there has been poor health and that abdominal symptoms always obtain. Thus, in one hundred cases of gastroenteroptosis taken without selection from more than six hundred cases, and not divided into congenital and acquired, the evidence is strong that 37 per cent. had always been in poor health, while 27 per cent. had presented symptoms from a time when the strain of evolution was a factor added to the congenital condition.

* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

4. Beyea, Henry D.: *Am. Med.*, Oct. 8, 1904.

5. Quincke, H.: *Therap. d. Gegenw.*, 1905, xlv, 10.

Unfortunately, the history does not record the general conformation of the individual, which enables one to predict ptosis, and which prediction is almost always confirmed by exhaustive examination.

The results of the treatment or management of such cases lend further support to my view. I have in mind many individuals with gastroenteroptosis in childhood who, notwithstanding that they often were of involution family groups, escaped the many perilous ills familiar to us as belonging to this period, because of favorable environmental conditions. They had the advantage of a robust sensible home life and of conscientious, wise mothers. They had every environmental agency that makes for health, a rational education and normal amusements. Some of the girls have grown under my eye to be healthy mothers of families, and the boys to be wise dispensers of their strength, which has made them normal members of a community, though not overbearing because of their powers as athletes.

Finally, I may state that I have made metabolic analyses in ten of these cases of enteroptosis without finding any important evidence of malnutrition or perverted nutrition or of a toxemia which could fairly be attributed to an uncomplicated enteroptosis. Furthermore, I can state, although with some qualification, that whatever indications of toxemia I have found in such cases as indicanuria or alteration in the proportion of the sulphates, or of changes in the feces indicating fermentation, etc., such modifications can be ascribed by the neurosis which accompanies the congenital insufficiencies.

In short, with such a congenital morphologic condition, there is also a state of the nervous system attended by visceral hyperesthesia which if not carefully guarded against brings with it a state of introspection, the ensemble of which is typical of the neurosis of enteroptosis. Any attempt, therefore, to relieve such conditions must be directed not to any one part of the organism but to the organism as a whole. Any attempt which will render one part of the organism more hyperesthetic, as will operative procedures, will increase the neurosis, and delay recovery temporarily or even permanently.

If, then, we must not allow ourselves to consider enteroptosis as a single factor, what can be done to relieve any symptoms to which it apparently gives rise? I take it that we agree that such symptoms are the result of secretory neuroses, gastric and intestinal, and motor insufficiency with secondary toxemia. Let us inquire into the defenses and adaptive powers which the organism possesses, provided the individual listens to the responses of the organism as seen in the reactions it manifests. Unfortunately we are brought face to face with the problem long after the organism has become oblivious of these responses, when the reactions are negative features. Indeed it is the ever-watchful eye of the mother in the early periods of the child's life that usually detects them, and if bridge and teas and other diversions of our vaunted modern life do not distract her from her duties, she controls the reactions, represses them when in excess, stimulates them when deficient and carefully guides the child into normal adolescence and healthy manhood or womanhood.

The defenses the organism possesses against such insufficiencies are only those which conserve health. If watched for it can readily be seen that such an individual has limitations which must not be disregarded. The so-called bilious attacks, the attacks of exhaustion, of headache, of nervousness, the various neurasthenic and hysteric phenomena are expressions of fatigue of an organism which cannot mark time. The defenses of the

organism are rest and temporary abstinence or moderation in all things. If these efforts of the organism are not frustrated by an ambition along the social or educational lines these defenses will be rationally encouraged. They will not be thwarted by the stimulants used to goad tired Nature and by narcotics, both of which it is true are likewise more in vogue later in life, establishing before long a vicious circle and reducing the organism to a state in which its existence depends on artificial conditions. In short, we must combat not only the congenital insufficiency, but also the fatigue neurosis which attends it.

It is not only by the defenses of rest (physical, mental and emotional), that we see the organism meet the insufficiency of its powers, but by adaptation also. This is seen in the development of a tolerance to any intoxication (an exaggerated factor, however, I believe), in the occurrence of hypertrophies to overcome obstructive lesions, and of secretory balance to mitigate any aberration in that line. If the organism has half a chance the chemical correlations and internal secretions will take care of the insufficiencies.

It will be asked if the organism has even a modicum of defense and adaptation, why it is necessary to invoke the aid of the physician. The answer is that the defensive and adaptive powers have not been heeded and that every excitation or irritability which arises from weakness of the organism invites excesses beyond the power of the organism. The individual does not live down to his strength but spends both income and capital to the verge of bankruptcy.

Inasmuch as failures of defense occur, as seen in women after nervous strain or after childbirth with its accompanying anatomic and physiologic changes, and in growing males after misguided athletic endeavors, or in still more vicious effeminity and stimulation of the adolescent period, what can be done to aid the organism? Aid it needs, and in any attempt to assist we must realize that not only is the organism handicapped, but the symptom-complex indicates that the organism as a whole, its vital powers and environmental conditions, play a large, if not the most important part in the production of symptoms. It must be realized that it is not a disease but a condition which confronts us. It is one thing to manage a condition and another to treat a disease. The former requires all the resources we may have at our command along lines of physiologic therapeutics; the latter requires us safely to conduct the organism to health by methods of antagonism, neutralization, counteraction, destruction, direction and assistance, which are physiologic and pathologic. Above all, the former requires the wholesome tonic influence of a robust personality in the physician and other individuals associated with the patient. It is not for me to present a homily on hygiene. I may be permitted, however, to urge that the general principles and methods of hygiene should be invoked and applied in directions specifically suitable to the individual patient; that to this must be added an indirect therapy based on a correct estimate of the functional value of each organ or system. That it is necessary to treat the eyes, the muscular system, correct postural defects, and all the organs requiring it, goes without saying.

It is evident that there is no specific, and it is likewise evident that no insults to the nervous system are to be permitted by injudicious surgical procedures. A little relief can often be obtained perhaps psychically, but also physically by the use of a bandage. A notable

result by such treatment was seen in some of the one hundred cases previously mentioned. A bandage was ordered for nineteen patients in whom the history indicated a congenital origin; five were much relieved, ten a little relieved and four experienced no relief. About 25 per cent. thought it worth while to wear a bandage. Drugs may be employed, as iron, nux vomica, physostigmin, and also laxatives, of which the most effective is rhubarb. Now and then sedatives of mild form, as the bromids, sumbul and valerian, may be judiciously employed.

We must pause a moment to consider the congenital visceroptosis, on which acquired physical conditions are engrafted, which lead to obstructive symptoms, chronic constipation and its secondary disorders. A different condition confronts us. Hence the judicious surgeon or internist must estimate the relative effect on the organism of operative procedure, and of a continuance of the abnormal conditions. I am free to admit that the presence of inflammatory adhesions, of undue dilatation or of obstruction, demands the intervention of the surgeon.

Here also a word may be said of the patients with visceroptosis who cannot have the opportunities of hygienic treatment which I have spoken of. Such are unable to carry on their usual avocations and are practically helpless; for them a chance must be taken, and it may be wise to resort to surgical procedure.

The acquired visceroptoses are most amenable to surgical treatment. If judicious abdominal support, the repair of losses of external support and indirect and hygienic therapeutics are not of avail, resort to surgical procedure is necessary.

What I have said regarding operative procedure in congenital ptoses may have to be qualified with the turn of a night. The argument that the enteroptosis should not be treated by surgical measures because other congenital states exist, and notably those of the nervous system, might be applied to other congenital conditions. It might be said for similar reasons that one should not operate on hare lip or cleft palate. If we could recognize congenital ptoses early and before the neuroses develop we might be able to forestall the ill effects of insufficiencies. Who knows but that in the near future such early recognition will be possible, and early remedial surgical relief applied?

1927 Chestnut Street.

THE X-RAY DIAGNOSIS OF ENTEROPTOSIS *

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The *x*-ray diagnosis of enteroptosis is at once a simple procedure with definite conclusiveness. The *x*-ray furnishes a method to determine with exactness the position of the large and small bowel within the abdominal cavity.

This examination does not demand an *x*-ray equipment above the average. A 12-inch coil, with electrolytic interrupter and a tube capable of standing a primary current of 20 amperes for thirty seconds will suffice.

On account of the comparatively equal densities of the abdominal contents, it is necessary to render the

colon transparent or opaque in outline. The following means may be used to adapt the colon to Roentgen examination:

1. Inflation with air, per rectum. This method is not satisfactory because the air-pressure within the colon is unequal, and, further, does not give an exact record of the lumen of the colon on the fluoroscopic screen or negative.

2. The distention of the colon with opaque emulsions, injected per rectum. Distention by injected emulsions produces a colonic distention with uniform filling pressure when properly conducted.

The technic of the rectal injection is as follows: The patient, having had an intestinal cleansing previously, is placed at ease on the left side, with hips elevated. There should be complete relaxation of the abdominal musculature. A soft rubber tube, about one-fourth inch lumen, is inserted, and the emulsion allowed to flow gently, as the first portion of the injecta may produce colonic contractions that would foil our purpose. The pressure of the flow should be about 8 to 20 inches. The injection should require about thirty minutes for 2 quarts of emulsion. The examination within the next hour will disclose the filling of the large intestine to the ileocecal valve. The average capacity of the adult rectal ampulla is 1 pint, and of the large bowel 3 quarts.

3. Distention of the colon with opaque substances ingested with food. By this method the residue of a bismuth meal is radiographed in the colon, sufficient time (usually sixteen to twenty-four hours) having elapsed since its ingestion to insure its presence in the colon.

Opaque substances of radiographic usefulness include, first, the bismuth salts—subnitrate, carbonate, subcarbonate and oxychlorid. Of these, the oxychlorid is best, not having any deleterious effects and not undergoing chemical change. The subnitrate has been discarded because of some unfavorable reports and the care necessary in its selection commercially. Second, the iron preparations, including manganate of iron.

For ingestion by mouth, these opaque substances must be held in suspension by a gruel, or porridge of rice, milk and bread, meal of peas, oatmeal, etc. I myself use about 2 pints of porridge, into which one or two ounces of bismuth oxychlorid is thoroughly mixed, flavored with raspberry syrup or grape-juice.

For an injection per rectum, I use an emulsion of 2 ounces of bismuth oxychlorid in 32 ounces of milk, with 4 drams of acacia to sustain the bismuth, or an emulsion of olive oil and bismuth oxychlorid. It is worse than useless to draw diagnostic conclusions from the injection of simple bismuth in water.

The *x*-ray diagnosis may be made by (1), fluoroscope, or (2), radiograph.

1. The fluoroscopic examination should be conducted in a room of absolute darkness, on a good protected fluoroscopic screen of a size (11 by 14 or 16 by 20 inches) sufficient to cover the entire field of inspection. The fluoroscopic outlines of the opaque colon may then be charted on the glass covering to the fluoroscopic screen and this transferred to paper for a permanent record. If the physician or Roentgenologist is provided with fluoroscopic apparatus that protects the patient and operator, this examination may be conducted expeditiously and without the tedious detail of the radiographic exposure. But without good fluoroscopic apparatus, one is confined to a radiographic technic.

* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

2. The radiographic examination should be made with a plate not less than 11 by 14 inches in size, usually 14 by 17. The plate should be placed with the emulsion surface against the abdomen, the umbilicus having been marked with a copper cent, attached with adhesive, and the tube opposite the fourth lumbar vertebra and at a distance of 20 to 22 inches from the plate. The use of the usual x-ray plate will usually give sufficient detail with an exposure of ten to thirty seconds, with a primary current of 20 amperes, through a 12-inch coil and a tube of medium penetration. The topographic outlines of the colon alone being sought, it is quite satisfactory to shorten the exposure and increase the contrast by means of an intensifying screen, especially the new Gehler-Folie or Sinegram screen, which produce negatives relatively free from small flecks.

The interpretation of the radiographic and fluoroscopic shadows is greatly enhanced by study and experience. Before examining by the fluoroscope, the observers should remain in absolute darkness for ten minutes to secure an ocular accommodation. This is especially advisable to one unfamiliar with fluoroscopic shadows.

The landmarks of our x-ray picture are the umbilicus and ensiform cartilage, marked by pieces of metal, and the wings of the ilium. The shadow of the cecum should be within the wing of the right ilium. We may then trace the colon to the hepatic flexure. In a well-filled colon we may see the hepatic angle completely filled with the emulsion, but sometimes the apex of the angle will show some transparency produced by retained air. The splenic flexure is higher than the hepatic, and also shows a sharper angle with air at the apex. The shadow of the transverse colon should be noted in its relation to the umbilicus and its movability noted by direct abdominal manipulation. To determine the movability of the colon in radiographs, it is necessary to take two exposures; one with the patient standing, the second with the patient in the Trendelenburg or prone posture. The study of the movability of the colon and possible adhesions thereto is best accomplished by the fluoroscope.

The hepatic and splenic flexures of the colon may appear sharply angled with possible kinks. This is usually faulty interpretation, as what appears to be an angle is really a curve, the upper portion of the ascending colon being overshadowed by the first part of the transverse; likewise, the first portion of the descending colon may be overshadowed by the distal portion of the transverse colon. If there be a kink that obstructs, there is a damming up of the opaque emulsion on the side from which the emulsion was introduced.

To avoid errors in the estimation of the distance of the transverse colon above or below the umbilicus, it is necessary that the direction of the x-ray delivered from the x-ray tube strike the fluorescent screen or plate at a perpendicular, and at a point on the back opposite the umbilicus, about the fourth lumbar. In the study of a particular portion of the colon, where adhesions are suspected it is desirable to diaphragm down to the area on the fluorescent screen. This is not necessary in radiographs, as the entire colon may be studied at leisure, but without the advantage of continued observation under manipulation that the fluoroscope affords.

CONCLUSIONS

Having rendered the lumen of the colon opaque, it is possible to record exactly, either by fluoroscope or radiograph, the position of the colon in its relation to the

umbilicus and bony skeleton. The fluoroscope will give diagnostic information beyond the radiograph, in that changes in position of the colon, due to manipulations and adhesions, may be studied.

616 Commerce Building.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. SKINNER, MUSSEY, OCHSNER AND SMITH,
FORMING A SYMPOSIUM ON ENTEROPTOSIS

DR. MAX EINHORN, New York: I think it was in 1895 or 1896 that my paper on "Movable Kidney and its Treatment," was published in the *Medical Record*. At that time most movable kidneys that were recognized, were operated on, and I think I stood almost alone in the opinion that movable kidneys should not be operated on. It is not movable kidney alone that gives the trouble, but there is usually associated a movable stomach, or liver, or other organ. Such conditions are found more often in women than in men. Whether or not it is congenital is difficult to state. I am of the opinion that in some cases there is congenitally a tendency to develop such anomalies. That such conditions exist in normally developed children, who later develop affections that lead to enteroptosis, we have ample proof in the fact that proper treatment brings permanent cure. If the condition existed from birth this would not be so. Another point is that a strict diet is just the opposite to what is required. In all these patients, unless there is a strong contraindication, it is important to make them eat. The patient may tell you that he cannot eat eggs. If you will allow this to guide you, you will never succeed. Tell your patient to eat a little at a time, and that in two or three weeks he will find he can eat everything, and that is the only way to cure such patients.

I do not think that enteroptosis as such gives rise to great disturbance of the motility of the stomach. If you find food in the stomach in the morning with a prolapsed condition, the prolapse is not the cause of the stomach not being emptied. There may be some other condition associated. I would say that this is not a phenomenon of enteroptosis.

DR. R. C. COFFEY, Portland, Ore.: It is pleasant to see an afternoon devoted to this subject in a surgical section of the American Medical Association inasmuch as many of the leading surgeons of our country have absolutely opposed surgical treatment of these cases. The first patient whom I treated surgically was one in whom I could find nothing else wrong. The patient had gone from the condition of a strong, healthy woman to a condition of severe vomiting, just as if she had an obstructive ulcer at the pylorus. I had heard of nothing at that time that had been done on the subject. I told the patient's husband what I would like to do in the case and he consented. I sutured the omentum to the abdominal wall.

The patient fully recovered and weighs 160 pounds; she weighed 80 at the time of the operation. Since then I have operated on 22 other patients for ptosis of the stomach. I think Dr. Clark has given us one of the best pieces of advice to-day: not to operate for the pathologic condition as it appears from the clinical examination, but to operate for symptoms alone. I remember that Dr. Clark, some years ago, in a paper advocated this operation in certain cases in which he had incidentally found the stomach low down while doing other abdominal operations. I am glad that he has changed his opinion. We never should operate on the stomach simply because it is low. In but two cases have I operated in which the patient was not an absolute invalid. That is the rule that we should adopt. In only three cases have I operated for general ptosis. Most of my operations have been for prolapse of the stomach alone. Four patients had displaced liver and one or two had displaced kidneys. There were two cases of general ptosis; operation was done in two stages. In one case the patient had been an invalid for five years. The stomach was also prolapsed and the uterus retroverted, as is common in these cases. I anchored the stomach, liver and kidneys, and suspended the uterus at one operation. I found the congenitally narrowed condition which had been mentioned and on attempting to close the abdomen it seemed too small. I

had then turned the fascia of the rectus in from above, leaving only the posterior portion of the fascia, thus extending the abdomen at least two inches. Six weeks later, I made two incisions, one on each side midway between the umbilicus and anterior superior spine of the ilium, and parallel to the fibers of the fascia of the external oblique. The fascia was overlapped for two inches on each side, as shown in article in *Surgery, Gynecology and Obstetrics*, thus changing the entire contour of the patient's abdomen. The patient is doing her own work and feels absolutely well. In two other cases I did the same thing.

DR. C. F. P. KORSELL, Chicago: I emphatically believe in the surgical treatment of enteroptosis. I have had some little experience and endorse the view of intra-abdominal pressure being a causative factor of great importance. In seventy-four women and two men operated on for enteroptosis by a new method, sixty-three had previous diagnosis and were deliberately operated on for its relief. Eighteen of them had previously been operated on for gynecological troubles without relief. My work has been in aggravated cases, in patients prostrated, useless, and with life a burden. They have been mostly those complicated with pelvic troubles and in quite a large percentage the small intestines were principally involved, being prolapsed into the lower pelvis below the promontory of the sacrum and bent back around its acute angle, usually with the uterus pressed down, retroverted and the fundus resting on the intestines, compressing them against the sacrum. The operation is done through a transverse or the usual incision, above the symphysis. After raising the intestines and emptying the pelvis completely of intestines, packing them out of the way, an incision is made in the posterior peritoneum about one inch long just to the right of the rectum, either transversely or longitudinally; then grasping the cul-de-sac of Douglas, or, in some cases, the neck of the uterus, well down with a tenaculum forceps and approximating it posteriorly to the sacrum just below the promontory and stitching it into the cut in peritoneum with chromicized catgut or silk, a firm anchorage is secured for the uterus posteriorly and permanent suspension. The same procedure is carried out to the left of the rectum with or without incising the peritoneum. The sutures are continued on each side from these central points of suspension for sewing the broad ligaments on the same level to the sacral peritoneum, a half-inch below the promontory, until the true pelvis is entirely closed up by a diaphragm of double layers of peritoneum, which experience has shown to be of ample strength to keep the abdominal organs out of the pelvis.

I have deferred reporting this work in the hope of having some of these patients come through pregnancy, but have so far waited in vain. However, I do not believe the condition produced would materially interfere or complicate natural labor, especially if one were not in too great haste. Such patients should have ample dilatation of the cervix before resorting to the use of forceps.

DR. J. H. CARSTENS, Detroit: Prevention is the great desideratum. The illustrations of Dr. Smith show the peculiar shape of the body, which indicates the tendency toward general abdominal ptosis. This being the case, we should prevent the latter by systematic development of the body by physical exercise and not too much school work. Why do we have so much ptosis and neurasthenia? Because many of the girls at this age are ambitious; they want to learn and to become stenographers, teachers or members of some other profession, and still they haven't the right kind of brain; they learn with difficulty; they must study hard, until late at night. To make matters worse, perhaps some good aunt pays for a music teacher and they also play on the piano during this stage of development, and then when they are 18 or 19 years old graduate from the high or normal school physical wrecks, with a certain amount of mental development and with a sour and cross temper. We must prevent this condition. Such a girl must stop her education for a few years; she can make it up easily afterward, if necessary. Such a girl must be sent to the country. Let her jump over the fences, chase the cows, feed the chickens, fall in the river, swim, row a boat; in other words, be a regular "tom-boy."

With plain nourishing food, in the course of a few years she will develop into a strong, healthy woman with a virile body, with not so much learning, but with a sweet temper.

DR. A. W. CRANE, Kalamazoo: It seems to me that the usefulness of the x-ray examination of the stomach and intestines by surgeons is greatly circumscribed. It is mentioned but little in the books, in journals and in works on the x-ray itself. It does not seem to be described in the books on general surgery and medicine. To my mind the x-ray examination of the stomach and intestines often furnishes more complete information than experimental operation. A surgeon may not be able to tell whether an ulcer of the stomach is present or not, even though he has the stomach in his hand, but he may be able to tell from the x-ray examination that such exists. It seems to me that except in emergency cases, no surgery of the stomach or intestines should be done until x-ray examination had been made.

ARTHRITIS OF GASTRO-INTESTINAL ORIGIN, ITS DIAGNOSIS AND TREATMENT *

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An obscure relationship between disorders of the digestive tract and joint affections has long been recognized by clinicians, and in the last decade some of these relations have become better understood. It is now known that severe cases of arthritis may occasionally be completely relieved by preventing absorption of intestinal contents in the large intestine. This may be accomplished by intestinal lavage, purging, regulation of diet, and by operations on the colon that cause fecal material to be discharged through artificial openings, thus putting the lower portion of the intestine entirely out of function.

Various intestinal affections may influence joints, and it is interesting to observe that typhoid fever and bacillary dysentery both are occasionally accompanied by joint lesions, while in appendicitis arthritic complications are too infrequent to seem more than mere coincidences. The few scattering cases of arthritis that occur with rarer diseases of the alimentary tract will be disregarded in this paper.

Keen¹ states that there were 84 cases of arthritis among 1,700 cases of typhoid fever collected by him, and Garrod² estimates that 3 or 4 per cent. of bacillary dysentery show joint complications. In the very common malady, appendicitis, Sutherland³ has been able to collect only 6 cases in which there have been pronounced articular pains, and these seem to be too few to indicate any real relationship. Garrod² says that he has been unable to obtain any reliable instances of joint disease occurring with amebic dysentery, but W. E. Musgrave⁴ records that chronic rheumatism both of the articular and muscular types is very frequently encountered, and in many instances seems to bear a very definite relation to amebiasis of the intestine. In comparison it should be remembered that gonorrhoeal arthritis occurs in 2 or 3 per cent. of patients suffering with the latter disease.

The joint lesions in typhoid fever and bacillary dysentery make their appearance after bacterial poisons have acted for several weeks. In practically all instances bacteria have not been found in the joint fluids.

* Bacteriologic examinations by Mr. Carl Ten Broeck and Mr. J. N. Jones, Department of Comparative Pathology, Harvard Medical School.

1. Keen, W. W.: Surgical Complications and Sequels of Typhoid Fever, 1898.

2. Garrod, A. E.: Allbutt's System of Medicine, 1908, III.

3. Sutherland, G. A.: Edinburgh Hospital Reports, 1895, p. 109.

4. Musgrave, W. E.: Philippine Jour. Sc., June, 1906, I, No. 5.

In dysentery the arthritis usually subsides within a week or so, and affects the larger joints most commonly, especially the knees, in which there may be synovial effusion sometimes of extreme degree. Generally no permanent damage results.

Typhoid arthritis is sometimes polyarticular, but more commonly monoarticular and it especially attacks the hip joint, in which spontaneous dislocation is a very frequent result from serous distention of the capsule due to the subacute synovitis.

CLINICAL DATA INDICATING THAT CONTENTS OF THE LARGE INTESTINE MAY ACT AS JOINT IRRITANTS

Attention will be given in what follows mainly to obscure intestinal toxemias originating in mild processes that are associated only with ordinary non-pathogenic intestinal bacteria.

Vague connections between intestinal disorders and joints have been recognized by many clinicians in the temporary improvements occurring in the latter following treatment of digestive irregularities, but these observations have been too indefinite to permit of reasonable deductions, and dependence therefore has to be placed on fortunate combinations of intestinal and arthritic symptoms that allow of no doubts as to their interpretation. Such cases are, however, rather rare. The following instance of fecal impaction accompanied by joint complications is the most convincing that can be cited at the present time:

Patient.—Married man of 50 years, physician, suffering with multiple arthritis; severe symptoms of several months' duration, preceded by two years of slow development of stiffness; arthritis involved spine, jaws, hands, knees and ankles, especially, and to less extent the other points. Nearly complete disability was present and joints exhibited periarticular swellings and limitation of motion, with edema of skin around affected parts, of moderate degree. Psoriasis was a very interesting feature, having a most extensive distribution over scalp, trunk and extremities and of duration longer than the joint lesions.

Personal History.—Patient was a healthy man previous to present illness; no infections or other etiologic factors discovered to account for insidious onset of joint trouble; tonsils removed without effect on joints; no digestive symptoms except occasional slight abdominal pains at night; patient always a hearty eater.

Examination.—This showed fecal mass in the cecum and tenderness at umbilicus. Bowels were moving once or twice daily with the use of sodium phosphate. Physical examination was otherwise unimportant.

Treatment.—Intestinal lavage, with physiologic saline enemas daily.

Result.—Enormous accumulation of fecal material evacuated at end of eight days. The edema about the joints and psoriasis began to subside slowly within two or three weeks, and the arthritis and skin lesions both steadily improved for several months and terminated in complete recovery that has remained permanent. Patient has continued treatment, taking fermented milk and keeping bowels well evacuated with cathartics and enemas, and has been able to resume active practice and play golf for the past year.

It seems reasonable to suppose in this case that substances were absorbed from the large fecal accumulation adherent to the intestinal walls and that these produced joint and skin lesions, as complete subsidence of two such severe conditions in skin and joints simultaneously after removal of the fecal mass scarcely permits of any other interpretation.

Having acquired this definite conception, it becomes possible to support this idea of intestinal toxemia by additional observations which of themselves seem less convincing.

Colostomies performed for various rectal conditions have been reported by different surgeons⁵ to be associated occasionally with the cure of an arthritis which happened to be present coincidentally with the rectal disorder. Interpretation seems to be that while the surgical malady was being cured by allowing the intestine to remain at rest, simultaneously its absorptive function was also thrown into disuse, with the result that the joints were improved.

I have had charge of a patient suffering with rectal ulceration for which a colostomy was performed. In this case the artificial opening allowed a little fecal matter to get into the lower part of the bowel occasionally, and the patient was in the habit of irrigating the colon through the cecal opening himself; moreover, he could readily tell when such washings were needed by pains that began in his joints, and these subsided each time after irrigation, within a few days.

Purgation as a cure for arthritis from intestinal toxemia has been frequently employed at sanatoriums, and the marked improvements that often are related are to be explained on the assumption that they also diminish absorption by clearing the bowel quickly and thoroughly, and by increasing peristalsis. There seems to be no doubt that such improvements occur or that symptoms generally recur after the treatment ceases and accumulation again takes place.

ORIGIN OF INTESTINAL TOXINS

In typhoid fever and bacillary dysentery, toxins presumably are derived from special micro-organisms producing those diseases, but in the class of cases under discussion there have been no pathogenic bacteria recognized in the stools.

Theoretically three possibilities exist. 1. Some specific organism that produces the toxic substance, which has not yet been discovered, is present in the stools. 2. Ordinary non-pathogenic bacteria develop excessively, and the products of their activities exert a mild irritative effect on joint tissues from being in excess in the blood, similarly as excessive quantities of uric acid derivatives cause trouble with joints, although uric acid is a normal product of metabolism. 3. Defective digestion produces abnormal chemical products independently of bacterial action, and not of gouty nature, that are the cause of arthritis.

NON-PATHOGENIC INTESTINAL BACTERIA IN THEIR RELATIONSHIP TO JOINTS, AND CONDITIONS THAT ACCOMPANY THE PRODUCTION OF JOINT LESIONS

Examinations of stools of arthritic patients show no constant characteristics or any peculiarities that are not observed in patients who do not have arthritis. No bacteria have been discovered that are peculiar to this condition alone, yet hidden in this confusing state of affairs lies the cause of certain types of joint disease, shown by cures following removal of fecal impactions.

The relationship between intestinal toxins and joint lesions must depend on the following series of variable conditions, namely: variable formation of toxins, variable absorption of them through the intestinal walls, variable unknown processes in their passage through the liver into the general circulation, and diverse resistances of joint tissues.

5. Cave, Edward John: A Discussion on the Chronic Diseases Included in the Terms "Chronic Rheumatism," "Osteo-Arthritis," and "Rheumatic Gout," Brit. Med. Jour., Oct. 12, 1901, p. 1040. Walls, Frederick Charles: The Causes and Treatment of Non-Malignant Stricture of the Rectum, Brit. Med. Jour., Oct. 6, 1900.

Production of toxins fluctuates with the quantity of nitrogenous food and according to the abundance of bacteria, and it may be diminished by changing the character and quantity of diet, by improving digestion and absorption of food in the small intestine, thus leaving less for bacterial decomposition, or by introduction of micro-organisms, as lactic acid bacteria, which inhibit the growth of putrefactive bacteria. The quantity of toxins absorbed depends on the amount formed, the rate of peristalsis, and also on inherent individual differences in powers of absorption. Resistance of joint tissues must also be considered a variable factor, as variability in vital resistance of all living tissues is one of the recognized facts of biology.

EXAMINATIONS OF STOOLS OF ARTHRITIC PATIENTS

Examinations of stools have been made a sufficient number of times from twenty-five patients to form an opinion regarding the presence of unusual species of bacteria, especially spore-forming anaerobes, and to allow comparison with non-arthritic individuals. Some patients were selected because their joint condition seemed to be of intestinal origin and others were chosen because the intestinal tract was thought to be normal and to stand in no relation to the arthritis. Also a few stools were examined from patients who had no joint trouble.

Methods are given below and a summary of results simply outlined at this point.

1. Patients with arthritis who respond to intestinal treatment exhibit luxuriant growths of intestinal bacteria both of the predominant type of *Bacillus coli communis* and also of spore-forming anaerobic bacteria.

2. No new specific pathogenic micro-organisms have been discovered.

3. The very large majority of spore-forming anaerobes correspond to *Bacillus aerogenes capsulatus*.

4. Wide variations exist in numbers of fecal bacteria found in different individuals, also in the same individual at different times; therefore numbers of bacteria present in any selected specimen of stool have slight significance unless excessively large. MacNeal⁶ has exhaustively studied fecal bacteria of healthy men and confirms this observation of fluctuation in numbers of fecal micro-organisms.

5. Scanty numbers of fecal bacteria frequently are found in persons with arthritis who respond to intestinal treatment owing to the fact that cultures were taken at a time when fluctuations were at their lowest limit, due to purgation, diet and other treatment.

6. Patients with arthritis of other origins, also non-arthritic individuals, may exhibit all the peculiarities observed in those with arthritis of intestinal etiology, except that excessive numbers of bacteria are less persistently observed.

CONCLUSIONS

1. Patients with arthritis who respond to intestinal treatment habitually eat a little more than their digestive tract is able to properly care for, and intestinal putrefaction occurs with them in consequence very frequently and excessively, yet subject to usual fluctuations.

2. Excessive amounts of bacterial products, derived from activities of ordinary intestinal bacteria, find their way into the blood and produce arthritis in those persons who have susceptible joints, just as excessive amounts of

uric acid derivatives in the blood produce joint changes in gouty individuals.

3. The exact identity of bacterial products that produce arthritis is unknown; nor is it understood whether they are derived from many species of bacteria or from some special organism, like spore-forming anaerobic bacteria. The presence of the latter in abundant numbers, and the fact that some of them are known to produce acute poisons, makes their rôle a suspicious one.

Baldwin⁷ has studied the products of intestinal putrefaction as they appear in the urine of patients suffering with rheumatoid arthritis, and her observations are very interesting. All but two of the twenty-one cases examined showed either an excess of aromatic sulphates or else the presence of indican. Considerable variation was noted: in some instances indican was entirely absent, while other products of putrefaction, aromatic sulphates, were in excess of normal. In other instances one of the putrefactive products, indol, skatol or phenol, might be found in excess, while their total amount was not unusually great.

Comment should be made on the etiology of the cases which she examined as rheumatoid arthritis, with the assumption that they were all of the same origin. No data are given by her to show that several types were not included, some of them originating from intestinal toxemias, and others, in which the intestinal condition was secondary, to metabolic or neurotic disturbances, but which showed intestinal putrefactions from the inactive life and sluggish peristalsis that most arthritic patients complain of sooner or later. Her results are in accord with the fluctuating conditions known to exist in the intestine and serve to emphasize the probability that severe types of arthritis are made worse, and perhaps perpetuated after original causes have ceased to act, by intestinal putrefactions that have established themselves while the patients have been hopelessly crippled.

4. Clinical data not given in this article on account of their incomplete state suggest another type of arthritis originating in the intestinal tract independently of bacteria and due to defective digestion. Salient features of this type are its occurrence in old age, and the existence simply of chronic dyspepsia in characteristic cases. The type of joint changes in such patients is distinctly different from those typically associated with intestinal bacterial toxemias. In the former pronounced hyperthropic overgrowths of bone occur, while in intestinal toxemias of bacterial origin the damage is restricted mainly to soft tissues or very slight atrophy of bony trabeculae. Defective metabolic processes going on in worn-out cells of the intestinal mucosa may conceivably lead to formation of unusual substances which act on joints, similarly as visible defects like cancer are associated with a toxemia from defective metabolic activities of cancer cells. It is admitted, however, that this origin of arthritis cannot at present be satisfactorily proved.

APPLICATION OF THE THEORETICAL CONCEPTION TO CONDITIONS EXISTING IN THE GASTRO-INTESTINAL TRACT

Some of the facts to be reconciled by these ideas may be illustrated by the following groups of cases: patients with fecal impactions who have severe arthritis; patients with fecal impactions who have no arthritis; patients with dilatation of stomach and enteroptosis with and without arthritis; patients with no severe intestinal symptoms, yet who have joint complications.

A starting point for explanation may be taken from conditions existing in the joints. Blood circulating

6. MacNeal, W. J., Latzer, L. L. and Kerr, J. E.: Fecal Bacteria of Healthy Men, Jour. Infect. Dis., April 1, 1909, vi, No. 2.

7. Baldwin, Helen: Organic Acid in the Urine, Am. Jour. Med. Sc., 1904, new series, cxxviii, 1045.

through joints and containing irritating substances derived from the intestinal tract will or will not produce demonstrable lesions, according to the resistance of joint structures. In the majority of instances these are very resistant and withstand protracted, severe intestinal toxemias. The vital resistance of joint tissues also is constantly being exercised in other ways toward other bacterial toxins and metabolic substances of the blood, and in the large majority of all instances the joints are able to maintain their health in spite of adverse variable conditions.

It should be recalled that arthritis occurs as a complication of gonorrhoea in only a very small percentage of cases, and is also associated with tuberculosis, pneumonia, scarlet fever, tonsillitis, typhoid fever, dysentery and other infections, always in very small percentage, too, of the total numbers of cases of these diseases.

When the severe toxemia of a pneumonia, scarlet fever, typhoid fever or dysentery subsides the arthritic symptoms subside also, if they have been present, as soon as the tissue cells are able to cope with and overcome the diminishing toxic influences of the blood. Likewise, when fecal impactions are removed and diminution in absorption of irritating substances from the intestine occurs, then there is also permanent subsidence of arthritic symptoms if they are present, because this extreme state is readily prevented again. Explanation of the observations enumerated, therefore, may be made as follows:

Patients with fecal impactions are absorbing large quantities of mild intestinal toxins that occasionally overcome fairly resistant joints, but in the majority of instances the tissues are able to resist even this excessive absorption.

Patients with dilatation of the stomach accompanied by putrefaction of gastric contents likewise are absorbing large quantities of putrefactive products, but joints are able to successfully resist in the majority of these instances, too. A few patients do succumb, however, and their arthritic condition may be helped by treatment of the stomach.

Patients with no severe intestinal disturbances must have particularly susceptible joint tissues in order to have arthritis as an accompaniment of such slight digestive defects, and very little can be accomplished for their cure.

DIAGNOSIS

Arthritis occurring with dysentery, typhoid fever or other acute conditions presents comparatively slight difficulties, but when caused by mild intestinal toxemias, histories related by patients suggest preliminary treatments, and diagnosis has to be made from the responses to these tests.

Obscurity of origin, therefore, is a prominent feature, and when no etiologic factors are discovered to account for the existing arthritis then daily irrigations of the colon with warm water are prescribed, together with some general tonic like elixir of iron, quinin, and strychnin phosphates, and after two or three weeks an idea may be obtained of the importance of the intestinal element. In favorable instances improvement takes place in the general condition of the patient, also in the skin and sclerotics of the eyes; the appetite is improved and joint pains begin to lessen. Further improvements as the result of more vigorous measures that will be described later make the diagnosis positive.

In some individuals, especially small, poorly developed women, the history of a slowly developing arthritis from no apparent cause, accompanied by a muddy, sallow complexion and lusterless eyes and loss of weight, permits a probable diagnosis immediately, but there are many other patients whose condition cannot be determined. Symptoms which are commonly associated with disorders of stomach and intestine frequently occur but are too inconstant to have diagnostic value, the most striking peculiarities of this class being their insidiousness and absence of well-defined symptoms. The following list represents actual cases that have responded to intestinal treatment:

CASE 1.—Appetite good; bowels moving regularly; slight pain at umbilicus at night; occasional periods of dizziness; no acute gastric or intestinal symptoms; fecal mass palpable in cecum.

CASE 2.—Appetite good; bowels move two or three times daily; no gastric or intestinal symptoms; abdominal examination negative.

CASE 3.—Poor digestion and continual craving for food; habitual constipation; no acute gastric or intestinal symptoms; abdominal examination negative.

CASE 4.—Appetite moderate; bowels constipated; no gastric or intestinal symptoms; abdominal examination negative.

CASE 5.—Appetite poor; bowels obstinately constipated; no gastric or abdominal symptoms; fecal masses palpable in colon.

CASE 6.—Appetite moderate; bowels constipated; no gastric or abdominal symptoms; examination negative.

CASE 7.—Capricious appetite, much fat pork eaten; bowels move once or twice daily; vomiting, severe abdominal pains, diarrhea; operation for gall-stones; complexion waxy, spleen enlarged; no fecal masses or abdominal tenderness.

CASE 8.—Appetite moderate; bowels regular; no gastric or intestinal symptoms; abdominal examination negative.

Ether anesthesia conducted in the manner usually employed at surgical operations, but stopped as soon as muscular relaxation takes place, has different after-effects on patients suffering with different types of arthritis.

For example, the patient with fecal impaction cited above experienced a short rise of temperature from normal to 102 F., also a brief attack of abdominal pain that required morphin, and slight increase in periarticular swellings following etherization for twenty minutes; while on the other hand, there may be very striking diminution of severe articular pains and surprising restoration of motion temporarily in affected joints after anesthesia.

These differences may possibly have diagnostic value in severe types associated with great pain and reflex muscle spasm. Moreover, etherization in such patients is often advisable, as Dr. T. S. P. Sfrangeways has pointed out, in order to differentiate between pure muscular spasm and adhesions of synovial membranes.

The effect of ether is evidently on articular sensory nerves and indicates differences of their irritability consequently, it may perhaps also show pathologic conditions of unstable equilibrium in them by their muscular response, and suggests an important nervous element in underlying causes for such cases as respond to ether stimulation. Too few observations have yet been made to allow conclusions, and only the less frequent types in which articular pains and reflex muscle spasm are severe exhibit differences sufficiently well to be positively identified. Mention is made of this phenomenon, because there have been a few instances in which it has presented an additional clue of use in determining the nature of the arthritic processes.

PROGNOSIS AND TREATMENT OF ARTHRITIS ORIGINATING
IN INTESTINAL TOXEMIAS, UNASSOCIATED WITH
SPECIFIC PATHOGENIC ORGANISMS

Unusual intestinal conditions like fecal impactions that may be remedied, also many cases of intestinal disorders that have remained unrecognized and therefore neglected, offer favorable prognosis for the cure of associated arthritic disease. On the other hand, chronic intestinal troubles which have proven resistant to careful treatment and that are associated with very weak joints present an unfavorable outlook. Prediction whether a given case is curable or not often depends on the response to the first few weeks of preliminary treatment, and frequently cannot be told otherwise. Favorable prognosis always depends on the possibility of permanently diminishing the toxic substances in the blood. Attention, therefore, is directed logically toward diminishing the formation and absorption of toxic substances in the intestine and increasing the resistance of joints.

METHODS OF DIMINISHING THE FORMATION AND ABSORPTION OF INTESTINAL TOXINS

These include modifications in diet, introduction of antagonistic micro-organisms, intestinal antiseptics, stimulating drugs, stomach and colon lavage, abdominal supportive apparatus to correct visceral displacements and to overcome stasis of intestinal contents, surgical operations, colostomies, appendicostomies and operations on the stomach.

Diets are modified to lessen the quantity and nitrogen content of the food; buttermilk by means of its lactic acid organisms inhibits the growth of putrefactive anaerobes in the intestinal tract; various intestinal antiseptics may act in a somewhat similar manner. Medicinal tonics tone up digestive and absorptive functions and indirectly lessen putrefaction by minimizing the food available for putrefactive micro-organisms. Purgatives clear away accumulations of food that are fermenting and giving rise to toxic substances. Stomach or colon lavage also washes away decomposing food products and diminishes the formation of irritating bodies. Abdominal supports applied to individuals with very flabby, pendulous abdomens help to restore normal conditions and healthy action of stomach and intestine, and also minimize putrefactive changes; appendicostomies have been tried in severe cases of arthritis in order to secure more thorough irrigation of the colon and thus prevent absorption of intestinal toxins.

The aim of all treatments is removal of accumulations of food and putrefactive bacteria already lodged in the gastro-intestinal tract and prevention of reaccumulations, and simple measures which patients may continue to carry out themselves offer the most chances for cure.

In ordinary cases it is well to begin with purgation and colon irrigation until the intestine is thoroughly cleared, then to continue this treatment sufficiently energetically to maintain the advantage gained.

It is also well to put the patient to bed during the first week or so, while clearing the intestinal tract, and simultaneously to cut down the diet in order to lessen bacterial action to a minimum. A tonic may advantageously be given at the same time. In favorable instances, after two or three weeks, the joint pains begin to lessen, mobility increases and periarticular swellings disappear very slowly during the several months that follow.

In many cases improvement goes on for a time, then ceases, and symptoms may even recur. The probable explanation is that treatment has diminished absorption

of toxic substances sufficiently to ameliorate symptoms partially, yet not enough to allow joint tissues to regain their normal function entirely. In these individuals operations which remove the absorptive function of the large intestine altogether, as colostomies, probably would be followed by complete subsidence of symptoms; but as recurrence seems likely to take place after colostomy openings have been closed, these operations should be seldom undertaken, because they are not permanent, and the discomfort attending them may be even worse than the condition which they are intended to relieve. They may be justifiable in rare instances, after all other methods have failed, with the hope of gaining temporary relief from the toxemia and allowing the tissues to recuperate sufficiently to resist new conditions in the future. Appendicostomies do not abolish the absorptive function of the colon as colostomies do, and consequently possess little advantage, if any, over purgation and intestinal lavage by rectum; moreover, they may be a considerable inconvenience.

Putrefactive changes taking place in the contents of the stomach, due to gastric dilatation, pyloric stenosis, congenital defects, or other pathologic states, require special treatment, differing according to the nature of the pathologic changes. The reader must be referred for special surgical and medical methods to text-books of surgery and medicine, because the subject is too comprehensive for this article.

The problem of avoiding reinfection of the digestive tract after clearing it of bacteria and decomposing foods has to be thought of, as bacteria constantly are being introduced through the mouth; therefore the sources for reinfection should be considered.

Bacteria get into the digestive tract continually with the food, and prevention of the spread of infectious diseases is a problem that public health authorities are dealing with. Milk and water supplies are subjected to rigid chemical and bacteriologic examinations in order to maintain a certain standard of purity and it is not inconceivable that such examinations may be further extended to include cold-storage products of various kinds in the future if it is proved that putrefactive anaerobic bacteria have sufficiently important pathogenic properties. It is well recognized by milk dealers that milk may spoil, although refrigerated, without becoming sour. These putrefactive changes of spoiling are due to growth of anaerobic bacteria that develop at low temperatures in which other micro-organisms cannot flourish. Eggs, also, that are kept in cold storage occasionally spoil from anaerobic bacteria and molds on the shells growing through the pores.

Cold-storage meats and fish seem open to the same dangers, although no definite statements can be made because investigation of bacterial changes of refrigerated meats have not been extensively undertaken; but it seems possible that the elaborate system of cold storage which has developed of late years may occasionally be responsible for intestinal putrefactions, and that nitrogenous storage products may sometimes contribute flourishing growths of spore-forming bacteria that have developed in the interval during which the products have been kept. This seems to apply especially to meats that have been removed, exposed for sale, and then again returned to cold storage, as bacteria may get well started in development when meats are exposed for sale in a warm atmosphere. These organisms are capable also of resisting unusual degrees of heat, and therefore may find their way into the alimentary tract as spores that are capable of further development. Certain cases of chronic

arthritis may therefore rarely represent one of the special illustrations of this relationship between cold-storage methods and public health.

Bacteria, besides being taken with the food, also sometimes grow luxuriantly in the mouth cavity, and this fact must be given consideration when attempting to reduce intestinal putrefactions, and cases of pyorrhea alveolaris should receive treatment in order to diminish the numbers of anaerobic bacteria finding their way into the stomach.

METHODS OF IMPROVING THE DIGESTIVE FUNCTIONS OF THE GASTRO-INTESTINAL TRACT

These methods are well known to all physicians and are briefly outlined to show their application to special arthritic conditions discussed in this paper.

Normal secretory, absorptive and peristaltic functions of stomach and intestine may become deranged through accumulations of decomposing foods which exert a toxic influence; visceral saggings may sometimes result in harmful interference with blood-supply and nerve-supply of the organs; or dilatations may mechanically stretch and interfere with the function of the epithelial cells of the mucosa.

Digestive functions may be improved by treatment of each of these various pathologic states as they occur, but details of treatment for dilatations, muscular atonies, stenoses, adhesions, inflammations, displacements, ulcerations and malignant growths obviously cannot be given at length.

Mechanical stretchings and interference with blood-vessels and nerves due to relaxed abdominal walls should be treated with abdominal supports, as Goldthwait⁸ recommends.

The behavior of epithelial cells of gastric and intestinal mucosa with regard to their secretory and absorptive functions depends largely on the chemical and nervous stimuli they receive, and maintenance of normal metabolic processes in them is of very great importance, as thereby bacterial decompositions are indirectly lessened and unusual substances due to defective metabolic processes are avoided. The lining epithelium is constantly being influenced through variable states of the blood, food, drugs and nervous impulses from the central nervous system; consequently foods and drugs, which may be changed at will, furnish an important means of regulating the health of these cells.

The most favorable conditions may be secured by the selection of a diet of suitable quality and quantity, low nitrogen content being one of the quality requisites; an amount that avoids accumulation of the unabsorbed excess indicating in a rough way the suitable quantity of food. Accumulations already present should be cleared away by means suggested previously. Dr. J. H. Kellogg has had success with many arthritic patients who exhibit intestinal toxemias by the use of a vegetarian diet of low nitrogen content. There seems to be no doubt as to the efficiency of this cure, but it is disagreeable for some persons and a limited mixed diet appears usually to be sufficient.

The effect of various drugs on digestion is too well known to require comment. The list includes preparations to increase secretion, lessen acidity, promote absorption, regulate evacuation, lessen movement, relax mus-

cular spasm and inhibit bacterial action. Well-tried remedies like nux vomica, preparations of iron, sodium bicarbonate, pepsin, hydrochloric acid, calomel, saline cathartics and a few others fulfill most of the requirements.

The effect of mental depression from the gloomy outlook and chronicity of some cases has a very important influence on digestion of arthritic patients. This frequently is underestimated, but should be met with unusual optimism by the physician in order to overcome it. Maintenance of proper mental attitude of patients with chronic troubles is one of the most important and difficult problems of treatment. Patients who have responded partially to intestinal treatment and whose progress has become arrested should have occasional modifications made in their routine, as slight variations assist in maintaining greater activity of the intestinal mucosa and prevent a relapse into a chronic state again. By careful attention, and by means adapted to each individual, it seems possible to nurse the alimentary tract back to a normal state so that digestion by tissue cells is permanently improved and intestinal putrefaction permanently diminished, and the only essentials for treatment in most cases are a few simple remedies and sufficient consideration of each patient to accurately understand the existing state of affairs.

METHODS FOR RAISING RESISTANCE OF JOINT TISSUES

The only effective way known at present to increase joint resistance is to increase the individual's general health. Hygienic treatment advised for tuberculosis is especially well adapted to raise the resistance and increase the health of arthritic patients. There are local physical stimulants, as heat and cold, and electricity that may be employed, but their administration frequently results in more harm than good from overstimulation of the tired-out tissues. The possibility of immunizing joints to bacterial and metabolic toxins has not yet been satisfactorily demonstrated.

Joints inflamed from intestinal irritants should be kept at rest during the active inflammatory period in plaster casts and afterward gently stimulated to increase the blood-supply locally after the intestinal tract has been cleared out and the patient's general condition has begun to improve. The blood may then be assumed to contain a diminished amount of toxin, and an increased supply of blood to the joints then becomes beneficial.

BACTERIOLOGIC METHODS

Results of examinations of stools must indicate conditions as they exist within the bowel, and not represent changes occurring subsequently; therefore the following precautions have been taken:

Stools were caught in sterilized tin cans and brought immediately to the laboratory, where they were kept at a low temperature and examined within a few hours.

For examination 0.5 gm. of fecal material was accurately weighed out, rubbed up in sterile normal salt solution, and a uniform suspension of precisely 50 c.c. obtained.

Plate cultures of litmus lactose agar, litmus lactose gelatin and blood agar were inoculated with this 1/100 fecal suspension after thorough shaking and further dilution. The best plates were secured by 0.5 c.c. of 1 to 100,000 dilution and 1 c.c. of 1 to 1,000,000 dilution.

Spore-bearing anaerobic bacteria were determined by heating 10 c.c. of 1/100 fecal suspension in a capped tube in a water-bath for fifteen minutes at 80 C., after which 0.5 c.c. was plated with blood-agar, and 0.25 c.c. with plain agar, and 0.25 c.c. with a second blood-agar plate.

8. Goldthwait, J. E., and Brown, Lloyd T.: The Cause of Gastroptosis and Enteroptosis, with Their Possible Importance as a Causative Factor in the Rheumatoid Diseases, Boston Med. and Surg. Jour., May 26, 1910.

Litmus lactose gelatin plates were kept three days at room temperature, then examined and counted. Litmus-lactose-agar plates were incubated at 37 C. for twenty-four hours before examination. Blood-agar plates were kept three days at 37 C. under anaerobic conditions, secured by passing hydrogen through Novy jars containing the plate cultures, then extracting the last traces of oxygen with pyrogallic acid and sodium hydrate.

Examinations at the end of three days were made and especial attention paid to hemolytic powers of the developing colonies. Oval colonies surrounded by distinct hemolytic zones developing from spores in blood-agar corresponded morphologically and culturally with *B. aerogenes capsulatus* or *B. aerifringens*. Subcultures were made from typical colonies in each stool and further study of these confirmed the first impression, that the large majority were *B. aerogenes capsulatus*.

Another paper, purely bacteriologic in nature, dealing with all the varieties of spore-forming anaerobic bacteria that have been found, may be published later, and for this reason only such points are mentioned in this article as bear on the clinical aspects of the relationship between joints and gastro-intestinal disorders.

It should be stated in summarizing that in a considerable proportion of intestinal cases improvement or cure may be effected; that the number is increasing as our knowledge of conditions and skill in applying simple remedies becomes extended, and that insistence should be made on early treatment before destructive changes have gone on that are beyond repair.

In conclusion I wish to acknowledge my indebtedness for clinical material to Drs. E. G. Brackett, Joel E. Goldthwait, Robert B. Osgood and Charles F. Painter, who have generously contributed private patients, and permitted the use of the orthopedic clinics of the Massachusetts General Hospital and Carney Hospital; also to Dr. Theobald Smith for valuable suggestions concerning bacteriologic methods.

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AN ACCURATE FORMULA FOR USE IN
THE MODIFICATION OF COW'S MILK
IN THE ARTIFICIAL FEEDING
OF INFANTS

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If the composition of milk from any source is definitely known, and known to be constant, a mathematically accurate formula may be devised by which artificial mixtures of any desired strength of fat, carbohydrates, and proteins may be compounded. The construction of such formulas is a somewhat long and tedious algebraic process, and when completed they are so complex that the compounding of milk mixtures by their use requires too much time and labor to be of service to the general practitioner.

With this fact in view, after having devised a formula based on 4 per cent. milk and 16 per cent. cream, I constructed a table of over 400 milk mixtures by ascertaining according to the formula, the amounts of milk, cream and milk-sugar required in compounding these mixtures, so that mixtures may be made up merely by reference to the table.

According to L. E. Holt¹ the composition of average erd milk is, fat 4 per cent., carbohydrates 4.50 per cent., proteins 3.50 per cent., etc., and the composition

of what is known as 16 per cent. cream is, fat 16 per cent., carbohydrates 4.05 per cent., proteins 3.20 per cent., etc.

The formula based on milk and cream of this composition is calculated in the following manner:

Suppose *a* represent the per cent. of fat, *b* the per cent. of carbohydrates, and *c* the per cent. of proteins in any artificial mixture; that is, that which is commonly known as, for example, a 3-6-1 mixture (3 per cent. of fat, 6 per cent. of carbohydrates, and 1 per cent. of proteins) we term an *a-b-c* mixture. Now let *x* represent the per cent. of milk, *y* the per cent. of cream, and *z* the per cent. of milk-sugar necessary to compound such a mixture. The diluent will then be equal to 100-(*x+y*).

It is then obvious that

$$\frac{4x}{100} + \frac{16y}{100} = a \text{ or } x+4y=25a \tag{1}$$

$$\text{and } \frac{4.5x}{100} + \frac{4.05y}{100} + z = b \text{ or } 90x+81y+2,000z=2,000b \tag{2}$$

$$\text{also } \frac{3.5x}{100} + \frac{3.2y}{100} = c \text{ or } 35x+32y=1,000c \tag{3}$$

By subtracting Equation 1 multiplied by 8 ($8x+32y=200a$) from Equation 3 we have

$$27x=1,000c-200a \text{ or } x=\frac{1,000c-200a}{27}$$

By subtracting Equation 3 from Equation 1, multiplied by 35 ($35x+140y=875a$), we have

$$108y=875a-1,000c \text{ or } y=\frac{875a-1,000c}{108}$$

By substituting these values of *x* and *y* in Equation 2 we have

$$\frac{90(1,000c-200a)}{27} + \frac{81(875a-1,000c)}{108} + 2,000z=2,000b$$

$$\text{that is } 40,000c-8,000a+7,875a-4,000c+24,000z=2,000b$$

$$\text{or } z=\frac{a+192b-248c}{192}$$

We then have the values of *x*, *y* and *z* in terms of *a*, *b* and *c*; that is to say, we have the per cent. of milk, cream and milk-sugar necessary to make up an *a-b-c* mixture, and any values whatever (of fat, carbohydrate and protein percentages), such as 3, 6 and 1 may be substituted for *a*, *b* and *c*.

Our formula then is

$$\text{per cent. of milk} = \frac{1,000c-200a}{27} \tag{1}$$

$$\text{per cent. of cream} = \frac{875a-1,000c}{108} \tag{2}$$

$$\text{per cent. of milk-sugar} = \frac{a+192b-248c}{192} \tag{3}$$

To demonstrate the accuracy of the calculation in devising this formula, suppose we desire a 4-4.5-3.5 mixture, i. e., a mixture containing 4 per cent. of fat, 4.5 per cent. of carbohydrates and 3.5 per cent. of proteins. It will be seen that this is cow's milk.

Substituting 3.5 for *c* and 4 for *a* in (1), we have

$$\frac{1,000 \times 3.5 - 200 \times 4}{27} = \frac{3,500.0 - 800}{27} = \frac{2,700}{27} = 100$$

Substituting likewise in (2), we have

$$\frac{875 \times 4 - 1,000 \times 3.5}{108} = \frac{3,500 - 3,500.0}{108} = 0$$

Substituting these values in (3), and also 4.5 for *b*, we have

$$\frac{4+192 \times 4.5 - 248 \times 3.5}{192} = \frac{4+864.0 - 868.0}{192} = 0$$

showing that, in compounding a 4-4.5-3.5 mixture, we take 100 parts milk, no cream, no sugar and no diluent.

Now suppose we desire a 16-4.05-3.2 mixture (cream).

Substituting 3.2 for *c* and 16 for *a* in (1), we have

$$\frac{1,000 \times 3.2 - 200 \times 16}{27} = \frac{3,200.0 - 3,200}{27} = 0$$

Substituting likewise in (2), we have

$$\frac{875 \times 16 - 1,000 \times 3.2}{108} = \frac{14,000 - 3,200.0}{108} = \frac{10,800}{108} = 100$$

Substituting these values in (3), and also 4.05 for *b*, we have

$$\frac{16+192 \times 4.05 - 248 \times 3.2}{192} = \frac{16+777.60 - 793.6}{192} = 0$$

showing that, in compounding a 16-4.05-3.2 mixture, we take 100 parts of cream, no milk, no sugar and no diluent.

In making a table of various mixtures from this formula, I have carried the calculations to a 0.1 per cent., *i. e.*, to three decimal places, which has shown results within 0.04 per cent. of perfect accuracy in all mixtures in which I have calculated the percentages of fat, carbohydrates and proteins from the amounts of milk, cream and sugar used in compounding such mixtures.

The following formula used in many hospitals, and I believe the most accurate one now in general use, is much less accurate than the preceding, especially in regard to the protein content:

$$C = \frac{Q(F-P)}{12} \qquad M = \frac{Q \times P}{4} \qquad C$$

$$S = \frac{Q(CH-P)}{100} \qquad LW = \frac{Q}{10}$$

$$W = Q - (C + M + LW)$$

In this formula *F* represents the desired per cent. of fat, *CH* the desired per cent. of carbohydrates, *P* the desired per cent. of proteins, *Q* the quantity desired, *C* the amount of cream required, *M* milk required, *LW* lime water required and *W* water required.

Suppose we desire, say 24 ounces of a 3-6-1 mixture. By this formula we find that *C* = 4 ounces, *M* = 2 ounces and *S* = 1.2 ounces, *i. e.*, the required amount of cream is 4 ounces, milk 2 ounces and milk-sugar 1.2 ounces. Now 4 ounces of cream contain 0.64 ounce of fat and 2 ounces of milk contain 0.08 ounce of fat, *i. e.*, in a 24-ounce mixture by this formula there are 0.72 ounce of fat, exactly 3 per cent. (as desired) as seen by dividing 72 by 24.

Now 4 ounces of cream contain 0.162 ounce of carbohydrates and 2 ounces of milk contain 0.09 ounce of carbohydrates and we add 1.2 ounces of sugar, making in all 1.452 ounces of carbohydrates in the 24-ounce mixture or 6.05 per cent., as seen by dividing 145.2 by 24. Thus far the formula is quite accurate, the carbohydrates being inaccurate by only 0.05 of one per cent. But 4 ounces of cream contain 0.128 ounce of proteins, and 2 ounces of milk contain 0.07 ounce of proteins, *i. e.*, 24 ounces contain 0.198 ounce of proteins or 0.825 per cent., as seen by dividing 19.8 by 24. Thus by this formula the proteins in this particular mixture are inaccurate by over 0.17 per cent.

By the table from the formula which I have described, 24 ounces of a 3-6-1 mixture require 3.5 ounces of milk, and 3.6 ounces of cream and 1.13 ounces of milk-sugar. Now 3.5 ounces of milk and 3.6 ounces of cream contain 0.716 ounce of fat, *i. e.*, 2.98 per cent. of 24 ounces (inaccurate by but 0.02 per cent.) and 0.2377 ounce of proteins, *i. e.*, 0.99+ per cent. of 24 ounces (within 0.01 per cent. of absolute accuracy), and these amounts of milk and cream plus the added sugar total in all 1.4333 ounces of carbohydrates in the 24 ounce mixture of 5.97+ per cent. (within 0.03 per cent.).

In calculating the amounts of the ingredients in 24 ounces of a 3.25-6-1.25 mixture by the old formula we arrive at an even more inaccurate result in regard to the proteins, for *C* = 4 ounces, *M* = 3.5 ounces and *S* = 1.14 ounces, and in 24 ounces, 4 ounces of cream and 3.5 ounces of milk give 3.25 per cent. fat (accurate) and 1.04 per cent. of proteins (0.21 per cent. out of the way), and these amounts of cream and milk with the added 1.14 ounces of milk-sugar give 6.08 per cent. of carbohydrates (0.08 per cent. off) practically a 3.25-6-1 mixture instead of a 3.25-6-1.25.

By our table 24 ounces of a 3.25-6-1.25 mixture require 5.328 ounces of milk, 3.528 ounces of cream and 1.056 ounces of milk-sugar, giving 3.24 per cent. of fat, 5.97 per cent. of carbohydrates and 1.24 per cent. of proteins.

The greatest inaccuracy encountered in the old formula, and in our table as well, is the last mixture in the table, *viz.*, 5-7-3.50. By the old formula in a 24-ounce mixture we have 3 ounces of cream, 18 ounces of milk and 0.84 ounce of milk-sugar. These amounts in 24 ounces give 5 per cent. of fat (accurate), 7.38 per cent. of carbohydrates (0.38 per cent. off) and 3.02 per cent. of proteins (0.48 off), practically a 5-7-3 mixture instead of a 5-7-3.50 mixture as far as the proteins are concerned.

By our table we find in 24 ounces of a 5-7-3.50 mixture we require of milk 22.08 ounces, cream 1.92 ounces and milk-sugar 0.6 ounce. These amounts give of fat 4.96 per cent. (0.04 off), carbohydrates 6.96 per cent. (0.04 off) and proteins 3.47 per cent. (but 0.03 off).

Had the tables been carried out to one more decimal place all calculations would have been within 0.01 per cent. of absolute accuracy.

It will be seen, therefore, that the old formula is quite inaccurate in regard to the protein content which, having to do with the curd, should be the most accurate, especially when we are dealing with infants having digestive disturbances.

In speaking of proteins Holt¹ says:

The modification of proteids is the most important change necessary in cow's milk, for it is the proteids which give most of the trouble to the infant's digestion. . . . It is not enough to reduce the proteids to the average present in woman's milk, *i. e.*, 1.5 per cent. During the early months the percentage should be less than this. . . . I believe the secret of success in feeding cow's milk is to begin with the proteids so low as not to disturb the infant's digestion, and then slowly, but steadily, raise the quantity. . . . Except to start with too high proteids, no more common mistake is made than to continue long with too low proteids. Anemia, malnutrition, and, I believe, not infrequently scurvy, are seen as a consequence of this practice. The gradual increase is therefore just as important as the low beginning.

In the table I have not considered diluents, for it is evident that after ascertaining the amounts of milk, cream and milk-sugar necessary for a certain amount of a given mixture, a sufficient quantity of water or other

diluent is added to the milk, cream and sugar to make the required amount. If lime-water is to be used, 5 or 10 per cent., as desired, is added before adding the diluent.

If barley water or other cereal water is used, as recommended by many to assist in breaking up the curd, it, too, may be added in the quantity desired before adding the water. Since barley water contains of fat 0.05 per cent., carbohydrates 1.63 per cent. and proteins 0.09 per cent., (Holt), when it alone is used as the diluent, a reduction should be made in the carbohydrate per cent. of the formula; e. g., if a 3-6-1 mixture is desired the ingredients of a 3-5-1 mixture should be used, the percentage of the carbohydrates being subsequently raised

sugar necessary to make up the mixtures were actually given in the table, the decimal point would be two spaces to the right of what it now is.

As the table is, the amounts of milk, cream and milk sugar in a certain amount of any mixture are found by multiplying that amount by the figures opposite the mixture in the table, for example, suppose we desire 36 ounces of a 3-6-1 mixture. We find that the three numbers in the table opposite 3.00-6.00-1.00 are 0.148, 0.150 and 0.047. By multiplying 36 by 0.148 we have the amount of milk, multiplying by 0.15 we have the amount of cream and by 0.047 the amount of milk sugar in ounces. Or suppose we desire 850 gm. of a 3-6-1 mixture. By multiplying 850 by 0.148 we have the amount

SCHEDULE FOR AN AVERAGE HEALTHY INFANT, SHOWING PERCENTAGES OF FAT, SUGAR AND PROTEIDS, AND THE QUANTITIES

Age.	Percentages of—			Quantity for one feeding.		No. feedings in 24 hours.	Interval by day.
	Fat.	Sugar.	Proteids.	Ounces.	Grams.		
Premature infants	1.00	4.00	0.25	1 $\frac{1}{4}$ - 3 $\frac{1}{4}$	7-22	12-18	1-1 $\frac{1}{2}$ hours
First to fourth day	1.00	5.00	0.30	1 - 1 $\frac{1}{2}$	30-45	6-10	2-4 "
Fifth to seventh day	1.50	5.00	0.50	1 - 2	30-60	10	" "
Second week	2.00	6.00	0.60	2 - 2 $\frac{1}{2}$	60-75	10	" "
Third week	2.50	6.00	0.80	2 - 3 $\frac{1}{2}$	60-110	10	" "
Fourth to eighth week	3.00	6.00	1.00	2 $\frac{1}{2}$ - 4	75-125	9	2-1 $\frac{1}{2}$ "
Third month	3.00	6.00	1.25	3 - 5	90-155	8	2 $\frac{1}{2}$ "
Fourth month	3.50	7.00	1.50	3 $\frac{1}{2}$ - 5 $\frac{1}{2}$	110-170	7	3 "
Fifth month	3.50	7.00	1.75	4 - 6	125-185	7	3 "
Sixth to tenth month	4.00	7.00	2.00	5 - 8	155-250	6	3 "
Eleventh month	4.00	5.00	2.50	6 - 9	185-280	5	4 "
Twelfth month	4.00	5.00	3.00	7 - 9	220-280	5	4 "
Thirteenth month	4.00	4.50	3.50	7 - 10	220-310	5	4 "

by the addition of the barley water. The same point must be observed when adding the various dextrinizing powders to the milk mixtures. The dextrinizing process raises the sugar content about 2 per cent., so if a 3-6-1 mixture were desired, the ingredients of a 3-4-1 mixture are dextrinized.

In the modification of cow's milk by any formula it is essential to know the composition of the milk and cream used and while it is true that average herd milk is usually 4 per cent. and gravity cream is usually 16 per cent. it is advisable to make the simple fat estimations with the Babcock centrifuge from time to time, for if the fat percentage is correct, the amounts of the other ingredients will also be correct.

Holt¹ recommends the accompanying schedule for an average healthy infant, showing percentages of fat, sugar, and proteins, and the quantities.

It will be seen by this schedule how important it is to have great accuracy in respect to the proteins.

A few of the mixtures from the table calculated by the formula which I have described appear below.² If the per cent. or parts per hundred of milk, cream and milk

of milk, by 0.15 the amount of cream and by 0.047 the amount of milk-sugar in grams.

One-half the quantity of cane-sugar may, of course, be used in the place of milk-sugar.

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THE RADICAL CURE OF MALARIA; ITS IMPORTANCE AND HOW IT IS ATTAINED*

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Science has almost solved the problem of malaria in all its phases; but, despite our almost complete knowledge of the life-history of the malarial parasite both in man and in the mosquito, despite our familiarity with all the manifestations of the disease, and despite the fact that every physician knows that it is easily prevented and ordinarily yields to treatment, malaria, though decreasing in severity and frequency, continues as one of the most prevalent diseases in many localities of the United States, in some places its mortality rate amounting to 25 per cent. of the total number of deaths.¹

According to the statistics obtained from the last census, the number of deaths from malaria in the United States in the year 1900 was 14,909. The following states showed the greatest mortality: Arkansas leading with 1,730; then Texas, with 1,331; Alabama, 1,055; Louisiana, 1,030; Georgia, 1,011; Tennessee, 987; Missouri, 965; Mississippi, 938; South Carolina, 749; North Carolina, 527; Illinois, 497; Virginia, 409; Indiana, 340; and New York, 308.² These statistics are of question-

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Sutherland, H. L.: Gulf States Jour. Med. and Surg. and Jour. Southern Med. Assn., February, 1910.

2. Twelfth Census of the United States, Vital Statistics, 1900, i and ii.

2. The following list of mixtures has been selected from a very elaborate table including over 400 mixtures, which I have calculated by the formula described above, and is given here to convey some idea of the character of the complete table which will be published with the reprint of this article:

Mixture.		Protein.	Milk.	Cream.	Sugar.
Fat.	Carbohydrate.				
0.50	4.00	0.25	.055	.017	.036
0.75	4.00	0.25	.037	.037	.036
1.00	4.00	0.25	.018	.057	.036
1.00	5.00	0.30	.037	.053	.046
1.50	5.00	0.50	.074	.075	.043
2.00	6.00	0.60	.074	.107	.052
2.50	6.00	0.80	.111	.129	.049
3.00	6.00	1.00	.148	.150	.047
3.00	6.00	1.25	.240	.127	.044
3.25	6.00	1.25	.203	.167	.044
3.50	6.00	1.25	.222	.147	.044
3.50	7.00	1.50	.206	.144	.051
3.50	7.00	1.75	.288	.126	.047
4.00	7.00	2.00	.144	.139	.044
4.00	5.00	2.50	.630	.092	.018
4.00	5.00	3.00	.815	.046	.011
4.00	4.50	3.50	1.000	.000	.000
5.00	7.00	3.50	.920	.080	.025

able value, since they are largely derived from information obtained by the census enumerators in the rural districts, and no doubt many deaths reported from malaria were due to typhoid fever and other diseases. It should be remembered, however, that malaria as a complication of pregnancy and of a number of diseases, and as a cause of arteriosclerosis and nephritis, is responsible for many deaths which are ascribed to other causes. It would therefore seem that these statistics do not overestimate the number of lives sacrificed to this easily preventable and curable disease.

The simple statement of the number of deaths from malaria does not half tell the story of its ravages. Its expense to the people of the United States is appalling. It is estimated that malaria costs our nation from \$50,000,000 to \$100,000,000 annually.³ Dr. Albert Woldert, of Tyler, Texas, after a careful study of the mortality and morbidity rates of Texas, estimates that malaria costs that state more than \$5,000,000 per year.⁴ Assuming that the United States census mortality rates are as correct for Missouri as for Texas, and that the morbidity rates are in the same ratio, malaria taxes the state of Missouri more than \$3,000,000 annually.

MALARIA UNNECESSARY

The unnecessary burden of malaria can be relieved simply by radically curing those suffering from the disease, but, strange to relate, this most important point has been most neglected. Malaria can be entirely eradicated, in one year, in any community, without regard to the number of anophelines present, if every person having the disease will take quinin long enough to be completely cured.⁵ It is man, and not the mosquito, that carries malaria through the winter, thus perpetuating the disease. Therefore, the most important measure in the crusade against malaria is its radical cure, and it is this phase of the subject that I shall discuss.

The average physician does not regard malaria as a serious disease. He relieves the acute symptoms in a few days and when a patient dies of malaria he feels that the patient has neglected himself. It is in the most malarial regions that the disease is most lightly regarded. We should emphasize the seriousness of the disease and the importance of its radical cure.

The complications of malaria which result from our failure to cure our patients are responsible for more deaths than the acute and pernicious forms. The manifestations of malaria, like those of syphilis, are protean, and no organ in the body is exempt from its ravages. Its most marked effect is seen on the renal organs⁶ and the vascular system.⁷ As a consequence, in malarial regions, the general death-rate is high and the mortality from nephritis and the various forms of paralysis is inordinately increased.

While there is certainly no relationship between malaria and syphilis, and the etiology, histology and pathology of the two diseases are widely and essentially different, yet many of the clinical manifestations are analogous. I realize that it is an "odious comparison," but it is made to emphasize the importance of the prolonged treatment of malaria.

Malaria and syphilis are general or systemic diseases, the organisms and their toxins circulating in the blood; both are inoculable: they have a definite period of incubation: in the secondary stage of syphilis there may be a fever of a remittent type (I saw a case of syphilis in the secondary stage, with daily rise of fever to 103 to 105 F., in which a clinical diagnosis of typhoid or malaria was made, but the laboratory proved it to be syphilis); there may be skin manifestations in malaria;⁸ the tendency to chronicity is marked in both, as well as the proneness to involvement of many different organs; there may be prolonged periods of latency in malaria as in syphilis; no two diseases produce more nearly similar or more serious effects on the vascular system and renal organs: malaria is sometimes a cause of ulcerative keratitis,⁹ optic neuritis, the acute psychoses,¹⁰ sclerosis of the cord,¹¹ and even progressive paralysis;¹² in both diseases we have drugs which are almost specific in their action, but in order to get the best results treatment in both diseases must be begun early and continued for a long period.

Relapses, which result directly from our failure to cure our patients, may occur as recrudescences of the fever soon after acute symptoms, as exacerbations during the chronic course of the disease, or as distinct attacks during latency. Reinfections are usually relapses or recurrences.

Celli¹³ regards a relapse in malaria as the recurrence of symptoms at any time within one year from July 1. Reinfections occur after one year. Undoubtedly relapses have been observed several years after infection, and reinfections may occur in less than a year, but Celli's rule is a safe one to follow. If we adopt this rule and keep records of our cases we shall find how few of our malarial patients we radically cure.

The world owes a debt of gratitude to Manson for his self-sacrificing work in studying malaria, and he is rightly regarded as one of our greatest authorities on the disease; yet even he did not cure the disease in himself when first infected. He allowed himself to be inoculated by infected anophelines on Sept. 10, 1900, and had a relapse on May 30, 1901.¹⁴ Authentic cases of relapse after three years of latency have been reported.¹⁵

There would be but little chronic malaria if the acute cases were cured, but there are to-day probably two or three million persons in the United States who are harboring malarial parasites. Headaches, neuralgias, neuritis,¹⁰ gastric disturbances and acute diarrhea are among the most frequent symptoms of the chronic or "masked" forms. Indeed, malaria may simulate almost any disease. Craig¹⁶ reported fourteen cases of malaria which had been diagnosed as pulmonary tuberculosis.

TREATMENT

All authorities agree that quinin is almost a specific in malaria, when treatment is begun early and continued long enough to eradicate the parasite from the system completely, though there are differences of opinion as to the time of administration, the dosage, and duration of treatment.

3. Harris, Seale: Prevention of Malaria, THE JOURNAL A. M. A., Oct. 9, 1909, p. 1162.

4. Woldert, A.: Malarial Fever, Its Expense to the People of Texas, Tr. Med. Assn. Texas, 1904, p. 37.

5. Koch: Ztschr. f. Hyg., May 22, 1903.

6. Moore, J. F.: Nephritis in Malaria, Am. Med., Dec. 28, 1901.

7. Marchiafava and Biagnani: Twentieth Century Practice of Medicine, William Wood & Company, New York, 1900.

8. Reissman: Am. Med., March 22, 1902.

9. Ellett, E. C.: Ophth. Rec., March, 1899.

10. Bondurant, E. D.: Unreported Cases, Mobile, Ala.

11. Spiller: Am. Jour. Med. Sc., December, 1900.

12. Marandon de Montel: Rev. de méd., Nov. 10, 1900.

13. Celli: La malaria secondo le nuove ricerche, Rome.

14. Manson: Brit. Med. Jour., July 13, 1901.

15. Ziemann: Mense's Handbuch der Tropen-Krankheiten, Leipzig, 1906.

16. Craig: Med. Rec., New York, Feb. 15, 1902.

Given a patient in a hospital where his symptoms can be watched, and with competent microscopists who can make repeated daily examinations of the blood, the rule "no parasites, no quinin" is best; but, practically speaking, nine-tenths of the physicians, in the rural districts where malaria abounds, have not microscopes, or the time to make blood examinations; therefore the diagnosis must be made from the symptoms and quinin administered at once. In malarial districts it is a good rule, when in doubt, to give quinin and watch for symptoms of other diseases. Quinin does but little harm in any disease, and it may do a great deal of good in eliminating malaria, which may complicate and make more serious any other disease.

The microscope is not always a criterion as to chronic malaria, because undoubtedly the disease does exist without the presence of parasites in the peripheral circulation. Now, however, that we have, in most states, laboratories connected with our state boards of health, where examination of blood is made free, and many private laboratories, where specimens may be examined for a small fee, the physician who is not equipped with a microscope should carry a few slides at all times and get a specimen of blood from cases of suspected malaria immediately before beginning the administration of quinin. He can get a report in two or three days, by telegram in twenty-four hours, if the symptoms are urgent. The few doses of quinin given before the report is received cannot injure the patient, and if the parasites are present the drug should be continued until a cure is effected.

There are differences of opinion as to the most favorable time of the day to administer the quinin. Torti's, also called the Roman, method of giving one large dose, 15 or 20 grains, several hours before the expected paroxysm, based on the theory that the best effect of the quinin is obtained during sporulation, when the youngest forms are free in the blood-stream, has many followers in the South. Some of the older physicians still follow Sydenham's method of giving one or more large doses during the remission or intermission of the fever, when the drug is less apt to produce nausea or other discomfort. In my opinion the best method, that employed by Gorgas, Deaderick,¹⁷ Craig,¹⁸ Rogers¹⁹ and other authorities, and the method which I have employed for fifteen years, is to keep the patient continuously under the influence of quinin, by giving him small doses every four hours, both day and night, with perhaps an extra dose about four hours before the expected paroxysm.

In the tertian and quartan forms 3 or 4 grains every four hours is sufficient, but in the more resistant estivo-autumnal variety 5 grains every four hours will be required. This dosage should be kept up for three or four days after the fever has subsided; then half the quantity should be given for two weeks. I do not believe that there is ever any occasion for giving more than 30 grains of quinin a day, and the very large doses are regarded by some authorities as positively dangerous.

In the acute and severe estivo-autumnal fevers the quinin may have to be kept up in maximum doses (30 grains daily) for several weeks, because the crescents, or gametes, are very resistant to quinin. In 1904 I

reported a case of a negro girl, aged 14, who had crescents in her blood after the administration of 4 grains of quinin, in solution, every four hours for twelve days.²⁰ Darling, of the Canal Zone, in the Section on Practice of Medicine last year reported a number of cases in which gametes remained in the blood from two weeks to twenty-five days in spite of the daily administration of 30 grains of quinin.²¹ Craig has also made extensive studies of the gametes in the peripheral circulation for varying periods of time after the use of quinin.²²

In the acute cases of all types of malaria it is important for the patient to remain in bed for several days, because undoubtedly the best effect is obtained from quinin while the patient is at rest.

How long should the quinin be continued to attain a radical cure? Deaderick¹⁷ says: "A few days' treatment with quinin no more cures malaria than does a few weeks' rubbing with mercury cure syphilis." He continues the quinin in 15-grain doses on two successive days of each week for two or three months. Craig, Rogers and other well-known authors also advise a modification of Koch's method.

In Italy small daily doses (6 grains) are given for three months after the acute symptoms have subsided, just as it is given to entire communities for the prophylaxis of the disease.²³ No doubt the prophylactic doses effect cures in many chronic cases, since in some localities the disease has been almost entirely eradicated and in five years the Italian death-rate from malaria has been reduced three-fifths (Thayer).

Ross²⁴ says: "To extirpate the parasite in a patient demands four months' assiduous cinchonization," and I believe that this is the safest rule to follow.

Thayer advises the small daily dose (6 grains) rather than the large intermittent doses. My experience has been that the small daily doses (3 grains night and morning) are efficient and are better borne than the large doses repeated at intervals of several days. I have also found that the memory test of giving quinin on certain days of the week or month is too severe for malarial patients, and they frequently give it up in disgust, while by taking it two or three times a day they form the quinin habit and will keep up the drug for even longer periods than is desired.

PROPHYLAXIS

It is not my intention to suggest any less vigilance in destroying anopheles mosquitoes and their breeding-places, and I would urge that those measures be employed to the fullest extent possible. I do maintain, however, that the most important and the most practical measure, at this time, in the crusade against malaria, is the radical cure of those harboring the parasites, because every patient cured means one less focus of infection. We should remember that there are malaria carriers as well as typhoid carriers, and that one is as dangerous to the community as the other. We should not forget that the patient with the parasites of malaria in his blood may infect mosquitoes and transmit the disease to others, just as in yellow fever, and that malaria may be as serious a disease as yellow fever.

20. Harris, *Seale: Therap. Gaz.*, Jan. 15, 1904.

21. Darling: *Tr. Section on Pract. Med. A. M. A.*, 1909.

22. Craig, Charles F.: *The Sexual Forms of the Malarial Plasmodia Occurring in the Blood of Man*, *Arch. Int. Med.*, April 15, 1910, p. 325.

23. Thayer: *The Prophylaxis of Malaria*, *Jour. Southern Med. Assn.*, November, 1909.

24. Ross: *Albutt's System of Medicine*, p. 285.

17. Deaderick: *A Practical Study of Malaria*, W. B. Saunders Co., 1909, p. 366.

18. Craig: *The Malarial Fevers*, William Wood & Company, 1909, p. 377.

19. Leonard, Rogers: *Fevers in the Tropics*, Oxford University Press 1909, p. 234.

I believe that we should at once institute a campaign against malaria. It offers the most brilliant results of any of the public health problems now confronting us.²⁵ A campaign of education should be begun with the medical profession, because physicians as a class, and particularly those residing in malarial regions, do not appreciate the seriousness of malaria, or the ease with which it may be eradicated. The public should be educated by means of popular addresses and literature on the subject should be placed in the hands of every one residing in malarial districts. Malaria, being both infectious and contagious, should be classed as among the reportable diseases, and the state and county boards of health should lead in the fight. Municipalities, counties and states should be called on to furnish money to purchase quinin to cure the indigent sufferers from malaria and to destroy the anophelines and their breeding-places. Philanthropists should be urged to aid in this fight against one of the greatest enemies to mankind. Money spent in eradicating malaria will yield greater returns than any other philanthropy.

It is no idle dream to hope that the blot of malaria may be erased from the fair name of our Southland and from the Mississippi and Missouri valleys, where the disease is most prevalent. Our government has given us an example of what may be accomplished even in the tropics. Gorgas,²⁶ with the resources of our great country to aid him, when he applied the knowledge of the mosquito transmission of disease and eradicated yellow fever and malaria from Havana and the Canal Zone, made conquests which should be regarded as among the greatest in the history of the world, victories that mean more for the welfare of nations than have ever been achieved in war.

ABSTRACT OF DISCUSSION

DR. CHARLES MACLELLAN, Chicago: In my opinion the theory of the anopheles being the only carrier of malaria is wrong; malaria is sometimes found in northern latitudes where there are no anopheles. I remember, while in the Orkney Islands, being called to see a sick man, suffering from a severe attack of malaria, and in that region mosquitoes are unknown. Of course the gnat, of the same genus, exists in the British Isles. A second case in a man who had never been off the island came to my knowledge. Of course, we know that the anopheles is the great carrier of malaria, but there must be a first cause in the mosquito region.

With regard to the method of treatment, the administration of quinin in capsule or powder, is not an efficient manner of getting at the disease for its eradication. I believe the best method of administering this agent is in a solution of sulphuric acid. I have in mind one patient who gave a history of malaria, having been ill over a week and who had taken from 6 to 10 grains of quinin in capsule 3 times a day, without result; on giving him 2 grains of quinin 3 times a day, of the solution just mentioned, he escaped the chill on the second day and it did not return.

DR. ARNOLD TRACITZ, Neelysville, Mo.: I live in a district where every patient who goes to a physician's office is supposed to have malaria, and, having treated many of them with success, I cannot agree entirely with the method of treatment just outlined. Giving quinin 3 times a day for 3, 4 or 5 months is wrong; the patients cannot stand this treatment because of the resulting gastric disturbances. My method of treatment of the malaria that shows itself every other day, or every third day, consists in giving 4 or 5 hours before

the expected attack, in one dose, from 25 to 30 grains of quinin; I give this about 4 or 5 hours before the chill is expected. Even with such a dosage, often I do not get the results I expected. I have given as much as 60 grains at one time. I find then that the patient always misses the next chill. It should be remembered, however, that the chill cannot be broken on the same day that the quinin is administered. Some patients cannot stand quinin every 4 hours. The main thing in the treatment of this disease is elimination; the stomach must be in proper condition to eliminate and cause a proper action of the gall-bladder; otherwise patients must be kept on quinin indefinitely, a procedure which they cannot stand. The long-continued use of quinin is unnecessary. In treating malaria, the digestive system should at first be placed in a receptive condition for the specific; after the administration of the quinin the annihilated bacteria should be excreted from the system.

DR. W. E. CHAPMAN, Sheboygan, Mich.: In 1902, I served as contract surgeon in the Philippines, and was called to treat many cases of malaria. In one very stubborn case, running over a period of several weeks, I kept increasing the dose in capsules until 70 grains were taken daily, vacillating in my diagnosis between malaria and typhoid fever, as the quinin did not influence the fever, and at last being assured of my diagnosis, I dissolved 150 grains of sulphate of quinin in a weak solution of hydrochloric acid, and gave it to the patient in 4½ hours. The next morning the man was free from fever; he had a beautiful eruption and was very deaf, but for the following 3 months, while he was under my care, he had no more chills or fever.

DR. I. J. WOLF, Kansas City, Mo.: One thing to remember, and one that Dr. Harris laid stress on, was that malaria may assume the picture of almost any organic disease we know or can name. I remember one case of intermittent pneumonia which was due to the malarial parasite. I have in mind also another case in which the malarial parasite was responsible for an acute attack of enterocolitis in a baby during the summer months. The question at first arose: Was the trouble due to a faulty diet? I had just read an article on malaria in children and I suspected that something of this nature was the trouble. An examination of the blood showed that it was swarming with malarial parasites. The proper administration of quinin brought an end to this attack of enterocolitis. I do not believe that the treatment of malaria differs in any way from the treatment of any other disease. One should never have a stereotyped method of treatment of this, or any other, disease. One physician spoke of giving enormous doses of quinin, while another referred to the giving of small doses. Whether the dose of quinin should be large or small depends on the patient who is to receive the remedy. It is very important that the question of the total eradication of the disease should be borne in mind, as well as the immediate cure. One should not be satisfied with the production of the latent stage—but should be satisfied only with cure. Thousands of dollars have been spent on the eradication of the mosquito; if a fractional part of this money had been spent on the cure of the patient much good could have been attained. Without a malarial patient, the mosquito could not be a conveyer of this disease.

DR. VERNON BLYTHE, Paducah, Ky.: One thing that has not been sufficiently discussed is the difficulty of diagnosis of malaria from certain other fevers, especially typhoid. I am of the opinion that the giving of quinin in typhoid, which is done so much, does harm. I think that when a definite quantity of quinin has been given to a patient suspected of having malaria, and in those cases in which there is a question in diagnosis between malaria and typhoid, and when the quinin has had little if any effect on the temperature, the amount should be cut down to the minimum. The use of quinin in typhoid I believe to be distinctly harmful, especially to the circulatory and nervous systems. This drug has little effect on the temperature of typhoid, and I wish to enter a protest against its use in treatment of this disease.

DR. S. P. CHILD, Kansas City: As Dr. Harris has stated, there is great confusion at times and great difficulty in making a positive diagnosis between malaria and typhoid because

25. Harris, Seale: Some Problems in Medicine which Affect the Prosperity of the South, Jour. Southern Med. Assn., April, 1909.

26. Gorgas, W. C.: Malaria in the Tropics, THE JOURNAL A. M. A., Mar. 12, 1906, p. 1416; Ann. Rep. Dept. of Sanitation, Isthmian Canal Commission, 1908, Government Printing Office, Washington.

of the absence of findings in the peripheral circulation. Physicians in Kansas City get many cases of malaria from Missouri towns and elsewhere; these places have many mosquitoes; a large number of cases appear in children and these have proved to be mainly of the estivo-autumnal type. Some cases, in which the frequent examination of the blood has shown the malarial parasites, have previously been diagnosed as pernicious anemia. In a period of six months at the Mercy Hospital in Kansas City, a hospital for children, we have had 7 cases of malaria, diagnosed by the blood findings, with one death. There was one case of typhoid fever during this period. Among these 7 cases there were 3 of the estivo-autumnal type, and the blood findings were suggestive of pernicious anemia. It was found that small and repeated doses of quinin by mouth would not cause a destruction of the organisms; therefore, we resorted to hypodermic medication of a combination of urea and quinin-hydrochlorate; in every instance, as was shown by the result, we were justified in resorting to regular and systematic hypodermic medication. Only in 2 instances were large doses required and then we gave up to 12 grains every 2 hours hypodermically, in the gluteal muscles. In no case did we produce true cinchonism. These patients should be watched for several months before it is announced that a positive cure has been obtained.

DR. C. C. BASS, New Orleans: In my section of the country we see malaria every month and every year; the disease there appears in two varieties. I believe that there is an impression among almost all the physicians practicing in that section of the country, that of all the specifics in medicine, one that is as nearly a specific as any is quinin in treatment of malaria. A second impression that prevails is that in every patient who has malaria to such an extent as to give symptoms the plasmodium can be demonstrated in the blood by the use of the microscope.

DR. JOSEPH H. PRATT, Boston: Many of the conditions accompanying malarial infection should not be confused with the infection itself. Various diseases of the nervous system are frequently attributed to malaria on insufficient evidence. I recently saw a typical case of migraine in a patient from Illinois who had been treated for years for chronic malaria. A physician whom she consulted in Boston concurred in the diagnosis and on examination of her blood reported that it was "swarming with parasites." This patient, now 30 years of age, has not had chills or fever since childhood. When I examined her she was not anemic and the spleen could not be felt. There were no malarial parasites in the blood. Certainly a medical man must be thoroughly imbued with the false idea that all sorts of nervous disturbances may be the manifestations of malarial infection to regard for a period of ten years a case of migraine as one of malaria in a patient who did not present a single symptom that was characteristic of the latter disease. It is a common error for the inexperienced man to mistake malarial parasites for blood platelets in stained specimens. There is no doubt, that even at present, many physicians in all parts of the country mistake typhoid, tuberculosis, and septic conditions for malaria. Many base their diagnosis of malaria solely on the presence of chills and fever. I remember a striking case in which the error was not discovered until revealed by autopsy. The chart was typical of malarial fever. The paroxysms, consisting of chills, fever, and sweating recurred regularly. Large doses of quinin had been given and although the fever did not yield, the physician in charge held to his diagnosis of malaria. Autopsy showed a purulent thrombus which filled the portal vein. Such experiences as these teach two lessons. 1. We should awake to the truth, so clearly stated by Osler, Craig and others, that a fever which does not yield to small, repeated doses of quinin properly administered with the patient confined to his bed, is not malaria. 2. Blood examinations are of no value unless made by a competent person.

DR. G. C. SMITH, Boston: The idea of a man from Boston speaking on the subject of malaria seems strange, especially as there is so little of the disease in Massachusetts. I know how prevalent the disease is in the middle west and south, but we in the New England states do encounter an occasional case. We have some cases imported from the west and

south, and some patients have appeared here who reported that they were cured of malaria. It has been my fortune to see many such cases in consultation. I can corroborate the remarks of Dr. Pratt. During the past year I distinctly remember 3 cases of pyelitis of chronic form which had been diagnosed as malaria, and 2 patients with suppurative disease of the gall-bladder which had been treated with quinin, under which the chills and fever had subsided. The patients were supposed to be cured of the malaria. The attacks came and went. There was a repetition of the administration of quinin and always with the same results—temporary disappearance of the chills and fever. Of course the patients did not improve because of the quinin they took. I believe that there are so many suppurative affections which are liable to be misinterpreted as malaria, that this point should be emphasized.

DR. J. A. WITHERSPOON, Nashville, Tenn.: I rise to insist on a never-ceasing effort on the part of the physician to teach people how to rid themselves of this fell destroyer. Notwithstanding the fact that our brothers in Boston may find cases in which errors in diagnosis have been made, such as pyelitis and infected gall-bladders, if they would only visit the delta of the Mississippi River they would have more respect for the old-fashioned malaria of which Dr. Harris has spoken. I will even go farther and say that we realize the mistakes that are made, and that blood counts are necessary, but from my own personal observation I believe that there is no better class of men who can handle malaria in general than those men who practice medicine in the south where this disease is so prevalent. It is a mistake to say that down there the diagnosis is made largely on hearsay and without proper examination. There was a time when, all over the country, the physician looked at the patient's tongue and felt of the pulse and made a diagnosis; that is not true today in my section of the country. In spite of the statements made by Osler, Pratt and others that if a fever does not yield after administration of a few doses of quinin it is not malarial, I wish to state that no more false statement was ever made in the Mississippi Valley than that; it certainly is not true. I agree with Dr. Harris that the early disappearance of the malarial plasmodium from the peripheral circulation in the latent cases of the disease does not mean that they are gone entirely from the circulation; one may repeatedly examine the blood and not find them; but they are still to be found in the deep-seated organs, lying there dormant, especially in the spleen and other organs. It requires several months of continuous treatment to eradicate the disease in such cases. It seems to be almost impossible to eradicate malaria of latent form if such patients are allowed to be up and around. We are up against a problem that costs not millions of dollars only, but hundreds of lives throughout the country because the disease is not properly treated in the latent stages.

DR. C. SHATTINGER, St. Louis: The question in mistaken diagnosis from Boston is interesting, but I should like to bring up a reverse condition, and relate a case which occurred in Kentucky where malaria is so prevalent, and where physicians might be supposed to be familiar with the disease. This patient, a woman, suffered for a long period of time and it was believed that she had some ovarian or uterine disease, and hysterectomy was decided on. By accident she happened to fall into my hands. Examination of the blood revealed swarms of the plasmodia. In this case 35 grains of quinin were given every 24 hours and it was necessary to keep this up for a period of 10 days before the paroxysms ceased. This corroborates Dr. Witherspoon's announcement that we cannot control the disease always by the administration of 1, 2 or 3 large doses of quinin.

DR. R. ALEXANDER BATE, Louisville, Ky.: A point brought out by Dr. Harris that impressed me very much was the quiescence of malaria for a period of 3 years. I do not wish to question this statement, but I wish that Dr. Harris would tell us why such a statement should be sustained. It is believed that the malarial protozoan segments in the light; therefore, this accounts for the immunity sustained by some of the negro race. I can readily understand why the protozoa might remain in a quiescent state for a reasonable period of time. But how can Dr. Harris explain that reinfection did

not take place and that there was not a relapse? How can he explain or exclude the possibility of reinfection? It was suggested by one speaker that the malarial protozoa are in the deeper structures, not so much in the peripheral circulation, and away from the light; but how can this be demonstrated?

It is of course beyond question that the mosquito is the active agent in the cause of malaria; but I think, with certain Italian observers, that the mosquito is not the only source of infection. In recent papers the statement has been made that we must eradicate the swamps before malaria can be eliminated from a district infected with this disease.

With regard to the periodicity of malaria, it should be remembered that there are many diseases of metabolism which show periodicity. Certain materials accumulate in the system until a period of toxicity is reached.

DR. ARTHUR G. BELL, Dallas, Texas: A case in a blacksmith, weighing 250 pounds, in my district was diagnosed as hip-joint disease. He had been a confirmed invalid for several years, and simply directed the work at his shop. He told me that some physicians had diagnosed his case as rheumatism and that others had pronounced it hip-joint disease. One surgeon stated that the Y-ligament had been bound down by adhesions, and that nothing would give relief except an operation. I examined the man carefully. I decided that his facial expression indicated chronic malarial cachexia. He ridiculed the idea, giving no history of malarial complications. Nevertheless, I directed him to take 4 grains of quinin, 3 times daily, till an ounce had been taken. After this simple treatment had been continued for some time the trouble disappeared like magic. The ligaments soon assumed their normal actions. Frequently I have seen physicians who lived in the same state or county disputing vehemently whether it was right to give quinin in malarial hematuria or not. One says that if you give quinin in malarial hematuria the patient will die. The other says that if you don't give quinin the patient will die. Some communities would not tolerate a doctor if he gave quinin in such cases, and others would discredit a physician if he did not. The text-books agree no better than the practitioners. One says quinin. The other says no quinin. It is said, however, that in cases of malarial hematuria, in which there are red corpuscles in the urine, quinin is indicated whereas when there is hematin, or hemoglobin in the urine no quinin is safe. When I formerly took steps to stop the hemorrhage from the kidneys I usually signed an extra death certificate. I have not attempted to stop the hemorrhage from the kidneys in my late cases. I wish to call attention to the fact that in the disease called malarial hematuria there seem to lurk two distinct diseases—one demanding quinin and the other no quinin. Will some one make the differentiation?

DR. ISAAC IVAN LEMANN, New Orleans: One cannot be sure of one's diagnosis of malaria without an examination of the blood for the plasmodium. This is a point that cannot be put too strongly. Dr. Harris is probably correct in looking on the incompletely treated patients as a reservoir for the further propagation of the disease. The plasmodia may be deep-seated in the internal organs, and not found in the peripheral circulation, but one can only determine that by aspirating, for instance, the spleen. Splenic puncture is relatively a rare procedure, and one which is not often justified. The real point I wish to make, however, is that in many of the cases of intermittent chills and fever the disease is not malaria at all; these might be the symptoms of a lot of other diseases.

DR. B. W. FONTAINE, Memphis, Tenn.: After an experience of ten years in a very malarial district it has become my rule to doubt the diagnosis of this disease, malaria, unless the parasite is demonstrated in the blood. After repeated search for the plasmodia in the blood, if I fail to find any, then I doubt the diagnosis of malaria.

DR. J. A. CHILTON, Van Buren, Mo.: My first experience with malaria was personal; I had it myself, and with ten years' experience in wrestling with this disease as a physician, I have come to have certain fixed ideas regarding it, founded on this experience. I believe that the disease becomes dormant, so to speak, and remains deep-seated in

the system for months, and that it requires in many cases months to free the system from it, and to effect a certain cure. I have treated a great many patients who would obtain medicine enough to keep the chill off, and notwithstanding my advice to return for further treatment, would neglect the matter until another chill, or perhaps two, would send them back to me, usually some time for the fourteenth to the twenty-first day from the date of their first visit. I have had careless patients repeat this thing many times, thus demonstrating the necessity of continuous treatment. I wish to relate one case of interest. A young man, about 22 years old came to me for medicine to relieve his fever and headache temporarily. On inquiry and investigation I found him suffering from malarial chills, and he said that he had had them for about all his life, and almost constantly for the past two years and that he had "tried the doctors" till he was discouraged, and did not wish any treatment save to get temporary relief. This man's history, together with the clinical symptoms, were all that was necessary to establish a diagnosis. I succeeded in getting him sufficiently interested in his condition to agree to stay with the treatment for four months if necessary, which he did. After beginning treatment with quinin and other tonics as iron, etc., combined with sufficient elimination through the bowels, the man did not have another chill, and in two months the color came back to his cheeks, he regained his strength and was redeemed from the ravages of malaria; he returned to his work, that of a common laborer. This man was under constant treatment for three months. I relate this case to illustrate the necessity of constant treatment, continued for a period of months, in order to cure malaria, and my belief that the plasmodium will "hibernate," so to speak, in the spleen for a winter, and come forth in the spring hungry and "seeking whom he may devour," resulting in another attack of chills, unless the patient be given proper and continuous treatment.

DR. T. J. RAGSDALE, Lee's Summit, Mo.: I should like to relate the history of four cases of malaria seen by me 2 years ago. These patients were four young men who had been away from town but returned to it with malaria. They were treated about three weeks and the malaria disappeared. These young men were apparently well from September or October until the following April. When all four developed chills and fever again within a week or ten days of each other. After three months of appropriate treatment they were cured. In citing these cases I wish to call attention to the regularity with which they suffered relapses.

DR. D. C. WATT, Little Rock, Ark.: I dislike to think that the feeling against the mosquito is waning; the eradication of the mosquito is possible. Those of us who live and practice in the malarial countries know perfectly well that people who are protected from the mosquito by screens, suffer less from malaria than those who are exposed to the mosquito. In the treatment of malaria I think the individual himself is very much neglected; we should treat the patient more than the disease; because if we understand the normal condition and abnormal relations, we will find that the plasmodia will not be in evidence when the condition is practically restored to the normal. In the south most of the people carry with them the plasmodia; but what I wish particularly to emphasize is that we must pay more attention to the treatment of the individual. In giving quinin, a certain amount of discretion must be used. When I am treating patients from August to October I use very little quinin excepting as a prophylactic. But in the earlier months I give full doses to effect. I am sure that quinin has been the cause of immediate death of some of my patients suffering from subacute malaria. We have to consider the matter of waste and repair. I believe that it is the patient more than the disease that should be considered.

DR. A. H. VANDIVERT, St. Joseph, Mo.: The statements in regard to the diagnosis of malaria by an examination of the blood, and the finding of the plasmodia, are correct, for this is the scientific way; but in the larger percentage of the cases of malaria, the diagnosis will be made by other means than a blood examination. Frequently the diagnosis will be made on the symptomatology alone. We should be careful

to differentiate between malaria, septic fevers and other forms of disease which cause periodical chills and fever. There is no doubt that the administration of quinin in proper doses, if properly assimilated, will eradicate the malarial poison. When giving quinin to the extent of $\frac{1}{2}$ dram we are giving a sufficient amount to stop, temporarily at least, the malaria, or the malarial infection we come in contact with. If more than $\frac{1}{2}$ dram of quinin is required it means that the quinin is not properly prepared, or that it is not the right preparation, and that the drug is not given in sufficient quantities. The question always is: Why is not the drug properly assimilated? If quinin is not taken up by the stomach, then it should be administered in some other way.

This whole question of malaria resolves itself, I believe, into the correct diagnosis by scientific means if possible, or otherwise by the clinical symptoms. Success in the treatment means the continuation of the treatment over a period of months, and looking to the proper assimilation of the agent which brings about the eradication of the malarial element from the system. This is the experience of most men who live in malarial districts and who are called on to treat this disease frequently. In my section of the country there is less malaria now than there was a few years ago; the draining of the swamps has caused a decrease in the number of cases. Malaria was very prevalent before the days of the investigation of the blood for the plasmodium. We certainly have advanced very far in our knowledge of this disease.

DR. A. COMINGS GRIFFITH, Kansas City, Mo.: I want to call attention to one point brought out in the paper, the similarity of malaria and syphilis. Recently a patient was brought to me with a history of infection, with chills and fever. Examination of the blood revealed the presence of the malarial parasite. This patient, a man, was placed on quinin in small doses and the chills and fever disappeared. However, the enlargement of the spleen and liver did not disappear. The patient got along nicely, was up and about, and 6 months later had shown no recurrence of the trouble. He went south because of some specific trouble and there the specific lesion was found. The blood again was examined but no plasmodia were found. The patient had a well-marked systolic murmur and his condition pointed to chronic endocarditis. He died. At autopsy there was found that the diagnosis was a correct one, chronic infectious endocarditis. There still existed an enlargement of the spleen and the malarial parasite in the blood.

DR. SEALE HARRIS, Mobile, Ala.: Regarding the administration of quinin in malaria, the ordinary soft gelatin capsule is usually easily dissolved in the stomach, but to be certain of solution, it may be followed with dilute hydrochloric acid. Most patients object to taking quinin in solution. Gastric disturbances following the administration of quinin do not often occur when the doses are small, but frequently follow the large doses, i. e. fifteen grains. Dr. Chapman spoke of giving a patient 150 grains of quinin in one day. His patient did not die but I think it dangerous to give such large doses. Large doses will not cure malaria any quicker, or more certainly than will 30 grains a day in divided doses. The experiments of Rogers in the tropics proved this. He gave as high as from 60 to 100 grains a day, but these large doses did not shorten the course of the disease any more than the 30 grains a day, and he found that the large doses were distinctly depressing.

Dr. Wolf mentioned a case of pneumonia supposed to result from malarial infection. Malaria may have been a complication but I do not think that the plasmodium can cause a true pneumonia. The presence of the parasite in the blood does not necessarily mean that the patient is not also suffering from other disease. Always look for something else. Dr. Bass's remarks regarding the frequent absence of the plasmodium in the peripheral circulation in chronic malaria I believe to be correct. Sometimes, however, we find the plasmodium in the blood of patients who give no history of having had chills, fever, or other acute manifestation of malaria. Dr. Pratt doubts that the malarial parasite causes neuralgia, neuritis, general paralysis and nephritis. One of my colleagues Dr. E. D. Bondurant, who is professor of neurology in the University of Alabama, has made frequent

examinations of blood of patients suffering from these diseases and other nervous disorders. He states that in the majority of such patients coming from malarial districts, malaria is the causative factor and the symptoms yield to quinin. Dr. Bondurant also states that he has seen cases of the acute psychoses due to malaria. Manson has also called attention to neuralgias and neuritis of malarial origin.

With regard to the effect of malaria on the kidneys, I merely cite the articles by Marchiafava and Celli in the "Twentieth Century Practice of Medicine," edition of 1900. Many others have also called attention to the fact that malaria may cause nephritis. It is unquestionable that arteriosclerosis is much more common in malarial districts than elsewhere. I must take issue with Dr. Pratt's statement about the cases of fever that do not yield to quinin in 3 days not being malaria. Most of them are not, but some cases of malaria are very resistant to quinin. I must also differ with him in what he quoted Dr. Craig as saying. In the April *Archives of Internal Medicine*, Dr. Craig states that he found the parasite of malaria in the blood of a number of patients who had been taking quinin for varying periods of time, some of them longer than a week.

In 1903, in the *Therapeutic Gazette* I reported the case of a patient who had had quinin in solution in large doses for more than a week, yet the fever continued and crescents were found in the blood. Last year in this Section Dr. Darling reported several cases in which the patients had been given 30 grains of quinin a day for from 2 to 3 weeks yet the crescent forms were not destroyed. We all must agree with Dr. Witherspoon in what he says regarding the crusade against malaria. This is certainly very important and should hold the attention of all.

In regard to my authority for the long periods of quiescence or latency in malaria, I refer to Deaderick's book on malaria. Dr. Bate also spoke of the immunity, or infrequency, of malaria in the negro race. I do not believe there is any greater fallacy with regard to the negroes than is contained in such a statement. The statistics for 1900 show that in proportion to population three times as many negroes as whites died from malaria. The negroes certainly have malaria as much as do the whites but possibly not in so severe a form. I do not believe that there is any such thing as immunity to malaria. I agree with Dr. Lemann that a blood examination, whenever possible, should be made in every case of suspected malaria; but there are thousands of physicians all over this country who do not possess a microscope and yet who in nine-tenths of the cases are able to make a correct diagnosis of malaria. This is especially true in malarial districts. However, one should bear in mind that if a patient residing in a malarial district has a chill, it is not necessarily due to malaria; it may be due to a number of other causes.

The real and important point which I desire to emphasize is this: If you do not question your diagnosis of malaria, give the patient quinin at once and keep on giving him quinin until he is radically cured. It has been proved that malaria can be absolutely eradicated from malarial localities by the use of quinin alone. Koch advanced this theory ten years ago, and his plan was carried out on some islands off the coast of Africa. In less than two years, by administering quinin, the disease was practically eradicated from them. In Italy and in southern Austria the same results were obtained. The most important point to remember in prophylaxis, is to cure malarial patients. Cure them. It takes several months to do this. But if you do not cure them they will be carriers of the infection from one year to another.

Differential Diagnosis Between Lichen Planus and Syphilis.—The glans, penis and vulva may be affected with lichen planus, but as this is usually associated with lichen planus in other or more typical situations, such as the forearms and legs, it seldom leads to any error in diagnosis. It must be borne in mind that syphilis may occur in a patient already suffering from psoriasis or lichen planus, and when this happens the character of the non specific eruption is modified.—C. F. Marshall, in the *Practitioner*.

DIETARY STUDIES OF UNDERNOURISHED
SCHOOL CHILDREN IN NEW YORK CITY*

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The average person selects the different food materials in the market with very little knowledge of their actual nourishment value. When the income of the family is so limited that every cent must be made to go as far as possible, which is true of the average family living in the "poor" quarters of our great cities, then it is evident that ignorance of food values must mean much unnecessary expense, and perhaps suffering to those who can ill afford it.

My previous studies of 1,200 malnourished school children and the wide-spread interest shown as a result of my article on that subject have prompted me to further and deeper studies along this line, the result of which I now lay before you.

In order to make these dietary studies I have followed the plan of Atwater, since that seems to be the most accurate. Thus careful and accurate account was kept of the kinds, amounts, composition and cost of all food materials eaten during ten days, which was the period of investigation, and to insure accuracy the period should not be less. From this the cost, nutrients, and fuel value per man per day were computed in cents, grams and calories; the composition of each material used as shown by analysis, and the amounts of the different nutritive ingredients were determined. An account was kept of all the meals taken by each member of the family, as well as visitors or boarders, should there be any during this period of investigation.

The factors used in calculating the meals consumed in these dietary studies, were those commonly recognized as being the standard and were taken from Atwater's latest work, namely:

A man at hard muscular work requires 1.2 the food of a man at moderately active work.

A man with light muscular work and a boy 15 to 16 years old require 0.9 the food of a man at moderately active work.

A man at sedentary occupation, a woman at moderately active work, a boy 13 to 14, and a girl 15 to 16 years old require 0.8 the food of a man at moderately active muscular work.

A woman at light work, a boy 12 or girl 13 to 14 years old require 0.7 the food of a man at moderately active muscular work.

A boy 10 to 11 and a girl 10 to 12 years old require 0.6 the food of a man at moderately active muscular work.

A child 6 to 9 years old requires 0.5 the food of a man at moderately active muscular work. A child 2 to 5 years old requires 0.4 the food of a man at moderately active muscular work. A child under two years old requires 0.3 the food of a man at moderately active muscular work.

It is by the use of these factors that the number of meals actually taken by each member of the family is computed in terms equivalent to the number of meals for an adult man. Thus the total number of meals taken by the family is expressed in terms of meals per man, which, being divided by the number of meals per day, which is three, the number of days for one man is obtained. The total nutrients of the food eaten

divided by the equivalent number of days for one man gives the amount per man per day.

DIETARY STANDARDS

Atwater reports studies of twelve laborers' families with ordinary work in large cities in the United States, in which the averages were per man per day, protein 101 gm., fat 116 gm., carbohydrates 344 gm., with a fuel value of 2,810 calories, which is an insufficient diet, according to the standards.

In eleven poor families in New York City the averages of the food actually eaten were protein 93 gm., fat 95 gm., carbohydrates 407 gm., and fuel value 2,845 calories.

In ten Russian Jewish families in Chicago the averages were, protein 137 gm., fat 103 gm., carbohydrates 418 gm., and fuel value 3,135 calories actually taken per man per day. These are enough quotations of previous studies to make our comparison.

The dietary standards as given by Atwater, and which have been pretty generally accepted, are as follows:

A man with hard muscular work, protein 175 gm. (or 0.39 pounds) with fat and carbohydrates in sufficient amounts to produce a fuel value of 5,500 calories.

A man with moderately active muscular work, protein 125 gm. with fat and carbohydrates enough to produce a fuel value of 4,150 calories.

A man with light to moderate muscular work, protein 112 gm. (or 0.28 pounds) with fat and carbohydrates enough to produce a fuel value of 3,400 calories.

A man at "sedentary" or a woman with moderately active work, protein 100 gm. (or 0.22 pounds) with fat and carbohydrates enough to produce a fuel value of 2,700 calories.

A woman at light or moderately muscular work, or a man without muscular exercise, protein 90 gm. (or 0.20 pounds) with fat and carbohydrates enough to produce a fuel value of 2,450 calories.

The average of twenty-eight dietaries studied by me showed the following per man per day (all the families having malnourished children):

Cost 19 cents, protein 95 gm., fat 68 gm., carbohydrates 407 gm., calories 2,614. These all did active or moderately active work.

Some six of these dietaries were up to or above the recognized standards, and therefore raised the general average considerably, but most of the dietaries were considerably below the ordinary standard, few being up to 3,000 per man per day, and some as low as 1,600 calories per man per day, with corresponding low fat, proteid, and carbohydrates, thus showing the undernourished condition due to lack of proper food.

In those families whose dietaries were up to or above the standard there were always other good and sufficient reasons for the malnutrition of the children, such as close quarters, overcrowding, late hours, infrequent bathing, eating candy between meals, and tuberculous infection, or convalescence from disease; also adenoids and enlarged tonsils in some cases, or organic disease.

Dietary studies of six fairly well-to-do families, at moderately active muscular work, showed averages per man per day as follows:

Cost 35 cents, protein 149 gm., fat 115 gm., carbohydrates 569 gm., and calories 3,884. Thus it will be seen these six families had about sufficient food and a fairly nourishing diet, and the adult members were well nourished. I could attribute the malnourished condition of the children only to the fact that they ate cheap candy between meals and thereby spoiled their appetites for nourishing food, lived in crowded quarters, sat up late at night, had organic disease, or were convalescing from

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

disease. All of these were good reasons for their condition.

Another fact that has been most strongly impressed on my mind in making a record of each child's meals is that most of them ate very little in the way of breakfast and that the nutriment which they obtained from that meal was entirely inadequate for the demands of the growing body. The average breakfast of these children consists of tea or coffee and bread, and the consequence is that many are so hungry in school that they cannot concentrate their minds on study.

From a previous study of the meals of 210 malnourished children, I found that the following breakfasts were given.

Tea or coffee and bread.....	165
Cocoa or milk and bread.....	30
Milk or tea and egg.....	10
Coffee and oatmeal.....	4
Nothing	1

It is well known that breakfast is the important meal for the growing child.

Dr. H. M. Lechstrecker, of the New York State Board of Charities, examined 10,707 children in industrial schools of New York, with the following result: 998 had coffee or coffee and bread only for breakfast; 439 had no breakfast; 998 were anemic owing to lack of nourishment. Only 1,855, or 17.32 per cent., started the day with an adequate meal.

These studies were carried on among families of the poorer classes, living on the lower "East Side" of New York City, below Fourteenth Street, and east of Third Avenue and the Bowery. The families studied were representative of the people in this district and a large number of occupations were represented. Dietary studies were made from thirty-four families. Some were found to be shiftless and slovenly and took no interest in having a clean, comfortable home and setting an attractive table, while others, though ignorant, were willing and desirous of learning how they could improve their way of living and dietaries.

The range in total income per family was from an amount not sufficient to buy the absolute necessities of life, to an amount which should be ample for their needs and equal to that on which other families have been found to live comfortably. In no case among poorer families was there any food used which required care or work in preparing; whether this was from ignorance, lack of energy, opportunity, or convenience, it is hard to say; each cause no doubt was a factor to a certain extent, but ignorance seemed to be the principal reason.

The studies were carried on and the final results calculated according to the methods of Professor Atwater. Practically all this computing work has been done with a calculating machine, but even with this great aid the amount of detail work was considerable. The data obtained in each family studied was (1) the nationality, age, sex, occupation of each member of the family; (2) the income of the family; (3) the expenditures for rent, and food, gas, coal, etc.; (4) the kind, quantity and quality of food consumed; (5) the number of meals taken by each person present during the study. From these data, and the standard tables showing the composition and fuel value of the different food materials used, the quantities of nutrients and energy consumed per man per day were computed.

This made it possible to compare results with recognized standards and to judge whether the families were receiving proper nourishment, and whether they used

good judgment and intelligence in the selection and purchase of food, and also to point out how a more nutritious diet in many cases could be purchased for the same amount of money or as nourishing a diet for less money.

In thirty-four such dietary studies made, twenty-eight dietaries were found to be deficient in protein, fat, and carbohydrates, with a corresponding low fuel value per man per day, and by multiplying these results by the factor used according to the ages of the undernourished child we obtain a diet correspondingly low for it.

The average of thirty-eight dietary studies of fairly well nourished families made in the United States of persons at moderate work, showed that these persons received 134 gm. of fat, 487 gm. of carbohydrates, in combination with 102 gm. of protein.

But the average of twenty-eight dietary studies that I have made gave protein 95 gm., fat 68 gm., carbohydrates 407 gm., thus showing great deficiency in all the food ingredients.

The average of these thirty-four dietary studies showed that 64 per cent. of the money spent was for animal foods, and 39 per cent. for vegetable foods, and about the same amount of protein was obtained from the animal as from the vegetable foods (slightly more from the vegetable foods. About five times as much fat was obtained from the animal as from the vegetable foods, or over 80 per cent. Over 70 per cent. of the carbohydrates came from the vegetable foods and more than twice the number of calories were obtained from the vegetable food as from the animal food. The carbohydrates furnished by the animal food came mostly from the milk.

In the studies of nearly 200 dietaries in families of widely varying circumstances in different parts of the country, it was found that the various animal foods made up about one-fifth of the total amount of food, and furnished more than six-tenths of the protein and nine-tenths of the fat used. My studies would indicate then that these thirty-four families with undernourished children got less than five-tenths of their protein from animal food and eight-tenths of their fat from the same source.

The fuel value of each food used in these dietaries was computed by means of values previously obtained from the studies of Professor Atwater, and others, by the use of the bomb and respiration calorimeters, which give for our common foodstuffs as ordinarily used in diets, the following general estimates for the energy furnished to the body by 1 gm. or 1 pound of each of the different classes of nutrients (calling an avoirdupois pound equal to 450 gm.); to be mathematically exact it should be 453.7 gm. to the pound. Protein, fuel value, 4 calories per gram, or 1,820 calories per pound. Fats, fuel value 9 calories per gram or 4,010 calories per pound. Carbohydrates fuel value, 4 calories per gram, or 1,820 calories per pound.

Thus it will be seen, having this data and the percentage of fat, protein and carbohydrates in each article of food as per analysis,¹ in order to ascertain the number of grams of protein, fat, and carbohydrates in each variety of food, one should find first the total number of grams weight by multiplying the weight of food by 450, the number of grams per pound avoirdupois, and multiply this result by the per cent. of protein, fat, and carbohydrates as shown by chemical analysis to be present in each article.

1. Atwater, W. O.: Principles of Nutrition and Nutritive Value of Food, Farmer's Bull. 142, U. S. Dept. Agric., corrected to April 5, 1906.

IMPROVEMENT OF DIETARIES BY KNOWLEDGE OF FOOD
VALUES AND PROPER SELECTION OF FOOD

Almost all dietaries studied could have been improved both from a nutrient and an expense standpoint. In practically all a very small amount of the cereals, such as oatmeal, hominy, corn meal, rice, cracked wheat, etc., were purchased; also a very small fraction of the diet was made up of the dried legumes (beans, peas, lentils) although more nutriment (protein) can be obtained from these (properly cooked) for a given sum of money than from any other foods. It is well known that protein is the most important ingredient of food as it is the tissue builder, since it is the basis of muscle, bone and almost all the tissues and fluids of the body, hence its importance to the growing child. The cost of dried beans was 6 cents a pound and the cost of cereals by bulk the same.

The bulk of the nourishment in these diets was obtained from meat, milk, and bread and rolls. Baker's bread was used almost entirely, and the rolls used were purchased from the baker. This bread was rye and varied in price in the different families from 1.3 cents to 4 cents per pound and the rolls were made of white flour and were more expensive, costing about three times as much per pound as the bread. The majority of families paid from 3 to 3½ cents per pound for their bread. Those that paid less got stale bread, which is just as nutritious and healthful, and much more economical.

There is no doubt that it would have been better economy had they bought the flour and made their own bread at home if it could have been baked while the fire was being used for cooking other things, so that there would be no waste of fuel.

The milk used cost from 5 to 9 cents a quart, the cheaper grade being obtained from the groceries from the can in bulk, while the more expensive grade was delivered at the house in sealed quart bottles. For many of the poorer families more nourishment could have been obtained for the same amount of money by the purchase of skimmed milk.

The meat used by practically all the families was chuck and flank of beef, which cost them 16 to 18 cents a pound, and this was about as economical fresh meat as they could have purchased for its nutrient value; corned beef, however, might have been used part of the time to advantage with less cost.

Some of those in better circumstances bought round steak, and chicken, the chicken being an extremely expensive article of diet, for its food value, as it was purchased in small quantities, a small portion of a chicken such as a quarter at a time, which cost them anywhere from 15 to 28 cents a pound. Nearly all used fish in moderate quantities, principally carp, pike, buffalo fish, and salt herring.

One family received the same number of grams of protein, but six times as many grams of fat, and nearly as many calories from 2 pounds of herring at 15 cents as from 4 pounds of carp at 40 cents. Comparatively few eggs were used during the time of year these dietary studies were made, which was February, March and April, and those used cost from 36 to 10 cents a dozen, which made them an expensive food.

A few families bought a quart of strawberries every day at 10 cents, while others spent considerable for mineral water, and alcoholic drinks, all of which had very little food value, and were more or less injurious to health.

THE NEED OF MORE THOROUGH INSTRUCTION IN THE
SCHOOLS

It is most important that the coming generation of young girls should be thoroughly educated as to the comparative nutritive value of the different foods; how these foods may be best cooked to make them nourishing and appetizing and the proper dietaries for different ages and occupations. This branch of their education has been heretofore much neglected and holds only an inferior place in their school curriculum. As the ultimate vocation of practically all is motherhood, it is far more important that they be educated in branches which will always be of value to them than that their minds be filled with languages and higher mathematics. The same girls who are now being educated will be future wives, mothers and housekeepers, and the knowledge gained in these matters will not only be of inestimable value to them in their families, in the economical purchase and cooking of food, and proper feeding of their children so that they will develop into strong and healthy men and women, but by their examples and modes of living they will educate their offspring along these lines of better living and gradually improve the nation.

It is well known that insufficient and poorly cooked food, coupled with meals uninvitingly and unattractively served, are the forerunners of alcoholism, drunkenness, crime and disease. Of 101 malnourished school children tested 55 per cent. gave a positive reaction to the von Pirquet tuberculin test.

By keeping our citizens and their children well nourished much will be done toward preventing the spread and ravages of the great white plague. The best way of accomplishing this, then, is by educating the children along these lines in the public schools. A more systematic study should be made of all the foods used as to their composition, best methods of cooking, amounts necessary and kinds best suited to different ages and occupations, and especially as to the importance of a well-cooked, wholesome and nourishing diet for the growing child. This should be gone into very thoroughly in the schools and more hours given to this most important branch.

Improvement must begin physically before any marked improvement can be made mentally, morally or spiritually, and physical development depends on the right nutrition of the body. There should be cooking classes conducted by competent cooks and teachers thoroughly trained and educated in cooking, food values, dietetics, economics, etc.

Dietaries for families with different incomes should be made out and the children taught to cook the articles suggested so that those with a limited income, as well as those better off, may be able intelligently to provide nourishing and appetizing food. It should not be lost sight of that some variety in the diet is important as thereby the stimulation of the appetite and the esthetic taste is increased, although great variety and choice of things out of season are not essential, which should be borne in mind when strict economy must be practiced.

No girl should be entitled to a graduation certificate or working papers until she has passed a rigid examination covering these subjects; and boys should be taught also the different ingredients of foods, and which foods are most healthful, nourishing and economical to buy, as well as the amount of protein, fat, and carbohydrates and number of calories necessary for proper nourishment at the different ages and in different occupations.

the balanced diet and how best to obtain it. Children and adults alike should be taught that "the most healthful food is that which is best fitted to the uses."

"The cheapest food is that which furnishes the largest amount of nutriment at the least cost, and the best food is that which is both healthful and cheapest" (Atwater).

INSTRUCTION FOR MOTHERS

Passing from the education of the children we come to the immediate needs of providing a suitable, nourishing, and appetizing diet for the families. To accomplish this we must educate the mothers (for they purchase and cook the food for the family) along the same lines as those advocated in the schools. Something can be done by means of free lectures, free cooking classes, the distribution of pamphlets and other literature printed in different languages, setting forth in simple language the best, most nourishing, and most economical foods to purchase, and how to cook and serve these simple wholesome foods to make them inviting and appetizing, so that a small expenditure may return an ample nutriment value.

It is my belief, however, that only a small number of the poor and ignorant can be educated by these means; they must be reached in other ways; as, for instance, through large organizations such as the Woman's Christian Temperance Union, the Salvation Army, the American Federation of Labor, the Young Men's Christian Association, and others equally far-reaching. The United States government, and the press, through the large daily papers and other widely read publications can most effectually reach the masses, since conditions found in New York City obtain in other large cities of America as well. A series of short articles should be written, setting forth in simple language proper diets, foods, proper methods of cooking, proper nutrition and the laws of growth, so that every wife, mother, and housekeeper might know and understand. There should be shown the high nutritive value of the cheaper foods as compared with those more costly, and methods of improved cooking. A great deal of food is badly cooked. If the cheaper foods well cooked replace the dearer kinds badly cooked, and the table be made attractive, there will result both saving in expense and happier and more contented home life. A great deal can be done in this respect by individual and group talks to mothers and children in the dispensaries, giving reasons for the foods and diets advocated. This method I have pursued for many years with most gratifying results.

REQUIREMENTS OF THE GROWING CHILD

For the proper development and growth of a child, Nature demands that certain fixed and unchangeable rules be followed and when these rules are disobeyed development and growth are impaired and often, as a result, disease follows.

A child is a young animal and should be considered as such, and should at least have as much care and attention shown it as is given to our young animals. Thousands, however, do not receive that care and attention on account of ignorance and neglect on the part of their parent.

Every child, to grow steadily in both mind and body and to be healthy must have nourishing, well-cooked food, suitable for its age and in sufficient quantities, given at regular intervals. Children are so active, and use up so much food in the shape of energy in that way, besides the food they need to develop the body and renew the wear and tear of the body, that they require

a highly nutritious diet, containing a high percentage of protein, and this is especially important where the child is malnourished.

A child requires long and regular hours of sleep, and under the age of 12 years every child should be in bed at 7 or 8 p. m. Children under 7 or 8 years, especially if undernourished, should have a nap of an hour or two during the middle of the day. In my studies of over 210 malnourished school children under 10 years of age nearly 80 per cent. went to bed at 9 o'clock or later and the other 20 per cent. went to bed at 8 o'clock. The growing child to be well must be properly clothed, and have plenty of fresh air. Four or five hours out of doors every day are essential, and the sleeping rooms must be well ventilated at night.

Every normal child should have certain hours for play and certain hours for study. Long hours in ill-ventilated school rooms for young children do great harm by undermining the health of the child, which is far more important than the learning he gets. Cleanliness is an important factor in the well being and health of every child, and a tub bath should be given at least once a week in winter and oftener in summer.

If children are given a fair chance by adhering to these principles and giving them only what every child in the land has a right to demand, they will be hardy and strong and grow like little animals.

IMPROPER AND UNSCIENTIFIC FEEDING DIRECTLY AND INDIRECTLY THE CAUSE OF MANY AILMENTS

That improper and unscientific feeding of children from the time of birth to maturity is one of the most fruitful causes, both directly and indirectly, of disease, disability, incapacity for work, both mental and physical, loss of energy, susceptibility to contract and inability to withstand disease, everyone who has had wide experience must admit. This paper, however, deals with the child after the stage of babyhood has passed; in other words, the school child, up to the age of 10 or 12 years.

My experience has been in treating hundreds of these children that they contract disease much more easily and have less power of resistance than well-nourished children, and when disease is contracted it is apt to be more severe and prolonged. These children have so little reserve force to fall back on that when they have to undergo a severe illness, or operation, they are apt to succumb.

Ill-nourished children are especially subject to catarrhal affections of the nose and throat and to bronchitis; they also are very susceptible to cold, and easily affected by it. Many are affected with or subject to rheumatism, articular and muscular, and rheumatic sore throat; also not a few have chorea and rheumatic endocarditis.

All of these children are easily fatigued, both mentally and physically and have not the capacity for work that we see in well nourished children. Many of them have a tired, worn, inattentive look, complain of feeling tired and cannot concentrate their attention for any length of time, and their gaze is constantly wandering. They are anemic; their brains, as well as their bodies, are starved for want of nourishment. Many of them are put down in the schools as dullards, or backward children. In these cases good nourishing food is far more necessary for the stomach than books to feed the mind. It is an impossibility to concentrate the mind or to study on an empty stomach or when hungry.

In England, Scotland and France, nourishing meals are given in many of the schools at slight cost. Tickets are issued which provide the children with healthful,

sufficient breakfasts. These tickets are previously purchased by the parents. Many meals are given free, and no distinction is made between those who pay for their meals and those who are unable to do so. The person who distributes these meals cannot possibly know whether the tickets were paid for or whether they were a free gift to the child. It has been amply proved that this does not make either parents or children paupers, so the fear of making paupers is no argument against adopting such helpful measures in our own country.

THE GREATEST FIELD FOR THE IMPROVEMENT OF THE
POOR IN GREAT CITIES IS INSTRUCTION ALONG
THESE LINES

The problem of nourishment which is so vital to the poor and the children of the poor, and the condition of our future population and nation at large so dependent on the way her children are nourished, that it should receive the attention of all.

We find by our studies that many poor families spend more than they can afford for food and yet receive insufficient nourishment by reason of their ignorance of food values. Attempt will be made in a general way to show how the expense for food can be reduced and yet a nourishing and wholesome diet procured. Fewer eggs and less butter can be used and the cheaper cuts of meat purchased and the difference thus saved can be expended for corn-meal, wheat-flour, cereals in bulk, rice, oatmeal, dried beans, potatoes, dried peas, lentils, whole milk and skimmed milk.

Where the income of the family is very small, meat can be replaced to a large extent by the above-named vegetables and cereals, which are much cheaper for their nutritive value. A large variety of fresh vegetables is not necessary or essential; they contain very little protein or energy, and where cost is considered one or two cheaper vegetables are sufficient. The cheaper cuts of beef contain more protein and fat and less waste than the more expensive cuts, and these with wheat-flour, bread, oatmeal, peas, and beans furnish abundant protein very cheaply.

The cheaper cuts of pork, flour, bread, sugar, corn-meal, potatoes, and rice furnish abundant fuel and energy in a cheap form.

It has been found that the cheapest source of protein is the cereals; next comes meat; the most expensive being fresh vegetables. Fancy high-priced fruits and those out of season should not be used.

The diet, as is well known, should vary somewhat with the climate and season of the year, and proper cooking of food is most important, making it more appetizing, more digestible, and more nourishing.

In the majority of families among the poorer classes the food is poorly chosen, poorly cooked and poorly served, and in not a few families there is considerable waste, especially among those who are fairly well to do. A carefully selected diet is necessary to keep the balance so that there may be as nearly as possible the right amount of fat, protein, or carbohydrates. Extremes of diet should be avoided, and a mixed balanced diet of protein, carbohydrates, and fat maintained.

Emphasis should be laid on the necessity of setting a clean attractive table, having the meals eaten at regular hours, the whole family sitting down at the table together when the meal is warm.

If such standards can be thoroughly instilled into the minds of our poor people, more will have been accom-

plished toward the improvement of the present condition of the poor, and the betterment and proper and normal development of their children, and the laying of the foundation for future better living, growth, and well being, than by any other means. Indeed, along these lines is the greatest field for improvement of the poor in our great cities, and philanthropic movements should be directed towards this end.

Only those who see and treat thousands of these little undernourished, half-starved sufferers, as I do each year, can realize the appalling numbers, with their pitiful, emaciated, hungry faces, and no one but he who has become callous from many such sights, constantly working among them, can look on this tragical scene unmoved.

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ABSTRACT OF DISCUSSION

DR. WILLIAM H. WELCH, Baltimore: Dr. Sill has undoubtedly touched on the fundamental points. Those interested in the playground question in this country could render great aid in spreading information in regard to the matter of the food the child receives in its home. Dr. Sill spoke of the movement to furnish one meal, at least, in the schools, but objections have been urged to that on sociologic grounds. There is just one other point I want to mention, and that is the question of skim-milk. There is no question of the value of skim-milk, but the regulation of the sale of skim-milk is somewhat of a problem to the health officer. We cannot permit the sale of skim-milk when it is likely to be mistaken by the purchaser for full milk. That was brought up by the Maryland State Board of Health. They showed me packages of full milk and packages of skim milk of the same size and the same colored label, which could not possibly be distinguished, except that one was marked, "skim milk." That won't do at all. The sale of skim milk cannot be permitted under such conditions. The packages should be different or so labeled that there cannot be any possibility of mistake between the skim milk and the full milk.

DR. N. R. COLEMAN, Columbus, Ohio: I must refer to the matter of giving children coffee. I cannot imagine anything more injurious for a child than to give it an article that will stimulate the vasomotor nerves, contract the blood-vessels and cut off nutrition, particularly the nutrition of the brain, that develops more rapidly than any other part of the body. I do not think any more deleterious habit could be practiced. It should be prohibited by law. Coffee, tea and cocoa, in my opinion, all have the same physiologic effect, but vary in degree. They should be spoken of in such a way, not only in this organization, but by the family physician, as to prevent, so far as possible, their use. Thirty years ago I called attention to this matter, and I have been preaching it ever since.

DR. C. F. WARRER, Fort Madison, Ia.: There are three great faults of diet: eating too much, not eating enough and eating the wrong kind of food. Over the first two we have not much control, but the physician does have some control over the third. An excellent wave of reform is going over the land in regard to the teaching of girls in the classes of domestic economy, the proper foods and the proper way to prepare them. The physician does not realize the importance of giving out an outline of what to eat. I have a patient whom I have been treating six years for nephritis, and though she is four years overdue in heaven, she is still alive. I have another one, a man who came to me for nose-bleed due to acute nephritis, and by regulating his diet he has not had another attack of nose-bleed. Another patient whom I had was a man who was asthmatic and could not go into a hay-field. It was all due to the horrible coffee he had been drinking. This man had been drinking coffee made by his wife, who never emptied the pot from one day to another, simply adding a little more coffee each time and letting it stand on the back of the stove to boil indefinitely. Her other

cooking was equally skilful. I taught this woman how to make coffee, and her husband can now go into the hay-field without any difficulty. When a patient is told by a physician that he must diet, he goes on the theory that he must starve himself. The doctor does not tell him what to eat and what not to eat. And here we err. There are plenty of good books on the market on dietetics. Buy them, inform yourselves, then give your patients definite rules as to what to eat and what to avoid.

DR. C. G. KERLEY, New York: Those of us who have seen much of life among the poor people in any large city will understand the truth of Dr. Sill's statement regarding their ignorance. I have been in dispensary and hospital work for twenty-two years, and I am impressed with the fact that it is not that these people have not enough money, but that they have no idea of what constitutes nutritious food; and children are not fed with the idea of body-building, but merely of satisfying the appetite. The mothers are not lazy, they are untaught, and that is why they adopt a makeshift diet and do the thing that is easiest. If the physician takes the trouble to tell the mother what to do she does it. It is the primary function of the physician to instruct people how to live. That may be done through organizations of different kinds. At present there is an organization in New York City which will give a "child-welfare exhibit" in November. This exhibit will show educated people the conditions that exist among the poor, and it will be made attractive by object lessons and demonstrations in order to draw the poor and show them the results which may be achieved by right living. By that exhibit a great deal will be accomplished. It will inform the best class of people how the others live and let the ignorant be taught what constitutes proper living.

DR. S. W. KELLEY, Cleveland: Just a word or two on the subject of meals, etc., for the child in school. The plan has, of course, its different sides, the question of pauperizing, and all that. We began with free schools and then free books, in some places free shoes, then free meals, free doctors, free nurses, free dentists, and nearly every possible necessity for the child in school, until the tendency is to take the child out of the parents' hands too much and leave the parents nothing to do but to bring the child into the world and turn it over to the State for its maintenance as well as for its education.

I hope that this work as it is now carried on is only a transitional stage, made necessary by the influx of ignorant and careless parents. I do not believe in letting the child suffer in the meantime. It must not be allowed to starve or to go unclothed while getting its education, but the parents must be educated in their duty as parents, and the coming generation of parents must be better informed and more attentive in their duties as parents. I believe that ultimately the duty of school boards will be confined to education. I think that they are outside of their proper function in furnishing physicians, nurses, dentists and food to school children. That, if temporarily necessary, can be carried on by other organizations. Of course, I believe in medical inspection, but school boards should confine themselves to education, even if that includes the education of the parents in many ways. The school authorities can call to their aid and cooperation other authorities and organizations, such as the juvenile courts, the humane societies and the visiting nurses associations. For instance, in the matter of meals the social settlement workers can see that the child gets well-prepared meals at home. In illness or malnutrition the physicians can instruct nurses and the nurses working among the people can carry out these instructions.

DR. CHARLES A. CATERMOLE, Boulder, Colo.: I want to explain a plan that is followed in the West. Dietetic errors are not so common in the West as among the people of the cities. The method we have adopted is to teach the girls in the high school the method of preparing food. They are taught cooking and buying of food in the market, and they cook and serve it in a proper way and get up a meal for the school board or a committee. In the cities children live on candies and prepared foods or go without breakfast.

MINERS' CONSUMPTION

OTTO V. HUFFMAN, M.D.

Medical Director of Children's Department, Miami Valley Hospital,
and Physician-in-Chief to Fenit and Flower Mission,
Children's Clinic, at Dayton, Ohio

CINCINNATI

Miners' consumption is a term used by miners to designate emaciation associated with anemia, general weakness, shortness of breath and occasionally palpitation. It is distinctly a layman's term for a general condition which may be due to a variety of causes. Whoever has observed a large number of miners must have been struck with the fact that the majority are pale and thin, and that they present the facies of chronic dyspepsia. A low state of health among miners is so prevalent and the use of the term "miners' consumption" so general that the subject merits the serious attention of the medical profession.

One does not have to look far for causes of ill health among the miners. Most mines and mining towns are without any sanitary measures whatsoever. In the mine urine and feces are disposed of promiscuously. The miner's home is situated anywhere. The outhouse is nearly always on the hillside above the home, and of course the well below. The women and children seem to thrive regardless of filthy practices, however, so we must look into the mine where the miner works for the direct cause of his condition.

According to the returns of the Twelfth Census there were 528,822 persons in continental United States reported as "miners" in the year 1900. Of this number 344,205 were reported as coal-miners; 52,024 as gold-miners and silver-miners, and 132,593 as miners not specified.

Analyses reported by the Technological Division of the U. S. Geological Survey show that the atmosphere at the face of the coal in the mine contains nearly always traces of ethane, methane and carbon monoxid gases. In the ordinary management of a mine means are taken to detect these gases before they are present in such a dangerous degree as to become inflammable. Efficient forced ventilation will usually remove the gases in sufficient quantity to minimize the danger of an explosion, but at the face of the coal where the miner is working, there will always be traces of the above-mentioned gases. The stronger the ventilation, the greater the tendency to exhaust in the rooms and blind entries, with greater liberation of gases from the newly made cuts, bore-holes, and broken coal. In just what way the deleterious effects of ethane and methane are brought about when inhaled in small quantities over a long period we are not prepared to say, but we do know that carbon monoxid has the property of uniting with the hemoglobin of the red blood-corpuscles to form a rather stable compound, and that it is not readily replaced by oxygen.

In mines where dynamite and other nitroglycerin explosives are used we have another source of poison. In such explosives the nitroglycerin is mixed with inert matter. As a result of an explosion the inert matter is blown into the ore or coal. Adhering to the particles of this inert matter are small amounts of nitroglycerin which have been disseminated without entering into the detonation—being firmly fixed to the particles of the menstruum like so many tablets of nitroglycerin. Later this dust containing small amounts of nitroglycerin is inhaled

during loading or shoveling, and, as every physician knows, the most efficacious way of administering nitroglycerin is to dissolve the triturate in the mouth. Another way of absorbing this poison is through the skin. Hence, these miners complain of headache, palpitation and nausea. Sometimes the men working on the tippie out in the open complain, too, as they breathe this dust when the cars or wagons are dumped.

During the past year Congress passed a law establishing a Bureau of Mines on account of the great number of miners killed or maimed annually as a result of a lack of safety devices. It may be opportune for the physicians to make some effort to better the condition of the miner from a hygienic and sanitary standpoint.

If in one of our naval ships we did not have elaborate systems of ventilation and did not make careful tests for the least increase in carbon dioxide gas for the several hundred men confined below—if we did not prohibit promiscuous expectorating, urinating and defecating, what a deplorable ship and state of health we should have!

It is no less important to have a clean, well-ventilated mine for the several hundred men working in it. The mere fact that the filth is hidden in darkness is no excuse for permitting a lack of sanitary precautions which we would not countenance one moment in the open light. We should provide our mines with better ventilation and more experts capable of analyzing the air.

Physicians in mining towns are without authority. It seems as though it might come within the province of this new bureau to make rules in regard to sanitary measures outside the mine as well as inside. Without chronic gas poisoning, typhoid, tuberculosis, hookworm, chronic nitroglycerin poisoning, and other preventable diseases, as well as fleas and chiggers, perhaps there would be no "miners' consumption."

Some physicians jump to the conclusion that the miner has general pulmonary fibrosis (anthracosis). As a matter of fact, the miner of to-day inhales very little dust, much less than the coal-handlers outside inhale, and he does not have evidences of catarrhal inflammation of the respiratory tract to the same degree as the men working in coal dust, who undoubtedly have anthracosis.

Other physicians account for the miner's pallor by the lack of sunshine, without considering real anemia. Many men have continued to work in dark but well-ventilated places other than mines for many years without developing anemia or marked pallor.

It is our duty to conduct some serious investigations in regard to the health of our miners. We should have more data at hand obtained from blood-examinations, post mortem examinations, air analyses and other examinations which may give us exact information.

FATAL GUNSHOT WOUND

A. F. JOHNSON, M.D., GRESHAM, ORE.

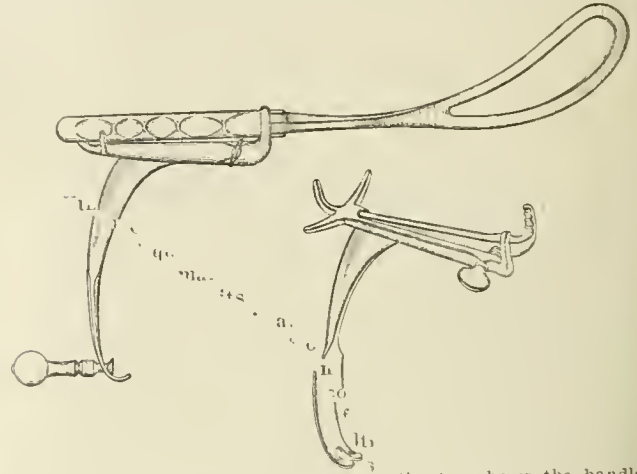
Oct. 21, 1910, I was called to see a boy about 10 years of age, who had been accidentally shot by a .44 caliber rifle, in the hands of a younger brother. The bullet entered the knee-joint from the anterior side, just internal to the patella, and passed completely through the joint, severing the popliteal artery. I arrived about ten minutes after the accident had occurred, but the loss of blood was so great, that the patient lived but a few minutes, never having regained consciousness. This emphasizes the necessity of instruction in the public schools regarding "first aid to the injured."

AXIS TRACTION HANDLE FOR OBSTETRIC FORCEPS

W. P. MEGRAIL, M.D.
WHEELING, W. VA.

The illustration shows a handle that can be readily and quickly attached to any obstetric forceps thereby making the latter a complete axis traction forceps, possessing the following advantages:

1. It is light, simple in construction, having only three parts, and very easy to apply to any forceps handle when axis traction is required.



The top shows the handle attached to the ordinary obstetric forceps. Below on the right is a view of the handle detached.

2. It prevents the lock of the forceps blades from being opened or closed at the wish of the operator.
3. The handle alone is sufficient for traction is required, but when a great amount of traction is required a "T" or cross-bar can be attached through the slot in the lower end of handle, making a larger grip.
4. This handle with the ordinary forceps that the obstetric bag of every physician will prepare fully to terminate cases demanding a high forceps operation.

WARNING AGAINST THE INDIA-INK METHOD FOR THE SPIROCHLETA PALLIDA

JOSEPH H. BARACH, M.D.
PITTSBURG

Since recognition of the *Spirochata pallida* as the probable cause of syphilis, now five and a half years ago, the staining methods, as has been said, are almost as numerous as the investigators who have studied it. Of the many, there is one which has of late been especially prominent. I refer to the India-ink method recommended by Burri, and since by a number of other investigators.

This method, which consists in mixing the serum with diluted India ink on a glass slide and allowing it to dry in the air, is so easily carried out and requires so little technic, that its use, sooner or later, would have become quite universal. Recently, I used this method on a number of occasions, and I desire to relate my experience with it.

* Presented at the clinical and pathologic meeting of the Allegheny County Medical Society, Oct. 18, 1910.
1. Burri: Deutsch. med. Wchnschr., 1910, No. 38, p. 1762.

In one patient who had a typical case of syphilis, I found true spirochetes with the India-ink stain immediately. In another case, I saw the spirochetes first with the illuminated dark field and then with India ink. In neither of these specimens did I have occasion to make a prolonged search. My third use of this stain was in the case of an adult who presented an atypical case of varicella.

The diagnosis was later verified by Dr. B. A. Booth, physician to the Contagious Hospital.

Because of the possibility of syphilis in this case, I had taken a drop of serum from a vesicle and mixed it with India ink for examination. To my surprise I saw at first sight what I supposed were spirochetes. Closer scrutiny of these objects, however, made it dubious as to their actually being spirochetes. It then occurred to me that whatever they might be, before supposing them to have come from the serum of the vesicle, it would be well to examine the pure ink. This I did and was chagrined to find that the same wavy fibers were present.

I exhibited the pure ink specimens to a number of laboratory workers, and all agreed that the non-critical and inexperienced observer might easily mistake these for spirochetes.

The ink used was Higgins' India ink, which is said to have the largest sale, and therefore would be the most likely one offered to buyers. Since then Dr. George A. Holliday, who is especially interested in this subject, and I, have examined all the obtainable inks that are sold as India ink and the results are here given.

Description.—The figures seen in the dark granular field of the India ink specimens correspond in appearance to spirochetes, bacilli, cocci and streptococci. Some fields, especially in the Higgins ink, were literally filled with these bodies, and even if *Spirochata pallida* had been present, it would have been difficult to distinguish them. In most of the fibers the undulations are not large; some, however, especially in the darker fields in which the light refraction is greater, appear characteristic enough to be deceiving.

Inks Examined.—Higgins' Black India Ink: Three bottles all show long and short wavy fibers, and straight fibers resembling coarse bacilli; also structures resembling coarse streptococci.

Higgins' Violet Ink: Unsatisfactory. The ground is not sufficiently dark.

Higgins' Red Ink: Also unsatisfactory.

Hine (Paris) India Ink: In the dark areas of the field, the ink seems to crack as enameled surfaces do; and these cracks which appear as glistening wavy fibers against the black background may prove to be misleading. This ink contained no actual fibers.

Kallos' Indelible Drawing Ink: This is offered as an India ink although it is not a true India ink. In this I found streptococcus-like structures which at times appeared as wavy spirilla.

Collins' India Ink: This shows innumerable straight and wavy figures against the dark background that could be misleading.

Guntler: Wagner's India ink contains wavy fibers, some of which in length, diameter and undulations, bear a close resemblance to *Spirochata pallida*.

A culture of Higgins' India ink on Loeffler's blood-mixture at the end of seventy-two hours was negative.

Since the accurate determination of the presence of *Spirochata pallida* is at present already often complicated by the presence of *Spirochata refringens*, to use the India inks would be to add one more source of error. The spirochete-like objects seen with these inks seem capable of assuming various shapes and sizes and while most of them, by the experienced microscopists, would not receive very serious consideration, some of the speci-

mens that I have come across at a magnification of 1,300 diameters and higher, could delude even the expert.

I know a number of men who have occasion to diagnose many cases of syphilis, and who have been using the India-ink method for some time. These men do not consider themselves expert microscopists and they admitted that they may have made this error.

In the past, diagnosis of this disease has been based largely on full development of the clinical symptoms, but at present it is being frequently made on finding the spirochetes. For that reason, the greatest accuracy must be exercised, and the possibilities of error should be reduced to a minimum.

In consideration of the above findings, I offer this experience as a warning against the India-ink method by the non-expert and the general practitioner to whom it has been so strongly recommended.

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Therapeutics

HYGIENE OF THE MOUTH AND TEETH

The great importance of the preservation of the teeth is now recognized by all persons of intelligence. Crowding together of the teeth in the jaw and irregularities and depressions in the individual teeth are causes of dental caries. A direct and exciting cause is the lodgment of particles of food between the teeth and in the depressions on the surfaces. These particles of food undergo fermentation, with the production of bacteria and acids which attack and destroy the enamel of the teeth and then cause caries of the body of the teeth. Not all food is equally injurious in this way. It is chiefly the carbohydrates, the starches and sugars, which undergo this acid fermentation. The proteins, on the other hand, do not undergo the same acid fermentation and, consequently, they are less injurious.

It is evident, therefore, that in order to prevent dental caries it is necessary to prevent the stagnation or lodgment of the starches and sugars of the food in the mouth, and particularly in, on, or between the teeth.

The decomposition of the food lodged in the mouth commences very quickly, and therefore the rule of thoroughly brushing the teeth after each meal should be observed by every member of every household. The best instrument for this purpose is an old-fashioned tooth-brush made of hog's bristles. The bristles should not be so stiff as to injure the gums, and yet stiff enough to thoroughly remove all foreign matter from between the teeth. Neither a wooden (the best toothpick) nor a quill toothpick, nor silk floss, nor a napkin or towel, nor a rubber tooth-brush can accomplish this purpose nearly so well as a tooth-brush of bristles.

Even with the greatest care it is extremely difficult to keep the teeth entirely clean, and the majority of people are careless in the care of their teeth. Consequently, it is of great importance to arrange the food so as to diminish the tendency to the lodgment of the starches and sugars of the food between the teeth. These deposits are often caused by eating foods in a soft, moist, and mushy condition, and especially by eating them at the end of the meal. On the other hand, there is less tendency to this stagnation of the food around the teeth if the food eaten is dry, fibrous, and coarse, so as to require prolonged mastication. Incidentally this prolonged mastication of hard foods, in children, tends to strengthen

the teeth and develop the jaws, so that they become larger and broader, affording more room for and less crowding of the teeth.

Of course the question of dietetics is one which can not be settled offhand. A food which is advantageous from one point of view may be most undesirable from another. To speak concretely, and having in mind only the prevention of dental caries, the foods to be eaten not too frequently are the soft, mushy farinaceous foods (especially if loaded with sugar), and candy. Raw fruits and salads, dry toast and stale bread with butter, vegetables, if cooked so that they are dry and require chewing, fish and meats of all kinds, including poultry, are better for the teeth. Even young children, after they have commenced to cut their teeth, should be given crusts of bread, or dry toast, and later other forms of solid food, which require chewing, to take the place of milk and gruels and various mushy foods on which many children are fed far longer than is beneficial for them. Other factors concerned in the production of caries of the teeth besides inadequate cleanliness and too soft food, are the general nutrition and the character of the internal secretions, *i. e.*, the secretion of the ductless glands. The teeth need certain inorganic substances properly metabolized to keep up their perfect health and growth. If these substances, probably largely phosphates, are insufficient, the teeth tend to decay. Such an insufficiency is probably always more or less present during pregnancy.

Another frequent cause of dental caries is the improper care or lack of care which the mouth and teeth receive during acute illness. A prolonged diet containing insufficient salts is also a predisposing cause of dental decay.

It is astonishing to what a degree the mouths of many patients are neglected, a neglect which contributes, in part at least, to the accumulation of a thick, dry coating on the tongue, and the thick, sticky, offensive masses of so-called sordes on the gums and in and between the teeth. When the patient is lying in bed, is being fed chiefly on milk and soft foods, and is not allowed to talk, there is much greater need than during health of systematic care of the mouth. The nurse should attend to this, and the physician should see that this part of her work is not neglected. In fact, except when a patient is moribund, the condition of the patient's mouth is an indication of the ability of the nurse. Frequent wiping of the teeth, gums, and tongue with a piece of cotton held in a pair of forceps, and saturated with an alkaline solution, containing 20 per cent. of glycerin, will contribute greatly to the comfort and welfare of the patient.

To whatever the severe illness is due, the greater the weakness, the higher the temperature, and the more abnormal the mental condition, the greater attention the mouth requires. The mouth should be rinsed several times a day with warm water to which has been added a little common salt, tincture of myrrh, alcohol, or a little cologne water, to stimulate the secretions. When there is a tendency to bleeding from the gums or lips, they should be rubbed twice a day with a soft cloth bearing powdered boric acid. In patients who are partially unconscious, the mouth should be examined several times daily. Little ulcerations should be treated with boric acid or a saturated potassium chlorate solution, or perhaps better with swabs soaked in peroxid of hydrogen solution. Fissures at the corners of the mouth will generally heal with boric acid and glycerin, boroglycerid or a pure petroleum fat. If the patient sleeps with the mouth

open and the tongue tends to become dry, it should be frequently moistened with a 20 per cent. solution of glycerin and water. A drink of water should be offered the patient at least once an hour, and if the individual can take but a sip at a time, it should be offered even more frequently, unless he is quietly sleeping. A piece of ice covered with thin linen or gauze and applied to the mouth and tongue is often grateful to the patient.

The things to be remembered in the care of the mouth and teeth may be summed up as follows:

1. Theoretically water should follow the milk of bottle-fed babes.
2. A soft cloth should be thoroughly moistened with a mild alkaline wash and frequently applied over the first little teeth of the infant.
3. No candy, or at least but little, should be given to young children, and as soon as their teeth have erupted they should have the more crunchy or granular cereals, and not so much of the soft, gelatinous cereals.
4. The teeth should be regularly cleaned by a dentist, at least once in six months.
5. All cavities, even small, should be filled, at least with temporary filling, so that the first teeth may be preserved as long as possible in order to develop the jaws properly, so that the second teeth need not be crowded.
6. The teeth of children and adults should be thoroughly brushed at least twice a day, better three times, with a proper brush, and, at least in the morning, with a tooth powder that is not too soapy, and at night with an alkaline mouth wash.
7. All persons, growing children or adults, should have all the tartar that may become deposited cleaned from their teeth once in three months, and examinations of the teeth once in six months will disclose cavities before they have become large ones.
8. If the teeth tend to degenerate and cavities quickly form, the trouble is generally with the nutrition, and the person is often deficient on bone-forming salts. Such patients should receive lime salts, phosphates, glycerophosphates, and iron.

There is such a large choice of official preparations to meet this need that there is no necessity for prescribing proprietary preparations. In fact, the number of preparations of the United States Pharmacopeia and National Formulary is too large. They may be enumerated as:

Calcii hypophosphis, dose 0.50 gram (7½ grains).

Syrupus hypophosphitum, dose 1 to 2 teaspoonfuls:

This contains calcium hypophosphite, potassium hypophosphite, sodium hypophosphite, dilute hypophosphorus acid, sugar, tincture of fresh lemon-peel and water.

Syrupus hypophosphitum compositus, dose 1 to 2 teaspoonfuls:

This contains calcium hypophosphite, potassium hypophosphite, sodium hypophosphite, ferric hypophosphite, manganese hypophosphite, quinin, strychnin, sodium citrate, dilute hypophosphorus acid, sugar and water.

Elixir calcii hypophosphitis (N. F.).

Liquor hypophosphitum (N. F.).

Liquor hypophosphitum compositus (N. F.).

Syrupus calcii hypophosphitis (N. F.).

Syrupus calcii et sodii hypophosphitum (N. F.).

Syrupus phosphatum compositus (N. F.).

Elixir glycerophosphatum (N. F.).

Elixir hypophosphitum (N. F.).

Elixir hypophosphitum cum ferro (N. F.).

Elixir sodii hypophosphitis (N. F.).

The dose of any one of these is from 1 to 2 teaspoonfuls.

The best iron preparations for this purpose are: tinctura ferri chloridi, 1 or 2 drops in a wineglass of water or fresh lemonade, three times a day, after meals; ferrum reductum, 0.05 gram (1 grain), in capsule, three times a day, after meals; ferri oxidum saccharatum (*Eisenzucker*), tablets, each 3 grains, 1 three times a day, after meals.

If the teeth are delayed in eruption and do not grow properly in young children, the dried extract of the thymus gland is of value. One of the tablets is given three times a day: it is best taken between meals, crushed with the teeth, and swallowed with water.

If the child as a whole does not grow well, even if not a cretin or in any way like a cretin, small doses of thyroid extract (*glandulae thyroideae siccae*) in dose of 0.03 gram ($\frac{1}{2}$ grain) once a day, is of value, and this dose is sufficient.

In adults when the teeth tend to disintegrate perhaps the best treatment is the elixir of glycerophosphates of lime and soda, and it is also well to administer this preparation, or something similar, one or more times a day, to a pregnant woman, at least during the last months of pregnancy.

9. The care of the mouth during severe illness should be on the lines above described.

10. The proper care of the teeth will prevent Bigg's disease, one of the most troublesome and painful things that can happen to the jaws, meaning a retraction of the gums and exposure of the dentine of the teeth; proper care will also prevent that bane of older individuals, *viz.*, pyorrhea alveolitis.

11. The treatment of pyorrhea alveolitis must be strenuous and persistent. There is no excuse for its presence, and it can be eradicated. The treatment is persistent cleanliness and antiseptics, the same as in ozena. There is no excuse to-day for the horrible stench perpetrated by patients who suffer from ozena. The same is true of the nastiness of the breath of these pyorrhea patients, to say nothing of the danger to themselves of infection from germs harbored in the mouth. The treatment is a frequent use of a mouth wash of 1 part of peroxid of hydrogen solution to 4 or 5 parts of warm water, and then the persistent use of an antiseptic alkaline mouth wash and tooth paste or tooth powder after the peroxid of hydrogen has eradicated and removed the pus.

12. Before any serious operation is done, especially about the mouth, and when there is no emergency, the teeth of the patient should be cleansed, cavities at least temporarily filled, and pyorrhea alveolitis, if present, cured, or at least properly kept in subjection.

GOOD SENSE IN PRESCRIBING

R	Gm.	
Acetanilidi	2	(5ss)
Caffeine sodio-benzoatis	30	(gr. v)
Pulveris aromatici	I $\frac{1}{2}$	(gr. xv)
M. div. in chart. No. VI.		

Sig.: As directed.

The evident object of this prescription is either as an antipyretic or an analgesic, or possibly as a remedy for headache. If to reduce temperature or as an analgesic, it has been shown that caffeine does not reduce the toxicity of acetanilid, but rather adds to it. If it is desired to render acetanilid less of a cardiac depressant, an

alkali like sodium bicarbonate is the drug that should be combined with it, and not caffeine. Therefore, the only excuse for caffeine in combination with acetanilid, phenacetin or antipyrin is when these drugs are used to stop a headache, caffeine being of benefit in some headaches.

The best caffeine, unless an effervescent preparation is desired, is the citrated caffeine of the Pharmacopoeia, *caffeina citrata*. This contains 50 per cent. of caffeine, while the *caffeinae sodio-benzoas* of the National Formulary contains about 48 per cent. of caffeine. The latter is a more expensive preparation and weaker than the citrated caffeine, and the dose is nearly double that of the citrated caffeine. There is no difference in the activity in equivalent doses of these two preparations of caffeine. The main object of all prescribers should be to use the same simple drug to meet the same specific indication; to require that the Pharmacopoeia shall be small, and that every drug be assayed, pure, and absolutely up to standard. This can not be expected and can not be accomplished if the Pharmacopoeia represents a large number of preparations of each individual drug.

The official aromatic powder contains cinnamon, ginger, cardamom, and nutmeg. There could be little object in putting these aromatics into a stomach when an antipyretic action is desired of acetanilid. In other words, there is positively no reason for it in this particular prescription, although the dose is so small.

The directions above do not state how frequently the acetanilid is to be administered. The dose, about 0.33 gram (5 grains) is now considered very large, and certainly should not be repeated more than once in the same twenty-four hours. Two or even one grain of acetanilid, repeated two or three times at three-hour intervals, will act as satisfactorily and is much safer than a large dose of this drug.

As life is short and the age rapid, unnecessary Latin should not be used in a prescription; we have not time to write it. If the Latin word "*divide*" is used, it must be "*divide in*" followed by the accusative, divide into. It is much better to use the imperative word "*fac*" followed by the accusative, as "mix and make" so many powders. It is entirely unnecessary to say "No." or "*in numero*"; if so many pills or powders are ordered it must of necessity be *in numero*, therefore it is unnecessary to say so. If the metric system is to be used, it is absurd to order 6, 7, 8, 11, 12, or 13. If more than 1 or 2 are required, let the number ordered be 5, 10, 15, or 20; in other words, absolutely smooth and proper exponents of the decimal system.

If a simple prescription is required as an antipyretic, the following is better:

R	Gm	
Acetanilidi	50	gr. vii-ss
Sodii bicarbonatis	2	gr. xxx
M. et fac chartulas 5.		

Sig.: A powder, with water, once in three hours, if needed.

Or, it may be ordered as follows:

R	Gm.	
Acetanilidi	50	gr. vii-ss
Sodii bicarbonatis	1	gr. xv
M. et fac capsulas siccas 5.		

Sig.: A capsule, with water, every 3 hours, if required.

If immediate, rapid action is desired, any capsule can be uncapped just before it is taken into the mouth.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 DEARBORN AVENUE . . . CHICAGO, ILL.

Cable Address "Medic, Chicago"

Subscription price Five dollars per annum in advance

[For other information see second page following reading matter]

SATURDAY, NOVEMBER 26, 1910

DYSPEPSIA AND THE PROPHYLAXIS OF CANCER OF THE STOMACH

The word "dyspepsia" used as a scientific term in its etymologic sense has long since been relegated to the realm of the obsolete. It is still applied occasionally, however, in a loose way to that miscellaneous aggregation of symptoms and distresses to which patients allude as "stomach trouble." It is becoming better understood from advances in the study of the chemistry of digestion and the secretions, as well as from the pathologic findings in the alimentary tract and the associated organs of digestion as revealed at operation and at autopsy, that most so-called stomach troubles have their seat or origin in the liver, the gall-bladder and ducts, the pancreas, the appendix, or in even more remote portions of the digestive tube, and that even real lesions in the stomach itself may be secondary to pathologic conditions far removed from that viscus. An understanding of this fact is important from the standpoint of prophylaxis, as well as from that of diagnosis and treatment. The futility will at once be seen of treating by measures directed to the stomach a hyperchlorhydria, for instance, that is due reflexly to a diseased appendix, or an obstruction of the pylorus due to spasm induced by a hypersecretion having its exciting cause in the gall-bladder. Gastro-enterostomies performed for the relief of such stomach conditions prove useless.

The influence of the appendix in the production of gastric disorder has been recognized and referred to in the writings of many authors. H. J. Paterson,¹ after seeing W. J. Mayo operate in two cases, removing the appendix when all the symptoms pointed to gastric or duodenal ulcer, which, however, was not present, began a study of these cases, and reports the histories of twenty-four patients operated on by him, each of whom had all the clinical symptoms of one or other of these types of ulcer. The removal of the diseased appendix in each instance relieved all the symptoms.

Fenwick² in a study of the clinical significance of gastric hypersecretion, states that he had noted that

deaths from appendicitis occurred in patients with a peculiar type of hypersecretion, and the connection was suggested to him by Mayo. Fenwick even goes so far as to state that the character of the trouble in the appendix is indicated by the character of the gastric secretion, an active irritation being indicated by hypersecretion, while on the other hand, torsion, thickening, cystic dilatation or adhesion are followed after a time by a type of chronic gastritis characterized by flatulence, nausea, anorexia, excess of mucus and absence of free hydrochloric acid. Fenwick further says that a continuous flow of hyperacid gastric juice, reflexly produced by disease of some other organ—the appendix, pancreas, gall-bladder, tuberculosis or new growth of the cecum—always excites severe inflammation of the stomach and is liable to be followed by ulcer of that organ or the duodenum. It also sooner or later gives rise to spasm of the pylorus, causing pain and intermittent obstruction, which may lead to a diagnosis of cancer.

MacCarty³ has studied the relation of the diseased appendix and gall-bladder to stomach trouble or dyspepsia, and finds that operations for gastric symptoms which have existed for years may reveal no lesion of the stomach other than aberrant secretion, but that one of the organs already named will be found in fault. Graham and Guthrie⁴ cured eighty-nine out of 115 patients with gastric symptoms by appendectomy, and secured great or moderate improvement in twenty others. Cannon⁵ by the injection of irritants into the large intestine produced retardation of the digestive juices, and Roger⁶ produced erosions of the gastric mucosa by injections of beta-naphthol into the cecum.

Pilcher⁷ in a study of 271 cases of achlorhydria gastrica hemorrhagica, a complex of gastric symptoms usually described as chronic gastritis, accompanied by hemorrhage, found that in 156 the onset seemed to bear an immediate and direct relation to various diseases. Thirty-eight of these followed infectious diseases, twelve accompanied circulatory disturbances, fourteen were post-operative, the operations having been done for various conditions, and twenty accompanied diseases of the ductless glands. In 100 of these patients operated on, the trouble in thirty-six was found to be due to appendicitis, in thirty-two to gall-bladder trouble, in sixteen to gall-bladder and pancreatic disease combined, in twelve to appendicitis and gall-bladder involvement combined, and in sixteen the stomach alone was found diseased. In twenty-four there was pylorospasm—in eighteen with appendicitis and in six with gall-bladder involvement.

3. MacCarty, William Carpenter: Pathology and Clinical Significance of Stomach Ulcers, Surg., Gynec. and Obst., May, 1910, p. 449; The Pathology of the Gall-Bladder and Some Associated Lesions, Ann. Surg., May, 1910, p. 651.

4. Graham, Christopher, and Guthrie, Donald: The Dyspeptic Type of Chronic Appendicitis, THE JOURNAL A. M. A., March 19, 1910, p. 960.

5. Hedblom and Cannon: Am. Jour. Med. Sc., October, 1909; quoted by MacCarty.

6. Roger: Arch. de méd. expér., 1906, xviii, 51; quoted by MacCarty.

7. Pilcher, J. T.: THE JOURNAL A. M. A., Nov. 19, 1910, p. 1790.

1. Paterson, Herbert J.: Appendicular Gastralgia, or the Appendix as a Cause of Gastric Symptoms, Proc. Roy. Soc. Med., April, 1910, Surg. Sec., p. 187.

2. Fenwick, W. Soltau: The Clinical Significance of Gastric Hypersecretion and Its Connection with Latent Disease of the Appendix, Proc. Roy. Soc. Med., April, 1910, Surg. Sect., p. 177.

In two cases ulcer of the stomach was found. Various other conditions were also present.

The achlorhydria, with its sequelae, is attributed by Pilcher to reflex inhibition of secretion by disease elsewhere, the invasion of the stomach by bacteria, chiefly the streptococcus, producing irritation and erosion, with hemorrhage. Accompanying these erosions were found round-cell infiltration and engorgement of the capillaries.

Thus it will be seen that either hypersecretion or hyposecretion of hydrochloric acid may be due to the same remote causes in different patients, both leading to pylorospasm, irritation, erosion, infiltration and ulcer.

Finally, Wilson and MacCarty⁸ have found in an examination of 230 cancers of the stomach that 71 per cent. had their origin in gastric ulcer.

If we accept the findings above noted, the conclusions to be drawn would be that dyspepsia or stomach troubles, functional or otherwise, in at least a number of instances have their origin or seat in some remote though functionally related structure or organ, reflexly producing hypersecretion or hyposecretion, with accompanying chemical or bacterial irritation, hemorrhage, ulcer and finally, perhaps, cancer; and that the treatment of stomach conditions would require a careful search for pathologic conditions in these more or less remote structures, looking to the stomach itself last, perhaps, for the original source of the trouble. Accepting the writers' premises, an important bearing of these facts would be that the prophylaxis of ulcer and cancer of the stomach would lie in the recognition and cure in their early stages of diseases of the appendix, gall-bladder and pancreas, as well as of other still more remote conditions that produce reflexly the symptoms recognized by the patient as stomach trouble or dyspepsia.

WILL THE WISCONSIN PURE FOOD LAW BE EMASCULATED?

Our readers will remember that last summer¹ their attention was called to the sane attitude of the Wisconsin health authorities on the subject of truthful labels on food products. The courts of that state have decided that the manufacturers of glucose cannot sell their product in Wisconsin under the euphemistic but misleading term, "corn syrup." To "get even" the glucose trust has boycotted that state and glucose cannot be had of the jobbing grocers of Wisconsin. These grocers, naturally, feel aggrieved and have passed resolutions against what they term an unwarranted loss of trade.

In an editorial entitled "Making Food Laws Ridiculous," *Leslie's Weekly* waxes indignant over what it calls "the foolish, restrictive legislation of Wisconsin," which requires that manufacturers shall tell the truth on the label. Says *Leslie's*:

"It seems inconceivable that the people of Wisconsin should tolerate such an imposition. . . . We are not surprised to note that the Wisconsin press enters a bitter protest against any interference, under the guise of pure-food legislation, with the sale of wholesome and popular articles of food."

We, too, "are not surprised to note" that *Leslie's Weekly* looks on the restrictions due to requiring that the truth be told, as an "imposition." When we remember that the wide-spread fake "Viavi" was the subject of a "special article," and that the Alexander cancer cure² received a similar write-up in *Leslie's Weekly*, we naturally expect that publication to come to the defense of those who are attempting to discredit and destroy the pure food laws. Neither are we "surprised to note" that some Wisconsin newspapers are entering a protest! In the previous editorial we said:

"For the past few years 'Karo'—a trade-marked name for glucose flavored with syrup—has been heavily advertised all over the country. We may now expect the advertising patronage of the glucose trust to be withdrawn from the state of Wisconsin in the hope that the newspapers of the state will bring pressure to bear on the state legislators to amend and emasculate the present law. It is to be hoped that Wisconsin newspapers in this instance will not sell their birthright of journalistic freedom for a paltry mess of advertising pottage."

The pottage will probably prove tempting in some cases, a consummation that the glucose manufacturers doubtless wish and expect. The cold facts of the case are that the profits to be made in selling glucose at real syrup prices are enormous—so great, that if no other question were involved, it would be, as the Wisconsin Supreme Court has decided, "a fraud to sell this article to the public under a name that induces the belief that it is procuring a syrup produced in the usual way . . ." These profits the glucose trust is willing to share with the newspapers through the medium of an advertising campaign, doubtless with the idea that few publications will tell unpleasant truths about the products whose advertisements they carry. It now remains to be seen whether the Wisconsin press will stand for the interests of their constituents at the expense of a loss of revenue. We are optimistic enough to believe that a state which has enacted, enforced and interpreted a statute such as the Wisconsin pure food law will not be found wanting in editors and publishers to defend it.

It is to be remembered that if the other states of the Union would insist on the Wisconsin standard of truthfulness in the labeling of food products, those manufacturers who fail to recognize honesty as a moral obligation would be brought to acknowledge it as a legal necessity.

In summing up its case against the Badger state's pure food law, *Leslie's Weekly* asks: "What's the matter with Wisconsin?" To answer this question in part, it might be said that there are three things, in particular:

8. Wilson and MacCarty: *Am. Jour. Med. Sc.*, 1909, cxxxviii, 846.
1. *THE JOURNAL A. M. A.*, July 2, 1910, p. 33.

2. See editorial published in *THE JOURNAL A. M. A.*, July 6, 1907, p. 48.

First, Wisconsin has a pure food law that is designed to protect the public; second, it has a food commissioner who believes that this law should be enforced and who enforces it, and third, it has a supreme court which interprets the law in the interests of the public instead of for the benefit of the glucose trust. For all of which the state is to be complimented, the protests of *Leslie's Weekly*, the jobbing grocers, and a venal press, to the contrary, notwithstanding. "What's the matter with Wisconsin?" Wisconsin's all right!

SAND-FLY TRANSMISSION OF PELLAGRA

On behalf of the Pellagra Investigation Committee¹ Dr Sambon recently visited the Italian provinces of Bergamo, Milan, Brescia, Padova, Rome and Perugia, and reports that in no instance in which he came in contact with the disease did he find evidence that maize was a causal factor. Endemic centers have existed in these provinces for over a hundred years. It does not occur in the towns, but only in certain parts of the rural districts where a sand-fly is found. No actual parasite was discovered but the geographical distribution and general resemblance of the disease to other protozoal infections pointed strongly to this sand-fly origin. A parallelism is suggested between pellagra and yellow fever, the parasite of which has never yet been discovered, though its insect-borne nature is no longer denied.

Dr. Sambon asserts that he proved to his satisfaction, (1) that the endemic centers of pellagra in Italy have remained the same since the disease was first described; (2) that the season of recurrence of pellagra coincides with the season of the appearance of the full-fledged sand-fly, even to the extent that if the spring is early or late, the sand-fly is early or late in appearing, and pellagra cases are correspondingly early or late in their appearance; (3) that in centers of pellagra infection whole families are attacked at times simultaneously; (4) that in non-pellagrous districts the disease never spreads to others with the advent of a pellagrin from a pellagrous district; (5) that in the case of a family which has moved from a pellagrous to a non-pellagrous district, the children born in the former are pellagrins, while the children born subsequent to removal to a non-pellagrous district do not develop the disease; (6) that the disease is not hereditary, although infants a few months old may become infected, especially if taken to the fields in pellagrous districts, where their mothers work during the season when sand-flies are in evidence; (7) that pellagra is not contagious, but is transmitted to each individual by an infected sand-fly.

The evidence on which Sambon supports his views is strong, but more will be required to satisfy the profession that this covers the whole case. For example, it is necessary to know whether or not the species of sand-fly

which Sambon considered the conveyor of the infection, or one closely enough allied to it to be similarly credited with carrying the disease, exists in this country; and if so, whether or not the occurrence of pellagra here corresponds with the distribution of this sand-fly.

Current Comment

CONSISTENCY

Medical journals in their attitude toward the American Medical Association's campaign in the interests of cleaner and saner drug therapy may be grouped in one of three classes: first, those whose editors and publishers are not in sympathy with the propaganda for reform and whose editorial and advertising pages show that "anything goes" in the way of proprietary medicines; second, those whose editors and publishers both are in hearty accord with the fight for cleaner therapeutics and whose pages—editorial and advertising—reflect the attitude of the men in charge; third, those whose editors favor the propaganda for reform but whose business managers or publishers will have none of it. The inconsistency of this last class of journals does more harm to the cause so half-heartedly espoused than does the frank opposition of those whose attitude is avowedly unfriendly. An example of this journalistic anomaly is described in the current issue of *Colorado Medicine*—a medical journal, by the way, whose pages are clean from cover to cover. Says the editor:

In the October number of the *Vermont Medical Monthly*, the official organ of [but not owned by] the state society, appears the annual address of the president, Dr. Walter B. Hayden. Reviewing the progress of medicine during the past decade, he enumerates among other things the great service of the Council on Pharmacy and Chemistry in exposing fraudulent proprietary medicines, quacks and fraudulent institutions.

"It is unfortunate," he says, "that a credulous public does not recognize the faker, nor realize the danger of his nostrums; it is equally unfortunate that a careless profession does not expose the faker and reveal the worthlessness of his mixtures. . . . Can we not lend a hand in this modern crusade?"

Dr. Hayden, we can and will. Sir, we are with you heart and soul. The medical profession of Colorado reaches out a hand, and pats you on the back. You can count on us to the last drop of blood. If there is one thing that stirs our nature to its vasty deeps it is a gallant battle for the right. But, stay! What is this that confronts us in your advertising columns? Why, no others than our old friends, Fellows' Syrup of Hypophosphites, California Fig Syrup, Gray's Glycerin Tonic Comp., Sal Hepatica, Ergoapiol, Glycothymoline, Katharmon, Hayden's Viburnum Compound and, last of all, Pepto-Mangan (Gude). We don't mind the smell, Dr. Hayden, but it hurts our eyes. If the good old puritanical New England conscience can stand such company in its battle for the right, count us out.

Well said, and timely. Hybrids are unlovely things, even in medical journals. One can at least admire the consistency—whatever may be thought of the morals—of those journals which frankly sell both advertising and editorial pages to the proprietary interests. But those publications which are "neither fish, flesh, nor fowl nor good red herring" are apt to inspire in one a feeling far removed from confidence or respect.

¹ *Nature*, Oct. 17, 1910; and *Pollidalec*, Rome, June 19, 1910, abstracted in *THE JOURNAL*, July 23, 1910, p. 361.

RED CROSS SEALS

Three years ago, the National Association for the Study and Prevention of Tuberculosis adopted the plan of raising money by the attractive method of selling Red Cross stamps during and preceding the Christmas holidays. The plan worked out beautifully and resulted in good financial returns. It was followed again last year, and will also be used this year. On account of the occasional inadvertent use of Red Cross stamps in place of postage stamps, the name has been changed this year to Red Cross seals.¹ The Post-Office Department has given permission for their sale in all post-offices, and they may be purchased in various other public places in every state.² For this season the ambition of the promoters is the sale of one hundred million seals. This ought to be accomplished, and will be if the public can be aroused; it is merely a mite for the many. The good done with the money raised by this means is only one of the benefits to be gained. A no less important good result will be the calling of the attention of millions to the fact that there is a great white plague, and, moreover, that tremendous efforts are being made to get rid of it. Thus, it will not only enlist the sympathy and support of those who are already interested in the movement, but also the interest and support of those who have never given the matter any thought whatever. It will fix the attention of the whole public on the work, and from an educational viewpoint will be of immense importance. To repeat, the idea is a beautiful and a noble one, and should be encouraged. Undoubtedly physicians will realize their opportunity, and will cooperate in every way in encouraging the sale of these Red Cross seals.

EDUCATION BY PICTURES

Lantern-slides, illustrating the anatomy and life-history of the hookworm and the methods of preventing hookworm disease, have been prepared³ by the Hygienic Laboratory of the United States Public Health and Marine-Hospital Service, to be loaned to medical societies, colleges, school-teachers' associations, women's clubs and other organizations interested in public health work. The moving-picture show, as a means of teaching the dangers of impure milk, has already been commented on.⁴ The Edison Manufacturing Company, of Orange, N. J., has just announced the preparation of a new film of educational value, which has been produced in cooperation with the National Association for the Study and Prevention of Tuberculosis and the American National Red Cross. This film is entitled "The Red Cross Seal" and shows graphically the actual conditions that breed tuberculosis, the work of the district nurses, of the open-air camp, and of the Tuberculosis Association and the life of the tenement house district. The possibilities of such means of educating the public are practically unlimited. "Men are but children of a

1. The seal is illustrated in the department of General News in this issue.

2. Seals may be obtained in quantities from all state Red Cross offices, from most state tuberculosis societies, or from the National Association for the Study and Prevention of Tuberculosis, 105 East Twenty-Second Street, New York.

3. As further explained in General News, this issue.

4. The Drama of Sanitation, THE JOURNAL A. M. A., Aug. 13, 1910, p. 602.

larger growth." Modern psychology has clearly demonstrated that the impression made by the picture is much more forcible and lasting than that produced by the spoken word or the printed page.

POLIOMYELITIS IN CUBA

The occurrence in 1909 of an epidemic of 140 cases of poliomyelitis in one province in Cuba, with smaller epidemics in others, has demonstrated that geographic situation is a factor of secondary importance in the distribution of the disease. In most descriptions of the affection it has been called a disease of temperate or cold climates, but the incidence of epidemics in Cuba shows that the tropics are not exempt. In a study of the epidemiology of the disease in Cuba, Lebredo and Recio¹ find that the special biologic conditions necessary for the life of the infectious agent are not modified in the tropics, and that it occurs in the same summer months as in the more northern countries, beginning in May or June, becoming intense in August and September, decreasing in October and becoming rare in November. The disease had not heretofore existed in epidemic form in Cuba, and the uniform manner of its appearance and evolution led Lebredo and Recio to conclude that all cases constituted a single epidemic group. A map of the affected district showed its special dissemination along the railroad line. In endeavoring to establish the origin of the epidemic the investigators were led to believe that since this epidemic followed so closely the extensive epidemic in the United States, in 1907 and 1908, particularly in New York City, with which port Cuba has extensive commercial and other relations, they were justified in assuming that the Cuban epidemic originated from that in the United States.

STREET ACCIDENTS IN LONDON

We in this country are reputed to hold life cheaply and to be more careless than Europeans in safeguarding life and limb in street traffic in large cities, in industrial establishments and on transportation systems. This may be true, but the fact must not be overlooked that street traffic in London, though admitted to be handled better than in any other large city, is far from being free from accidents. This is apparent from the statistical report of the London County Council. There it is stated that 17,000 persons were injured in 1908 by street accidents within the metropolitan police district, and that 326 were killed outright. Advances in civilization and multiplication of conveniences and luxuries have their accompanying penalties. Motor vehicles, including motorcycles, caused 6,300 of the accidents and 159 of the deaths, motorcycles being chargeable with two of the deaths. It will thus be seen that this country has no monopoly of reckless drivers of motor and other vehicles, and also that a certain number of accidents will inevitably happen in the crowded centers of population with their tremendous street traffic, despite the employment of almost any degree of human care and foresight.

1. Lebredo, M. G., and Recio, M.: Acute Anterior Poliomyelitis: Cuban Epidemic of 1909, *Sanidad y Beneficencia*, 1910, iv, 328.

Medical News

CALIFORNIA

Nurses Avert Panic.—The intrepidity and quick action on the part of the nurses of the Naueheim Hospital, Oakland, averted a panic, when the oil tank and water tower of the hospital were destroyed by fire recently. The patients were removed without casualty.

Hospital Association Election.—The board of directors of Santa Ana Hospital Association have organized and elected the following officers: president, Dr. Charles D. Ball; vice-president, J. M. Raugh; secretary, Dr. Howard S. Gordon, and member of the board of control, Dr. John Wehrly.

Care for Tuberculosis Patients.—A tract of 40 acres of the Tokayana ranch near Colfax has been purchased and will soon be occupied by a colony of tuberculosis patients. Forty cottages are being erected, and it is expected that 100 more will be built later on. This will be known as the Tate Colony and will be under the charge of Dr. Robert A. Peers, Colfax. —The Supreme Court of the Independent Order of Foresters has purchased 40 acres of land in Lopez Canon near San Fernando as a site for a sanatorium for tuberculosis patients who are members of the order. It is expected the new institution will be ready for operation January 1.

Personal.—Dr. Henry D. Brusco, San Francisco, has been appointed a member of the board of health, vice Dr. Thomas B. Roche, resigned.—Dr. Oscar Stansbury, Chico, a member of the State Board of Health, has been granted a six-weeks' leave of absence, and will represent the board in making observations of the sanitary conditions in the Canal Zone and Cuba.—Dr. Charles H. Rowe has been appointed a member of the board of health of Oakland, vice Dr. Alonzo S. Larkey.—Dr. Chester W. Bryant, Redding, was seriously injured by being thrown from his carriage near Ingar recently.—Dr. E. Jamieson, Grass Valley, announces his intention to retire.—In the case of Robert Thompson, alias James Grant, San Francisco, charged with the murder of Eva Swan by a criminal operation, the jury is said to have returned a verdict of murder in the second degree, November 4.

ILLINOIS

Personal.—Dr. William M. Harsha, Chicago, has been appointed a member of the surgical staff of St. Luke's Hospital.—Dr. James W. DuComb, Beckemeyer, has been appointed a member of the board of pension examiners of Clinton County, vice Dr. Thomas E. Alsop, deceased.

State Board Convictions. The secretary of the Illinois State Board of Health reports that Walter Vogel, a "chiropractor," was found guilty November 18, of practicing medicine without a license. The trial took place at Savanna before the Carroll County Circuit Court, and a fine of \$200 was imposed. This is the third judgment against Vogel, making a total of \$500 in fines assessed against him.—The secretary also reports the conviction on November 17, of Minnie Meyer, a fortune teller located at 2142 W. Harrison Street, Chicago, for practicing medicine without a license. This case was heard in the Municipal Court of Chicago and the evidence disclosed that the fortune teller had given medicine to women to produce abortions. The trial judge, Hon. John G. Seovel, instructed the attorney for the state board to call the attention of the state's attorney of Cook County to the evidence as submitted, as a basis for criminal prosecution.—Nathan Ginsburg, 1587 Milwaukee Avenue, Chicago, is also reported as having been convicted by a jury and fined \$100 and costs, November 14, in the Municipal Court of Chicago, for practicing medicine without a license. This man took a short course at some "optical school" and received a diploma conferring on him the degree of "doctor of optics." The testimony showed that "he had administered medicine for 'nervousness' and had used a card styling himself 'Dr. M. Ginsburg, eyesight specialist and defractionist.'"

INDIANA

Prophylaxis Against Blindness. Dr. George E. Keiper, Lafayette, chairman of the committee of the Indiana State Medical Association on Ophthalmia Neonatorum, advises that the note in THE JOURNAL, November 5, conveyed a wrong impression regarding the action of the committee. There was merely an informal meeting of three members to talk over matters that the chairman had in mind, and on which he sought advice. The committee is not yet ready to speak about the law, and

will not be ready until the representatives of all schools of medicine have discussed the matter in joint meeting. The laws adopted by several states on this subject place no responsibility at all on the physician; the responsibility rests with the midwife or nurse to report to the health officer or legally qualified practitioner within six hours after a baby's eyes become sore, that the condition exists.

MARYLAND

Personal.—The Lonaconing Board of Trade has organized with Dr. James O. Bullock as president, and Dr. Henry M. Hodgson as vice-president.—Dr. Thomas W. Koon has been appointed city physician of Cumberland.

Society Meetings.—Wicomico County Medical Society, at its annual meeting, November 17, elected the following officers: president, Dr. Louis W. Morris; vice-president, Dr. J. McFadden Dick; secretary, Dr. Harry S. Wailes; treasurer, Dr. Harry C. Tull, all of Salisbury; censors, Drs. J. H. Lynch, Quantico; Harry C. Tull, Salisbury, and John M. Elderdieck, Mandela Springs; delegate to the Medical and Chirurgical Faculty of Maryland, Dr. George W. Todd, Salisbury, and alternate, Dr. Lawrence C. Freney, Pittsville.—Frederick County Medical Society has elected the following officers: president, Dr. Charles F. Goodell, Frederick; vice-presidents, Drs. Ira J. McCurdy, Frederick, and Morris A. Birely, Thurmont; secretary, Dr. Levin West, Brunswick; censor, Dr. Alvey J. Smith, Jefferson, and delegate to the State Medical Society, Dr. Thomas C. Routson, Buckeystown.

Baltimore

Personal.—Dr. Charles W. McElfresh is holding a physicians' conference at the University of Maryland Hospital every Thursday on the various aspects of diet.—Dr. J. Frederick Adams, while riding near his suburban home, was painfully injured by an accidental gunshot wound of the hip, inflicted by a careless hunter.

MICHIGAN

New Tuberculosis Infirmary.—The board of health of Grand Rapids has decided that the new diphtheria hospital shall be converted into an infirmary for the care of tuberculosis patients.—The Chippewa County board of supervisors has appropriated \$1,700 to establish a tuberculosis hospital.

New Harper Hospital.—Ground has been broken for the new six-story surgical building of the Harper Hospital, which is to cost \$200,000 and will accommodate 200 patients. This is the first of the series of buildings of the new Harper Hospitals.

Court Decides Antituberculosis Dispute.—Judge Hosmer of the Circuit Court has decided that the incorporated society known as the Detroit Society for the Study and Prevention of Tuberculosis, must pay to the unincorporated society the \$13,500 collected on "tag-day" and the books and records of the society.

Personal.—Dr. Harry W. Bradley, Saginaw, is reported to be critically ill with typhoid fever.—Dr. William S. Connery, Saginaw, coroner of Saginaw County, was thrown from his carriage, November 12, but was not seriously injured.—Dr. Oscar Le Seure, Detroit, underwent an operation at Grace Hospital, November 12.—Dr. William E. Hake, Grand Rapids, sustained painful injuries of the leg in an automobile accident, November 8.—Dr. William H. Marshall, Boyne City, has disposed of his practice and started for Europe.

The Prevalence of Small-Pox.—Serious conditions regarding small-pox appear to exist in northern Michigan, where an aggravated type of the disease is causing anxiety to the State Health Department and local health boards. As usual the unvaccinated are the sufferers. A serious outbreak of the hemorrhagic type is reported in Saginaw, where about 200 cases have thus far been reported. During October eighteen deaths occurred, and up to November 19, twenty deaths. The authorities are taking every precaution to control the disease, and at present only a few cases are developing, and these of mild type, as a result of compulsory vaccination and revaccination of the entire population, the quarantine of infected places, and the stoppage of trains at only one station in the city, where inspectors are placed to vaccinate and disinfect every individual leaving the city. A severe outbreak of the disease is reported from the Michigan Home for the Feeble Minded, Lapeer, where twenty-six cases and seven deaths have occurred. The home is strictly quarantined and a company of the National Guard of Michigan is stationed around the home to prevent the 150 employees, who are more or less panic stricken, from leaving. The condition is improving, the situa-

tion is being well-handled and no further trouble is anticipated.

Society Meetings.—At the annual meeting of the Ingham County Medical Society held in Lansing, November 8, Dr. Orrin H. Freeland, Mason, was elected president; Dr. Louis W. Toles, vice-president; and Dr. Samuel Osborn, Lansing, secretary-treasurer.—Schoolcraft County Medical Society, at its annual meeting, elected the following officers: president, Dr. Andrew Nelson, Manistique; vice-president, Dr. Samuel S. Hackwell, Blaney; and secretary-treasurer and delegate to the State Society, Dr. George M. Livingston, Manistique.—At the annual meeting of the Eaton County Medical Society, held at Charlotte, Dr. Clarence B. Wasson of Bellevue was elected president; Dr. Flavius J. Knight, Charlotte, vice-president; Dr. Arthur H. Burleson, Olivet, secretary-treasurer; and Dr. Philip H. Quick, Olivet, delegate to the State Society.—The Tri-County Medical Society, made up of physicians of Wexford, Missaukee and Kalkaska counties, organized at Cadillac, November 4, and elected the following officers: president, Dr. Victor F. Huntley, Manton; vice-president, Dr. Raphael Brodeur, Cadillac; secretary-treasurer, Dr. Wallace J. Smith, Cadillac; delegate to the State Medical Society, Dr. Sair C. Moore, Cadillac; and alternate, Dr. Wallace J. Smith, Cadillac.—Hillsdale County Medical Society, at its annual meeting held in Jonesville, elected the following officers: Dr. E. Arthur Martindale, Hillsdale, president; Dr. Malcolm Graham, Jonesville, vice-president; and Dr. Burt F. Green, Hillsdale, secretary-treasurer.

MISSOURI

Sanitary Fountains for Schools.—Fifty sanitary drinking fountains for the Springfield public schools will soon be installed.

New Building for Sanatorium.—A new building to cost \$35,000 has been commenced at Mount Vernon Sanatorium for the treatment of tuberculosis.

State Conference of Charities.—The eleventh annual conference of State Charities and Corrections, in session at Chillicothe, November 10-12, decided on Kansas City as the place of meeting for next year, and elected Dr. Thomas Riley, St. Louis, president, and Dr. G. Wilse Robinson, Kansas City, vice-president.

Society Meets and Banquets.—At the annual meeting and banquet of Caldwell County Medical Society at Breckenridge, Dr. George S. Dowell, Braymer, was elected president; Dr. Oscar O. Meredith, Breckenridge, vice-president; Dr. George W. Goins, Breckenridge, secretary-treasurer (re-elected), and Dr. William T. Lindley, Hamilton, delegate to the state association.

Banquet to Physician.—Dr. Thomas H. Doyle, St. Joseph, former mayor and now police commissioner, was the guest of honor at a complimentary dinner, November 7, by the St. Joseph-Buchanan-Andrew County Medical Society, the occasion being his seventieth birthday. Dr. Charles R. Woodson presided as toastmaster, and Dr. James W. Hedden, on behalf of the St. Joseph-Buchanan Andrew County Medical Society, presented Dr. Doyle with a loving cup.

Personal.—Dr. Thomas B. Holder, Ash Grove, was accidentally shot in the hip while hunting near Walnut Grove, November 9.—Dr. Walter M. Cross, Kansas City, has been reappointed city chemist.—Dr. Oliver C. Gehhart, St. Joseph, major in command of the Field Hospital Corps of the Missouri National Guard, has been detailed to inspect the medical property of the state.—Fire of unknown origin destroyed the office of Dr. William L. White, Springhill, November 1.

St. Louis

Hospital Sunday Fund.—The annual report of the St. Louis Hospital Saturday and Sunday Association shows that during the past year \$46,469 was donated to the fund.

Opposes Closing of Dispensary.—Business men of South St. Louis appeared before the Hospital Board at the public hearing, November 1, and protested against the action of the board in closing the South Side Dispensary.

Hospital Staff.—The names of Drs. Bransford Lewis and Jesse S. Myer should have been given in the list of names of the Municipal Hospital staff which appeared in THE JOURNAL, November 5. Dr. George C. Crandall has been selected chairman of the visiting staff.—Dr. E. Lee Myers, senior physician of the City Hospital, has resigned.

Complete Addition to Sanatorium.—The west wing addition to the Sanatorium at the City Insane Asylum has been completed, and all insane patients housed in the infirmary have been transferred to the Sanatorium. The quarters vacated

by the insane patients will be occupied by the poor patients, hitherto cared for at the Female Hospital, and the Female Hospital will be abandoned for the present.

Vaccination Resolutions.—At a special meeting, called for the purpose, October 28 and 29, the St. Louis Medical Society adopted the following resolutions:

WHEREAS, There have recently appeared in several of the daily papers of this city, editorials and other articles decrying the practice of vaccination as useless, unscientific and dangerous, and

WHEREAS, Such editorials or articles may do great harm unless promptly answered by the medical profession, therefore, be it

Resolved, That the St. Louis Medical Society declares that vaccination, well and thoroughly done, absolutely prevents small-pox.

Resolved, That the truth of this statement is absolutely established by facts and figures.

Resolved, That the rare accidents reported as following the procedure, however deplorable in themselves, are outweighed a hundred-fold by the enormous benefits which vaccination has conferred on humanity.

Resolved, That vaccination has, since its introduction 114 years ago, saved more lives than any other single measure known to science.

Resolved, That the necessity of thorough vaccination of this community, and especially of its children, is as great to-day as ever.

Resolved, That the secretary be instructed to furnish a copy of these resolutions to each of the daily papers of this city, with the request that they be published.

NEW JERSEY

New Site for Tuberculosis Hospital.—The hospital committee of the Morristown Antituberculosis Society has selected a site for its hospital property at Morris Plains. The property has been donated to the society by Frederick Burnham.

Donation to Day Camp.—David B. Mills, Montclair, has donated \$800 to the Antituberculosis League of the Oranges, \$500 of which is to be used for the fresh-air school, and the remainder for the maintenance of the day camp for children during the winter.

Personal.—Dr. Harry H. Sherk, Camden, was seriously injured in a collision, November 3, between his automobile and a trolley car.—Dr. Frank M. Dedaker, Philadelphia, has succeeded Dr. Harry C. Fish as resident physician at the Mercer Hospital, Trenton.—Dr. Francis K. MacMurrrough, Jersey City, has moved his office to One Hundred and Forty-fifth Street and St. Nicholas Avenue, New York City.

Elect Officers.—The annual election of officers of the Washington County Medical Society resulted as follows: president, Dr. Frank P. McKinstry; vice-president, Dr. Charles M. Williams; recording secretary, Dr. Frederick J. LaRiew; corresponding secretary, Dr. Thomas S. Dedrick, all of Washington; treasurer, Dr. Edward H. Moore, Asbury; and trustees, Drs. Charles B. Smith and George C. Young, Washington, and Theodore B. Fulper, Junction.

Benefit by Open-Air Schools.—The pupils in attendance at the outdoor school opened last month by the Montclair Board of Education are already beginning to show improvement as the result of the studies in the open air. Some of the pupils have gained as much as a pound a week since the school has been in session, while only two of the twenty-two members have decreased in weight. The children who are unable to pay for transportation are furnished free transportation to the school and daily lunch is also provided.

Censure Physicians Who Leave Hospital.—The board of trustees of Mercy Hospital, Trenton, has passed resolutions holding Dr. Edward T. Craney, Philadelphia, and Harvey W. Lloyd, Shamokin, who summarily left the hospital, giving as a reason their inability to work under the superintendent, "highly censurable for their reprehensible, unprofessional and unethical conduct," and directing that the names of these individuals be entered on the minutes of the proceedings of the staff of the hospital as being recommended for dishonorable dismissal.

NEW YORK

Social Service Department Instituted.—A social service department has been instituted at the Buffalo General Hospital, in charge of Miss Lucia Stoekton, who has spent several weeks in Boston becoming acquainted with the methods in use at the Massachusetts General Hospital.

Health Conference. The tenth annual Health Conference of Sanitary Officers of the State of New York was held under the auspices of the New York State Department of Health in Buffalo, November 16 to 18. The chief subjects of discussion were "Public Health in the School," "Public Health in the Press," "The Health Department, Its Supreme Value to the People," and "Communicable Diseases." On the evening of November 17 a smoker was held at Hotel Iroquois.

New York City

Personal.—Dr. Travers R. Maxwell has been appointed assistant sanitary superintendent of Brooklyn, vice Dr. Alonzo Blauvelt.—Dr. David Edward Hoag has been elected lecturer on nervous and mental diseases in the New York Polyclinic Medical School and Hospital.

Municipal Milk Supply.—The New York Milk Committee will hold a conference December 2 and 3, to discuss more efficient ways of controlling the municipal milk supply in New York City. The work of the conference will be in four sections: "Milk Economics," "Milk Supply and Public Health," "Milk Standards," and "Milk Commissions." The meetings will be open to the public and the medical profession is invited to participate in the discussions. Information regarding the program will be furnished by Dr. Ira S. Wile, chairman of the conference committee, 230 W. 97th street.

Medical Sociology.—The preliminary announcement of the formation of the American Society of Medical Sociology has appeared. The object of the society is to study radically the questions of socio-medical nature, such as the need of a federal department of health; tuberculosis as an economic disease; whether there is any demonstrable relationship between the strain of our modern life and the increase of insanity; whether cancer is on the increase, and if so, what the probable etiologic factors are, etc. Dr. Abraham Jacobi is honorary president of the association, Dr. William J. Robinson, president, and Dr. A. C. Jacobson, secretary.

OHIO

Fraternity to Meet.—The fifteenth biennial convention of the Grand Chapter of the Nu Sigma Nu Medical Fraternity will open in Cleveland, November 26, with headquarters at the Hollenden.

District Society Meeting.—The seventh annual meeting of the Second Councilor District Medical Society was held in Springfield, October 25, and the following officers were elected: president, Dr. Charles L. Minor, Springfield; secretary, Dr. Henry D. Rinchart, Dayton; and treasurer, Dr. Pearl R. Madden, Xenia.

County Tuberculosis Sanatorium.—Plans are being prepared by the commissioners of Knox County for the construction of a building for the care and treatment of patients with tuberculosis. Under the new law, which goes into effect January 1, a separate building must be provided for tuberculosis patients at all county infirmaries.

Personal.—Dr. James R. Davis, Chardon, sailed for Europe November 2.—Dr. Sample B. McKerrihan has been appointed city physician of Portsmouth.—Dr. Frank E. Kitzmiller, Piqua, is ill at the Memorial Hospital.—Dr. James B. Ray, health officer of Portsmouth, has decided to retire from practice and will settle on his farm near Harrisonville.—Dr. Harry L. Connett, Dayton, has been appointed pathologist at the Athens State Hospital.—Dr. Noah Myers has been appointed a member of the board of health of Springfield, vice Dr. Ira E. Seward, resigned, to accept the position of health officer, made vacant by the resignation of Dr. Henry Baldwin.—Dr. William C. Gates, Bucyrus, was seriously injured in a collision between his automobile and an interurban car, November 5.—Dr. Frederick P. Minton, Toledo, who has been seriously ill with septicemia, is reported to be convalescent.—Drs. Warner Hopkins Tuckerman and William C. Tuckerman, Cleveland, have returned from abroad.

Cincinnati

Antispitting Ordinance Enforced.—During the last week twelve individuals were arrested by the sanitary police for violation of the antispitting ordinance.

Miami Alumni Meet.—At the annual meeting of the Miami Medical College Alumni Association the following officers were elected: president, Dr. William C. Harris; vice-presidents, Drs. Joseph E. Pirrung, William C. Herman, Frederick W. Lamb and Daniel J. Davies; and secretary-treasurer, Dr. C. J. Broeman.

Dandridge Memorial Meeting.—The Cincinnati Academy of Medicine devoted the evening of November 14 to a memorial to Dr. Nathaniel Pendleton Dandridge. The following addresses were made: "Dr. Dandridge as a Colleague," by Dr. Byron Stanton; "As a Friend," Dr. Dan Millikin, Hamilton; "As a Surgeon," Dr. John C. Oliver; "As an Executive," Dr. Asa B. Sham; "As a Staff Officer," Dr. B. Knox Ruchford; "As a Teacher," Dr. Julius H. Eichberg, and "As an Adviser," Dr. Christian R. Holmes.

Personal.—Dr. Jacob L. Tuechter has been appointed clinic director of the Cincinnati Antituberculosis League. He began

his work November 11, and is on duty every day from 12 to 2, and on Monday and Thursday evening from 7 to 8. He is assisted in his work by the following volunteer staff: Drs. William H. Strietmann, Charles E. Iliif, Arthur J. Light, Marcus E. Wilson, Oscar Berghausen, Edith Smith, J. Emmitt Fayen, Edw. D. Allgaier, John R. Meek and A. G. Hufmann.—Dr. Charles L. Bonifield has been appointed a member of the board of medical directors of the Cincinnati Hospital, vice Dr. N. Pendleton Dandridge.—Dr. Joseph W. Dodds, assistant health officer of Cincinnati, has resigned.—Dr. Edward H. Thompson, who was recently operated on for appendicitis, is reported to be convalescent.

Asks Injunction in Milk Case.—The Milk Commission of the Cincinnati Academy of Medicine is said to have filed suit in the Common Pleas Court to enjoin Charles I. West & Son from using parchment seals on their milk bottles and from advertising that they are selling certified and inspected milk. The commission claims that its object is the improvement of the milk supply in this city and that it has adopted two standards, "certified" and "inspected," which denote the amount of bacteria contained, and these labels are allowed only after the milk commission has made an inspection and passed on the condition of the dairies and cows and the method of handling milk, the expert work being in charge of the experts of the Bureau of Animal Industry of the federal Department of Agriculture. The commission claims that the defendant company has been using the labels and advertisements since October 1 last.

PENNSYLVANIA

Medical Library Started.—Dr. John S. Van Voorhis, Belle Vernon, the only living charter member of Fayette County Medical Society, has started a movement for the establishment of a society library by donating seventy volumes.

Hospital Reopened.—St. Margaret's Memorial Hospital, Pittsburg, which has been closed for several years, has been newly equipped and was opened for public inspection, October 1. The medical staff consists of Drs. Percival J. Eaton, Elwood B. Haworth, Sydney A. Chalfant, Evan W. Meredith, William C. White, William W. Blair, and William P. Barn-dollar.

Philadelphia

Pennsylvania Seniors to Edit a Medical Record.—The senior class of the medical department of the University of Pennsylvania will edit a medical record to be known as *Scope*.

Candy Men Attack Pure Food Statute.—Counsel representing twelve manufacturers, attacked the constitutionality of the Pennsylvania pure food act of May, 1909, in argument before Judges Buffington, Lanning and McPherson in United States Circuit Court. It was the complaint of the dairy and food commissioner Faust and his agent Harry P. Cassidy, that the defendants used sulphur dioxide. To this the candy manufacturers replied that sulphur dioxide is used in small quantities only, but is permitted in far greater quantities in molasses and dried fruits, therefore the act discriminates against the confectionery trade and is contrary to the constitution.

GENERAL NEWS

Interstate Physicians Meet.—The annual meeting of the Marinette (Wis.) and Menominee (Mich.) Medical Society was held in Marinette, November 9, and the following officers elected: president, Dr. Henry F. Schroeder; vice-president, Dr. Simon Berglund, and secretary-treasurer, Dr. Sherman E. Wright, all of Marinette.—The forty-second semi-annual meeting of Union District Medical Association was held at Oxford (Ohio) Retreat, October 27. Dr. R. Harvey Cook, Oxford, was elected president, and Dr. Pearl M. Sater, Hamilton, was reelected secretary. The next meeting will be held in Richmond, Ind., in April.

Canal Zone Sanitation.—The report of the chief sanitary officer of the Isthmian Canal Zone Commission for September shows that during the month forty-eight deaths of employees occurred, thirty-three of which were from disease, and fifteen for external causes, equivalent to an annual mortality of 11.47 per 1,000. The death rates for Septembers of previous years were as follows: 1909, 12.76; 1908, 12.78; 1907, 26.83; 1906, 57.34 (in this year there was an epidemic of pneumonia among the employees); 1905, 32; and 1904, 14.31. Of the deaths from disease during the month, pneumonia caused six; malarial fever, four; pulmonary tuberculosis, three, and typhoid fever, two. No case of yellow fever, small-pox, or plague was brought to or originated on the isthmus during the month.

Hookworm Slides Available.—In a circular letter from the Hygienic Laboratory of the United States Public Health & Marine Hospital Service at Washington, Dr. C. W. Stiles announces that the demand for lantern slides to illustrate the anatomy and life history of the hookworm and the methods of preventing hookworm disease has increased to such an extent as to make it necessary to prepare a number of extra sets of slides. These will be loaned to medical societies, colleges, teachers' associations, women's clubs and other organizations that may desire to use them on condition that all requests for their use be sent through the secretary of the state board of health and that the slides be returned express prepaid immediately following their use. Preference will be shown to societies and institutions located in hookworm-infected states.

Surgeons Organize Congress.—The Clinical Congress of the Surgeons of North America was organized at the Hotel La Salle, Chicago, November 17, the initial membership being made up of the surgeons in attendance at the series of clinics. It is proposed to continue these clinical reunions year by year in one of the large cities of the country. Membership is made up of surgeons who register at the regular sessions of the congress. The following officers were elected: president, Dr. Albert J. Oschner, Chicago; vice-president, Dr. John G. Clark, Philadelphia; editor and general secretary, Dr. Franklin H. Martin, Chicago; treasurer, Dr. Allen B. Kanavel, Chicago, and general manager, Mr. A. D. Ballou, Chicago.

Red Cross Seals.—The Christmas seals of the National Association for the Study and Prevention of Tuberculosis



1910 Seal

will be on sale all over the United States in postoffices and elsewhere in a few days and throughout the holiday season. We show the design of this year's seal on the left and last year's stamp on the right. The actual seals are in red and green and are very



1909 Stamp

attractive for fastening gifts and embellishing letters, etc. The proceeds of the sale go to the above-mentioned association for its work against the great white plague. All possible publicity is being given to the sale, and, in many cases, physicians are taking the lead in seeing that the seals are on sale in their several communities, and that the public is informed through the local newspapers. The subject is further spoken of in the Editorial Department in this issue.

Infant Mortality Prevention.—The first annual meeting of the American Association for Study and Prevention of Infant Mortality took place at McCoy Hall, Johns Hopkins University, Baltimore, Nov. 9-11. An exhibition was held in connection which remained open until November 16. The meeting and exhibition attracted a representative attendance of physicians, sanitarians, trained nurses and social workers from the United States and Canada. Resolutions were adopted committing the association to a campaign in the interest of birth registration; encouraging the promotion of undertakings for the prevention of disease in rural communities; urging more practical instruction in the subject of hygiene in normal schools; and in other training schools for teachers, and advocating the establishment of a national department of health. The subject discussed at the opening session was "The Duty of a Nation to Its Potential Citizens." Dr. J. H. Mason Knox, Jr., President, 1909-1910, presided, and Cardinal Gibbons pronounced the invocation. The speakers were M. Jusserand, French Ambassador to the United States; Dr. Abram Jacobi, New York; Professor Irving Fisher, of Yale University, and Dr. William H. Welch, of Baltimore. The other sessions were presided over as follows: Philanthropic Prevention; Dr. Hastings H. Hart, of the Russell Sage Foundation, New York; Municipal, State and Federal Prevention, Dr. William H. Welch; Medical Prevention, Dr. L. Emmet Holt, New York, and Educational Prevention, Dr. Helen C. Putnam, of Providence. The list of officers was published in THE JOURNAL of November 19, page 1819. The American Association for Study and Prevention of Infant Mortality was organized at New Haven, one year ago, following the conference called by the American Academy of Medicine on the Prevention of Infant Mortality. The association closes its first year with a membership of over five hundred. The enrolment is distributed throughout thirty-five states. Thirty-two societies have entered into affiliated relations with the association. The headquarters are at the Medical and Chirurgical Faculty Building, 1211 Cathedral Street, Baltimore, and Miss Gertrude B. Knapp is the executive secretary.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Nov. 12, 1910.

A Home Hospital

Patients who require hospital treatment in London may be divided into two classes—the poor, who are admitted into the hospitals where they are treated gratuitously, and the rich, who go into nursing homes. The latter are private enterprises in which the total expenses may amount to \$1,000 or \$1,500. Now, there are many patients who cannot be classed as poor, but who cannot pay these charges, and these, though able and willing to pay moderate charges, are driven into the hospitals to become recipients of charity intended only for the poor. A movement is now on foot in London to remedy this evil. The Westminster Division of the British Medical Association proposes to build a small hospital containing forty beds, equipped in the most modern fashion to accommodate patients at a varying scale of fees. There will be no regular staff, but each patient will be attended by his own physician, who can call in any assistance he may require. The cost of the undertaking is estimated at \$60,000. The institution will be entirely controlled by physicians, with perhaps the assistance of one or two business men. The scheme, if successful, will probably lead to the establishment of similar institutions throughout the country.

Food Requirements

A very careful series of observations of the dietary of the Bengalis has been made by Captain D. McCay of the Indian Medical Service, and is interesting in connection with the revolutionary doctrine of Professor Chittenden as to the small amount of protein necessary for man. The subjects belonged to various classes, whose protein metabolism amounted to 0.113 gm. of nitrogen per kilogram of body weight per day. Professor Chittenden states that "a daily metabolism of 0.1 to 0.12 gm. of nitrogen per kilogram of body weight is quite adequate for physiologic needs, provided a sufficient amount of non-nitrogenous food is taken to meet the energy requirements of the body." In the Bengalis we have a whole race who for centuries have lived on the dietetic system advocated by the American professor. Their physical development does not support his contention. Captain McCay finds that the Bengali is 25 per cent. lighter than the average European and has a smaller chest measurement, though of much the same stature. His blood also contains 25 per cent. less hemoglobin and its pressure is 25 per cent. less than that of the European. Compared with Anglo-Indian and Eurasian students, Bengali students show no progress in physical development during their period of study between the ages of 16 and 20, though they all live in similar surroundings and differ mainly in the fact that they consume about 0.11 gm. of nitrogen per kilogram of body weight less as against 0.19 of the two former classes. In physical endurance and activity the Bengali laborer is much inferior to the European. In Calcutta insurance offices rate all Bengali lives as five years worse than European, and one large office will accept the policies of only well-educated Bengalis of the higher castes, and even then not beyond the ages of 35 to 38.

Plague in England

In my last letter to THE JOURNAL [November 19, p. 1820] the epizootic of plague among rats in Suffolk was reported. United action is being taken by the various local health authorities around Ipswich (the capital of the county) in the destruction of rats. Not only in the affected district is this being done, but precautions are being taken in the adjacent districts to prevent the spread of the disease to them. The peninsula-shaped district lying between the rivers Orwell and Stour, in which the disease first appeared, is being systematically scoured for rats. As hares and rabbits have also been found dead from the disease, these animals and other game from the affected district are no longer being eaten. Two ferrets have died from plague after eating a dead rabbit, and a warning has been issued not to feed them on rabbits. Vegetable growers in the affected district are incurring serious losses, as they cannot sell their produce. In London special precautions against the introduction of plague are being taken. Rats dead from the disease have been found in the docks. Last month 3,095 rats were destroyed in vessels and dock warehouses, making a total of 640,619 exterminated since the work of destruction was systematically begun in 1901.

The Employment of the Tuberculous

The employment of persons who have recovered from tuberculosis often furnishes a more difficult problem than their treatment. The occupation which was followed before the onset of the disease has frequently been unhealthful, and to return to it means to court a relapse, while the pecuniary loss in learning a new trade may be more than the patient can stand. A large number of representatives of hospitals for consumption, sanatoriums and health societies attended a conference arranged by the Charity Organization Society to discuss the after-care and employment of consumptives discharged from sanatoriums. Dr. Jane Walker, a sanatorium superintendent, said that the best trade for a discharged tuberculous patient was, with few exceptions, his old one, for thereby most money could be made, and anxiety, that potent factor in consumption, was minimized. Indeed, an unsuitable occupation with plenty of money coming in was better than an ideal one with very little coming in. However well a patient might be on leaving a sanatorium, he wanted careful watching for two years after leaving. If he had no work and his food was insufficient, he was almost certain to lose ground. No patient should be discharged from a sanatorium unless he had a friend in the neighborhood to which he was going. Dr. Burton Fannin, another sanatorium superintendent, gave an interesting analysis of the after-history of 306 patients with mild cases. Sixty per cent. went back to their former work; 31 per cent. to new work, and only 8 per cent. could find no work. Of those who went to outdoor work, 76 per cent. kept well, 12 per cent. fairly well, and 10 per cent. became worse. Of those who had taken indoor work, 73 per cent. were in good health, 11 per cent. were fairly well, and 15 per cent. became worse. There was, therefore, but little difference between outdoor and indoor employments.

The Care of the Epileptic and Feeble-Minded

At a conference of poor-law authorities on the subject, Dr. Jordan, medical officer of the Moryhill Colony for Epileptics and Feeble-Minded, gave an account of the work which had been done and the results achieved at the colony since it was opened in March, 1908. As a result of the training and treatment, the inmates had not only in many cases fewer fits, the feeble-minded were not only merely less feeble-minded, but they were nearly all better men and women than when admitted. The agencies of improvement were (1) work, (2) recreations and amusements, (3) education, mental and physical, (4) medical treatment. Dr. Jordan recommended that all feeble-minded persons should be removed from the work-houses and poorer private homes to institutions in which they could be properly trained. Perhaps the policy would be adopted in the future of confining all sane epileptics and feeble-minded persons in industrial colonies where the sexes could be separate after childhood.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, NOV. 3, 1910.

Personals

Professor Wenekebach, of Groningen, has declined a call to Marburg as director of the medical clinic.

Professor v. Leube celebrated his twenty-fifth anniversary as regular professor on the Würzburg faculty October 31; on this occasion he was given the title of Excellency.

Centennial of the Leipsic University Gynecologic Clinic

The university gynecologic clinic of Leipsic celebrated its centennial October 30. The director of the institute, Professor Zweifel, was appointed privy counselor on this occasion. In addition, the city of Leipsic endowed two beds in the institution for needy lying-in women.

Bacteriologic Laboratories in Bavaria

Laboratories for bacteriologic investigation have been established in Munich, Erlangen and Würzburg in connection with the universities. These institutions are to undertake investigations and make reports on bacteriologic questions for public officials and institutions and licensed physicians. The fee for examination is 50 cents (2 marks) for microscopic search for disease germs (tubercle bacilli, etc.); \$1 (4 marks) for microscopic and cultural investigation of blood, etc., for disease germs; \$2 (8 marks) for the more difficult cultural investigations of excreta (e. g., in typhoid); and \$1.50 (6 marks) for the serum test for syphilis. If animal experiments are necessary, the fees are higher, as also for extensive reports.

Infectious Diseases in Prussia in 1908

According to the official report recently published, the deaths from influenza for 1908 were nearly twice as high as the previous year, being 2.29 per 10,000 living against 1.45 for 1907. Influenza was most prevalent in the three first months of the year. Of 8,824 deaths, 5,532 were over 60. In sixteen districts the disease was epidemic. The epidemic character was marked in boarding schools and college dormitories. The prevalence and mortality of cholera morbus was also greater than in the previous year. The mortality amounted to 26.454, or 6.8 per 10,000 living. In the first year of life it amounted to 218.65 per 10,000 living. These children were nearly all artificially fed. The mortality was much smaller in the country than in the cities.

The morbidity and mortality from typhoid for 1908 was smaller than in the previous year in accordance with the steady decrease of the last decade; it amounted to only 0.54 per 10,000 living. By bacteriologic examination, numerous bacilli-carriers were discovered. In the spread of typhoid, the transmission from person to person played the greatest rôle. There were only 390 cases of small-pox in the entire year, with sixty-one deaths, and all the cases could be referred to infection introduced from Russia.

In the general hospitals of Prussia, 22,418 persons (13,486 men and 8,932 women) were treated for gonorrhœa; 23,909 persons (14,703 men and 9,206 women) for syphilis and chancreoid—a total of 12.04 cases of venereal disease for 10,000 inhabitants. From puerperal fever 3,899 mothers died, 1,757 in cities, 2,142 in country districts. For 10,000 living of the female sex, two died of puerperal fever, or 30.2 for every 10,000 deliveries.

The mortality from diphtheria and croup was 9.797, 2.55 per 10,000 living; this figure is a little higher than in the previous year, but relatively lower than in all other previous years (1898: 5.56 per 10,000). There were 74,000 cases of the disease reported. From scarlet fever 8,482 persons died, 2.2 per 10,000; 84,000 cases were reported; from measles and rôtheln, 7,359 died, 1.92 per 10,000, and from whooping-cough 10,672, 2.77 per 10,000.

Robert Koch on the Epidemiology of Tuberculosis

The last article by Robert Koch has just appeared in the *Zeitschrift für Hygiene*. It is an address on the epidemiology of tuberculosis which he delivered in the Academy of Sciences. He discussed in particular the question to what the reduction in mortality from pulmonary tuberculosis in the various countries is to be attributed. As the reduction in mortality is not uniform, different causes must be responsible in different places; a reduction of virulence is not to be assumed. The decrease of consumption since the discovery of the tubercle bacillus is explained by many by the fact that in consequence of the recognition of the infectious character of tuberculosis, men are more careful to avoid the possibility of infection. While this explanation has much to its credit, it must not be regarded as a complete one. The claim put forth by German authors that social legislation, particularly insurance against illness, has caused a decrease of tuberculosis, is valid also to a certain degree. But the reduction of the mortality rate has been observed also in most other countries where laws of this sort have not yet been introduced.

In his opinion, sanatorium treatment and hospitalization of tuberculous individuals are the main factors in the reduction. Where institutional care has been most readily available, the morbidity and mortality from tuberculosis have been reduced to the greatest extent, and *vice versa*. To this Koch, like Newsholme, ascribes the facts that in England and Scotland the mortality has decreased, while in Ireland it has risen; that in Norway the mortality has increased and that it is remarkably high in Paris.

Of scarcely less importance is another factor, namely, the housing conditions. The smaller the dwelling the more infection is favored, and in this respect especially an insufficient provision for bed room is dangerous. The fact that cities with us have frequently a smaller tuberculosis mortality than the neighboring country is to be referred first to the lack of hospitals, but, secondly, to the custom of the country population to choose the poorest and smallest room in the house as the sleeping room. According to Kayserling, of the consumptives who died in their own home, 40.6 per cent. occupied one-room dwellings, 41.7 per cent. two-room dwellings. In Berlin in the course of three years more than 8,000 persons were exposed to infection by the consumptives who died in one-room dwellings.

Epidemiologic studies of this sort can be carried out only on the basis of extensive mortality statistics, which must include

exact details. When the mortality curve for a larger or smaller district is rising or does not show a decline, investigation should be made to learn whether the measures adopted are effective or should be improved or supplemented. In Norway, for instance, the course of the curve for pulmonary tuberculosis instigated the building of more sanatoriums and hospitals, and in this way a reduction of the curve was brought about.

Localization of Brain Functions

At the Königsberg Naturforscher assembly, v. Monakow, the neurologist of Zurich, delivered a very interesting address on our present knowledge of the localization of brain functions. Monakow especially opposes the common view, both of clinicians and physiologists, according to which the higher psychic functions and psychologic conceptions which arise from self-contemplation are referred to circumscribed parts of the cortex without any analysis into their physiologic constituents. He makes the claim that before the question of localization is raised, it must be determined what can be localized and what can not. It is not correct to conclude from the symptoms which arise after a local lesion of the brain that all the functions which appear to be disturbed are localized in this part of the brain and only in this. The localization of the symptoms must not be confused with the localization of the function. In every local lesion of the brain (whether in animal experimentation or at the sick bed) two classes of symptoms may be distinguished: 1. The residuary which depend on the lack of function of the injured part. They are more or less of an elementary nature and apply especially to the reflexes. They are constant for a definite area. 2. The temporary; these differ according to the nature of the lesion and whether the affected brain is healthy or is diseased or exhausted. They are as a rule, temporary and usually completely disappear although after varying lengths of time. Opinions still vary as to how these disturbances, which in Monakow's opinion are not to be explained by the localization of the foci, are to be regarded and especially how their disappearance is to be regarded.

Monakow rejects the view commonly assumed at present, according to which the restoration of a function is due to its vicarious assumption by another part of the brain in place of the destroyed center (in the sense that the other parts take up the task of the destroyed part in addition to their own function). According to his view the restoration of the function destroyed at the beginning depends on the disappearance of the diaschisis. By diaschisis he means a form of shock essentially similar to other kinds of shock (psychic shock, surgical shock, apoplexy) from which it is distinguished only by the manner of its development (a division of the function into the individual constituents by the removal of a directing, combining link) and further by the fact that it is to a peculiar degree selective and in its propagation follows the line of the anatomical fibers. If from a reflex are extending over the entire cortex and the subcortical portions of the cerebrum, and consisting of a number of members acting partly synchronously and partly successively, one of the links is destroyed by a local lesion, the other members even if they are anatomically intact may be inhibited in their function and this so much the more if the lesion affect a brain which is weakened by pathologic processes or imperfect nutrition. Under such conditions the diaschisis may only imperfectly regress or may become permanent, but, as is shown by animal experimentation, surgical operations, etc., it is usually a transitory phenomenon. The anatomically intact members of the reflex are resume their activity and learn to dispense with the cooperation of the destroyed member, so that at most certain disturbances of function result, disturbances which are represented by the residuary symptoms.

To learn the function of the definite portion of brain we must study the residuary symptoms; but for a rational localization of the function, the study of the diaschisis, its appearance and retrogression is indispensable. In the localization of function, it must be particularly kept in mind how various are the individual nervous actions in character and structure and how little we are able to analyze and group nervous functions according to their physiologic factors. Even the simpler nervous activities can be localized only according to their components and not as entities. In order to be able to understand the complicated structure of functions, it is necessary to consider the phylogenetic and ontogenetic development of the central nervous system with reference to the function of its individual component systems. The simplest form of the central nervous system (in the

invertebrates) is represented by the ganglion system. With this is associated in the next higher stage the metameric system (lower vertebrates), then the midbrain system (bony fishes), and finally the cerebral cortex system (first in reptiles). In such a way the next higher system is always differentiated from the previous one (and this, indeed, occurs from the frontal end). Parallel with this development runs the finer structure of the organs of the body, of the muscles, the differentiation of organs of special sense, the development of the limbs, the appearance of constantly more complicated and purposive movement and the influence on action of individual experiences from combined impressions on the memory. In the coordinated movements and the sense perception of the higher animals all divisions of the central nervous system participate in common, but in a different way. In these phenomena the cortical system not only assumes the controlling rôle but cooperates with the phylogenetically older systems in relatively elementary actions, at least in the sense that it assumes the more specialized and later acquired components. In locomotion, for instance, the metameric (spinal) system furnishes the foundation for movement in the form of the movements of the legs as they follow each other, the cerebellum provides the factors for maintaining equilibrium in rest and in movement as well as the unconscious finer regulation, the midbrain provides the connection between the individual action of the spinal segments and the cerebrum finally assumes initiation of the movement and the superintendence of it as a whole and especially the spatial direction, particularly with reference to the direction of the walk and its goal and in addition the finer adaptations of the feet to the condition of the ground.

In all accomplishments, furthermore, the chronologic factor, that is, the successive in addition to the coincident, must be taken into consideration to a great degree, the more highly developed the activities, the more the merely local factor is subordinated to the chronologic. Each function consists of synchronous and successive individual actions. In a narrowly circumscribed part of the brain only synchronous activities can be localized. The change of activity, the substitution of one activity by another, and in short the succession of functions in time evidently cannot be sharply localized. The higher the entire activity the more the chronologic factor comes to the front and in the highest, the psychic function, in the enormous predominance of the chronologic factors and in consideration of the fact that continually the same neurons are employed but constantly in other combinations and groups, it is no longer possible to determine localization.

Berlin Auxiliary Schools

The Berlin public school is to undergo a complete transformation by the establishment of the so-called auxiliary schools. These auxiliary schools in future are to receive the public school children for whom systematic instruction in the ordinary schools is not successful on account of intellectual or physical defects, but who seem to be capable of instruction. The instruction in these schools is to be so arranged that the children shall either return to the ordinary school or secure in the auxiliary school such preparation for later life as is possible to them. These new schools constitute a department of the public school and are intended for children of all religious denominations. At first only one preliminary class is to be opened in each of the thirteen Berlin school districts. Further development according to the needs will be made. All such children may be received as have attended the lowest class of the ordinary schools for at least one year without success and after the close of this year remain in the lowest division of this class. This preliminary class shall be attached to an existing class of a public school for feeble-minded children. After a year's attendance on the preliminary class, children who have made little or no progress will be carefully examined to determine whether they shall be transferred to the auxiliary school or whether a further trial is to be recommended. No child shall remain longer than two years in the preliminary class. Idiotic children are to be sent to institutions for idiots. Children hard of hearing are to be transferred to a special department of the auxiliary school. The already existing special classes are to be united into an auxiliary school with five progressive classes. The children are to remain at least two years with the same teacher. As a rule it is provided that there shall be eighteen children to the class in the lower grade, twenty in the classes of the middle grade and twenty two in the upper grade with twelve in the classes for those hard of hearing. In these classes the principles of

coeducation of the sexes will be carried out. Children who are shown to be insane or epileptic will be excluded from the instruction in the auxiliary school and may be sent to public institutions or provided with private instruction at the cost of the municipality. Children with defective speech will be given special instruction.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Nov. 7, 1910.

Investigations on Occupational Diseases

In 1914 a congress on the diseases of occupation will be held in Vienna. As the managing committee consists of Viennese physicians an action has now been undertaken in this city as well as in the empire, to ascertain the conditions which tend to influence the health of laborers unfavorably. The investigations are directed to the following points: effect of working in hot and moist air (laundries, bakeries and mines); influence of bacterial infection (anthrax, pneumococcus) and of dust-producing occupations (skin and leather trades, the butchers' trade, the iron, stone, celluloid trades); diseases due to electricity; diseases due to industrial poisons, such as anilin dyes, mercury and lead. Special stress is laid on the study of the phenomena of fatigue, its physiology and pathology in consideration of industrial occupations, and on the effect of night work.

A Protest Meeting of the Austrian Medical Profession Against Threatened Legislation

The prolonged conflict between the medical profession engaged in dentistry and the technical dentists, who have no medical instruction, is the object of our latest legislative experiment. The government intends to create an "intermediate" profession, so to say, consisting of men who, after studying a little anatomy and pathology, may be allowed to study the pathologic conditions of the human mouth and teeth and surgery of this region. To this the medical profession could assent only on condition that the medical part of the curriculum be sufficiently thorough to make the "dentist" really capable of dealing surgically with pathologic conditions. But what the profession stoutly opposes is the plan of the government to give the same right to the present non-medical dentists, and in future to permit only the graduates of the new—as yet non-existent—dentistry school to practice dentistry. Thus, doctors of medicine would not be allowed to extract teeth or fill them, while laymen—the present dentists—would have the right to operate on fractures of the mandible, or to resect the apex of the tooth, etc. Physicians justly assert that this first legalized "raid" into the domain of the doctor will soon be followed by demands for admission to practice by opticians, masseurs, dress-makers and the like. A mass meeting of physicians took place a short time ago in Vienna, in which the presidents of various important medical societies, as well as the medical members of the Austrian Parliament, spoke before an audience of some 800 delegates of the medical practitioners of the empire. In a resolution adopted by the meeting and forwarded to the government, the representatives of the medical profession protested vehemently against the intended laicizing of medicine. If the threatened bill should become law, the profession would be prepared to order a general medical strike in the whole empire.

The New Radium Institute

A few days ago, the Radium Institute, the first of its kind on the continent, was opened in Vienna in the presence of a brilliant gathering. It is one of the few scientific institutions erected by private grants, all such buildings being usually paid for by the state. It is devoted solely to the study of the chemical and physical qualities of radium. No teaching will take place in the building. There is a large laboratory on the ground floor, for the purpose of examining spring waters for radio-activity, and also a chemical and microscopic laboratory with an ultramicroscope. An x-ray outfit and a plant for high-voltage currents up to 4,000 volts is installed on the first floor, while a gigantic electromagnet, weighing 1,300 hundred-weight, is arranged for the purpose of investigations. The institute will not conduct medical experiments, but will, if necessary, place the substance at the disposal of hospitals. The institute has been presented with 3 grams of radium bromid, valued at \$200,000, by the Academy of Sciences of Austria, to which latter corporation the institute will be annexed in the near future.

Marriages

J. DON MILLER, M.D., Indianapolis, to Miss Maud Conner of Anderson, Ind., November 1.

BERNARD J. O'NEILL, M.D., San Diego, Cal., to Miss Anna Chapman of Sigel, Ill., November 9.

WILLIAM DAY CHAPMAN, M.D., Silvis, Ill., to Miss Bessie Wayne of Orion, Ill., November 10.

JOHN A. SALB, M.D., Indianapolis, to Miss Mary McNurney of Knightstown, Ind., November 1.

NEVIN M. WETZEL, M.D., Jameson, Mo., to Miss Lillie Joachimi of Versailles, Mo., October 4.

JOHN FRANCIS URIE, M.D., U. S. Navy, to Miss Caroline Foulke of Richmond, Ind., November 12.

JOHN WALTER CARMACK, M.D., Indianapolis, to Miss Bertha Pinber of Pleasant Lake, Ind., November 8.

HENRY IRVING BERGER, M.D., to Miss Ella Winkler, both of Indianapolis, at Covington, Ky., November 5.

JOHN KAYLOR KINGSBURY, M.D., to Miss Florine Alcott Williams, both of Indianapolis, November 16.

OTTO CARL REICHE, M.D., Laceyville, Pa., to Miss Vinnie Fenstermaker of Allentown, Pa., November 11.

JOHN SAMUEL BOGCESS, M.D., U. S. P. H. and M.-H. Service, to Miss Ethel Keating of Columbus, Ohio, November 22.

Deaths

George Frederick Barker, M.D. Albany (N. Y.) Medical College, 1863; an eminent physicist, chemist and teacher; died at his home in Philadelphia, May 25, aged 74. He did not follow the practice of medicine, but devoted his life to chemistry. He served as professor of natural sciences at Wheaton College, Ill., professor of chemistry in the Western University of Pennsylvania, professor of physiologic chemistry and toxicology in Yale Medical School, professor of chemistry in Williams College, and from 1873 to 1900 was professor of physics at the University of Pennsylvania, and since that time emeritus professor. In 1872 he served as state chemist of Connecticut. He was given the honorary degree of Sc.D. by the University of Pennsylvania in 1898, and of LL.D. by Allegheny College in 1898, and McGill University in 1900. In 1881 he received from the French government the decoration of the Legion of Honor.

Joseph R. Gibson, M.D. Colonel, M.C., U. S. Army, retired. Died at his home in Philadelphia, November 2, aged 72. Dr. Gibson entered the army as assistant surgeon in 1862, and was made captain in 1866. In 1877 he was promoted to major and surgeon, in 1894 to lieutenant-colonel and deputy surgeon general, and in 1895 was retired on account of disability in line of duty, and was advanced to the rank of colonel on account of Civil War service; in 1904 he received the brevet ranks of captain and major for faithful and meritorious services during the Civil War, and in 1866 was made brevet lieutenant-colonel for meritorious and distinguished service at Hart's Island, N. Y., where cholera prevailed.

Leonard Luton, M.D. Hahnemann Medical College, Chicago, 1867; M.C.P. and S., Ont., 1869 (Hon.); for many years a member of the Ontario Medical Council and its president in 1898; for fifteen years coroner of Elgin County and surgeon to the County Home of Industry; a member of the city council of St. Thomas for five years; and for two years chairman of the board of health and president of the board of governors of the Amasa Wood Hospital; died at his home, November 1, from uremia, aged 75.

Albert Payson Jackson, M.D. Albany (N. Y.) Medical College, 1862; a member of the Medical Society of the State of New York, and at one time president of the Genesee County Medical Society; one of the founders of the New York State Medical Association, and of the state and national associations of railway surgeons; surgeon of the western division of the West Shore Railroad; health officer of Oakfield, and coroner of Genesee County for fourteen years; died at his home in Oakfield, November 9, from heart disease, aged 67.

Robert Hunter Duncan, M.D. College of Physicians and Surgeons, Baltimore, 1885; for several years surgeon for the Pacific Mail Steamship Company; a specialist on diseases of the eye and ear, of Brooklyn; a member of the staff of

the Manhattan Eye and Ear Hospital, New York City; the Eye and Ear Infirmary of Long Island College Hospital, and Williamsburg Hospital; died in the Jamaica Hospital, October 31, aged 48.

Henry Martel Newman, M.D. Georgetown University, Washington, D. C., 1876; a member of the Medical Association of the District of Columbia; and one of the staff of Providence Hospital and St. Ann's Orphan Asylum, Washington; died at his home in that city, November 11, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent, while despondent on account of ill health, aged 54.

Frank Newell Lewis, M.D. University of Vermont, Burlington, 1882; a member of the American Medical Association, New York Academy of Medicine, and American Ophthalmological Society; surgeon to the Manhattan Eye, Ear and Throat Hospital; professor of diseases of the eye in the New York Postgraduate Medical School; died at his home in New York City, November 13, aged 53.

Montgomery Linville, M.D. Jefferson Medical College, 1873; a member of the American Medical Association, and National Association of Railway Surgeons; surgeon to the Shenango County Hospital, New Castle; formerly local surgeon to the Pennsylvania System; died at his home in New Castle, Pa., November 14, from the effects of poison, self-administered accidentally, aged 56.

William Samuel Ackert, M.D. Albany (N. Y.) Medical College, 1891; a member of the American Medical Association; attending physician to the Home for the Friendless, and Old Ladies' Home, Poughkeepsie, N. Y.; and during the summer of 1909, physician to the local tuberculosis camp; died at his home in Poughkeepsie, November 7, from valvular heart disease, aged 44.

Hubert DeLancey Knickerbocker, M.D. New York Homeopathic Medical College, New York City, 1891; a veteran of the Spanish-American War; for a time health officer of and a member of the Board of Education of Springwater, N. Y.; died at the home of his sister in Watertown, N. Y., November 8, from diabetes, aged 43.

Joseph Claybaugh Kalb, M.D. Starling Medical College, Columbus, Ohio, 1857; of McPherson, Kan.; assistant surgeon of the Forty-second Ohio Volunteer Infantry, surgeon of the Forty-fifth Ohio Volunteer Infantry, and division surgeon during the Civil War; died in Fort Worth, Texas, October 30, from cerebral hemorrhage, aged 79.

William H. Rothert, M.D. Medical College of Ohio, Cincinnati, 1889; a member of the Association of Military Surgeons of the United States; surgeon of the First Infantry, Ohio National Guard; an instructor in Miami Medical College; died at his home in Cincinnati, November 4, from cerebral hemorrhage, aged 46.

William S. Searle, M.D. University of Pennsylvania, 1859; for several years vice-president of the State Board of Medical Examiners of New York; one of the founders and for thirty-six years a member of the staff of the Brooklyn Homeopathic Hospital; died at his home in Brooklyn, October 30, aged 77.

Frank Fertiell, M.D. New Orleans School of Medicine, 1860; surgeon of the Thirty-Fourth Mississippi Infantry, C. S. A., during the Civil War; and for many years a member of the Mississippi State Medical Association; died at his home in Ashland, September 13, from emphysema, aged 78.

Jacob Harvey Edwards, M.D. University of Tennessee, Nashville, 1901; a member of the American Medical Association; of Westbrook, Texas; was thrown from his buggy and instantly killed, while making a professional call near Cuthbert, Texas, October 24, aged 37.

Lizzie Wild Charles, M.D. prominent as an organizer of branches of the Audubon Society in Illinois, and in the work of woman's clubs and schools; for two terms president of the Austin Woman's Club; died at her home in Austin, October 6, from pneumonia, aged 67.

James I. Thomas, M.D., for many years a resident of Denver; for fifty years a practitioner of the United States and formerly a member of parliament of the Dominion of Canada; died in the Denver County Hospital, March 18, from senile debility, aged 90.

Francis Bartow Gregory, M.D. Tulane University, New Orleans, 1886; a member of the American Medical Association; formerly of Lumpkin, Ga.; died recently at his home in Americus, Ga., and was buried at Lumpkin, November 4, aged 49.

William S. Chenoweth, M.D. Northwestern Medical College, St. Joseph, Mo., 1883; a member of the American Medical Association; and a veteran of the Civil War; died at his home in Fern Hill, Wash., November 1, from cerebral hemorrhage, aged 61.

William Snelson, M.D. College of Physicians and Surgeons, Keokuk, 1878; formerly of Massena, Iowa; for many years a member of the city council; died at the home of his daughter in Amarillo, Texas, October 27, from arteriosclerosis, aged 62.

Louis A. de Laureal, M.D. Homeopathic Medical College of Missouri, St. Louis, 1888; coroner of St. Martin Parish, La., for several years; and a member of the Board of Health of St. Martinsville; died at his home, August 28, aged 42.

Sumner Davis, M.D. Chicago Homeopathic Medical College, 1883; demonstrator of anatomy at his alma mater for two years; formerly of Grand Island, Neb.; died on the ranch of his son near New Plymouth, Ida., November 1.

Adolph Berger, M.D. Humboldt Medical College, St. Louis, 1862; a veteran of the Civil War; and for thirty years a member of the Board of Education of Lebanon, Ill.; died at his home in that city, November 10, aged 89.

Leslie B. Shanklin, M.D. Central College of Physicians and Surgeons, Indianapolis, 1905; of Sullivan, Ind.; a member of the American Medical Association; died in Pueblo, Colo., November 11, from tuberculosis, aged 33.

John Arthur Montgomery, M.D. College of Physicians and Surgeons, New York City, 1872; died at his home in Walton, N. Y., October 24, from injuries received in a collision between his carriage and an automobile, aged 67.

Paul Thomas Kimball, M.D. College of Physicians and Surgeons, New York City, 1887; a member of the American Medical Association; died at his home in Lakewood, N. J., November 3, from heart disease, aged 48.

Charles Borromeo Curran, M.D. Long Island College, Hospital, Brooklyn, 1893; for fifteen years a member of the staff of the Brooklyn Board of Health; died at his home, November 1, from pneumonia, aged 38.

Edward E. Brown, M.D. Albany (N. Y.) Medical College, 1879; a veteran of the Civil War; formerly of Phelps, N. Y.; died in the State Soldiers' Home, Bath, N. Y., October 6, from chronic nephritis, aged 76.

Seth G. Shanks, M.D. Albany (N. Y.) Medical College, 1875; of Albany; a member of the American Medical Association; died in the Albany Hospital, November 5, after an operation for peritonitis, aged 63.

Walter H. Fenby, M.D. University of Maryland, Baltimore, 1894; a member of the Medical and Chirurgical Faculty of Maryland; died at his home in Ruthsburg, November 5, from acute nephritis, aged 40.

George Asbury Dewey, M.D. Western Reserve University, Cleveland, 1849; surgeon in the Federal service during the Civil War; died at his home in Brooklyn, November 1, from senile debility, aged 82.

Thomas L. Blackwell, M.D. Louisville Medical College, 1874; a member of the Medical Society of the State of North Carolina; died at his home in Boonville, May 6, from disease of the liver, aged 58.

James L. Robinson, M.D. University of Louisville, 1881; a member of the Indiana State Medical Association; died at his home in Wheatland, November 8, from cerebral hemorrhage, aged 56.

George C. Young, M.D. Michigan College of Medicine and Surgery, Detroit, 1890; of Jackson, Mich.; fell through an elevator shaft, November 2, and died from his injuries November 3, aged 52.

Charles A. Dana Miles, M.D. Jefferson Medical College, 1876; for two terms coroner of Westchester County, N. Y.; died at his home in Yonkers, November 9, from acute gastritis, aged 58.

Claud M. Ferro, M.D. College of Physicians and Surgeons, Chicago, 1883; of Marshall, Minn.; died in the Minneapolis Sanitarium, recently, and was buried at Tracy, June 15, aged 59.

Ezra B. Evans, M.D. University of Virginia, Charlottesville, 1871; a member of the Indiana State Medical Association; died at his home in Greencastle, November 9, from tuberculosis, aged 64.

William J. McNeill, M.D. Detroit College of Medicine, 1899; of Detroit; died in St. Mary's Hospital, Saginaw, November

6, after an operation for the relief of intestinal obstruction, aged 39.

William M. Roberts, M.D. Northwestern University Medical School, Chicago, 1893; of St. David, Ill.; died in Graham Hospital, Canton, Ill., November 8, from heart disease, aged 45.

James Baker, M.D. Rush Medical College, 1869; physician of Fulton County, Ill.; died at his home in Table Grove, November 3, from tuberculosis, aged 65.

James A. Baird, M.D. Louisville Medical College, 1894; formerly of Moulton, Texas; died at his home in Beaumont, Texas, November 5, from nephritis, aged 54.

Andrew Drybrough, M.D. University of Edinburgh, Scotland; formerly of Evansville; died at his home in Worthington, Ind., October 20, from epilepsy, aged 41.

Harry L. Schulze, M.D. Columbus (O.) Medical College, 1883; Jefferson Medical College, 1886; died at his home in Mt. Oliver, Pa., November 1, aged 53.

William G. Branch, M.D. University of Louisville, 1884; a member of the Louisiana State Medical Society; died at his home in Bunkie, August 25, aged 49.

William Edward Miles, M.D. Eclectic Medical Institute, Cincinnati, 1884; died at his home in Webb City, Mo., October 30, from disease of the liver, aged 59.

Charles H. McMillan, M.D. Northwestern Medical College, St. Joseph, Mo., 1893; died at his home in Leon, Kan., October 30, from tuberculosis, aged 40.

Robert H. Green, M.D. St. Louis College of Physicians and Surgeons, 1886; died at his home in Poteau, Okla., November 2, from senile debility, aged 77.

Benjamin A. Bugg (years of practice, Ark.); for many years a practitioner of Blytheville; died recently at Gainesville, Texas, aged 75.

John B. King, M.D. Tulane University, New Orleans, 1875; of Segovia, Texas; was found dead in the Llano River, November 2, aged 62.

Willard R. Hillegas, M.D. Albany (N. Y.) Medical College, 1882; died at his home in Chicago, September 21, from angina pectoris.

Pharmacology

THE DR. BRANAMAN REMEDY COMPANY

A "Deaf Cure" Mail-Order Concern Which Has Been Declared Fraudulent

G. M. Branaman, M.D., a graduate of the Medical Department of the University of Louisville, has operated a "cure for deafness" mail-order concern in Kansas City, Mo., practically continuously since his graduation in 1891. In 1905 or 1906 he opened a branch office in Omaha, which did not stay in existence very long, apparently because it was not sufficiently profitable. Branaman's concern was known as the "Doctor Branaman Remedy Company." He employed the usual mail-order medical company's method of obtaining business, that of advertising in the cheaper magazines and in (that sheet-anchor of the great American fraud) the not-too-particular religious journals. Recently the United States Government, through the Post-Office Department, investigated the company and its methods and, as a result, has declared the business conducted by Branaman to be "a scheme and device for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises." Branaman has, therefore, been deprived of the use of the United States mails by means of a fraud order. Judge Goodwin, in his memorandum as assistant attorney general to the postmaster-general, describes in detail the methods pursued by the Branaman Remedy Company, and what follows is a synopsis taken from this report.

HOW PATIENTS WERE OBTAINED

Patients—or victims—were secured by inserting, in newspapers and magazines, advertisements similar to the one reproduced on this page (Fig. 1). The drawing part of this advertisement was the offer to "send two months' medicine free" to those who applied for it. Those who answered the

advertisements were sent a booklet entitled "The New Treatment That Cures," and containing testimonials and a description of Branaman's "treatment." A letter also was sent together with that inevitable adjunct of the mail-order quack—the "symptom blank." The prospective victim was asked to fill out and return the blank and was told that on doing so his case would be carefully considered and if believed to be a curable one, he would be furnished two months' medicine free. He was also told that Dr. Branaman would accept only such cases as he believed to be curable! If the symptom blank was not returned a series of follow-up "form" letters printed to imitate personal, typewritten communications was sent, each "letter" urging that the blank be filled out.

THE "FREE TREATMENT" AS A BAIT

When the victim filled out the blank and sent it to Branaman, he received a "diagnosis" letter—also of the circular letter variety, printed to imitate typewriting. At the trial it was shown by the government that Branaman had but two forms of "diagnosis" letters—one informing the patient that he had "catarrh," the other "diagnosing" the case as one of "deafness." No matter which of the two letters the patient received, he was informed that his case was far too serious a one to be cured by medicine alone, and that, therefore, there was no use in Dr. Branaman sending the two months' free treatment promised in the advertisement and circular letters. So serious was the case, he was told, that it was imperative that he have Dr. Branaman's "Combination Treatment," which involved the use of his "electro-magnetic head-cap" (Fig. 2) in conjunction with the medicines. He was further informed

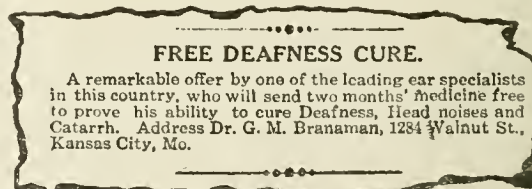


Fig. 1.—Photographic reproduction of a typical Branaman advertisement.—From *Word and Works*.

that this "combination treatment" would cure his disease and that if he would pay \$8 for the head-cap the "treatment" would be sent.

If the \$8 was not forthcoming, follow-up letters were sent at regular intervals until either all the letters of the series had been mailed or the \$8 had been extracted. These letters, like the others, were printed to simulate personal typewritten communications, the name and address of the individual to whom they were sent being "filled in" by means of a typewriter.

CURES PROMISED IN INCURABLE CASES

In preparing the case against Branaman the government inspectors corresponded with the concern as supposed patients. Five letters were sent under different names and from widely separated parts of the country. The same number of symptom blanks were filled out and each hypothetical case described by the inspectors was one of total and incurable deafness. In spite of the impossibility of curing such cases, the inspector, in every instance, received the stereotyped request for \$8, with the promise of a sure and permanent cure if it was paid. In each instance the regular "deafness" diagnosis letter was sent, followed by the follow-up series.

The inspector remitted \$8 in one of the hypothetical cases and received the "electro-magnetic head-cap" and the medicines. The "head-cap" was an arrangement of straps and metal pieces to be worn by the patient and was claimed to produce a current of electricity through the ears which, it was alleged, would revivify the nerves and other structures of the ear. With the "head-cap" came some tablets, three bottles of liquid and a vaporizer for spraying the nose and throat. The drugs were analyzed by the chemists of the Department of Agriculture, who reported them as having the following composition:

TABLETS

Strychnin sulphate 1/60 gr.
Milk sugar, q. s. 1 gr.

One of these was to be taken before each meal.

EAR DROPS

Carbolic acid 3.12 per cent.
Glycerin 25.00 per cent.
Saturated solution of boric acid..... 71.88 per cent.

The instructions with this bottle were to put three drops of the liquid in the ear each night.

VAPORIZER LIQUID

Menthol crystals 1.18 per cent.
Camphor gum 1.18 per cent.
Thuja oil 0.03 per cent.
Petrolatum 97.61 per cent.

This was to be used as a spray for the nose and throat.

GARGLE

Bicarbonate of soda..... 2.91 per cent.
Powdered borax 2.91 per cent.
Carbolic acid 0.28 per cent.
Glycerin 5.09 per cent.
Burnt sugar, sufficient to color.
Water 88.81 per cent.

The directions which went with this were: "Add 1 teaspoonful to 8 tablespoonfuls of hot water. Snuff up nose. Gargle throat night and morning, half each time."



Fig. 2.—Photographic reproductions from Branaman's booklet, "The New Treatment That Cures," showing the highly imaginative pictures of the "electro-magnetic headcap" in action.

The evidence at the trial showed that the "head-cap" cost Branaman about \$1.50, the vaporizer about 30 cents and the medicines just described not over 50 cents. For this the patient paid \$8.

A FRAUDULENT TESTIMONIAL

One of the testimonials published by Branaman in his booklet, "The New Treatment That Cures," purported to be from one John Turner of Kansas City, Mo. It was as follows:

"I contracted cold during the Civil War. It grew worse from year to year. Finally my eyesight began to fail; my eyes became watery; I could not distinguish a man across the street. My ears began to close and my hearing to fail. I had distracting head noises. I was worse in changeable weather. My throat was dry; my ears felt full; I could hear sounds, but could not distinguish words. Finally I got so deaf I could not hear the clock or doorbell. I went to Dr. Branaman a very skeptic man. I had no faith in doctors. I began the treatment, with excellent results. My head became clear; the noises began to subside; my eyes gained and soon I was all right; my hearing perfect."

This case was investigated by the post-office inspector, who went to Turner's house. Turner himself was not at home, but his wife said that her husband had not been benefited by the Branaman treatment, that his hearing was so bad that he

did not dare to go to work in the stock yards for fear of being run over and killed from his inability to hear anything. Mrs. Turner further stated that all the inquiries her husband received regarding his cases were turned over to Branaman, Turner himself being unable either to read or to write.

THE DEFENSE AND THE CHARGE

Branaman's defense in regard to offering to cure five plainly incurable cases of deafness was that he was out of the city when some of the five cases were accepted for "treatment," and that his assistant, Dr. Perkins, must have been responsible. On cross-examination, however, Branaman retracted his previous statement as to his absence from the city on those dates.

Judge Goodwin, in his memorandum as assistant attorney-general to the postmaster-general, gave many reasons for holding the opinion that Branaman's business was a fraudulent one. They may be summarized thus:

Fraud No. 1.—Five different cases of incurable deafness from various parts of the country were accepted—and, as the evidence showed, intentionally accepted—for treatment and a promise of a sure cure made. The number indicated that it was Branaman's practice to accept such cases and to make such promises.

Fraud No. 2.—Branaman's continued publication of Turner's testimonial to the effect that his hearing was perfect and that he had been cured of deafness, when Branaman knew that Turner was so deaf as to be incapacitated for work.

Fraud No. 3.—The inducement held out in the advertisements of a "free two months' treatment" when, in fact, the intent was to obtain \$8 for goods costing Branaman \$1.50.

Fraud No. 4.—The representation that the case of each patient would be considered individually and that "treatment" adapted to the necessities of the specific cases would be used, when the evidence showed that the same "treatment" was sent to practically all persons sending the necessary \$8.

As a result of his findings the assistant attorney general declared: "I find that the business being conducted through the post-office at Kansas City, Mo., under names of Dr. Branaman Remedy Company and Dr. J. M. Branaman, is a scheme and device for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises, and I therefore recommend that a fraud order be issued prohibiting the delivery of mail and the payment of money orders to such addresses. . . ."

The order was issued.

Correspondence

The Correct Name of the Rocky Mountain Spotted-Fever Tick

To the Editor:—In a recent issue of THE JOURNAL (October 29, p. 1574) Mr. Nathan Banks charges me with "gross violation of the rules of nomenclature," in that I have used the name *Dermacentor andersoni* instead of *D. venustus* for the tick that transmits Rocky Mountain spotted fever. Although the point at issue is a very technical one, it is not without its practical side, and in order to avoid a further confusion, which would result were Mr. Banks' interpretation accepted, the following facts bearing on the case are made public:

The name *Dermacentor venustus* Marx (a manuscript name) was originally published by Neumann in 1897, as a synonym of *D. reticulatus*; its type locality was given as Texas and New Mexico.

According to "Opinion 4" of the International Commission on Zoologic Nomenclature, "manuscript names acquire standing in nomenclature when printed in connection with the provisions of Article 25, and the question as to their validity is not influenced by the fact whether such names are accepted or rejected by the author responsible for their publication."

The name *D. venustus* received status in 1897 and was not available as a new specific name eleven years later (1908), when Mr. Banks published it as such. Its status in 1897 as

given to it by Neumann is this: It is a synonym of *D. reticulatus* as interpreted by Neumann, namely, *D. reticulatus* of Europe plus specimens examined by Marx from Texas and New Mexico, plus certain other forms.

Two possibilities are present: (1) If really identical with *D. reticulatus*, the name *D. venustus* drops into synonymy and cannot be used for the spotted-fever tick. (2) The only way of separating the name from *D. reticulatus* is by finding the original specimens from Texas or New Mexico and showing that they are not identical with *D. reticulatus*.

In material recently at my disposal, I had specimens of the Marx collection labeled *Dermacentor venustus* from both Texas and New Mexico. These are the specimens on which Neumann published in 1897, and it is the Texas specimen from sheep which I designated as the type. These specimens are clearly distinct from the European *D. reticulatus*, and they represent the form which I have published as *D. venustus*.

Mr. Banks was present at a meeting of the Entomological Society, Jan. 10, 1907, when I showed drawings of the European *D. reticulatus*, and explained the differences between this and the various American forms. He also visited my laboratory for the specific purpose of examining Marx' material, and at that time the originals of *D. venustus*, *D. occidentalis* and *D. andersoni* were placed before him, together with drawings of the stigmal plates. He later (1908) published "*Dermacentor venustus* n. sp.," admitting that it was Marx' manuscript name and giving among the localities of specimens both New Mexico and Texas; these were the original localities of Marx' specimens which Dr. Banks had examined in the visit referred to and as published by Neumann.

Mr. Banks states in his recent letter that I have applied the name *D. venustus* to a form he did not study. This statement is difficult to harmonize with the fact that he examined the specimen on which I published and he quotes (Bull. 15, Bureau of Entomology, U. S. Dept. Agric., 1908, p. 47) the very specimen which I took as a type, namely, from "Texas (on sheep)."

If the name *venustus* dates from 1908 (as Mr. Banks claims) instead of from 1897 (as I maintain), it is now clear that Mr. Banks' description must include three sets of type specimens, namely, Marx' original material of *D. venustus*, my original type of *D. andersoni*, and the material which Mr. Banks has informed me he has selected as type, but which he also said was not from Marx' collection.

In adopting *venustus* for Marx' Texas form I have taken the only way I see open to preserve the name in question (a name proposed by a deceased colleague), namely, by attaching it to the material published in 1897. This eliminated the name *venustus* from the spotted-fever tick, for which the manuscript name *D. andersoni* had already been published and which was therefore retained.

Were the premise correct, that Marx' specimens from Texas and New Mexico are identical with the specimens from Montana, then *D. venustus* would of necessity be the correct name for the Rocky Mountain spotted-fever tick, but this premise is erroneous, and the name *venustus* must be applied to the species containing the original specimen designated under this name.

CHARLES WARDELL STILES, U. S. Public Health
and Marine-Hospital Service, Washington, D. C.

Offer to Medical Libraries

To the Editor:—The year 1898 will be known in the annals of medicine by an epoch-making event. In that year *Libraries*, a bi-monthly publication devoted to the interests of medical libraries, first saw the light of day in the city of Denver. For several years it made its irregular and spasmodic appearance and closed its career in a blaze of glory A.D. 1902. Its circulation reached the astounding number of 120. What it lacked in numbers it made up in quality. Among its admirers, subscribers and contributors it counted the foremost librarians of the day—Dana, Fletcher, Cheney, Billings, Grace Bryant, Fisher, Parsons, Dudley, Beer, Aheren, Putnam, Bowker, Meyers, Utley, Bowen, Noyes, Cruden, Chase, Dewey, Merrill,

and the medical luminaries—Osler, Chadwick, Keen, Da Costa, Musser, Simmons, Edward Jackson, Hare, Horatio Wood, Solis-Cohen, Hutchinson, Gould, Dock, Senn, Bonney, Solly, Shattuck, Bayard Holmes, Jacobi, Wilson, Sewall, Eskridge and many other makers and lovers of books.

Now comes the proud editor and publisher of said defunct periodical and offers to send to all medical librarians and to all who are interested in freak medical journalism complete sets of Volumes 2, 3 and 4 and incomplete sets of Volumes 1 and 5 for the asking, as long as the supply lasts. All the said sad editor asks in return is that these, his dear departed ones, be reverently laid out, decently shrouded, adequately confined, properly epitaphed, securely inhumed and unostentatiously gathered unto their fathers in God's aere. He devoutly and prayerfully hopes for their resurrection.

C. D. SPIVAK, M.D., 1421 Court Place, Denver.

Removal of Moles, Warts and Other Benign Growths

To the Editor:—Dr. J. C. Bloodgood, in his article on "Surgical Treatment of Cutaneous Malignant Growths" (THE JOURNAL, Nov. 5, 1910, p. 1615), asserts that he was "the first, or at least one of the first, to call attention to the importance of removal of certain forms of benign growths, pigmented moles, some seven years ago." I wish to call attention to the fact that Dr. S. H. Weeks, of Portland, Maine, professor in surgery in Bowdoin College, taught the importance of removal of moles, warts, etc., as soon as seen by the surgeon, as long ago as 1895 and 1896; thus he had priority of Dr. Bloodgood by seven or eight years.

O. I. BEMIS, Bangor, Maine.

Prevention of Perforation in Submucous Resection of the Nasal Septum

To the Editor:—Permit me to offer a suggestion in connection with Dr. Nelson's method of preventing a perforation in submucous resection (THE JOURNAL, Nov. 19, 1910, p. 1875): Incise the mucous membrane and perichondrium at B instead of at A and retract. Then dissect forward the tissue anterior to the incision and incise the cartilage at A. This allows the flap from B to A to cover the stump of cartilage. If this is not done the incised membrane undergoes cicatricial retraction and leaves a dry and crusted surface, besides delaying healing.

ALBERT BARDES, New York.

The Public Service

Medical Department, U. S. Army

Changes for the week ended Nov. 19, 1910.

Davis, W. Cole, lieutenant, November 11, left Fort Ethan Allen, Vt., on ten days' leave of absence.

La Garde, Louis A., colonel, November 13, left army medical school, Washington, D. C., on ten days' leave of absence.

Low, Thomas S., M.R.C., Nov. 8, left Presidio of Monterey, Cal., for temporary duty at Whipple Barracks, Ariz.

Long, Charles J., D.S., November 11, leave of absence extended twenty days.

Stone, John H., major, November 12, relieved from duty at Fort Sam Houston, Texas, and ordered to Fort McIntosh, Texas, for duty.

Grubbs, Robert B., major, November 12, relieved from duty at Fort McIntosh, Texas, and ordered to Fort Bliss, Texas, for duty.

Butcher, B. H., major, Nov. 14, 1910, leave of absence further extended twenty-eight days.

Mason, George L., D.S., November 14, left from temporary duty at Fort Lincoln, N. Dak., and en route to Fort Yellowstone, Wyo.

Woodall, William P., captain, November 14, left Fort D. A. Russell, Wyo., on fifteen days' leave of absence.

Patterson, Robert F., D.S., November 15, relieved from duty at Fort Sheridan, Ill., and ordered to the Philippine Islands for duty on transport sailing from San Francisco about Feb. 15, 1910.

Bernheim, Julian R., D.S., November 15, relieved from duty in the Philippine Islands and ordered to proceed to San Francisco on the transport sailing from Manila, P. I., about March 15, 1910. On expiration of his leave of absence will proceed to Fort Sheridan, Ill., for duty at that station.

Tasker, Arthur N., lieutenant, November 15, granted leave of absence for one month and fifteen days.

Walker, Thomas C., M.R.C., November 16, leave of absence extended twenty days.

Phillips, Hiram A., lieutenant, November 16, ordered to proceed to Fort Andrews, Mass., for duty at that station.
Ingalls, R. E., D.S., November 9, granted ten days' leave of absence.

Medical Corps, U. S. Navy

Changes during the week ended Nov. 19, 1910.

Shook, F. M., P. A. surgeon, detached from the naval medical school, Washington, D. C., and ordered to duty at the naval hospital, New York.

U. S. Public Health and Marine-Hospital Service

Changes for the seven days ended Nov. 16, 1910.

Gassaway, J. M., surgeon, leave granted Oct. 14, 1910, amended to twenty-four days from Oct. 7, 1910.

White, J. H., surgeon, granted ten days' leave of absence from Nov. 11, 1910.

Nydegger, J. A., surgeon, granted one month's leave of absence from Nov. 10, 1910, on account of sickness.

Sprague, E. K., surgeon, leave of absence granted Oct. 14, 1910, amended to read four days from Oct. 28, 1910.

Gribbs, S. B., P. A. surgeon, granted twenty-one days' leave of absence from Nov. 7, 1910, on account of sickness.

Foster, M. H., P. A. surgeon, granted seven days' leave of absence from Oct. 3, 1910, under paragraph 191, Service Regulations.

Korn, W. A., P. A. surgeon, directed to proceed to Pittsburg, on special temporary duty, Nov. 7, 1910.

Earle, B. H., P. A. surgeon, granted three days' leave of absence en route to station.

Roberts, Norman, P. A. surgeon, granted two days' leave of absence from Nov. 7, 1910, under paragraph 191, Service Regulations.

Smith, F. C., P. A. surgeon, granted seven days' leave of absence from Nov. 3, 1910, under paragraph 191, Service Regulations.

Spratt, R. D., P. A. surgeon, granted seven days' leave of absence from Oct. 14, 1910, under paragraph 191, Service Regulations.

Coffee, Joseph H., acting asst.-surgeon, granted ten days' leave of absence from Nov. 5, 1910.

Schuster, B. L., acting asst.-surgeon, granted twenty-two days' leave of absence from Nov. 7, 1910.

Stuart, A. F., acting asst.-surgeon, leave of absence granted for thirty days from Oct. 1, 1910, amended to read thirty days from Oct. 4.

Walker, T. D., acting asst.-surgeon, granted eleven days' leave of absence with pay and one day's leave without pay from Nov. 7, 1910.

White, R. C., acting asst.-surgeon, granted thirty days' leave of absence from Nov. 7, 1910.

Psychology, July, 1909; also *Monthly Cyclopedia and Medical Bulletin*, August, 1909) can be employed, and in general is to be preferred to hypnotism for a practitioner who is not an expert in the latter art. If hypnotism is undertaken, Barker's suggestion that a third person should be present is worth remembering.

3. The following works may be considered representative:

Bernheim: *Suggestive Therapeutics*, G. P. Putnam's Sons, New York; \$3.50.

Bramwell, M.: *Hypnotism, Its History and Practice*, Alex. Morning, London.

Bramwell, M.: *Hypnotism and Treatment by Suggestion*, Funk & Wagnalls Co., New York; \$1.75.

Dereum: *Rest, Suggestion, Mental Therapeutics*, P. Blakiston's Son & Co., Philadelphia.

DuBois: *Psychic Treatment of Nervous Disorders*, Funk & Wagnalls Co., New York; \$3.

Forel: *Hypnotism, or Suggestion and Psychotherapy*, Rebman Co., New York; \$3.

Heysinger, Isaac W.: *Spirit and Matter Before the Bar of Modern Science*, T. Werner Laurie, London, 1910; pp. 433; 15 shillings.

Hollander, Bernard: *Hypnotism and Suggestion*, Sir Isaac Pitman & Sons, London, 1910; pp. 295; 6 shillings.

Mason, O.: *Hypnotism and Suggestion*, H. Holt, New York; \$1.50.

Moll, A.: *Hypnotism*, Charles Scribner's Sons, New York; \$1.50.

Monro: *Handbook of Suggestive Therapeutics, Applied Hypnotism and Psychic Science*, Mosby Medical Book Co., St. Louis; \$3.

Münsterberg, Hugo: *Psychotherapy*, T. Fisher Unwin, London; pp. 413; 8 shillings, 6 pence.

Prince, Morton: *Psychotherapeutics, a Symposium*, T. Fisher Unwin, London, 1910; pp. 294; 4 shillings, 6 pence net.

Schofield: *Force of Mind, or the Mental Factor in Medicine*, P. Blakiston's Sons & Co., Philadelphia; \$2.

Schofield: *The Unconscious Mind*, Funk & Wagnalls Co., New York; \$2.

Schofield: *Unconscious Therapeutics*, P. Blakiston's Sons & Co., Philadelphia; \$1.50.

Sidis: *Psychology of Suggestion, a Research into the Subconscious Nature of Man and Society*, D. Appleton & Co., New York; \$1.75.

Sidis: *Hypnotoid Psychotherapy*, Moffat, Yard & Co., New York; \$2.

Tuckey, C. L.: *Hypnotic Suggestion*, G. P. Putnam's Sons, New York; \$3.

Wingfield, H. E.: *An Introduction to the Study of Hypnotism*, Bailliere, Tindall & Cox, London, 1910; pp. 175; 5 shillings net.

Ziehen, T.: *Introduction to Physiological Psychology*, Macmillan Company, New York; \$1.50.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SODIUM CITRATE IN FURUNCULOSIS

To the Editor:—Will you kindly refer me to literature on the subject of Wright's treatment of suppurating lesions (as furuncles) by the use of solutions of sodium citrate and sodium chlorid?

J. L. L.

ANSWER.—We are unable to find any reference in recent literature to the use of sodium citrate in furunculosis. Sir A. E. Wright recommends vaccine treatment with staphylococcus vaccine guided by the determination of the opsonic index. He has recommended citrate of sodium for the purpose of preventing thrombosis in typhoid fever. Perhaps it is this use of sodium citrate that our correspondent has in mind.

HYPNOTISM AND SUGGESTIVE THERAPEUTICS

To the Editor:—Please answer the following questions:

1. Do you consider the subject of hypnotism of much value in the psychoneuroses?
2. Would it be worth while for a general practitioner to acquaint himself with the subject of hypnosis?
3. Can you refer me to literature on hypnotism and suggestive therapeutics?
W. B. N., Anderson, S. C.

ANSWER.—1. In competent hands, hypnotism must be regarded as a valuable therapeutic procedure for a large number of the psychoneuroses, especially those of a severe or complicated type. In many cases, however, the same results can be obtained by the methods of waking suggestion and by persuasion.

2. Before resorting to hypnotism, the general practitioner should thoroughly acquaint himself with the methods of suggestion and persuasion which do not involve hypnosis. For such purpose the methods of persuasion advocated by DuBois are valuable, and a thorough study of his book is recommended. Suggestion in the hypnotoid state as recommended by B. Sidis (*Journal Abnormal*

CHANCRE AND CHANCROID

To the Editor:—Please differentiate briefly between chancre and chancroid, describing the appearance and progress of each, within a month from infection on the labia of the female. In such a case, under which head would you class a painful, swollen, suppurating sore which is spreading rapidly? Do chancre and chancroid both come under the head of syphilis? If not, please indicate the treatment for the latter.
W. O. L.

ANSWER.—A chancre is the initial lesion of syphilis, and is due to the action of *Treponema pallidum*. It appears about twenty days after infection and is generally single. It usually consists of a small papule, which may ulcerate, but which produces little pus and does not tend to spread beyond its point of origin. Its secretions do not produce similar lesions in other parts of the skin of the same patient, i. e., it is not auto-inoculable. The base and surroundings of the ulcer are usually of a marked hardness, but it is not painful. It leads to a general enlargement of all of the lymphatic glands, which shows no tendency to suppuration but is very persistent. Usually in the course of a month or six weeks the chancre heals, leaving ordinarily a slight scar, but it may persist longer. Spirochetes (treponemata) can be demonstrated in the secretions from a chancre and the Wassermann reaction is positive in the latter part of its course.

A chancroid is a local lesion, believed to be due to a streptobacillus discovered by Ducrey, which ulcerates rapidly, is painful, spreads extensively, produces much pus and is auto-inoculable. It appears in two or three days after infection and is frequently multiple. Only the lymphatic glands adjacent to the area of infection become enlarged, but they soon break down, forming a bubo. The base of the chancroid is not indurated. The chancroid leads to no specific constitutional affection, but may produce septicemia. It does not contain treponemata and does not give the Wassermann reaction. While chancroid has no relation to syphilis, it may accompany and conceal the initial syphilitic lesion. In spite of its local character, a chancroid may pursue a chronic course and undermine the general health, producing a severe cachexia.

The ulcer described is probably a chancroid. The part should be carefully cleansed and the surrounding skin or mucous membrane should be protected as carefully as possible against auto-inocula-

tion. A local anesthetic, like cocain, should be applied before cauterizing. The best caustic is probably the application of the thermal or galvanocautery, but if this is not available, chemical caustics may be used. The best is fuming nitric acid. A preliminary application of pure phenol (carbolic acid) may be made, by which the sensitiveness of the ulcerated surface is diminished. The phenol should be carefully removed by wiping with absorbent cotton. Then an application of pure nitric acid should be made to the surface of the ulcer. The careful removal of the phenol is essential, as there may be danger of nitric acid and phenol forming an explosive compound. When the slough has separated the resulting ulcer should be treated like any other ulcer by strictly aseptic methods. The general health should be cared for by appropriate hygienic measures and supporting medicinal agents.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

MEDICAL EXPERT TESTIMONY

The problem of medical expert testimony is one which confronts both the medical and the legal professions. Neither physicians nor lawyers alone can solve it. The only hope for its equitable adjustment lies in cooperation between the two professions. As was remarked editorially last week, this fact has been realized in Missouri by both the medical profession and the bar, and the result has been the appointment of a joint committee on medical expert testimony from the Missouri State Medical Association and the Missouri Bar Association. This committee, recognizing that the present situation in most states is absurd and grotesque, has drafted a bill amending the Missouri statutes in the hope of improving the procedure in legal battles in which medical expert testimony is necessary.

Previous efforts in this direction in other states are interesting. In only two states, Michigan and Rhode Island, have laws on this subject been enacted. The Michigan statute endeavors to regulate the abuse of medical expert testimony by removing the incentive of large fees, and provides that no expert witness shall receive as compensation in any given case a sum in excess of the ordinary witness fees, unless the court awards a larger sum. It also provides that not more than three experts shall be allowed to testify on either side as to the same issue, and that in trials for murder, in which expert opinions are required, the court shall appoint one or more suitable persons, not exceeding three, to investigate the issues involved and to testify at the trial, compensation for these experts to be fixed by the court and paid by the county. This provision takes the summoning of expert witnesses out of the hands of lawyers for the defense and also limits the amount of money which can be spent for such purposes.

The Rhode Island statute provides that any justice of the superior court may, in either a civil or criminal case, on the motion of either side, appoint one or more persons as expert witnesses. The amount of compensation for such witnesses is fixed by the court but paid by the party asking for their appointment. Such witnesses report their findings in writing to the court and their report forms part of the record of the case and may be produced in evidence at the trial. The expert witnesses are required to attend the trial and they may be cross-examined by either side. In personal injury suits, the court is authorized to require a physical examination of the plaintiff.

At the last session of the legislatures in Maine and New York, bills to regulate expert evidence were introduced but failed to pass. The Maine bill provided that the judge in any superior court might, on his own initiative, appoint one or more experts to investigate the questions at issue, who should prepare themselves to testify in relation thereto, if called on. Such experts, after having been appointed, might be called as witnesses by either side or by the court and when so called would be subject to full examination and cross-

examination. Their compensation was to be fixed by the court. The New York bill provided that the justice of the supreme court should designate at least ten and not more than sixty physicians in each judicial district who might be called as medical expert witnesses by the court or by either party to a civil or criminal action in any of the courts of the state, and that such physicians when so called should testify and be subject to examination and cross-examination, and their compensation be fixed by the trial judge and paid by the county in which the trial was held. An additional section specifically provided that either of the parties in the case should have the right to call other expert witnesses, as at present.

The proposed bill in Missouri provides that any judge of any court of record in hearing any case, either civil or criminal, shall "on his own motion or that of any party therein, at any time or during the trial thereof when the ends of justice seem to require it," appoint one or more expert witnesses whose fees should be fixed by the judge and paid by the party moving for their appointment. In criminal cases, on request of the defendant, expert witnesses may be furnished at the expense of the state at the discretion of the court. Such witnesses shall be sworn to make a faithful and impartial examination of the matter submitted to them for investigation and shall report their findings in writing, such report to be filed, not as evidence, but as a basis for the examination of the expert witnesses by the court or by the counsel for either party. It will be noted that the proposed law in Missouri differs from the Rhode Island statute in that, in Rhode Island, the report of the expert witnesses is made a part of the evidence in the case. The Missouri bill further provides that either party to the cause shall have the right of examination and cross-examination. In civil suits for damages following personal injury, the judge may require the plaintiff to submit to a reasonable examination by an expert appointed by the court. The court may also require the defendant to permit of the examination of the place and cause of the injury by experts appointed by the court. Compensation is limited to ordinary witness fees, except by order of the court, and the receipt or payment of any larger sum is made a misdemeanor punishable by a fine not exceeding \$1,000, or imprisonment not exceeding one year, or both.

It is evident, from the two laws enacted and those proposed, that the regulation of compensation for expert testimony is regarded as one of the most important means of correcting existing abuse. The appointment of expert witnesses by the court is unquestionably a step in the right direction. Whether the report of such witnesses should be regarded as evidence or merely as a basis for examination is for those familiar with the rules of evidence to determine. The limiting of expert witnesses to those selected by the court, and the provision for a written report on the questions at issue, should go far toward eliminating the self-constituted "expert" who, oftentimes without adequate professional knowledge or standing, and animated mainly by a desire for large fees, can be secured in almost any case to testify to nearly anything which partisan advocates may desire.

In this connection, the resolutions adopted by the Committee on Medical Expert Testimony of the American Medico-Psychological Association, which recently appeared in the *American Journal of Insanity*, are of interest. The committee's declarations relate mainly to medical expert testimony in cases in which insanity is pleaded as a defense. They are:

1. The proved rarity of wrong acquittals on the ground of insanity is the strongest evidence that the abuse of the insanity plea in criminal cases has been unwarrantably exaggerated.
2. The insanity plea is not raised as often as it should be to prevent the frequent miscarriage of justice arising from the conviction and imprisonment of insane persons whose true mental condition has not been recognized.
3. The abuses which have crept into the method of presenting medical expert testimony have been largely the result of established legal tests and proceedings, although their correction does not require radical change in the laws.
4. Inaccessibility of the evidence on both sides of the case is the chief cause of defective medical testimony.

State Boards of Registration

COMING EXAMINATIONS

CALIFORNIA: Los Angeles, December 6-9. Sec., Dr. Charles L. Tisdale, 929 Butler Bldg., San Francisco.

DELAWARE: Regular, Dover, December 13-15; Homeopathic, Wilmington, December 13-15. Secretary of the Medical Council, Dr. H. W. Briggs, Wilmington.

KENTUCKY: Louisville, December 15-17. Sec., Dr. J. N. McCormack, Bowling Green.

MARYLAND: 1211 Cathedral St., Baltimore, December 13-16. Sec., Dr. J. McPherson Scott, Hagerstown.

OHIO: Cincinnati, December 6-8. Sec., Dr. George H. Matson, State House, Columbus.

PENNSYLVANIA: Regular and Homeopathic, Philadelphia, December 6-9; Eclectic, Harrisburg, December 6-9. Secretary of the Medical Council, Dr. Nathan C. Schaeffer, Harrisburg.

VIRGINIA: Lynchburg, Dec. 20-23. Sec., Dr. R. S. Martin, Stuart.

New Jersey June Report

Dr. H. G. Norton, secretary of the New Jersey State Board of Medical Examiners, reports the written examination held at Trenton, June 21-23, 1910. The number of subjects examined in was 9; total number of questions asked, 135; percentage required to pass, 75. The total number of candidates examined was 41, of whom 34 passed and 7 failed. The following colleges were represented:

College.	PASSED	
	Year Grad.	Per Cent.
Johns Hopkins University.....	(1910)	83.7, 88.6
College of Physicians and Surgeons, Baltimore.....	(1910)	78.3, 81.9
Harvard Medical School.....	(1908)	82.4
Columbia University, College of Physicians and Surgeons (1902)	91;	(1910) 84.2.
New York Homeopathic Med. College and Hospital, (1907)		78.5
University of Pennsylvania (1896)	79.7; (1903)	78.5; (1905) 81.3, 83.6, 83.8; (1907)
88.2; (1910)	78.6, 80.4, 80.5, 80.8.	
Jefferson Medical College (1905)	78.1, 85.9; (1908)	83.9; (1909)
76.6; (1910)	83.9, 84.2, 84.3, 84.5.	
Hahnemann Med. College and Hospital, Philadelphia, (1910)		78.6, 86
Medico-Chirurgical College, Philadelphia.....	(1910)	88.2
Woman's Medical College of Pennsylvania (1910)		80.5, 81.1, 84.7.
University College of Medicine, Richmond (1908)		79.5; (1909) 77.9.
	FAILED	
Baltimore Medical College.....	(1908)	70.6
Univ. of Michigan, Coll. of Medicine and Surgery..	(1880)	68.2
Long Island College Hospital.....	(1909)	72.1
Medico-Chirurgical College, Philadelphia.....	(1897)	70.3
Hahnemann Med. College and Hospital, Philadelphia, (1908)		72.8
University College of Medicine, Richmond.....	(1910)	72.7
Royal University of Naples, Italy.....	(1896)	72.1

The following questions were asked:

[Answer any ten questions on each paper, but no more.]

ANATOMY

1. Describe the coccyx. Name the muscles attached to it. 2. Describe the ileocecal valve. What is its function? 3. Give the coverings of a femoral hernia from within outward. 4. Give the minute structure of the kidney. 5. Describe the inferior radio-ulnar articulation. 6. Describe the suprarenal glands. State their function. What would be the effect of their removal? 7. Describe the glands and villi of the intestines. 8. Give the foramen of exit, the distribution and the function of the oculomotor nerve. 9. Where does the glossopharyngeal nerve rise and what structures are supplied by this nerve and its branches? 10. Locate and describe the lymphatics of the front of the thorax. 11. Give the origin, course and branches of the temporal artery. 12. Name the principal centers of organic function in the medulla oblongata. 13. Locate the respiratory center. 14. From what portions of the cortex cerebri do the arm, face and leg receive their motor impulses? 15. What would be the effect of a transverse section of (a) the anterior root, (b) the posterior root of a spinal nerve?

HISTOLOGY—PATHOLOGY—BACTERIOLOGY

1. Describe the rôle of uric acid in gout. 2. Give etiology of valvular heart disease. 3. How does aortic insufficiency affect the circulation of the blood? 4. Define anemia. 5. Define immunity. 6. Describe a microscope and such accessories as you would use in histologic work. 7. Describe preparation of objects for microscopic examination. 8. Describe the cell body. 9. Describe the process of mitotic cell division. 10. Define chromatolysis. 11. What are bacterins? 12. What is the effect of an injection of bacterial vaccine? 13. Describe preparation of and varieties of culture media. 14. Give technic of making plate cultures. 15. Give method of examining sputum for detection of tubercle bacilli.

CHEMISTRY

1. Discuss arsenic and mention its properties, uses and compounds. Give antidote for poisoning by arsenic. 2. Name three elements in the potassium group with their symbols and atomic weights. 3. Give the symbol and quantivalence of sulphur. What are the principal oxygen compounds of sulphur? In what form is it

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Fourth Month—Third Weekly Meeting

TUBERCULOUS DISEASE OF THE SPINE

PATHOLOGY

Pathology of the tubercle. Changes in body of the vertebra; of the processes. Secondary changes in bony structures, kyphosis, resulting deformities. Process of repair. Abscess formation. Changes in spinal cord, membranes and nerves.

SYMPTOMS

Attitude: Movements of body, attitude when different regions are affected, rigidity of spine.
Pain: Cause, location, diagnostic value. Eye symptoms, cough, dyspnea.
Deformity: Angularity.
Abscess: Location, pointing, prognosis.
Paralysis: Location, partial or complete, reflexes, sphincters.

TREATMENT

GENERAL TREATMENT: Fresh air, sunshine, diet, medicinal treatment.
LOCAL TREATMENT: 1. Bed treatment, indications, appliances. 2. Ambulatory treatment by jackets and braces; indications, detail methods of application, appliances used for deformities in different regions.
Treatment of abscesses: Expectancy, aspiration, incision.
Treatment of paralysis.
Treatment of diseased vertebra.

used as a germicidal and disinfecting agent? 4. (a) State the normal reaction of urine. (b) To what is it due? (c) State the variations in normal specific gravity. (d) What pathologic conditions are indicated by a very high or a very low specific gravity? 5. Give the chemical formula and derivation of acetic acid. Mention the most important acetates. 6. Give the names and formulas of three gases used for producing general anesthesia. 7. What are enzymes? Mention those of animal origin and where found. 8. Give test for the detection of bile in the urine. 9. Which are the principal opium alkaloids and with what acid are they combined in opium? 10. What is cholesterol? In what pathologic condition is it found? 11. Give the chemical formulas and common names of magnesium hydrate and magnesium sulphate. 12. (a) What is tartar emetic? (b) What are the symptoms of poisoning by tartar emetic? 13. (a) What is hemoglobin? (b) In what pathologic condition is hemoglobin found in the urine? 14. (a) What is the ammonium radical? (b) Give chemical formula of the ammonium compound contained in aromatic spirit of ammonia. 15. (a) Give the source and chemical formula of common salt. (b) How are chlorids chemically recognized in urinalysis?

HYGIENE AND MEDICAL JURISPRUDENCE

1. Describe the methods usually employed for the sterilization of drinking water. 2. (a) What conditions of soil tend to promote health? (b) What conditions tend to impair health? 3. State (a) the main source of infection in tuberculosis; (b) what personal hygienic measures may be employed to prevent its spread? (c) what disinfectants and what method of application will tend to prevent house infection? 4. Outline in detail the precautions that should be taken in the treatment in scarlet fever to prevent the spread of the disease. 5. What diseases spread by infection from person to person? 6. What temperature should be maintained in the sick room in the treatment of (a) croup, (b) pneumonia, (c) typhoid fever? 7. Name the diseases regarded as quarantinable. 8. Define food and name two which are in themselves complete or perfect foods. 9. What are the legal obligations between physician and patient? 10. What are the essentials of a thorough medical examination of an applicant for life insurance? 11. What constitutes expert medical testimony? 12. Name the post-mortem signs external and internal of recent drowning. 13. In signing a certificate of insanity what facts relating to the patient should be recorded? 14. Define a wound in its medicolegal sense. 15. In witnessing a will, what facts should satisfy the physician as to the mental competency of the testator?

MATERIA MEDICA AND THERAPEUTICS

1. Name (a) the source, (b) the preparations, and (c) the effects of ergot. 2. Differentiate the symptoms of atropin and morphin poisoning. 3. (a) By what drug, and (b) by what method may local anesthesia be induced? 4. Explain the theory of the action of antitoxin. 5. (a) Mention five preparations having antiseptic properties; (b) Give adult dose of each. 6. Describe (a) the method of administration, and (b) the results to be accomplished by the hot pack. 7. State (a) the source, (b) the action, and (c) the therapeutic uses of strychnin. 8. (a) What remedies may be used in septic condition of the alimentary canal? (b) Give dose of each. 9. Outline a dietary in (a) chronic rheumatism, and (b) chronic interstitial nephritis. 10. Write a prescription for any ailment in which iodid of potassium may be used. 11. Specify (a) three official preparations of aconite; (b) adult dose of each. 12. Give (a) the source, (b) the physiological action, and (c) the infantile dose of santalin. 13. (a) Prescribe in proper form for diarrhea in a child 4 years of age; (b) Explain the action of each ingredient. 14. Give (a) the therapeutic uses, and (b) the adult dose of terebinth. 15. Define (a) alteratives, (b) antipyretics, and (c) mydriatics.

HOMEOPATHIC MATERIA MEDICA

Give characteristic indications for: 1. Hepar in corneal ulcers. 2. Aconite in facial neuralgia. 3. Arsenicum iodid in coryza. Compare: 4. Causticum and Bryonia in aphonia. 5. Silica and aurum in bone disease. 6. Nux and alumina in constipation. 7. Ipeacac and natrium mur. in malaria. Name five remedies prominently useful and give the characteristics of one in: 8. Skin diseases. 9. Typhoid. 10. Acute nephritis. 11. Apoplexy. 12. What is a homeopathic prescription. 13. Define the similimum. 14. Give three essentials of a homeopathic prescription. 15. Give treatment for renal calculus.

OBSTETRICS AND GYNECOLOGY

1. Give a comparative description of the virgin uterus and the uterus after child-bearing. 2. State procedure in case the head refuses to engage the pelvic brim. 3. How may rupture of the uterus complicating delivery be recognized? How should such a condition be managed? 4. Under what circumstances during labor may obstetric anesthesia become advisable? Mention an appropriate anesthetic and describe the method of administration. 5. What may cause delay in the second stage of labor? How should such a condition be managed? 6. What are three most dangerous forms of uterine hemorrhage? 7. Outline your treatment of the foregoing types of uterine hemorrhage. 8. Describe toxemia of pregnancy and state what may be done to prevent or to relieve this condition. 9. Under what circumstances is induction of abortion permissible and how is it safely performed? 10. Name the varieties of salpingitis and give briefly the etiology and diagnosis. 11. What are the causes of pelvic abscess? Describe method of surgical treatment. 12. Mention the causes and state the management of cystitis in the female. 13. Mention the prodromal symptoms of puerperal eclampsia. Describe the management of puerperal eclampsia. 14. Give the causes, diagnosis and treatment of prolapse of the ovary. 15. What is ophthalmia neonatorum? How prevented? How cured?

PRACTICE OF MEDICINE

Differentiate: 1. Acute pericarditis and acute endocarditis. 2. Apoplexy and acute alcoholism. 3. Cancer and ulcer of stomach. 4. Chancre and chancreloid. 5. Diabetes and acute glycosuria. 6. Epilepsy and hysteria. 7. Hemoptysis and hæmatemesis. 8. Intestinal and hepatic colic. 9. Organic and functional heart disease. 10. Pneumonia and pleurisy with effusion. 11. Pyelitis and cystitis. 12. Scoury and purpura. 13. Typhoid fever and acute fibrophlebitis. 14. Edema glottidis and retro-pharyngeal abscess. 15. Cerebral concussion and cerebral compression.

SURGEY

1. Give diagnosis and treatment of intracapsular fracture of the femur. 2. Give technic of posterior gastro-entostomy. 3. Etiology and treatment of senile gangrene. 4. Give causes, symptoms and treatment of phlebitis. 5. Mention the causes of non-union of fractures. 6. Give causes, diagnosis and treatment of abscess of the liver. 7. How would you treat a penetrating wound of the trachea? 8. Describe acute suppurative osteomyelitis of the tibia. 9. Gonorrhœal arthritis; diagnosis and treatment. 10. Differentiate between fracture of the neck of humerus and subcoracoid dislocation. 11. Discuss etiology of thrombosis. 12. Symptoms and treatment of acute pancreatitis. 13. Diagnosis of floating kidney. 14. Mention the conditions that may necessitate amputation of an extremity. 15. Etiology and treatment of cystitis.

South Dakota July Report

Dr. F. W. Freyberg, secretary of the South Dakota State Board of Medical Examiners, reports the written examination held at Lead, July 13-14, 1910. The number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 32, of whom 26 passed and 6 failed. The following colleges were represented:

College	PASSED	Year	Total No. Examined.
George Washington University	(1908)	(1908)	1
Rush Medical College	(1895) (1897)	(1906)	3
Northwestern Univ. Medical School	(2, 1900)	(2, 1910)	4
Coll. of P. & S., Chicago	(1901) (1907)	(3, 1910)	6
Chicago Homeopathic Medical College	(1894)	(1908)	1
Bennett Medical College, Chicago	(1909)	(1909)	1
Univ. of Iowa, Coll. of Medicine and Surgery	(1903)	(1903)	1
Univ. of Minn., Coll. of M. & S.	(1908) (1909)	(1910)	3
Hamline University	(1908)	(1908)	1
Creighton Medical College	(1908)	(1908)	1
Syracuse University	(1910)	(1910)	1
Eclectic Medical Institute, Cincinnati	(1897) (1907)	(1907)	2
Queen's University, Kingston, Ontario	(1908)	(1908)	1
FAILED			
Bennett Medical College	(1909)	(1909)	1
Hahnemann Med. Coll. and Hospital, Chicago	(1901)	(1901)	1
Medical College of Indiana	(1892)	(1892)	1
Drake University	(1902)	(1902)	1
Sioux City College of Medicine	(1896)	(1896)	1
Bellevue Hospital Medical College	(1892)	(1892)	1

The following questions were asked:

OBSTETRICS

1. At what stage can you make a positive diagnosis of pregnancy? Give findings. 2. Give the most important features in the management of a breech presentation. 3. Describe fully the indications for and the application of forceps. 4. Describe the four most common positions of the fetus during pregnancy. 5. Give your treatment of a two and one-half months' pregnancy with adherent retroversion. 6. How would you treat a labor, with child in normal position, inefficient, distressing pains having been in progress twelve hours, with no apparent dilatation? 7. What is adherent placenta and your method for removal of same? 8. Give directions for care of mother during the lying-in period. 9. When should you repair a lacerated perineum? 10. With the head down on the perineum and severe labor pains with prospect of laceration, what is the proper method to pursue?

EYE, EAR, NOSE AND THROAT

1. Describe and give treatment for dacryocystitis. 2. Discuss corneal ulcer, giving etiology, prognosis and treatment. 3. Define astigmatism, synecchia, hypopyon, myopia, epiphora. 4. Diagnose and treat a case of (a) Iritis; (b) pterygium. 5. Treat a severe puncture of the eyeball. 6. Give symptoms and treatment of hypertrophied turbinated bodies. 7. Give treatment for purulent inflammation of middle ear. What dangers are apprehended? 8. Discuss the relation of adenoid vegetation and otitis media in children. 9. Give four common symptoms caused by nasal obstruction. 10. Give anatomy of larynx and treat a case of laryngitis.

CHEMISTRY

1. Define an element, an atom, a molecule, chemical force. 2. State the proportions of the chief constituents of the atmosphere. What action is produced on air by animals? By plants? 3. What are deodorizers? Disinfectants? Antiseptics? Give an example of each. 4. Give a test for sugar in urine. Determine the quantity by the fermentation test. 5. Name three alkaloidal poisons. Give antidotes.

PATHOLOGY

1. Define anemia, pyæmia, bacterlemia. 2. Name the paths of bacterial infection; the paths of extension. 3. What changes may a simple (non-infected) thrombus undergo? 4. Name the various degenerations; give examples of two. 5. Give the pathology of phlebitis. 6. Describe the changes in the pleura in the various stages of pleuritis. 7. What is the pathology of Addison's disease? 8. Name the causes and give the morbid anatomy of acute poliomyelitis. 9. Give the pathology of tuberculosis of the hip joint. 10. What are antibodies?

DISEASES OF WOMEN

1. What are the sequences of gonorrhœa on the female? 2. Vaginitis—name causes, give treatment. 3. How do you treat endometritis? 4. Abscess of Cowper's gland—cause and treatment. 5. Differentiate salpingitis and pyosalpinx; chancre and cancer of os uteri.

SURGERY

1. Differentiate first, second, third degree burns and give treatment of each. 2. Define, diagnose and give treatment of shock. 3. Diagnose and treat post-operative hemorrhage. 4. Give differential diagnosis of cholelithiasis, carcinoma of the stomach and duodenal ulcer. 5. Diagnose and give treatment of fracture of patella. 6.

Diagnose and give treatment of Colles' fracture. 7. Outline treatment of gunshot wound; point of entrance of bullet anterior portion of chest at eighth rib, right side, general direction inward and downward, no point of exit, patient conscious and in shock. 8. Give treatment of lacerated and contused wound of scalp. 9. Give diagnosis and treatment of diffuse suppurative peritonitis. 10. What are the indications for, method of and location for paracentesis of thorax?

HYGIENE AND SANITATION

1. Describe an effective method of fumigation of residence following scarlet fever. 2. Give rules for and length of quarantine for (a) diphtheria; (b) scarlet fever. 3. Give method of transmission and management of case of typhoid fever for the protection of attendants and members of the family. 4. Give practical method of caring for the garbage of cities with from five to ten thousand population. 5. Give in detail a method for the examination of water and milk supplies for the purpose of tracing the origin of typhoid epidemic.

ECLECTIC MATERIA MEDICA, THERAPEUTICS AND PRACTICE

1. Define the terms tonic and stimulant and give examples of each. 2. Name three of the best alteratives and give dose of each. 3. Name three of the best diuretics and give dose of each. 4. Give the specific indications for (a) lobelia; (b) pulsatilla; (c) hydrastis. 5. Name three of the best intestinal antiseptics and give dose and method of administration of each. 6. Give the specific indications for gelsemium, potassium iodid, muriatic acid; also dose of each. 7. Diagnose and treat a case of diphtheria. 8. Give differential diagnosis between alcoholism and hemiplegia. 9. Give diagnosis and treatment of spinal meningitis. 10. What do you know about "blood poisoning," its cause and treatment?

MEDICAL JURISPRUDENCE

1. How would you judge as to whether fracture of the bones of a dead body had been produced before or after death? 2. Define (a) illusion; (b) delusion; (c) hallucination; (d) dementia. 3. Having found the body of an infant, give evidence of its having been born, of its having been born alive and as to cause of death. 4. In a partnership business of two physicians, to what extent, if any, is the one liable for the negligence of the other, in case of a malpractice suit? 5. What constitutes malpractice in a medicolegal sense?

PHYSIOLOGY

1. How is the normal temperature of the body maintained? 2. What is the omentum and what are its chief functions? 3. Give examples of proteins, and state how and where digested. 4. What is the largest gland in the body and where is it located? 5. What is the average per cent. of urea in normal urine? 6. What factors assist the heart in keeping the blood circulating? 7. What is lymph? Chyme? Chyle? 8. Locate and describe the parotid gland. 9. Name the different varieties of cartilage and state where each is found. 10. What are the functions of the spinal cord?

THERAPEUTICS AND PRACTICE (HOMEOPATHIC)

1. What is the chief sphere of action of gelsemium? Give characteristic indications for its use. 2. Compare spigelia and cactus in heart affections. 3. Give symptoms and treatment of gastric ulcer. 4. Give indications for arsenicum in skin diseases. 5. Diagnose and treat herpes zoster. 6. Give causes, symptoms and treatment of cholera infantum. 7. Name two remedies with indications for their use in dysentery. 8. Diagnose and treat membranous croup. 9. Name with indications two remedies for chorea. 10. Compare arsenic, hepar sulphuris and tartar emetic in pus affections.

SKIN AND GENITOURINARY DISEASES

1. Give diagnosis and treatment of herpes zoster. 2. Etiology, diagnosis and treatment of urticaria. 3. Diagnosis and treatment of chronic infantile eczema. 4. Etiology, diagnosis and treatment of erysipelas. 5. Symptoms, diagnosis and treatment of urethral stricture.

ANATOMY, HISTOLOGY AND EMBRYOLOGY

1. Give histologic description of the section of the shaft of a long bone. 2. Describe the shoulder joint. 3. Give a brief description of the cerebrum, naming its lobes and fissures. 4. Give histologic description of a section of the stomach wall, at the greater curvature. 5. Describe the thyroid gland. 6. Describe the male urinary bladder and give its relations. 7. Name the muscles of mastication. Give origin and insertion of two. 8. Describe histologically: (a) striated muscle; (b) non-striated muscle. 9. Describe the wrist joint, giving arrangement of bones. 10. What displacement occurs in a fracture of the lower one-third of the femur? Why?

REGULAR PRACTICE AND THERAPEUTICS

1. (a) Give causes, symptoms and diagnosis of intestinal obstruction; (b) give differential diagnosis between intestinal obstruction and generalized peritonitis. 2. (a) Define intestinal catarrh and give etiology; (b) give clinical history of the acute and chronic forms. 3. Give differential diagnosis between primary lobar pneumonia and acute pneumonic phthisis. 4. (a) Define uremia and give symptoms and treatment. (b) How do the symptoms differ in uremic unconsciousness and cerebral hemorrhage? 5. (a) Give symptoms of acute poisoning by iodid. (b) When is iodid contraindicated? 6. (a) What is therapeutics? (b) Give rule of dosage for children. (c) Name five modes of administering drugs. 7. Give causes, symptoms, diagnosis and treatment of infantile convulsions. 8. (a) Give causes and symptoms of ascites. (b) Give points of differentiation between ascites and chronic peritonitis. (c) What is ascites most apt to be mistaken for? 9. Define the following: myalgia, pertussis, hemiplegia, petit mal, acute chorea, tetany, neuropathia, arsenicism, aphasia and anterior poliomyelitis. 10. (a) What is a hematemesis? (b) Name five chief causes. (c) What are the points of contrast between hematemesis and hemoptysis?

BACTERIOLOGY

1. (a) What are bacteria? (b) Describe the different forms. 2. (a) Give Neisser's method of staining. (b) What is suspected when above stain is used? 3. (a) Give formula of the most commonly used stain for "acid proof" bacilli. (b) Give method of staining "acid proof" bacilli. 4. (a) What are blastomycetes? (b) Where found? 5. (a) What is understood by lack of fermentation? (b) Where found? (c) What bacteria are most commonly found in lactic fermentation?

Book Notices

GYNECOLOGICAL DIAGNOSIS. By Walter L. Burrage, M.D., Fellow of the American Gynecological Society. Cloth. Price, \$6. Pp. 656, with 207 illustrations. New York: D. Appleton & Co., 1910.

Burrage has endeavored to present in this new text a practical work written entirely from the clinical point of view, only the salient points of anatomy and the more recent views of pathology being summarized in each chapter. Like Winter's famous work, this text is divided into two parts, the first covering general considerations, the latter being special diagnosis. Clinical history and interpretation are considered in the first chapters, which include such general topics as menstruation, puberty, menopause, pain, constipation, etc. The physical examination of the patient is discussed at length in the succeeding four chapters.

In speaking of the barriers to the entrance of infective bacteria to the peritoneum, no mention is made of the influence of the normal vaginal flora. One short chapter is given over to the examination of the abdomen, the methods of which are excellently discussed, but the author limits his subject later to gynecology according to the strictest construction of that term. The relaxed abdominal wall, as a factor in female ills, is but incidentally referred to and the subject of enteroptosis is covered in a half page. Cystoscopy is gone into fully, and Kelly's method is described and freely illustrated. The first portion of the volume closes with a chapter devoted to the significance of the chief symptoms of pelvic disease, dysmenorrhea, intermenstrual pain, menorrhagia and metrorrhagia, amenorrhea, leukorrhoea, dyspareunia, sterility, etc.

The author has devoted two-thirds of his work to special diagnosis. He notes the difficulty of classification of endometritis, and wisely makes no attempt to furnish one of his own. His description of pathology is surprisingly meager; here again the clinical point of view is in control. Burrage describes erosion as showing "no inflammatory action accompanied by destruction of the epithelium as in ulceration. The surface squamous epithelium, which normally covers the cervix, is removed—it is eroded—and the underlying columnar epithelium is hypertrophied." The author will have much difficulty in reconciling this view with that taught by the pathologist.

Pelvic inflammation, congenital anomalies, fibromyomata, and malpositions of the uterus are covered ably, while no fresh contributions are offered. The differential diagnosis, as elsewhere in the volume, is presented in parallel columns. Malignant disease of the uterus is considered clinically, but on a pathologic classification. The importance of early diagnosis is emphasized, but here again the histopathology is vague. The author at one time speaks of chorio-epithelioma as being composed of placental tissues (villi) and at another as if it were identical with a placental polyp.

A chapter is devoted to the ovary, and one to the tube. Pfannenstiel's classification of ovarian tumors is accepted and the differential diagnosis is elaborated with special reference to the intraligamentous variety, torsion, and the results of infection. Extra-uterine pregnancy is exceptionally well described and illustrated, and the importance of differential diagnosis is properly emphasized. Diseases of the vagina, vulva, urethra, bladder, uterus and rectum are taken up adequately, each in a separate chapter, the author emphasizing his belief that the bladder and rectum are too often neglected. He includes a chapter devoted to diseases of the breast, based on Bloodgood's classification.

The gynecologic affections of infancy and childhood are wisely given a place, and such topics as vulvovaginitis, masturbation and enuresis are considered. A chapter on the menopause and old age concludes the volume.

Altogether it may be said that this work is a practical one for the general practitioner who is always most interested in the clinical side of his work. Its great fault, as has been noted before, is the lack of laboratory method as applied to diagnosis. Special text-books are lamentably weak on gynecologic pathology, and surely if there is a place for such minutiae it is in a text devoted exclusively to gynecologic diagnosis.

DISLOCATIONS AND JOINT-FRACTURES. By Frederic J. Cotton, A.M., M.D., First Assistant Surgeon to the Boston City Hospital. Cloth. Price, \$6 net. Pp. 654, with 1,201 illustrations. Philadelphia and London. W. B. Saunders & Co., 1910.

One of the most commendable features of Cotton's book is its originality. The volume embodies the results of the author's study and personal experience with a lot of material, and this lends to it a distinctive and unique value. There is a place in surgical literature for a book on joint-injuries, fractures and dislocations, especially since the x-ray in the last decade has caused many long-accepted views to be modified and revised. Every experienced surgeon will concede the importance of joint-injuries, knowing that permanent disability sometimes follows treatment by even the most expert. Dr. Cotton has covered this field of joint-injuries most completely; his style is clear and lucid, and the text is embellished by a great number of good original drawings and reproductions of radiograms. There is no question that it is of great advantage for the author to be his own artist, a circumstance which tends towards the elimination of unimportant details, and the accentuation of the essential features of a drawing.

In the chapter on "Generalities" are collected many facts worth knowing regarding fractures, and much sound advice and wise teaching. There are taken up in succession fractures and luxations of the jaw, spine, sternum, ribs, clavicle and scapula. Then follows a chapter on the shoulder, its various luxations, their mechanism and treatment, and the different varieties of fractures about the shoulder-joint. The elbow is given due prominence, with its anatomy, landmarks and luxations. The fractures about the joint are described clearly and in detail, and the value of the text is enhanced here as well as throughout the book by the profuse and fitting illustrations. In the same thorough manner the author treats of the wrist, hand, pelvis, hip, knee, ankle and foot.

Dr. Cotton preserves his equilibrium and keeps on an even keel throughout. There is no tendency towards dogmatism, nor are there any radical views expressed about treatment. His ideas about immobilization, massage, and passive motion are sane and moderate, and would be acceptable to the majority of surgeons. Every case of joint-injury is a study by itself, and the surgeon, in diagnosis and treatment, must apply those general principles underlying all fractures which he has acquired by years of study and experience. Thus he drifts away from the notion of treating all cases of a certain type of fracture with Dr. So-and-So's splint. Treatment is accomplished by the use of the simplest kind of retention apparatus. The author's attitude towards the operative treatment of fractures is that indiscriminate operating is uncalled for. He essays to teach that in some types of cases the fractures do best if operated on early; others do well without operation, if treated properly from the beginning. Proper emphasis is laid on the taking of x-rays after, rather than before reduction of a fracture, to control the position of the fragments before it is too late to reset. Faulty position is due rather to improper treatment than to errors in diagnosis.

The book deserves hearty acceptance by the general practitioner as well as by the surgeon. The paper is good, the printing is clear, and the bookmaking leaves nothing to be desired.

GENESIS. A Manual for the Instruction of Children in Matters Sexual, for the Use of Parents, Teachers, Physicians and Ministers. By B. S. Talbot, M.D., Former Pathologist to the Mothers' and Babies' Hospital and Gynecologist to the Yorkville Hospital, New York. Cloth. Price, \$1.50. Pp. 194. New York: The Practitioners' Publishing Co., 1910.

The author calls this "a manual for the instruction of children in matters of sex." It is intended to be put into the hands of teachers and parents, not of children. It consists, first, of matter going to prove the necessity for such instruction, and, second, of an outline of instruction intended to lead children's minds by various ways, chiefly through explanation of the phenomena of reproduction in the lower orders of life, gradually to a proper understanding of sexual physiology and hygiene in human beings. The general plan proposed is unexceptionable, but not original.

As a "manual of instruction," the book is not practical. The biologic facts presented are far too complicated and are

described in language entirely too technical to be snitable for children. Very few teachers and still fewer parents would be capable of selecting, out of the many offered, the few essential facts and of presenting them in such simple form that children would be able to grasp them. In fact, the technical language might be rather appalling to a "grown-up" with no special training in science or interest in biology. Only a person with exceptional gifts as a teacher could really get much out of it.

A feature which should receive careful attention in a book intended for the instruction of the young in this subject is the proper coordination of the subject. The sexual physiology of plants, for instance, should be taught incidentally to the general subject of botany. The necessity for proper coordination has scarcely received in this book the emphasis it deserves. The possibility of giving an exaggerated perspective by taking facts out of their context is one which should not be overlooked. A book for this purpose ought to be written by someone possessing real knowledge of children and a practical acquaintance with educational methods.

DISEASES OF THE COLON AND THEIR SURGICAL TREATMENT. (Founded on the Jacksonian Essay for 1909.) By P. Lockhart Mummery, F.R.C.S., Jacksonian Prizeman and late Hunterian Professor, Royal College of Surgeons. Cloth. Price, \$3.25 net. Pp. 322, with 88 illustrations. New York: William Wood & Co., 1910.

This monograph is founded on the Jacksonian Prize Essay for 1909. The book is well illustrated with figures in the text and inserted colored plates. It is exhaustive and up to date, and the author's expressions of judgment are sensible. For instance, he says, "The fact that human beings can live without a colon is, however, no proof of its uselessness and at present the evidence brought forward to prove that the colon is a useless and effete portion of the alimentary tract is anything but convincing." The first two brief chapters treat of the anatomy and physiology of the colon. Cannon, Elliott and Smith and Hertz are given credit for their recent interesting work on its physiology. The next chapters are on morbid physiology, bacteriology and diagnosis. The author has shown by experiments that if the colon is cleaned thoroughly it will not become distended with gas, which must be interpreted to mean that the gas causing distention is due to fermentation in the feces. Further on he says of post-operative meteorism, "I have never seen it, nor been able to find an instance of it except in cases when there were obvious possibilities of some infection."

Comment cannot be made on all the diseases of the colon discussed by the author. Mucous colitis the author believes to be a true inflammation, and not a neurosis. He bases his belief on numerous cases in which during surgical operation evidence of inflammation was demonstrable. Olive-oil enemata are recommended as the best medicinal treatment. Some cases persist in spite of all treatment, and for these surgical aid has been sought. The author's analysis of the various operations which have been resorted to is most interesting. He recommends appendicostomy, and the subsequent persistent washing of the colon through the appendix. He discusses such surgical procedures as have been resorted to in extreme cases and can approve only of washing the colon through the appendix, which gives relief and sometimes effects a cure.

THE EAR AND ITS DISEASES. By Albert A. Gray, M.D., Laureate of the Lenox Prize in Otology, International Medical Congress, 1909. Cloth. Price, \$4.25. Pp. 388, with 123 illustrations. New York: William Wood & Co., 1910.

This is a compact book of 388 pages, bringing otology reasonably well up to the year 1910. The chapters on "Acoustics," "Anatomy and Physiology" are clear and well illustrated; and the chapter on "Methods and Principles of Investigation" is one of the most useful in the book, and clarifies the different aural tests (including those of Barany) so that an ordinary man can understand them. There is a practical chapter on "General Semeiology and Therapeutics," and a short chapter on "Nasal and Pharyngeal Affections," and then follow the chapters on the various diseases of the ear, which are good and comprehensive. The chapters on mastoid surgery are unsatisfactory and poorly illustrated. It really is a pity that a book containing so many good illustrations should be damaged by the presence of a considerable number of those old, crude and behind-the-times illustrations

from Politzer and others. Mastoid surgery has advanced enormously since these old prints were made, and it is too bad to have them still appearing in modern text-books. The stereopticon pictures are a novelty, but their real usefulness might be questioned.

SECOND ANNUAL REPORT OF THE MICHIGAN ASSOCIATION FOR THE PREVENTION AND RELIEF OF TUBERCULOSIS FOR 1909-1910. Containing Statement of Work Accomplished—Report of Convention at Ann Arbor—Report of Local Associations—State Needs—Report of Secretary and Treasurer. A Brief of the Year's Work. Submitted by the Secretary, Aldred Scott Warthin, M.D. Ann Arbor, Mich., Feb. 26, 1910. Paper. Pp. 216, with illustrations.

This is a record of the splendid work done in Michigan against tuberculosis in 1909-1910. It is a strong appeal for substantial encouragement in the work, made by setting out graphically and forcibly the tremendous expense of this preventable disease and the resulting loss to the state in dollars as well as in lives. This pamphlet contains several valuable papers on the management and methods of eradication of the disease, with illustrations of tents and tent colonies for the outdoor treatment, as well as reports from the local associations in the state, and a synopsis of what has been accomplished in the way of state and local sanitary legislation. There are many suggestions that should be of value to other state associations pursuing this work.

BIOLOGY, GENERAL AND MEDICAL. By Joseph McFarland, M.D., Professor of Pathology and Bacteriology, Medico-Chirurgical College of Philadelphia. Price, \$1.75 net. Pp. 440, with 160 illustrations. Philadelphia: W. B. Saunders Co., 1910.

The latter-day methods of attacking the problems of function and disease peculiarly emphasize the close relationship and importance of biology to medicine. Not only is this true as to cytology, morphology and the chemistry of the cells, but also as to the chemistry and functions of the body as a whole, the problems of infection, immunity, mutilation, regeneration, heredity and senescence, and the grosser phenomena of parasitology and parasitism, all of which are most essential to a modern understanding of the science of medicine and the most enlightened methods of curing disease. In this brief work the author has treated the subject in a way to be of the greatest value to students of medicine.

A TEXT-BOOK OF BOTANY AND PHARMACOLOGY. Intended for the Use of Students of Pharmacy, as a Reference Book for Pharmacists and as a Handbook for Food and Drug Analysts. By Henry Kraemer, Ph.D., Professor of Botany and Pharmacology, and Director of the Microscopical Laboratory, in the Philadelphia College of Pharmacy. Fourth Edition. Cloth. Price, \$5 net. Pp. 888, with 2,000 illustrations. Philadelphia: J. B. Lippincott Co. (1910).

The botanical portion of this work has been rewritten, especially that bearing on the morphology and classification of the angiosperms. The addition of about forty pages treating of the microscopic analysis of the crystalline forms of some of the important plant constituents will be of value in the detection and study of these substances. The work has, moreover, been brought up to date by including the results of the researches published during the past two years.

THE EXTRA PHARMACOPEIA. Revised by W. Harrison Martindale, Ph.D., F.C.S., and W. Wynn Westcott, M.B., Lond., D.P.H. Fourteenth edition. Morocco. Price, 12 shillings net. Pp. 1054, with supplement, Organic Analysis Chart, by W. Harrison Martindale, Ph.D., Pharmaceutical Chemist, Morocco. Price, 3 shillings 6 pence net. Pp. 80. London: H. K. Lewis, 136 Gower Street, W. C., 1910.

This volume furnishes in a convenient form a large amount of detailed information on pharmaceutical and medical subjects, especially in relation to articles not contained in the pharmacopeia. The new edition contains some important changes. New chapters are introduced on lactic acid bacilli, organic arsenic compounds, iontophoresis, radium, etc. Vaccine therapy, the Wassermann test, trypanosomiasis, examination of stomach contents and the flavoring of medicines are among the subjects discussed.

THE PRACTITIONER'S VISITING-LIST FOR 1911. Leather. Price, \$1.25. Pp. 192. Thirty Patients per Week. Philadelphia: Lea & Febiger, 1910.

"The Practitioner's Visiting-List" combines, in a neat pocket book, well bound in leather, a convenient record for the physician's visits and professional engagements, and much information that he is likely to need on his daily rounds, such as tables of do-es, poison antidotes, etc.

Medicolegal

Construction of Medical Practice Acts with Reference to Certificates and Verification Licenses—Requirements for and Construction of Restricted Certificate.—Presumptions as to Acts of Boards.—Right to License

The Supreme Court of Texas says, in *State Board of Medical Examiners vs. Taylor and wife* (129 S. W. R. 600), that the latter parties sought by mandamus to compel the board to issue to Mrs. Taylor the verification license to practice medicine provided for by section 6 of the act of 1907. A district board of medical examiners had issued to her, in 1889, a certificate stating that they had examined her and "find her qualified to practice the branches of obstetrics and diseases peculiar to women and children, as required by the laws of the state of Texas." Under this she practiced medicine from its date, but the State Board refused any evidence of authority to practice, except a license to practice obstetrics only.

The provision of the act of 1907 above referred to requires the issuance by the present board of the "verification license" on production of documents sufficient to establish "the existence and validity" of the "valid and existing license heretofore issued by previous examining boards." What the verification license is to be the law does not expressly say; but its name and the purpose for which it is required plainly indicate that it is to be merely the evidence of the continuance of authority to practice as before, neither adding to nor taking from that authority. Pre-existing lawful authority is thus recognized and continued in force by compliance with the law. Therefore, if it was true that the first certificate was a valid license to practice medicine at all, either generally or in the branches mentioned in it, it must follow that the plaintiffs were entitled to a verification license to continue in force such authority as it had conferred.

The law formerly regulating the licensing of physicians, and which was in force when the certificate in question was issued, provided that it should be the duty of the board to examine thoroughly all applicants for certificates of qualification to practice medicine, in any of its branches or departments, on anatomy, physiology, pathological anatomy and pathology, surgery, obstetrics and chemistry, and when satisfied as to the qualifications of an applicant should grant to him a certificate to that effect, which should entitle him to practice medicine.

For the State Board it was contended that the certificate granted to Mrs. Taylor showed by its statements that the requirement that she should be found qualified in all those subjects was not complied with, and that it was issued on a finding by the former board that she was qualified only in obstetrics and in diseases peculiar to women and children, and that she was not qualified in the other subjects named in the statute. If it were true that the certificate showed all this, it would probably follow that the board so transcended its authority in extending a license of any character as to make its action void, since it was true that the statute did not admit any one to practice without the examination in all the prescribed subjects, resulting in the satisfaction of the board of the applicant's proficiency therein. But the court cannot say that the certificate meant that, consistently with the presumption that the board did its duty, which presumption must be indulged unless its action showed the contrary. The most that could be conceded was that a certificate so worded might be used to cover up a state of facts such as that which it was thus asserted to show affirmatively. It could not even be admitted that those facts would be fairly consistent with the truthfulness of the certificate, assuming the members of the board knew their duty. They said they had examined the applicant as required by law, which meant that they had examined her in all the named subjects and that they had found her qualified to practice the branches named. They could not truly have said that she was so qualified, in the sense of the law they were sworn to follow, unless they were satisfied that she possessed the knowledge required by that law of all the prescribed subjects.

All that rendered the certificate ambiguous or questionable was the mention of particular branches, and that might be explained by the fact that the statute plainly contemplated that there might be applicants who intended to confine their practice to particular branches or departments, which made it natural, and not improper, in such cases, to mention the branches or departments in the certificate, without restricting its meaning as to the scope of the examination and of the qualifications of the applicant. The statute proceeded on the conviction that qualification to practice in any branch or department could only be attained through adequate knowledge of the subjects named, and the court thinks it should be presumed that a board of medical gentlemen, selected because of their own proficiency, would proceed on a like conception, and would not issue a certificate affirming fitness to practice a branch without being satisfied themselves of the adequacy of the information of the person licensed concerning those things declared to be essential to that fitness.

The language, "When the board shall be satisfied as to the qualifications of an applicant, they shall grant him a certificate to that effect," meant no more than that the certificate should state that they were satisfied as to his qualifications to practice medicine, and a certificate in that language would have entitled an applicant to practice in all the branches or departments, or in particular branches or departments, as he might choose. The certificate in question, if the board understood their duty and spoke the truth, implied as full an examination and as complete qualifications as if it had been the more general one just instanced, since, under the statute, no one could be qualified, as was certified, to practice in the diseases peculiar to women and children without the required knowledge of the subjects mentioned. The provisions referred to did not apply to females practicing midwifery.

The question of whether the certificate entitled Mrs. Taylor to practice medicine generally, or restricted her to the branches mentioned, was not involved in this case. The State Board were not required to enlarge or diminish her authority, but only to issue to her a verification license to have the effect already explained. The judgment of the district court required them to issue only such a verification license as required by the act of 1907, "according to the provisions and wording" of the former certificate, and to that the Supreme Court thinks that the plaintiffs were entitled.

Liability for Negligent Communication of Small-Pox

The Springfield (Mo.) Court of Appeals had, in *Franklin vs. Butcher* (129 S. W. R. 428), a suit brought by a mother to recover damages for the alleged negligent communication of small-pox to her minor son. The defendant asked that the jury be instructed that the plaintiff could not recover unless she had proven that the defendant communicated the disease of small-pox to her son after he, the defendant, himself became aware of and knew that he was afflicted with said disease, and that he so communicated said disease by recklessly, carelessly and negligently bringing himself into contact with the plaintiff's son. Also, that the plaintiff could not recover unless the defendant wilfully or intentionally communicated the disease of small-pox to the plaintiff's son after the defendant had knowledge that he was afflicted with that disease. But the court thinks that these instructions were properly refused. If the defendant negligently and carelessly communicated the disease of small-pox to the plaintiff's son, it was immaterial whether it was done wilfully or intentionally, and it was also immaterial as to how it was done, if it was negligently done.

In the companion case of *Hendricks vs. Butcher*, decided on the same day (129 S. W. R. 431), the same court further says that it is familiar law that before an action will lie for negligence some duty must be neglected on the part of the party charged. But the court has no hesitancy in holding that any one afflicted with the disease of small-pox, which is known by every one to be a highly contagious disease, owes to every one the duty so to conduct himself as not to communicate this disease to them, after he becomes aware that he is afflicted with it. Hence, if the defendant knew that he

was afflicted with small-pox, it then became and was his duty to keep away from other persons, or should other persons approach him, to notify them of the fact so that they might protect themselves.

Villages May Tax Occupation of Physicians

The Supreme Court of Nebraska, in reviewing the case of the *Village of Dodge vs. Guidinger* (127 N. W. R. 122), affirms the right of villages in that state to lay out and collect a tax on the vocation of a physician. The state statute gives authority "to raise revenue by levying and collecting a license tax on any occupation or business within the limits of the city or village, and regulate the same by ordinance." The defendant contended that practicing medicine is neither a business nor an occupation, but a profession; that, since the statute and the ordinance in question were silent concerning professions, the tax sought to be collected was void. But, in the court's opinion, a physician practicing medicine is engaged in an occupation within the meaning of the statute, and the plaintiff village under the legislative grant of authority had power to levy and collect a tax on the defendant's occupation or business.

Again, the defendant argued that the village might license only such vocations as it might regulate in the exercise of the police power, and that the practice of medicine was not subject to such regulations. But the statute authorizes the imposition of occupation taxes for the purpose of raising revenue. The taxing power, therefore, was the source of the village's authority to demand from the defendant the tax in question. The power of the legislature to raise revenue by levying a license tax on occupations is no longer an open one in Nebraska.

Removal of Garbage Controllable in Interest of Public Health

The Court of Appeals of Maryland says, in *Schultz vs. State* (76 Atl. R. 592), that it cannot be seriously contended that an ordinance which deals with garbage, house offal or other refuse, animal or vegetable matter, is not one which has a direct relation to the police power, or that it is not the duty of the city in the interest of the public health or comfort to assume the regulation and control of such matters. The fact that this accumulation contains fresh scraps of animal and vegetable matter does not prevent the extension of the police power of the city over the whole subject. More particularly, it holds that it was a valid exercise by the mayor and city council of the city of Baltimore of the police power vested in the city by its charter to pass an ordinance providing that no person, except employes of the city engaged in public work, or persons under contract with the city engaged in public work, should convey any garbage, house offal or other refuse, animal or vegetable matter through any street, etc., of the city, without having first obtained a permit so to do from the commissioner of health, and then only in the manner prescribed in said permit.

Society Proceedings

COMING MEETINGS

Southern Surg. and Gyn. Assn., Nashville, Dec. 13-15.
Western Surg. and Gyn. Assn., Chicago, Dec. 19-20.

SOUTHERN MEDICAL ASSOCIATION

Fourth Annual Meeting, held at Nashville, Nov. 8-10, 1910

The President, DR. W. W. CRAWFORD, Hattiesburg, Miss., in the Chair.

President's Address: **Advances in Medical Education**

DR. W. W. CRAWFORD, Hattiesburg, Miss.: It is not enough to say that there are a few good medical colleges, our full duty shall not have been discharged until we have witnessed the disappearance of the last inferior one. The proper adjustment of this question must contemplate a four-fold educative need: 1. The profession must be made to appreciate that

an over-production of medical colleges means an over-production of poorly equipped physicians. 2. The layman must be brought to realize that there is a difference in medical degrees, so that he may demand higher standards. 3. State legislatures must be awakened to their responsibility. 4. The medical student himself must be convinced that the best is not too good for him.

Safeguarding Society From the Unfit

DR. A. B. COOKE, Nashville: Vasectomy is not specified as the method of sterilization in the Indiana law, but its advantages over other methods are obvious. Orchidectomy is a mutilating operation, and one of considerable gravity, yet I am persuaded that it should be recognized and specified as the only method permissible in rapists. Human nature will never rise superior to the idea that this type of criminal merits punishment, and punishment of a character which will render a repetition of the crime forever impossible. As a preventive, particularly in the south, where this evil is most prevalent and most abhorrent, the legal infliction of one such penalty would have a more salutary effect than many lynchings or even burnings at the stake. While the foregoing remarks have been directed to habitual criminals, they are just as applicable to the larger class comprehended under the general term "defectives" or "degenerates." That the importance of this great question is coming to be generally recognized is evidenced in the fact that such widely separated states as Kansas, Delaware, Indiana, Connecticut, Michigan, and New Jersey have enacted laws regulating marriage, while Utah, Oregon, California, Connecticut and possibly others have followed Indiana's lead in legalizing the sterilization of criminals and degenerates. It is yet too early to point to definite results from the operation of these laws. But when the crucial test of time shall have been applied, I believe it is reasonable to predict that crime and degeneracy will be largely decreased and the world be correspondingly better and happier.

DISCUSSION

DR. GEORGE H. PRICE, Nashville: This subject contains two principal ideas, namely, the restriction of marriage, or the throwing around marriage such safeguards and barriers as will prohibit and prevent, if possible, the reproduction of such individuals as are a constant menace to society. It is a difficult matter to secure legislation because there has been a lack of uniformity on the part of the medical profession looking to this great problem of safeguarding the public; nevertheless the medical profession should be foremost in advocating restrictive measures.

DR. FRANCIS DOWLING, New Orleans: Physicians of the medical department of Tulane University have taken up this matter and have received letters from those who are interested in securing such legislation as will safeguard the public. Some have suggested that gonorrhoea and syphilis should be among the reportable diseases to boards of health like cases of diphtheria or scarlet fever. The people of the State of Louisiana are already agitating this question.

DR. JOHN H. WHITE, New Orleans: There is one difficulty growing out of the particular remedy advocated by Dr. Sharp of Indiana for the class of defectives under discussion, and that is, the operation of vasectomy would be utilized by the rone as fitting him to practice his nefarious life without risk of being caught, and I believe that is a thing which should be carefully considered before resorting generally to this operation. A law providing for this operation should guard against men voluntarily submitting to this operation for that very reason.

DR. JERE L. CROOK, Jackson, Tenn.: The time has arrived when the medical profession should take active steps toward bringing about consummation of the ideas embodied in Dr. Cooke's paper.

DR. ISADORE DYER, New Orleans: In the last few years this question has been discussed as one of supreme moment in connection with eugenics. I believe that professors of eugenics,

criminologists and scientists, who are interested in the solution of this problem, are all satisfied that the aphorism of Oliver Wendell Holmes, that a man's education should begin with the education of his great-grandfather, is very pertinent and that we ourselves for the sake of our own people should establish at least this one law of protecting our descendants from the possibilities to which they have been exposed in regard to criminals and defectives.

DR. GEORGE H. PRICE, Nashville, offered the following resolutions, which were adopted:

WHEREAS, The medical profession of the South believes that its highest office is to prevent disease and its most sacred obligation to safeguard those interests of society on which health and happiness depend; and

WHEREAS, We are convinced that those interests are seriously menaced by the utter disregard of the procreative function which characterizes the present system of managing criminals and degenerates; therefore, be it

Resolved, By the Southern Medical Association, in regular annual session assembled, that the members endorse as wise and beneficent the laws of Indiana regulating marriage and providing for the sterilization of habitual criminals and other degenerates.

Resolved, That these laws be commended to the earnest consideration of state medical societies, with the suggestion that persevering effort be made to incorporate their principles into the laws of each state.

Exophthalmic Goiter

DR. W. D. HAGGARD, Nashville: The four cardinal symptoms of this disease, tachycardia, goiter, tremor, and exophthalmos, are unmistakable. An acute toxic case presents high temperature, extreme restlessness, tumultuous heart action, sometimes up to 200, and nausea and vomiting which may become frequent and distressing. There may be epigastric and abdominal pain. It looks and is like a violent septic intoxication. Active delirium, followed by stupor, precedes death. In the four acutely fatal toxic cases that I have observed, the patients all had temperatures up to 106 F., shortly before the end. In the chronic cases with exophthalmos the eye symptoms are important. Surgical treatment has proved superior to any other. It can be shown statistically to offer the best results, and at present early operation is the best treatment. It is comforting to realize that the disease can be very generally cured if taken in time. The very acute or advanced cases are very grave surgical cases. The present surgical efforts are directed to decreasing the blood supply by ligation of the arteries and thus reducing the amount of secretion; or to lessening the amount of secreting surface by partial thyroidectomy. Mayo estimates that one-fourth of the patients come for relief in a condition precluding anything but ligation; whereas two-thirds can have the larger lobe and isthmus removed without the ligation of the opposite superior thyroid artery. Ligation is especially recommended by Mayo in cases hardly severe enough to require thyroidectomy. The cases in which I have performed ligation, while few in number, have been satisfactory in the relief of the symptoms. In two cases, it was employed simply as a preliminary step in the graduated operation, but one of the patients was so much improved at the end of four months that the removal of one lobe of the gland is apparently not required at this time. If, at least, in one case ligation had been substituted for thyroidectomy, a death from postoperative hyperthyroidism might have been averted.

DISCUSSION

DR. B. L. WYMAN, Birmingham, Ala.: The medical treatment of hyperthyroidism has been practically a failure in the majority of cases, and in recent years I have referred my cases to the surgeon. I would emphasize the importance of early diagnosis. Some time ago I referred a patient to Dr. Mayo. I advised operation years ago, but the woman deferred it until I felt that a thyroidectomy was impossible, and even the operation of ligation of the superior thyroid, which was finally performed by Dr. Mayo, did not result favorably. The woman had a dilated heart when she went to Rochester, and hence the operation was not followed by a favorable result. If we hope to accomplish anything in the treatment of hyperthyroidism, early diagnosis and prompt operation are absolutely essential.

Bones and Joints

DR. J. B. MURPHY, Chicago: When there is a lesion in the neighborhood of a joint which causes inflammation or thickening, or adhesion of the capsule, if the surgeon wants to overcome deformity the capsule must be dealt with as one would deal with bone or with any other inelastic material. The outer fibrous capsule has a feeble vascularity. It practically never becomes inflamed; it is never the seat of a primary lesion. It never becomes tuberculous. It has an inner lining which is known as the synovial lining. The surface is represented by endothelial cells which are arranged close to each other, and they seal up the surfaces of both the synovial membranes just as accurately as the epithelial cells seal up the surface of the skin. If surgeons are going to do work on joints, one of the things they must observe is that the joint has an enormous resistance against infection, and they must become the greatest respecters of this endothelial layer in all work that involves the surgery of the joints. The time to attack a joint is when Nature or the surgeon has artificially prepared the joint in rendering it immune against easy infection.

Ankylosis can be avoided in practically every case of acute infection of joints. The moment the practitioner speaks of draining joints that are infected, he is assuming responsibility for an ankylosis. In an infection in a joint, to save it from destruction, it is necessary to relieve the joint of tension and the products of infection. This can be done by aspiration. But one can give the patient more relief than a hypodermic injection by putting on Buck's extension and separating the pressing surfaces that are inflamed.

Education of the Specialist

DR. E. C. ELLETT, Memphis, Tenn.: The solution of this and other similar problems will only be fairly settled when the whole thing is put under the control of the national government. With the establishment of a national department of health it may be feasible to map out a course of study and hospital work which a man must complete satisfactorily before he can appear before the world as a specialist in any department of medicine.

Treatment of Trachoma

DR. H. H. MARTIN, Savannah, Ga.: In order to effect complete cure in chronic trachoma, surgical and medical treatment must be combined as neither is sufficient in itself. Of the surgical methods the one which I have called the Coover method is the most satisfactory from all points of view. For local application a solution of copper sulphate in strength of from 5 to 10 per cent. has no rival, but its use must be begun soon after the operation, and continued for eight weeks. Any attempt to sterilize the sandpaper is troublesome, unsatisfactory and unnecessary if the conjunctiva be scrubbed with bichlorid of mercury after the completion of the operation.

Malarial Manifestations in the Eye

DR. M. H. BELL, Vicksburg, Miss.: My observations are based on the symptoms found in thirteen cases of eye trouble due to malarial infection. Corneal ulceration was present in eleven cases, and two entirely distinct types of ulceration were noted. In seven cases the common dendritic ulceration was present, and in the other four the ulcers were of the simple round variety, which I have designated acute herpetic. The acute type of dendritic ulcer I have found only in an acute malarial infection, and it has always responded readily to appropriate antimalarial treatment in combination with the application of tincture of iodine to the ulcerated area, and the usual local treatment employed for any corneal inflammation. I have found this form of ulceration recurring at times, especially in cases in which the treatment of the malarial infection has been stopped in too short a time, and for the prevention of recurrence, I have always placed most reliance on small doses of arsenic continued for some weeks.

The Artificial Leech in Acute Mastoiditis

DR. U. S. BIRD, Tampa, Fla.: My experience includes nine cases. Clinically they were all instances of typical acute mastoid infection, middle-ear disease, high temperature, mastoid swelling, and pain. In every case the middle ear has been freely opened without relief. In all of the cases operation seemed indicated, and in one case the patient was sent to a hospital for that purpose. In some heat was used, but in most it was unnecessary after the leech. Calomel was given at first as a routine measure. Improvement was noted at varying intervals after leeching. At times it was immediate; it usually occurred the same day. In one case the leech was applied in the morning with temporary relief. In the evening the patient was suffering so much that he was sent to a hospital with instructions that he be prepared for operation next morning. Next morning he was feeling better; operation was postponed, and he recovered without further incident. In every case relief was permanent, no further active treatment being necessary.

Episcleritis

DR. O. DULANEY, Dyersburg, Tenn.: There is no specific for this disease. Most good is obtained from constitutional treatment. One is always safe in administering mercury; the salicylates and alkalines, also the iodids play their part, especially in cases of specific origin. The best results are obtained locally by the use of mild sedative lotions, and by keeping the pupils well dilated with atropin sulphate. Hot applications should be frequently used, much depending on the severity of the disease. The ointment of yellow oxid of mercury is very efficacious, and an ointment of boric acid will often give good results.

The Heath Mastoid Operation

DR. M. M. CULLOM, Nashville, Tenn.: This operation is safer than the radical operation, as there is less danger of intracranial involvement following it. There is practically no danger of injuring the facial nerve. There is no injury to the hearing and the operation is often followed by marked improvement in hearing power. Suppuration diminishes rapidly and postoperative healing takes place sooner than after the radical operation. It can be easily converted into the radical operation, if desired.

(To be continued)

MASSACHUSETTS ASSOCIATED BOARDS OF HEALTH

Quarterly Meeting, held at Boston, Oct. 27, 1910

The President, DR. HENRY P. WALCOTT, Cambridge, in the Chair

Typhoid Fever

DR. CHARLES V. CHAPIN, Providence, R. I. [For the Committee on Typhoid Fever]: We believe that there is a lack of control of typhoid at present, and we urge local boards of health to be more energetic. Cases should be reported, and should not only be filed, but the boards of health should show to the physician some evidence that his report has been considered as valuable, and among other methods the milk supply in each case should be investigated. Earlier diagnoses should be made and in order to be of assistance the boards of health should offer the physician proper aid in diagnosis, such as facilities for blood-tests, etc. Directions should be given by physicians to nurses how not to spread it. Disinfection and isolation are recommended, and the placarding of house, front and back. Special attention should be given to any member of the family who handles foodstuffs, and the spread by this means avoided. If isolated, some means of determining the termination of isolation should be announced, as, for instance, when the patient has had a normal temperature for two weeks, as results tend toward the opinion that in the large majority of cases no bacilli are excreted after a two-weeks' absence of fever. Except with carriers the above period appears correct, and their cases have no rule. Hexamethylenamin should be given as a routine treatment. When a simple bacteriuria only is present, the results of hexamethylenamin

are marked: 0.3 gm., given three times a day, has been known to clear the urine in twenty-four hours. Occasionally painful micturition occurs following its ingestion and in that event it is wise to discontinue its use. It is valuable in carriers, but does not always effect a cure. Other preventatives to the spread of the disease are to screen privy vaults from flies and build them rat-proof. It is recognized that all over the world the diminution of typhoid follows the lessening of the number of privy vaults.

Our list of recommendations is: 1. Local boards should require reporting of cases. 2. State boards, and their local boards, should offer to physicians facilities for examination of blood and feces. 3. Each patient should be visited in twenty-four hours by an agent of the board in relation to the matter of isolation and disinfection. The disinfectants should be furnished free by the boards. 4. Local boards should investigate milk and water-supply of each reported case. 5. Houses should be placarded. 6. Patients should be isolated. 7. Hexamethylenamin, 0.3 gm. three times daily, should be given for two weeks after a normal temperature has continued. 8. The two weeks following a continued normal temperature is sufficient, except in those handling foodstuffs, when the rule should be four weeks. 9. Typhoid carriers should not be allowed to perform work requiring the handling of food material. 10. Typhoid carriers should be under the observation of boards of health and required to report monthly. 11. A case on a farm should require that the authorities in all places receiving a supply of food from the farm should be notified. 12. Protect all privy vaults. 13. Exterminate the typhoid fly.

DISCUSSION

DR. GEORGE W. FITZ, Boston: It is a simple matter to compile recommendations; the real problem is to enforce them. It is questionable whether they should be left to the discretion of local boards; it seems rather that they should be mandatory. If this matter is left simply to the publication of this report, little will be accomplished. We should have legislation to cover the matter.

PROF. WILLIAM T. SEDGWICK, Boston: I believe that this committee should confer with the Massachusetts State Board of Health. Recognition of typhoid as a dangerous disease is the kernel of the whole matter. When this is done we can treat it as a contagious disease and a menace to the public health. There should be no politics in the appointment of health officers, and they should be recommended by well-recognized health bodies.

Cholera

DR. M. J. ROSENAU, Boston: Cholera has a way of its own which we do not understand. It smolders for years and then breaks out. It is pandemic at present. We know its causal agent and its method of spread, but do not know why the epidemics begin. It acts like a spark spreading to others and a conflagration occurs. It is very interesting to compare the present cholera situation with the last epidemic—that of 1892. When cholera spread from the Orient to Europe in 1892 and threatened to come to this country, President McKinley was prevailed on to order a quarantine of twenty days on all vessels, and extravagant precautions far beyond the needs of the case were put into operation. I think that those who know most about conditions were sorry that these extreme measures were taken. It is a good sign of the real progress made in controlling the disease that plans are being made and carried out now without fuss, and when it is stated that there is very little danger, people have faith in that assertion. In 1892, sanitarians called attention to the fact that if cholera should get into the United States there would be great danger of a water-borne contagion in such cities as Philadelphia, Chicago, Lawrence and Lowell. These cities have so improved their water supplies now that a great epidemic is practically impossible, and we are safe from any such danger of infection as was suggested in 1892. Cholera was once considered a water-borne disease, as was typhoid. It is perfectly true in certain definite instances that water has been a vehicle for its spread, but in most instances—as in

typhoid—it is by contact. We are well guarded against cholera. Even if it should get in, with all the improved methods of sanitation we should not have any trouble at all with it.

DISCUSSION

DR. C. V. CHAPIN, Providence, R. I.: What is the duty of a health officer when he receives a list of suspects from the government officials?

DR. M. ROSENAU: He should have a trained agent see the people twice a week for from two weeks to a month. The ideal plan would be to require the suspect to report daily, and should he fail to report, to hunt him up.

Poliomyelitis

DR. ROBERT W. LOVETT, Boston: The epidemic character of this disease has attracted the special attention of medical men. It is increasing in frequency in all parts of the world. In the five years ending 1904, 300 cases occurred. In the five years ending 1909, 8,000 cases were reported, of which five-sevenths were in the United States. This increase is too great to be affected by the claim that the increase is due to the fact of reporting being more often compulsory at present. Analysis of the facts at our disposal results as follows: Immigration has not kept pace with the increase of cases and so apparently is not a factor. Scandinavian immigration has not even kept pace with the increase of cases, and so its prevalence in Norway and Sweden has not been an influential cause. Passenger traffic has increased but not at all commensurate with the cases of infantile paralysis, neither by steam nor electric roads. Automobile traffic has much increased and may be found to be a factor. Seasonable elements on being considered are not of much aid, as fruit appears to be without influence, and dust with presence or absence of rain has equal value for and against its spread. In New England it has spread with absence of the usual precipitation and in the northwest it has spread in the face of unusual rain. The influence of insects is of difficult estimation and demands further study. The epidemics appear to come in two-year periods and this fact may or may not be of value in the study. River valleys seem to be more prone to invasions than coast towns, but with marked exceptions, as at Boston and New Bedford, Mass., often an epidemic is followed by immunity of a section, but this is open to exceptions.

The State Board of Health is about to investigate as to the greater or less prevalence of animal diseases concurrent with the spread of poliomyelitis, particularly in sections showing the disease in epidemic form. It is not certain whether the danger of communication is over after the acute stage is finished. It seems wise to require isolation and absence from school.

DISCUSSION

DR. JOHN L. MORSE, Boston: Early diagnosis is impossible at present. No special symptom of throat, stomach, bowels, or any organ is valuable. I have not found sweating or prostration, and these two symptoms are more often absent. Diagnosis is not possible until paralysis appears, except in epidemics or in patients previously exposed. In atypical cases also, no diagnosis is possible, as the patient may have the disease and recover without diagnosis. In a colony of children at the seashore eight had similar symptoms and ten days later one child had partial paralysis; I have no doubt that all the cases were cases of this disease. Lumbar puncture is of no practical importance in the diagnosis. Hexamethylenamin is of no value after paralysis occurs, although it may be of use in the incubation period. After paralysis has set in it may still kill a few germs. The child should be isolated, but the length of time is uncertain. I should prefer boards of health to designate a given time of isolation, even if not correct. Most physicians do not wear gowns while visiting these cases.

DR. EDWARD H. STEVENS, Cambridge: We should seek to allay public unrest and so publish the facts that the people may not fear an epidemic of such proportions and results as to cause a panic.

MINNESOTA STATE MEDICAL ASSOCIATION

Annual Meeting, held at Minneapolis, Oct. 6-7, 1910

(Concluded from page 1833)

Re-Operated Colles' Fracture; Thrombosis of Mesenteric Vein

DR. ARTHUR T. MANN, Minneapolis: The fresh Colles' fracture had been treated months before in the usual way. The result was a wrist with marked deformity and loss of motion. Four months later a good surgeon had undertaken to correct the wrist by an oblique incision through the radius of about 45 degrees, pushing the lower fragment downward and forward. When the splints were removed four and a half weeks later the position apparently was satisfactory. The fragment slowly returned to its original position or worse. Five months later I operated, making a curved incision through the radius, curving a little farther forward below than above in order to gain a little extension, as the fragment was rotated downward and forward. Retaining splints were kept on eight weeks before union seemed firm. The patient now shows, three months after the operation, that the line of the radius is excellent, with a slight loss in length from the original impaction, and that all wrist motions are much improved and still gaining. In the case of thrombosis thirty-six hours after childbirth, symptoms of obstinate constipation and moderate tympanites had come on. Cathartics and enemas gave some result, but the conditions gradually increased, especially the tympanites; no special pain, though the abdomen was a little tender, more on the right side than the left; only occasional nausea and vomiting. An indistinct mass the size of a small child's head was made out in the upper right side of the abdomen, tympanitic, only moderately tender. The stomach area seemed dilated to the level of the umbilicus. Diagnosis, obstruction of the bowels from some cause not yet clear. I advised operation at once. The entire small bowel was found dilated, the large bowel down to the splenic flexure enormously so, while it was empty and collapsed below this point to the anus. The transverse colon was the apparent stomach area and the cecum and ascending colon was the mass felt. The appendix was found stretched tightly about the root of the mesentery with its tip adherent well up on the left side of the mesentery, thus constricting its vessels.

Typhoid Fever With Perforation

DR. GEORGE DOUGLAS HEAD, Minneapolis: From a study of the 495 reported cases, I conclude, first, that mortality is lowest in persons up to 15 years of age and beyond 25 years; second, that the mortality is lowest (50 per cent.) where perforation took place in the first week and highest in the third and fifth weeks of the disease; third, that the earlier the diagnosis is made and operative relief is applied the lower is the mortality. Of the 133 operations, sixteen were performed within three hours of the onset of symptoms, with 50 per cent. of recoveries. Of the twenty-five patients operated on between three and six hours, 44 per cent. recovered. Of the twenty-two patients operated on between six and twelve hours, 20 per cent. recovered, and of those between twenty-four and forty-eight hours, 11.1 per cent. recovered.

Pyelography

DR. WILLIAM F. BRAASCH, Rochester, called attention to the fact that surgical diseases of the kidneys are now being diagnosed largely by the use of the Roentgen ray and the cystoscope. Although they are of much value independently, of late the tendency has been to use the two methods combined. Thirty radiographs selected from several hundred illustrated a variety of conditions and were shown to be of value in the diagnosis of the following conditions: (1) The normal pelvis. (2) Mechanical pelvic dilatation. (3) Inflammatory pelvic dilatation. (4) Deformity accompanying renal neoplasm. (5) Localization of stone within the kidney. (6) Differentiation of extra-renal shadows. (7) Cystic kidney. (8) Solitary kidney. (9) Congenital anomalies of renal shape and position. (10) Hydroureter. (11) Identifying ureteral obstruction. Attention was called to the fact that although these plates were frequently of great practical value in the diagnosis of the various conditions demonstrated,

nevertheless we must add this data to the other data derived from the cystoscope and the Roentgen ray, as well as those obtained from the case history and physical examination. A diagnosis is to be arrived at only by combining the data derived from the various sources.

DISCUSSION

DR. WILLIAM J. MAYO, Rochester: Dr. Braasch has been too modest in his claims for pyelography. I have operated on many of the patients whose kidneys have been pyelographed by Dr. Braasch, and I would like to acknowledge my indebtedness to him for the accurate diagnosis which enabled me to plan my work in advance, which made the operation so much easier and added so greatly to the safety of the patient.

Pyelography tells the size of the pelvis, the exact situation of the kidney with relation to the ribs, etc., and as to whether or not the kidney is infected in cases of hydronephrosis. The operation can then be made from behind, laterally, or anteriorly, as space or other conditions may indicate. In stone in the kidney pyelography tells whether the stones are in the pelvis, in which case they are masked in the pyelograph, but if they are in the cortex, they will show outside the pelvis. In two cases, radiographs showed stones apparently in the right kidney, pyelography demonstrated that the shadows were not in the kidney at all, but outside of this organ, and operation showed them to be gall-stones in an outlying gall-bladder and of just the right density to give shadows, which is not often the case in gall-stones. Pyelography enables one to make a diagnosis of hydroureter and to determine the size and position, as well as the location of the stricture.

In the diagnosis of certain tumors lying in the region of the kidney, the method is of the greatest differential value, showing at once the position of the kidney. In the genito-urinary field, as in so many others, we find that direct inspection by means of cystoscopy, ureteral catheterization and pyelography are clearing up old obscure cases of supposed bladder disease and proving that such diseases are extremely rare, although bladder complaints are extremely common. These complaints find their source in tuberculosis, stone, stricture, tumor and other diseases of the kidney and ureter, in posterior urethritis, prostatic disease, diseases of the seminal vesicles, etc. From a surgical standpoint this method of diagnosis enables the surgeon to work from the plan of the master diagnostician.

Mixed Tumors of the Parotid Glands

DR. E. S. JUDD, Rochester: We have observed forty-one tumors in the parotid, four in the submaxillary, none at all in the sublingual. In twenty-two of our series of forty-one cases the tumors were in the right parotid. The majority of tumors occurred in the second decade. The youngest patient was 15 years of age, the oldest 71. Twenty-five of the series were females. Average duration was 8 years. One case in our series was of one month's duration. In nine of our series of forty-one operated cases, the endothelial element predominated. Five were sarcomatous, three mixed-cell tumors undergoing sarcomatous change, ten were recurring growths. Twenty-seven of these patients have recently been heard from. Twenty-four state that they are "perfectly well." Three have a local recurrence; two of these had predominating sarcomatous elements at time of operation.

Pulmonary and Circulatory Complications Following Surgical Operations

DR. E. H. BECKMAN, Rochester: This report is based on 4,530 consecutive cases operated on in St. Mary's Hospital, during the first eight months of 1910. Mortality rate in this series was almost the same in both classes; six deaths in pulmonary and five in the circulatory. Ether was the anesthetic used. Local anesthesia with cocaine in a few cases. In the series of 4,530 there were thirty-seven complications, most of them extremely mild. There were six deaths in the group of thirty-seven cases; and fifteen cases of pleurisy, most of

them mild. One patient died after a splenectomy. In eleven, symptoms occurred in the first week; four in the second week. Twelve cases of bronchitis, all mild types, none fatal. Ten cases of lobar pneumonia, five of which were fatal. Two of the fatal cases were in comparatively young adults with simple operations. Both developed delirium tremens, and died of complicating lobar pneumonia. The other three were debilitated old men with arteriosclerosis. One of them was 69 years of age, operated on for carcinoma of the lip and glands. The second, 80 years old, was operated on for stone in the urinary bladder. The third, 65 years of age, was operated on for gall-stones, and carcinoma in the head of the pancreas. Twenty-seven cases of complication were related to circulatory system. Phlebitis seventeen, embolism six. Of the seventeen cases of phlebitis there were three of the right side, fourteen of the left. Thirteen cases followed abdominal operations, four extra-abdominal. Five were infected cases, two at time of operation; three mild wound infections developed later. All of the cases appeared in the second week. No deaths. Six cases of embolism, two cerebral, were both fatal. Three of the four pulmonary cases were fatal. One occurred on first day, one fifty-six hours after operation, two on the eighth day, two on the ninth. In only one case was there evidence of infection either at operation or at autopsy. Ages of patients, 35, 43, 45, 57, 60.

Sudden Death in Cardiovascular Disease

DR. JOHN GROSVENOR CROSS, Minneapolis: Sudden death in cardiovascular disease occurs from various causes: (a) rupture of the heart wall; (b) rupture of an aneurysm; (c) pulmonary embolism; (d) coronary narrowing or blocking; (e) direct pressure of the diaphragm upon the heart, from distended stomach or intestines; (f) heart-block syncope; (g) thrombus in the heart; (h) air embolism; (i) sudden lack of venous blood-supply to the right heart, as occurs in large hemorrhage, or after abdominal blows; (j) a large group of cases of sudden death occur in myocardial weakness, either acute (toxic or infectious) and chronic in the acute forms, the muscle fibers show cloudy swelling or even fatty change; in the chronic forms there may be fibroid patches or individual muscle fibers, showing cloudy degeneration or fatty changes. Syphilitic changes are also found. The heart-muscle may become exhausted by prolonged tachycardia, as in hyperthyroidism. Most of these hearts also show degenerative changes. Valvular lesions are only to be considered as a factor in cardiac weakness. The possibility of sudden death in angina pectoris, Corrigan's disease, Stokes-Adams disease, aneurysm, recurrent attacks of acute pulmonary edema, should be considered. Besides these, in the presence of thrombosis of systemic veins, and in septicemia, the likelihood of embolism must not be forgotten. Degenerative changes in the ascending aorta are generally accompanied by coronary involvement and may lead to sudden death. Acute or chronic myocarditis predisposes to a like end, in the largest group of cases, from failure of the power of heart contraction, when there is a sudden call for increased heart power. The reserve power of the heart and true heart competency is the essential thing to be determined in prognosis. In an estimation of such conditions, sphygmographic tracings of the heart and vessels, as well as blood-pressure measurements, are a great aid to careful clinical examination.

How Shall We Treat Appendicitis After the First Forty-Eight Hours?

DR. J. E. MOORE, Minneapolis: Physicians and surgeons are now quite unanimous in the opinion that all cases of acute appendicitis should be operated upon during the first forty-eight hours, providing proper facilities and a competent operator are at hand. Without these requisites the mortality is greater with than without operation. After the first forty-eight hours the infection has usually extended beyond the confines of the appendix, and the surgeon can only hope to assist Nature, for he cannot remove the whole of the infection. When the surgeon is called on the third, fourth, or fifth day and the patient is doing well with a temperature below

102 and a pulse below 100, what is his duty? The experienced operator should operate at once, but should be content to remove the appendix and establish drainage. The occasional operator should wait until Nature has done her best. When the surgeon is called late and the patient is doing badly, with a temperature above 102 and a pulse of over 100, it is his duty to operate at once because these are Nature's signals of distress, indicating that she needs assistance. The removal of the appendix and the establishment of drainage meets the indications. More than this is meddling surgery. When the surgeon is called late, when the whole abdomen is swollen and boggy, and a so-called general peritonitis is present, what is his duty? A helpful operation is surely indicated. Remove the appendix if it is in evidence, but do not make an extensive search for it. Make two or more incisions and drain both flanks and the bottom of the pelvis with large rubber tubes. Excessive breaking down of adhesions and irrigation of the abdomen do more harm than good, and experience has proved that they are not necessary. Do not cork up the openings with gauze and call that drainage. The position of the patient after operation is of little consequence, so he should be made as comfortable as possible. The pressure within the abdomen is about 16 pounds to the square inch and the pus is bound to follow the line of least resistance, which is out through the openings. Do not give cathartics after operation, as they interfere with Nature's efforts to bring about a cure.

Death Certificates

DR. H. E. ROBERTSON, Minneapolis: Rarely has this subject been dealt with among physicians as it deserves. The ideal state must record the birth, the diseases, and the causes and date of death of each of its citizens. The importance of the subject is not impressed on us in our medical education and we rarely hear it discussed in our meetings. Improper returns are often found: "Sarcoma" and "carcinoma" with no mention of location; "brain fever" and "lung fever," obviously obsolete terms; "Accidental injury" with no statement of the accident; "Cardiac embolus following operation," the operation not being indicated. Remedies are recommended as follows: First, provide for some instruction in the subject in our medical schools. Second, make more frequent use of clinical and laboratory tests in the study of our cases. Autopsies are far too infrequent. Third, use more care and thought in filling in the certificate. The standard form requires a "cause of death" and "contributing causes." These may often be determined by the following rule: When resistance has become so lowered by some definite recognizable disease that other definite affections ensue and the patient dies, then we have a cause of death in the first disease and a contributing cause or causes in those that follow. For example, in a subject of acute nephritis dying of bronchopneumonia, the cause of death is "acute diffuse nephritis" and the contributing or secondary cause is "bronchopneumonia." Fourth, frequent consultations are necessary between boards of health, other statistical bureaus, and medical associations in order to maintain a uniform standard and promote better working relations on this important subject.

Management of the Puerperium

DR. FRED E. LEAVITT, St. Paul: The routine use of ergot following parturition is of no demonstrable value. Asepsis rather than antiseptics is needed in the care of maternity patients—soap and water instead of bichlorid. Extensive lacerations can be repaired much better a few days after labor than at the time of delivery. Good results are obtained if properly attended to even after a week. For the main stitch, silkworm and not catgut ought to be relied on. In getting up after delivery, the most satisfactory results follow when patients are encouraged to resume their natural habits soon afterward. After practicing this method for several years, both in private and hospital work, the results are found most satisfactory. In the first place, the patient's strength is not dissipated by remaining passively in bed, the bed pan is dispensed with in bowel and bladder movements, drainage

is favored by the sitting posture, involution is more rapid and more complete, displacements less frequent, etc. After normal labors the patient is encouraged to continue her accustomed habits as far as she is inclined, both as to eating and activities. Even on the first day she may be propped up in bed for meals, get up onto the commode, move freely in bed; the third day she may be up in a comfortable chair for an hour or two, the next day twice as long, and so on, so that by the end of a week she is able to be all over the premises. The assertion is made that no case of disability in women can be traced to too early rising after childbirth.

INDIANA STATE MEDICAL ASSOCIATION

Annual Meeting, held at Fort Wayne, Sept. 18-30, 1910

(Concluded from page 1837)

Malaria in Indiana

DR. ADA E. SCHWEITZER, Indiana State Board of Health: There was a time when malaria was a veritable plague in Indiana. A short story of its ravages in the early days and of the ideas and practices of the pioneer physicians, demonstrates the remarkable efficiency of scientific preventive medicine, assisted, as in this case, by industrial and commercial interests. In addition to consulting the usual sources of historical facts, a letter was written to the physician longest in practice in each of the ninety-two counties in the state. Replies were received from only twenty-eight counties, but these were so distributed over the state that every section was represented. These twenty-eight replies do not by any means represent the total number of cases occurring in Indiana during the year. But they do furnish positive evidence that the disease has not been completely eradicated, as many physicians assert. The anopheles mosquito is to be found in almost every part of the state, and every patient, whether he imported the disease or acquired it here, is a source of infection. Hence, we have the two factors necessary to the spread of malaria. This paper is not written in the belief that malaria will ever again be prevalent in Indiana. The state is too well drained and the people are too progressive for that. But physicians should remember that malaria does exist in this state and not allow an incorrect, preconceived opinion as to its absence to influence their diagnoses in the occasional sporadic cases they are likely to encounter at any time during the summer or fall.

DISCUSSION

DR. GEORGE D. MARSHALL, Kokomo: There is an idea that the anopheles mosquito is a rare one. I have been studying these mosquitoes for four years, and they are plentiful. I can go out and catch three or four of them any time I want to around Kokomo. The people do not recognize the anopheles as a mosquito. I had a case recently of a boy who had spent three months in bed from malarial fever and was being treated for malarial fever at the time. I was called in consultation and gave him quinin in solution and the fever began to disappear, although it comes back once in a while. I was called to see the boy's grandmother, who was vomiting and had a temperature of 103 F. There were mosquitoes there. A year ago a young man in Kokomo died from what I diagnosed as malaria; there was a difference of opinion, and the man was treated for tuberculous meningitis. There is a large family living in the house where this patient lived, and nearly all are ill. I found a mosquito in a shed in the yard where the children played. That's where they got the malaria.

Bacteriology, Pathology and Diagnosis of Typhoid Fever

DR. W. SHIMER, Indiana State Board of Health, read this paper, in which he formulated the following conclusions:

1. Typhoid bacilli are present in the blood of every patient ill with the disease. They appear in the blood with the fever and disappear with the return of the temperature to normal.
2. Typhoid fever is not a true bacteremia, but is an overflow from the spleen, lymph-glands and bone-marrow.
3. The clinical symptoms of the disease are due to the invasion of the blood by the bacilli, their destruction there, and liberation of their endotoxins. These endotoxins cause degeneration of the body cells and the consequent pathologic physiology.
4. Convalescence and tissue repair begin as soon as the bacilli disappear from the blood.

5. Long-continued or chronic typhoid seems to be due to the persistence of the bacilli in the blood because of the low grade of immunity. Chronic typhoid can sometimes be cured by injecting killed typhoid bacilli.

6. Blood cultures seem to be the method by which we can make the earliest and most certain diagnosis of typhoid fever, for several reasons, e. g., because the bacilli may be in the feces without the patient having the disease; the bacilli appear in the urine rather late in the clinical course of the disease; the destruction of the bacilli in the blood stimulates the production of the agglutinins and other antityphoid immune substances, and must, therefore, appear in the blood before the Widal reaction is positive.

DISCUSSION

DR. B. W. RHAMY, Fort Wayne: There is no doubt that blood culture is the best-known method of diagnosing typhoid in the early stage. It is therefore to be deplored that the method cannot be utilized except by those in close proximity to a laboratory. The clot-culture mentioned by Dr. Shimer seems to offer a practical method for those who are at some distance from a laboratory, and no doubt could often be used to good advantage. This clot-culture is made from the clot which forms in the glass capsules in general use for sending blood to a laboratory for the Widal test. It would be necessary for the physician only to draw a well-filled capsule of blood, seal the tips of the capsule in the flame and send to the laboratory, with instructions to make the clot-culture in case the Widal test was negative. There is some difference of opinion among investigators as to the amount of blood necessary for the culture test. Some men advocate small amounts, as from 0.5 to 1 c.c., while others, and perhaps the majority, advise the larger amounts of from 5 to 10 c.c. or more. The reliability of the blood culture, as well as of the Widal test, depends on the stage of the disease and the severity of the infection. Duffy in 1905 gave an excellent illustration in his series of cases. In eighty-eight patients, of whom fifty-six had a temperature above 102 F., he got positive blood cultures in all fifty-six, while in twenty-three with a temperature of from 100 to 101 F., he got positive blood cultures in only ten. This evidently depended on the severity of the blood invasion with its consequent liberation of endotoxins. The advantage of the blood culture over the Widal test is in the fact that the blood in the first week contains the greatest number of bacilli, while the Widal test does not show until these bacteria have stimulated the agglutinating power of the blood. Veil (*Deutsch. med. Wchenschr.*, 1906) compares these two tests in his cases. In thirty-six cases, during the first week, blood cultures were positive in 78 per cent., while the Widal reaction was positive in only 50 per cent. Out of 110 cases during the second week, the blood cultures were positive in only 60 per cent., while the Widal reaction was present in 92 per cent. During the third and fourth weeks the blood-culture percentage steadily decreased, while the Widal percentage remained constant. From these figures, which I believe are a fair representation of the possibilities of the two methods, it seems to me that the blood culture and the Widal test should be used in conjunction in any given case, thereby obtaining a greater percentage of accurate findings, than by the use of one to the exclusion of the other.

DISCUSSION

DR. B. V. CAFFEE, Terre Haute: Away from the larger cities it is hard to get culture media. About two years ago in the pathologic society in Terre Haute we demonstrated a method of taking blood culture from a medium which can be obtained in any country village. It is entirely inexpensive and, according to the author of the article describing this method—whose name I have forgotten—it is quite as good as bouillon. He takes ox-gall from the freshly slaughtered beef; he dissects out the gall-bladder, tying the end of it with a ligature, then draws the gall into a test-tube and sterilizes it. By that method, I have demonstrated the typhoid bacteria in blood that came from the ear of a typhoid patient in two cases, and it was shown to be accurate. It seems to me that this method is absolutely reliable, and that it would be an excellent thing when a person cannot get a culture medium, because it is very easy to get ox-gall and entirely without expense.

In regard to infection of attendants in typhoid hospitals, a great change has occurred in the last twelve years. Twelve years ago I saw a demonstration of the infection of typhoid nurses. I was at that time steward in one of the army hos-

pitals at Porto Rico. We had two small regiments and a battery of artillery—less than 2,500 men. In August and September, 1898, we had in our one hospital 268 patients, the majority of whom had typhoid. Of the twenty hospital corps men who nursed these people, fifteen took typhoid; three of the remaining five had had typhoid, and so were immune. We had no protection against flies, no screens, and our water-supply was very bad. But when you compare that with the conditions in hospitals to-day, the difference is as darkness from light.

DR. G. W. McCASKEY, Fort Wayne: The making of blood cultures is within easy reach of every general practitioner. I have had a fairly large experience along this line of work, though I have not had much experience in typhoid, having been out of general practice for a good many years. Culture media can be obtained in small sealed tubes. I formerly used a tube which I devised myself, hermetically sealed, containing 50, 75 or 100 c.c. They can be used by anyone and can be kept in the office for a year. In getting the culture, all that is needed is a syringe. The physician must sterilize his own hands and the arm of the patient; the needle is then inserted, and a syringeful of blood withdrawn. Then the blood is sent to the laboratory. I use an ordinary hypodermic syringeful of blood. Every physician ought to use blood cultures in these cases; they are within easy reach. I have a case now which I think is very interesting. The patient, a woman, was taken ill 5 or 6 weeks ago suddenly, with severe intestinal pain, diarrhea and a temperature of 102 F.—irregular fever. In a few weeks the fever practically disappeared, but the hemorrhage kept up, with severe pain in the sigmoid. She was gradually going downward, but the temperature was normal. She was taken to the hospital and I thought that perhaps I had tuberculosis to deal with. I submitted some blood to Dr. Rhamy, who reported a positive Widal reaction. Meanwhile, the blood culture was developing, and I submitted that to Dr. Rhamy, and he found the bacilli. This patient was at once placed on autogenous vaccine, and improvement followed: the temperature is perfectly normal; pulse perhaps 85, and the patient is apparently convalescing. This is undoubtedly a case in which the typhoid ulcers were very deep and did not heal after the temperature got back to normal.

DR. FRANK B. WYNN, Indianapolis: One of the commonest and most perplexing situations confronting the general practitioner is to determine in the early course of a fever, whether or not he is dealing with typhoid. The young or the thoughtless practitioner sometimes makes a guess and later is obliged to retract his early diagnosis. The Widal reaction has been a help, but blood culture goes a step farther and permits still earlier diagnosis of the disease.

I think that many of us fail to realize that typhoid fever is not simply a disease of the intestines, but of various organs, notably the lymph-glands, bone-marrow and the spleen; in other words, the blood-making organs of the body. One of the important lessons taught by blood cultures is that the organisms may attack almost any part of the body. I have a case now in which the parotid is infected. Sometimes the tonsils are involved. Indeed, some assert that this is the point of first infection, but I still think that the intestine is probably the primary seat of infection, not the tonsils. The advantages of the blood cultures are: first, early diagnosis; second, the idea which they give of the general dissemination, the wide-spread potency of the disease; and third, it seems to me that these cultural studies will be of immense practical benefit to us in differential diagnosis. A case came under my observation in which during the first five days the patient was delirious, with ordinary clinical picture of typhoid minus the eruption on the abdomen. The blood cultures showed a growth that was so extreme that it was thought there must be some contamination of the medium. The blood was drawn again, and the second test showed that this man did not have typhoid at all, but was suffering from a streptococcus meningitis.

DR. E. SCHMAUSS, Alexandria: I have not seen a case of typhoid in which extensive ulcers of the intestinal tract were

not present. I have never seen anything diagnosed as typhoid which did not involve the intestinal tract. Now, the statement made by Dr. Wynn, that in typhoid we have an involvement of the whole body, is, of course true, but I dislike to allow the inference to be drawn that typhoid is not a disease of the intestinal canal primarily, and only secondarily involving the entire system. We would not claim that pneumonia is not a disease of the lungs, or that meningitis is not a disease of the brain, because we find the infective material in other parts of the body. I think we can safely say that typhoid is primarily a disease of the intestinal tract. It is said by some that the tonsils are the primary seat of infection. If this keeps on the tonsils will be held responsible for every ill of the body. No doubt many of our systemic diseases originate in the tonsils, but I think it is too far-fetched to say that the tonsils are the seat of typhoid fever infection. It is stated that the mortality has been reduced to 4 per cent. from 18 per cent. by the use of antitoxin. I have in mind an epidemic in a city, with 400 cases, in which the total mortality was 6 per cent. If these men had 18 per cent., it simply shows that there was misunderstanding or lack of care somewhere. There is no excuse for showing a mortality of 18 per cent., or anything above 10 per cent.

DR. C. S. BOXD, Richmond: It is a mistake to make a positive diagnosis the first time one sees a patient. Since the Widal reaction comes relatively late in the course of the disease, it makes it all the more necessary to be careful in the diagnosis. Some time ago I saw a patient in consultation. A little girl came home from a school where there had been a great deal of typhoid, and the physician took it for granted that she had typhoid fever. She had a temperature of 102 F., and she said she had some rose-colored spots on the abdomen. The patient kept going down for two or three weeks, and finally the physician found a little lump in one side of the abdomen. I had the case about six weeks afterward and found a tuberculous mass in that side of the abdomen; and the girl died of tuberculous peritonitis. This physician had made a diagnosis of typhoid fever before he had an opportunity to determine whether the girl had typhoid or not.

DR. ALBERT STERNE, Indianapolis: I want to call attention to those cases which are not atypical, but which at the same time do not permit of accurate diagnosis except with the assistance of complete blood examination, cultures, Widal test, etc. That is the kind of typhoid I see, and not infrequently, either. These cases begin with the symptoms of an ordinary depressant insanity—confusion, sometimes marked delirium, with evidences of brain agitation. There is very little fever—in fact, almost no fever in the beginning; slight rise of temperature in the evening, but hardly more than in the normal state. The mental confusion is not delirium or ordinary mania, it is an ideation which, while more rapid than normal, savors of the fixed rather than the rapid ideation which appears when there is inability to express an idea by word of mouth. In these cases I frequently test, not the blood, but the spinal fluid. It is in such cases that laboratory methods of diagnosis are necessary. Diagnosis is practically out of the question without them.

DR. JOHN C. FRETZ, Deedsville: The statement was made that it was inexcusable for a physician to lose more than 10 per cent. of typhoid cases. I do not know any man who has lost 10 per cent.; but who has the right to say what percentage a man may lose? I do not want an expression made in this society to go out over the state and to the laity that a man has no right to lose more than 10 per cent. of his typhoid patients.

DR. A. P. BUCHMAN, Fort Wayne: In diphtheria we have an absolute specific, and that specific is so harmless that its use cannot do the patient any harm. In typhoid fever we have nothing of this sort. It is the individual patient whom we have to look after, and the man who has a reasonable amount of experience and knows how to get the history of his case, in seventy-five out of eighty cases can make a diagnosis of typhoid fever that is reliable within from 2 to 5 days of the inception of the disease—if he watches the patient closely and watches the symptoms. The five cases

that are left are the cases for which we need the laboratory; but the idea that by means of the laboratory one can make a diagnosis, without symptoms and without a history of the cases is absolutely fallacious. The tendency is to laboratory mania. The Widal test does not always occur within the same time. In some of the carefully watched cases the test did not show the disease. There was something wrong somewhere. I feel confident that in time these tests will become more reliable, but the practice is in its infancy, and the man who talks about absolute certainty is wrong.

DR. W. SHIMER: This subject of typhoid seems old, and yet I think one of the biggest problems we have in America is that of control and eradication of typhoid fever. Robert Koch at his death was trying to solve this problem for Germany. Any culture medium in which typhoid bacilli will grow is good to use. The main thing is that it must be absolutely sterile. One can use ox-gall, broth, anything. The Epstein medium is of special value because it can be carried in a small tube in the pocket. If it is not taken to the laboratory for 12 to 24 hours, the bacilli will grow in the solution.

The difficulties of taking the blood have been magnified considerably. I have done it often within 5 minutes. Dr. Simonds and I at the State Bacteriologic Laboratory have often drawn from our own veins from 10 to 15 c.c. of blood, and never put any bandage on. It is the easiest thing in the world, especially in people who are somewhat spare. Put the needle into one of the large veins of the elbow, and when you get through just pull out your needle. It is as easy as a hypodermic injection. Accuracy is absolutely necessary, and lack of it means contamination. Often surgeons, who know so much about asep-sis, will bring in fluid full of bacteria, and yet they think they have been extraordinarily observant of asep-sis.

Many instances have been reported of discrepancies between positive and negative findings in blood cultures. A large number of cases are necessary for conclusions to be of value. Coleman and Buxton had pretty nearly 2,000 cases. The German army statistics, which show from 12 to 18 per cent. mortality, were the average of a large number of cases. One cannot draw conclusions from the experiences of a man in general practice or in a small hospital. There seems to be some misconception of the difference between serum and vaccine. A therapeutic serum is a serum from an animal that has been inoculated with a specific bacterium, and a vaccine is made from the dead bacteria; both are injected to produce immunity to the specific organism in question. They are, however, entirely different preparations.

Plea for Cesarean Section, Based on a Report of Fifty-Three Operations Performed in Indiana

DR. G. W. II. KEMPER, Muncie: Formerly this operation was regarded as the *dernier ressort* of midwifery. In other words, after the unfortunate woman had been subjected to efforts at delivery with forceps and version, and reduced to exhaustion, and the fetus subjected to injuries, the abdomen was incised, and if death resulted to mother or child, or both, it was attributed to the Cesarean section. It was like the early beginning of antitoxin, which might be tried for diphtheria after all other remedies failed, and then incurred the blame for a death it did not cause, and declared to be inert or harmful when it had not been given a fair test. I have collected from various operators, fifty-three cases of Cesarean sections done in Indiana. The first case of which I can find a record was performed near Madison, Jan. 29, 1863, and the last, August 20, 1910. The following is an analysis of the fifty-three cases:

	Cases.
Mother and child saved.....	27
Mother alone saved.....	11
Total number of mothers saved.....	38
Mother and child lost.....	7
Mother alone lost.....	8
Total number of mothers lost.....	15
Child saved with mother.....	27
Child alone saved.....	8
Total number of children saved.....	35
Child lost with mother.....	7
Child alone lost.....	11
Total number of children lost.....	18
Total number of mothers and children saved.....	73
Total number of mothers and children lost.....	33

I would not inculcate the idea that the physician is to open the abdomen rashly. The responsibility should be divided with one or more competent advisers. In the language of Oliver Wendell Holmes:

"The woman about to become a mother should be the object of trembling care and sympathy, wherever she bears her burden or stretches her aching limbs. God forbid that any member of the profession to which she trusts her life, doubly precious at that eventful period, should hazard it negligently, unadvisedly, or selfishly."

Conservatism of Elective Cesarean Section

DR. O. G. PFAFF, Indianapolis: In obstetrics conservatism has ever been the dominating spirit. Parturition has been for ages venerated as one of Nature's processes, complete and perfect in itself, and until recently was surrounded by a sort of mystical halo which repelled all tendencies toward interference with the operations of its sacred laws. I wish here to refer to three cases very briefly. All patients were operated on at St. Vincent's Hospital. In one case, a woman with interstitial pregnancy was operated on at six months; the mother made a prompt recovery. In the second, at full term after more than twenty-four hours of violent labor with many attempts at forceps extraction, both mother and child were saved without any complication in recovery. The third patient was in labor all day and far into the night. The pelvis was deformed—less than three inches in the transverse diameter. The patient was taken to St. Vincent's Hospital. The membranes were intact and she had not been violently handled. The operation was done quickly and for several days everything looked well. On the fifth day there was rise in temperature and pulse-rate. The wound appeared to be in perfect condition. The symptoms increased and the next day the wound was again examined and found to have opened; the omentum presented at the upper angle. The catgut had evidently been absorbed early and the peritoneum and deep structures had retracted, allowing the omentum to become a wedge, which gradually forced its way to the surface. I resutured with catgut and reinforced the entire wound with silk-worm gut. However, the cavity had already suffered infection and the woman died. The death is probably chargeable to a surgical accident such as might occur in the simplest abdominal section, and bears no relation at all to the specific cause for which the woman was operated on. The child is alive and well. My conclusions are these: Elective Cesarean section is one of the safest of major operations, being favorably comparable with the interval operation in appendicitis, that is, it shows a mortality conservatively estimated at 3 per cent. or less when performed by capable surgeons in well-equipped hospitals. This low mortality by no means excuses unnecessary operations, but it certainly justifies us in undertaking this procedure for various indications not heretofore considered valid. When experienced judgment decides that a debilitated, poorly equipped woman is to encounter any serious danger in natural delivery, Cesarean section is the safest course. It is the best course in grave albuminuria before the onset of labor, or in placenta previa immediately on recognition of the condition. Whenever through a deformed or narrow pelvis, or one obstructed by any growth, or because of an unusually large child natural delivery is impossible, section is the only humane procedure. Cesarean section is purely and exclusively a hospital operation and is to be placed on a firm basis through a careful study of the work of those experts who in our large maternity hospitals are devoting their lives to the development of this most beneficent and truly conservative procedure.

DISCUSSION

DR. WALTER SCHELL, Terre Haute: I agree with Dr. Kemper that Cesarean section should not be a matter of last resort. It is as difficult to make a proper high-forceps application as to do any operation within the realm of surgery, and the reward should be proportionate. Any man who has ever performed Cesarean section—any man who is capable of

performing this operation properly—is competent to do anything that any other surgeon can do, therefore he should have a proportionate recognition of his knowledge and skill. If a man is a properly trained obstetrician he should know in advance that in a given case he will probably have trouble, and he should know within relatively narrow limits the kind of trouble he is going to have. Every woman who engages a physician for confinement has a right to expect of him the very best service and knowledge. It should never be necessary for a physician to go to an obstetrical case without having seen the patient before. In the past, physicians hesitated somewhat to perform this operation quickly and promptly, and this delay in the extraction of the child, and delay in placing themselves in position to control hemorrhage was one of the reasons for the immense mortality. This operation received a new impulse and new life and took on new surgical aspect after Sawyer demonstrated the absolute necessity of gradually closing the wound in the uterus.

The question whether Cesarean section is safer than the forceps or traction operation depends on the character of the forceps operation. In a high-forceps operation in which the pelvis diameters are less than 10 cm., and the child above average size, then wounds may be inflicted on the woman that may result, if not in death, at least in making her a cripple for the rest of her life. I feel that the high-forceps operation is an exceedingly difficult one.

DR. M. F. PORTER, Fort Wayne: It has been years since I have consented, nor will I ever again consent, to doing a craniotomy on a living child, unless it is a monster or something of that sort. I do not think that I have any right to do it. I know that I can deliver a woman by Cesarean section and give her a better chance for life than I can by high-forceps application. I think that this line of surgery has been very much neglected. More than half of the mothers are delivered without the presence of a physician, and yet when a woman comes out of labor she comes out under conditions that make it necessary for her to undergo inherent risks far greater than she would undergo in any ordinary surgical operation.

In a large percentage of high-forceps deliveries the child is seriously injured; 50 per cent. of these children so injured are injured permanently; 30 per cent. subsequently become epileptics; 20 per cent. of the children in the Indiana School for the Feeble-Minded are there because of a high-forceps operation. In the light of these facts we must stop in large measure these brutal so-called operations, for they are brutal. The maternal morbidity after this operation is as great as after Cesarean section done by an intelligent hand and under proper circumstances. So far as the morbidity of the child is concerned, in such cases, no man can deliver a woman and give the child as good a chance by ordinary delivery as by Cesarean section. The risk to the child is infinitely less than by ordinary normal labor.

DR. JOSEPH N. STUDY, Cambridge City: I think it is time that physicians throughout the country knew more about this important subject. What is to be done for the women so situated that they cannot have the advantage of a hospital, and who are seen at a time in their confinement when they cannot be taken to a hospital? It is true that the high-forceps operation injures the child, and in many cases causes feeble-mindedness, but a physician is frequently called to a case in which labor is well advanced; something must be done immediately. In such circumstances, if the child cannot be born through the natural passage without reducing its head, it seems to me proper and just that craniotomy be done, if the child cannot be delivered by forceps or otherwise.

DR. F. A. MCGREW, La Porte: I want to place on record an unusually interesting and unique case of Cesarean section by accident. The patient was a young woman, healthy and vigorous, a farmer's wife. Within two weeks of confinement, while she was sitting in the kitchen, her brother, sitting about ten feet away, had a shotgun across his knees and was cleaning the barrel. The gun was discharged and the full force of the shot entered the woman's abdomen. The whole front of the abdominal wall and the front and upper part of the

fundus of the uterus were torn away. The placenta was also torn loose, and the child was half expelled into the outer world; the buttocks and back of the child protruded from the abdomen. The woman walked into another room to her bed, where she lay down and was covered up with the ordinary bed clothing. About an hour later an operation was undertaken on an ordinary kitchen table, and the house was none too clean. The woman's condition was much better than might have been expected. She was pale and somewhat anemic, but the pulse was fairly good and she was a woman of great nervous force. She stood the operation well. The child was extracted—dead, of course—the uterus was removed and the stump fastened against the lower end of the abdomen roof against the peritoneum, so that drainage could be instituted. Three or four days later the patient was removed to a hospital, in order to have the benefit of a trained nurse and better attention. She recovered without incident. However, about six months later I was compelled to operate for intestinal disturbance, and on opening the abdomen I discovered that the cervix and peritoneum, where they had been fastened together, had drawn out into a band, which was the cause of the intestinal disturbance. The band was severed the intestine was in good shape. The woman once more recovered without complication, and she is now in good health, and doing her own work.

DR. E. SCHMAUSS, Alexandria: In the last case reported I see no use in bringing the cervix stump up to the peritoneum. It could have been drained through the vagina. In the case at St. Vincent's Hospital, the defect in suturing was undoubtedly due to hasty work. So long as the mother is in good condition and the child is alive, there is no need of haste, and if this patient had been carefully sewed up and adhesive strips had been put on, this accident would have been avoided. One of the hardest things to decide in these cases is when to perform the Cesarean section in preference to the high-forceps operation. It is not so much the question of the living child as of the laceration of the mother.

DR. PAUL MARTIN: In expert hands the maternal mortality rate for Cesarean section is less than 2 per cent.; the fetal mortality is *nil*, and if we undertake always to do an elective Cesarean section rather than that of emergency, I am sure this rate can be very much reduced. In general in contracted pelvis the fetal mortality rate is 20 per cent.; from forceps it is from 35 to 60 per cent.; by inducing labor, the rate is 30 per cent. There are certain other cases, simply a slight narrowing of the pelvis, or a rigid, hard cervix and unyielding soft parts, which may be directly responsible for incompetency for normal labor. This should be recognized, and early conservative methods adopted. Cesarean section affords less risk to the child than the other methods or delivery, and perhaps equal chance to the mother of a healthy life. I believe that to-day the morbidity of the mother and the fetal mortality in the results which we get, are due to the inefficient application of the forceps, and the dangers of the applications of forceps I do not think can be over-estimated.

Differential Diagnosis of Labyrinthine Suppuration and Cerebellar Abscess

DR. JOHN J. KYLE, Indianapolis: The observations herein advanced are the result of the study of Neumann's work on cerebellar abscess, and my own personal observation of the work of Barany at the General Hospital in Vienna on nystagmus and its value as a diagnostic factor in labyrinthine and cerebellar diseases. The conclusions of Neumann are as follows:

It therefore follows, if it is allowable to draw any conclusions from the certainly small number of cases, that in the acute cases labyrinthine suppuration plays no rôle in the origination of cerebellar abscess, but that the latter is set up either through the instrumentality of a sinus phlebitis or an extradural abscess of the posterior fossa. An entirely different picture is presented by the chronic cases, in the majority of which the cerebellar abscess is of labyrinthine origin, and the path of conduction is more often the aqueductus vestibuli.

To recapitulate the symptoms of circumscribed suppuration of the labyrinth, we have acute or chronic suppuration of the middle ear, deafness, pain in the ear, variations in tem-

perature, giddiness, disturbances in locomotion, sometimes facial paralysis, with marked probability of meningitis or abscess of the brain, or sinus thrombosis. In cerebellar abscess from internal ear suppuration—and they are usually associated—we have pain in the occiput or forehead, hemiparesis on the affected side, spontaneous nystagmus sometimes to the affected side, tendency of the patient to lie on the diseased side, disturbance of speech of a bulbar character, stiffness of the neck muscles on the affected side: the patient will support the head whenever any movement is necessary; nausea and vomiting are present and, in extreme cases, convulsions, muscular depression of the abdomen, Cheyne-Stokes respiration, and delirium. The nystagmus, either spontaneous or induced, will be to the side of the lesion. Differential diagnosis of course must be made between temporal lobe abscess, meningitis and sinus thrombosis. This may require surgical exploration, which should be advocated. In the 196 cases reported by Neumann, 25.98 per cent. of the patients were cured.

DISCUSSION

DR. G. W. SPORN, Elkhart: I hold that there would be no abscess without a discharging ear—a chronic discharging ear. It is rare to have abscess of the brain from acute suppuration of the ear. Whenever the labyrinth is affected in any way, there is nearly always nausea and dizziness. When there is fistula from a bony condition and not from a membranous condition, we do not have suppurating labyrinthitis, but serous labyrinthitis. When there is dizziness and nausea, infection of the labyrinth is present. These symptoms will last for from 2 to 6 days, but generally only from 3 to 4 days, and of course no one can operate while the acute condition exists. Very seldom does brain abscess follow labyrinthitis. Abscess of the cerebellum goes almost directly to the sinus of the posterior fossa. To differentiate between the two: When we get stiffness of the neck, a discharging ear, no dizziness, no nausea, that will eliminate the labyrinth. If there are stiff neck and soreness right over the cerebellum, it is abscess of the cerebellum. A stiff neck points almost directly to the cerebellum or the posterior fossa. Few of these cases of acute middle-ear suppuration end in abscess of the brain.

The Hygiene of Menstruation

DR. JANE W. KETCHAM, Indianapolis: Healthy women should be able to follow their usual occupation during their menstrual periods. It is amazing how many women live in poor surroundings; they have just enough vitality to get along. If the general conditions in which these women live be improved and their well-being brought a little above par, so that they have enough vitality to spare for any unusual drain their menstrual difficulties will disappear. Good ventilation, warm clothing, regular habits—including sufficient sleep—and food of the plain and wholesome kind are of great importance. The patient must have outdoor exercise every day, regardless of the weather.

The less medication the better. The time to give medicine is between the menses, and then the medication should be tonic and alterative. Alcoholic beverages should not be given for the relief of pain in this condition. There are other drugs which are infinitely more desirable. The Russell Sage Foundation, which has for its aim the study of sociologic conditions, has reported that in New York City one woman in every four is a wage-earner. This is a larger proportion than is commonly supposed, and moreover, it is a condition which is not confined to New York City. This includes of necessity women of various classes, conditions and ages. Are they undermining their own health, or are they building it up? Are they endangering the health of the next generation, or will they transmit a tougher fiber? The economic importance of this question is on the increase from day to day, since the number of women who work is everywhere increasing.

DISCUSSION

DR. J. M. DINNEN, Fort Wayne: I have been impressed with a serious error that has been made in this variety of cases, and that is the constant meddling with these conditions,

I do not believe that any girl arriving at the age of puberty should be submitted to an examination without mature deliberation. I think all the conditions surrounding the patient should be taken into consideration, her habits of life, her mode of living, her surroundings, for I believe that enters more largely into the conditions at that time than anything else. The school girl is engaged at times with social duties, and few of them will cut out the social duty on account of the menstrual condition: I believe that the physical condition of the patient should be taken into consideration—whether or not she is anemic; and whether her surroundings are such as one could wish. The patient should be put into the hands of a person who is thoroughly competent and who will use the best judgment and not accede to the wishes of mother or child. A perfectly healthy child might menstruate at 12, another at 16, but if menstruation is delayed until 16 there are conditions there that should be looked into, conditions that may be a forerunner of something else.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

November 12

- 1 *Relation of the Acid-Fast Tubercle Bacillus to Other Forms of Bacterial Life. S. J. Maher, New Haven, Conn.
- 2 Diagnostic and Therapeutic Value of Lumbar Puncture. L. Louria, Brooklyn, N. Y.
- 3 Insufficiency of the Pylorus. M. I. Knapp, New York.
- 4 *Peculiar Results of Eye-Strain. W. M. Richards, New York.
- 5 Technic of Examination of the Duodenal Contents. M. Gross, F. v. Oefele and M. Rosenberg, New York.
- 6 Death Under Gas and Oxygen Anesthesia. G. F. Lydston, Chicago.

1. **Acid-Fast Tubercle Bacillus.**—Maher maintains that the acid-fast tubercle bacillus is simply a most highly specialized acid-fast bacillus that has acquired the faculty of resisting the lytic power of the animal cell. And that like all other acid-fast bacilli, it was derived originally from a non-acid-fast bacillus. The hope of the infected animal lies in depriving him of his acid-fast armor and weapons. The great sensitiveness of the tubercle bacillus to change of environment *in vitro*, affords a key to the solution of Nature's cures of tuberculous animals. When the infected animal is cured by change and fresh air, is it not, Maher asks, because in the new environment the tubercle bacillus has difficulty in perfecting its acid-fast development and therefore grows non-acid-fast or poorly acid-fast, or breaks up into cocci, which may or may not win the next battle with the cells? If the cells win, the patient recovers. If the cells lose, the coccal and rod forms quickly break-down surrounding tissue entrenchments. The so-called secondary invaders are practically always, he says, derivatives of the struggling acid-fast tubercle bacillus. The acid-fast tubercle bacilli develop into culturable cocci and non-acid-fast bacilli.

4. **Eye-Strain.**—Richards mentions disorders of sleep, posterior nasal catarrh, digestive disturbances, and claims to have given relief in asthma and hoarseness by fitting glasses.

New York Medical Journal

November 12

- 7 Sources of Infection in Venereal Diseases in New York. F. Bierhoff, New York.
- 8 Gross Drugs vs. Active Principles. G. F. Butler, Chicago.
- 9 Serodiagnosis of Syphilis, Using the Noguchi System. W. A. Grant, Syracuse, N. Y.
- 10 The Ehrlich-Hata "606" in Syphilis. J. A. Fordyce, New York.
- 11 The Roentgen-Ray and the Special Senses. E. H. Skinner, Kansas City, Mo.
- 12 *Roentgen-Ray Treatment of Carcinoma of the Breast. R. H. Boggs, Pittsburg, Pa.
- 13 Prophylaxis of Enterocolitis. W. H. Randle, Germantown, Pa.
- 14 What Shall We Do to Prevent Lateral Curvature of the Spine? M. Strunsky, New York.
- 15 Technic and General Use for Ehrlich's Arsenobenzol. A. L. Wolbarst, New York.
- 16 Accidental Detachment of the Normally Implanted Placenta. W. S. Peotie, Ishpeming, Mich.

12. Abstracted in THE JOURNAL, Oct. 29, 1910, p. 1583.

Boston Medical and Surgical Journal

November 10

- 17 Spinal Anesthesia. F. Allen, Boston.
- 18 *Etiology of Elephantiasis. G. C. Shattuck, Boston.
- 19 Congenital Ophthalmoplegia Externa. S. G. Webber, Boston.
- 20 *Technic of Arthrotomy. C. F. Painter and A. P. Cornwall, Boston.
- 21 *Cutaneous Diphtheria. E. H. Place, Boston.
- 22 Conical Stump After Amputation in Childhood. C. A. Powers, Denver, Colo.

18. **Etiology of Elephantiasis.**—Shattuck undertook by a review of the literature to ascertain the present state of knowledge of this disease. He now believes that the essential characteristics of typical acquired elephantiasis are lymphangiectasis, hyperplasia of connective tissue, and chronic edema. The relation of these to each other in the production of elephantiasis is not clear. It appears that these changes may frequently be attributed to the interaction of stasis and of inflammation. Stasis always occurs early and persists. Inflammation may precede or follow stasis, or may not be manifest at any stage of the disease. Inflammation when present may be acute or chronic; and is generally traceable to bacterial infection. Either chronic stasis or inflammation from any cause may predispose to elephantiasis, but even when they occur together, elephantiasis does not always result. There is reason to suppose that congenital weakness or anomalies of lymphatics may play an essential part in the production of some cases of elephantiasis; and that such weakness or anomalies can be inherited. The filaria is an important factor in the production of endemic elephantiasis of some regions, but it is not essential to the occurrence of endemic elephantiasis. Elephantiasis in filarial regions results indirectly from filariasis through bacterial infection. Sporadic lymphatic elephantiasis and endemic elephantiasis are not essentially different.

20. **Technic in Arthrotomy.**—In this series of 198 cases there were thirteen erosions—nine in men, four in women. There was one slight skin infection among these. One case was so bad when the joint was opened that an excision was attempted, but the disease extended so far into the tibia that a thigh amputation had to be done. One case was a wrist. The others were all tuberculous knee-joints. There was one death among this group, and that was a few days after leaving the hospital and was due to tuberculous meningitis. It was observed in studying the cases in this group, viz., the excisions and erosions, that the danger of disseminating a tuberculous infection through surgical procedure is not a wholly negligible matter. The authors show that care must be exercised to allow Nature to start her protective immunizing processes, both local and general, before one takes the risk of opening up new tissue to infection and absorption.

21. **Cutaneous Diphtheria.**—In the case reported by Place, that of an infant aged 7 months, two days before admission swelling and redness became marked over the area of the abdomen, genitals and thighs covered by the diaper. There was a considerable thin discharge. Over the lower third of the abdomen, the vulva, perineum, anterior part of buttocks and the upper quarter of the internal surface of the thighs, the skin was markedly reddened, swollen and covered with a grayish hyaline membrane, firmly adherent, and when forcibly removed left a granular area which bled easily. Scattered through this area, especially the lower part, were small various shaped islands of healthy skin, some connected by narrow bands of healthy skin. There were no vesicles or pustules, and the skin elsewhere was normal. Cultures from the skin showed typical diphtheria bacilli. Cultures from the nose and throat and from the nose and throat of the mother showed no diphtheria bacilli. The necropsy showed, besides the skin lesions, some hyperplasia of the lymphoid tissue, "septic" spleen, beginning bronchopneumonia of both bases and some pus in the middle ear. The source of the infection was not discovered.

Albany Medical Annals

November

- 23 *Physics of Light and Electrotherapy T. D. Crothers, Hartford, Conn.
- 24 The Diagnostic House. A. MacFarlane, Albany.
- 23. Abstracted in THE JOURNAL, Oct. 1, 1910, p. 1223.

New Orleans Medical and Surgical Journal

November

- 25 Local Anesthesia with Quinin and Urea Hydrochlorid. C. W. Allen, New Orleans.
- 26 Bunn's Round Ligament Fixation. W. Kohlmann, New Orleans.
- 27 Treatment of Tabes Dorsalis. T. A. Williams, Washington, D. C.
- 28 Spinal Anesthesia. S. P. Delaup, New Orleans.
- 29 *Autoserotherapy in Treatment of Fluids in Serous Cavities. I. I. Lemann, New Orleans.
- 30 Aerophagy. F. E. Lamothe, New Orleans.
- 31 Displacement of the Heart. A. E. Fossier, New Orleans.
- 32 Successful Use of Chromium Sulphate in a Case of Ataxic Paraplegia. B. O. LeBlanc, St. Gabriel, La.

29. **Autoserotherapy.**—Lemann reports three cases in which this method of treatment proved successful. The first case was also one of pleurisy with effusion. The second was a case of chronic parenchymatous nephritis, where the patient not only had an accumulation fluid in the left pleura, but was also generally anasarous. The third case was one of ascites.

Western Medical Review, Omaha, Neb.

November

- 33 The Owen Bill and Its Opponents. S. A. Knopf, New York.
- 34 Pathology and Treatment of Acute Puerperal Sepsis. J. R. McKirahan, North Platte, Neb.
- 35 Progress of Medicine in Nebraska. W. C. Bartlett, Alma, Neb.
- 36 Ochsner Treatment of Appendicitis Applied to Treatment of Nausea and Vomiting of Pregnancy. A. B. Somers, Omaha, Neb.
- 37 *Operation for Prolapsus Uteri. C. A. Roeder, Grand Island, Neb.
- 38 Significance of Cough in Disease. J. B. Hardy, Stanton, Neb.

37. **Prolapse of the Uterus.**—The essential factor in the production of prolapse of the uterus, says Roeder, is the recession of the cervix from the hollow of the sacrum. In the posterior positions of the uterus in nullipara we often find the posterior vaginal wall shorter than normal, and it is just here where the primary cause of the trouble lies. Simple shortening of ligaments or suspensions is not so successful, because the cervix is held more firmly out of place by the patient's abnormally shortened posterior vaginal wall. In these cases Roeder first lengthens the posterior vaginal wall, through the vagina, by a transverse incision, freely loosening it from the rectum, and sewing the transverse incision up longitudinally, then proceeding with the abdominal operation. In case the incision through the vagina seems too difficult, he opens the abdomen at once, incises the peritoneum covering the cul-de-sac of Douglas, brushes back with gauze the posterior vaginal wall from the rectum, and sews the uterosacral ligaments to the loosened vaginal wall, covering all denuded areas with peritoneum. Then, after the method of Coffey, he folds the inferior half of the broad ligaments over the posterior portion of the uterus, the superior half over the anterior, which helps to antevert the uterus. The round ligaments are shortened and strengthened at the weakest points after the method of Mayo, folding them over at the attachments of the internal ring.

Illinois Medical Journal, Springfield

November

- 29 *Dislocation of the Atlas. C. E. Black, Jacksonville.
- 40 *Medical Treatment of Pelvic Diseases of Women from the Standpoint of the Surgeon. J. F. Percy, Galesburg.
- 41 Extrauterine Pregnancy. E. C. Franing, Galesburg.
- 42 *Prophylaxis of Postoperative Cystitis. E. C. Dudley, Chicago.
- 43 Radium in the Treatment of Cancer, Angioma and Keloid. L. Wickham, Paris, France.
- 44 *Two Thousand Blood Examinations for Hemameba Malariae. T. M. Aderhold, Zeigler.
- 45 Tabes Dorsalis and the Surgeon. G. W. Hall, Chicago.
- 46 Campaign Against Summer Diarrhea in Chicago in 1909. C. Hedger, Chicago.
- 47 Modern Operative Treatment of Varicocele of the Spermatic Cord. A. P. Heineck, Chicago.
- 48 Cancer of the Uterus. G. C. Kasdorf, Robinson.

39. **Dislocation of Atlas.**—While riding, the patient's horse stumbled and fell, throwing him over its head in such a way that he struck with the principal weight on his forehead. He felt something "snap" in his neck and had to support his head with his hands if he made a sudden movement, and for this reason he could not get back on his horse, but was able to walk home several miles, although he had con-

siderable pain in the occipital region. He could not turn his head from side to side and could not open his mouth more than half an inch. He found that swallowing was interfered with by something which pushed forward the front part of his neck. For three weeks he went about visiting among the neighbors, waiting for conditions to improve so that he could return to work. He could walk with tolerable comfort. When there was any unusual action or strain or when he wished to get up from bed or from a reclining posture, he had to support his head with his hands, but when erect he could walk long distances without distress. He reported that he frequently walked as far as 10 miles a day, but could not ride horse-back or in a wagon or buggy. The pain in the occipital region continued, he tired more easily than before the injury and the stiffness and swelling did not disappear. After waiting three weeks a diagnosis of dislocation or fracture of a cervical vertebra was made. There was absence of motor, sensory or reflex symptoms. He complained of pain on moving the head and at times complained of frontal headache. A curious symptom was that pressing his feet against the foot-board of his bed seemed to relieve the headache temporarily. He complained of pain in the muscles of the neck, all of which were held rigid and tense and sometimes there was twitching of the muscles of the right side of the face. At times he had a pain which began at the level of the thyroid crest which pressed forward and extended around to the left ear. The face was held slightly to the left and could be rotated a little to that side, but not at all to the right, while the head was slightly tilted to the right. This tilting of the head was greater than it appeared as the bending of the lower vertebrae compensated the deformity at the junction of the atlas and axis. He entered the hospital in the evening and was put to bed. Appetite was good; bowels were constipated; pulse was 88; respiration was 16; temperature was 98.6. The first night he slept quietly and comfortably from 8:30 p. m. to 6 a. m. After making a careful examination, a diagnosis of dislocation of the atlas with probable fracture was ventured. The skiagraph fully confirmed this diagnosis. This was taken with the patient lying on his left side and showed the forward dislocation of the atlas and gives a reasonable presumption of fracture of the odontoid. It would hardly be possible to get such a picture with the odontoid intact. A plaster splint was made to fit the back, shoulders, neck and back of head, which was held in place by bandages. This kept him rigidly in one position and made him more comfortable. After three weeks an attempt was made to reduce the dislocation, first by manipulation, extension, flexion, rotation, without success, and then by the open method. A median incision was made extending well up on the occiput and down to the spinous process of the sixth cervical vertebra. This gave a free exposure of the region of the atlas and axis. The spinous process of the axis had been fractured near the tip and the lamina on the right side of the axis had been fractured. Both of these fractures were firmly united in the seven weeks which had intervened. The right lateral process of the atlas was rotated forward into the intervertebral notch. The posterior arch of the atlas was thrown upward almost against the edge of the foramen magnum and forward across the opening. After securing free exposure of all parts, an attempt was made to effect a reduction, but without avail. A new plaster cast was applied to the head, neck, shoulders, and back and the patient returned to bed in good condition. He was kept in the cast for six weeks, at which time he was able to walk about comfortably, but he did not leave the hospital until December 12. He seemed perfectly strong and well, except for a stiff and deformed neck. About five weeks later he returned with symptoms indicating that degeneration of the cord was in progress. The patient died from respiratory failure.

40. 44. Abstracted in THE JOURNAL, May 28, 1910, p. 1808.

42. Abstracted in THE JOURNAL, June 4, 1910, p. 1892

Ohio State Medical Journal, Columbus

November

49. Symptoms Which Would Lead to Early Diagnosis of Cancer of the Rectum. L. J. Hirschman, Detroit.

50. *Intravesical Operations. C. M. Harpster, Toledo.

51. *Two Interesting Liver Cases. E. W. Mitchell, Cincinnati.

52. *Prognosis in the Traumatic Neuroses. L. Miller, Toledo.

53. *Extensive Syphilitic Ulceration of Tertiary Nature. A. Ravogli, Cincinnati.

54. Nutrition of Twins and Triplets. R. L. Jett, Cleveland.

55. Muscular Deviations and Suggestions of a New Nomenclature. J. E. Cogan, Cleveland.

56. Chorioidal Atrophy in Myopia. W. S. Keller, Cincinnati.

50. Abstracted in THE JOURNAL, July 16, 1910, p. 1246.

51. Two Interesting Liver Cases.—Both cases reported by Mitchell were in young subjects. Both began insidiously with all evidences of a simple catarrhal jaundice and were so looked on until considerable and rapidly increasing enlargement of the liver showed that they were of more serious nature. In both jaundice was very marked. In both the liver shrank rapidly in size as the symptoms of grave icterus developed. In one patient this condition developed abruptly and terminated in death in the surprisingly short time of thirty-six hours. In the other patient the development was somewhat less abrupt and the duration several days. In both the terminal clinical pictures most clearly resembled acute yellow atrophy. The pathologist showed that both these cases were instances of cirrhosis of the liver.

52. Abstracted in THE JOURNAL, June 4, 1910, p. 1895.

53. Syphilitic Ulceration.—In Ravogli's case, the ulcer on a thick and infiltrated base consisting of red elevated nodules, began in the upper part of the right inguinal region, involving the whole fossa cruro genitalis and the labium of the same side. In an irregular serpiginous way it descended down to the thigh involving a large area of the gluteal region and the perineum, descending toward the anus. One ulcer was also found on the other side of the gluteal region just on the surface of the skin touching the ulcerated spot of the opposite side showing a local inoculation. An extensive scar on the posterior region of the thigh bears witness of more extensive ulceration already healed up. The ulcer consisted of an aggregation of small nodules causing an infiltration of the whole surface. Some of the nodules were broken down, some covered with thick crusts, some vegetating forming thick papillae. The right labium was thickly infiltrated, enlarged, elephantiasis, and through the ulcerated surface, adherent to the thigh and drawn downward. The diagnosis was that of syphilis ulceroosa præcox. Wassermann test with Noguchi method gave a positive reaction. The Moro test for tuberculosis was negative. The woman was treated generally with gray oil injections twice a week, and internally potassium iodid and an iron tonic. In a short time she improved considerably in her nutrition and in her general health. The ulcer was treated locally by bathing with 1 to 2,000 bichlorid solution, and covered with calomel in Wilson ointment, 20 grains to the ounce. The ulcer was slowly improving, yet not fast enough to give satisfaction. The patient was subjected to general anesthesia with ethylechlorid followed by ether. The ulcer was thoroughly curetted, the labium was detached and corrected; during the operation it bled profusely. The hemorrhage was checked, the wound was covered with iodoform dressing. The same manner of dressing was continued, the wound was clean, and in a relatively short time, healed up completely leaving a soft regular scar.

Yale Medical Journal, New Haven

October

57. A Medical Retrospect. W. T. Councilman, Cambridge, Mass.

58. *Therapeutic Use of Tuberculin. D. R. Lyman, Wallingford, Conn.

58. Therapeutic Use of Tuberculin.—Statistics for sixty-seven cases treated with tuberculin at the Gaylord Farm Sanatorium, and 374 without, in the five years prior to Jan. 1, 1910, show that of the incipients, 82 per cent. of those treated and 83 per cent. of the untreated are now at work with the disease arrested. Of the moderately advanced, the figures are 40 per cent. for the treated, and 48 per cent. for the untreated; of the far advanced, 10 per cent. and 11 per cent. respectively. These figures show no appreciable difference between the treated and untreated cases; the slight additional percentage being, in fact, in favor of the untreated. H. however, says Lyman, one reviews these same cases from

the standpoint of any possible increase in resistance, as shown from the death-rate, it is found that of the incipients treated with tuberculin none has died, while there are 4 per cent. of deaths among the patients untreated; the moderately advanced show 27 per cent. as against 19 per cent., indicating, perhaps, some increase in resistance from its use, especially in the more advanced cases. Lyman's impressions on the whole are more hopeful as to its future in tuberculosis therapy than these statistics would imply. It is not in itself a cure, but in suitable cases, and given with utmost care, it is undoubtedly a great aid in some instances. In many cases after the ordinary sanatorium régime has brought the patient's general condition up to normal, but when constant relapses are occurring and the patient is apparently losing ground, its use has been followed by marked and often apparently permanent improvement. The patients experience a distinct increase in general strength, they can do more without tiring, and sometimes there is distinct increase of appetite, decrease of slight persisting temperature, and relief of pain from chronic dry pleurisy.

Annals of Surgery, Philadelphia

November

- 59 Atony of the Bladder Without Obstruction or Signs of Organic Nervous Diseases. J. W. T. Walker, London.
- 60 Congenital Strictures of the Ureter. J. T. Bottomley, Boston.
- 61 Primary (Congenital) Hydronephrosis. C. G. Cumston, Boston.
- 62 *Recent Developments in Pyelography. W. F. Braasch, Rochester, Minn.
- 63 *Removal of Carcinoma of the Fundus of the Bladder. F. R. Hagner, Washington, D. C.
- 64 *Intraperitoneal Cystotomy. C. E. Tennant, Denver, Colo.
- 65 Treatment of Cystitis by Distensions of the Bladder. H. A. Kelly, Baltimore.
- 66 *Is the Sac of a Femoral Hernia of Congenital Origin, or Is It Acquired? R. W. Murray, Liverpool, England.
- 67 *Silver Wire and Linen Thread for the Cure of Hernia. J. Wiener, New York.
- 68 *A Pneumatic Tourniquet. F. E. Bunts, Cleveland.
- 69 Control of Hemorrhage by Forceps-Tourniquet in Major Amputations. J. L. Thomas, Cardiff, England.
- 70 Fingers About Fractures and Refractures of the Patella. E. M. Corner, London.

62. An abstract of this paper appears in Society Proceedings, this issue.

63. **Carcinoma of Fundus of Bladder.**—Hagner claims that it is possible, with exercise of proper care, to remove tumors from the fundus and lateral walls of the bladder without the slightest traumatism to the tumor mass by his method. The operation is impracticable for tumors of the bladder base. The following is a description of the operation as employed in one case: The bladder was irrigated, and on account of bleeding, adrenalin 1:10,000 was instilled and allowed to remain five minutes. The bladder was then distended with 350 c.c. of salt solution, and a Nitze cystoscope was introduced. This was held in place by an assistant, while a suprapubic incision down to the bladder wall was made. The prevesical fat was well separated and the tissues well retracted by wide lateral retractors so as to give a good exposure of the bladder wall. The growth was then inspected through the cystoscope, the right hand holding the cystoscope; with the left, a needle was pressed on the fundus of the bladder, and the dimpling caused thereby was readily seen through the cystoscope. The needle was carried first to the left of the growth at a sufficient distance to give a margin of healthy bladder wall, it was then plunged into the bladder, being held in place by an assistant. The same procedure was carried out at the right of the growth and at the lower border. An attempt to place a needle above would have penetrated the parietal peritoneum, as this was involved in the growth. A sharp knife was then carried to the outer side of the three needles placed around the growth, the portion of the bladder wall to be removed being clamped at its cut edge as soon as the incision was started. The bladder wall containing the growth was lifted up by the clamp and held by an assistant. The fluid left in the bladder was removed by a large syringe through the suprapubic wound to prevent its entrance into the peritoneal cavity. The incision in the bladder wall was then carried upward into the peritoneal cavity and a portion of parietal peritoneum covering the growth was removed. The bladder and peritoneal wounds were then closed by two rows of sutures, a suprapubic drain being left in the bladder.

64. **Intraperitoneal Cystotomy.**—Tennant advocates transperitoneal cystotomy in selected cases. He says that more successful results in bladder work may be accomplished, with considerably less mortality and much greater comfort to the patient, by the intraperitoneal route. In two cases, he found that it was possible to perform an intraperitoneal cystotomy in the presence of very marked cystitis. Both patients had a cloudy alkaline urine, with pus, colon bacillus and other pyogenic micro-organisms, but after careful consideration, it seemed best to use the transperitoneal route. Both patients were operated on, the bladder immediately closed, and successful results secured, sparing the patients annoyance and apprehension of a urinary fistula.

66. **Sac of Femoral Hernia.**—Murray holds that clinical experience, operative experience, and also evidence obtained from necropsies and from the pathologic laboratory are strongly in favor of the view that the sac of a femoral hernia is of congenital origin and is not acquired.

67. **Silver Wire in Cure of Hernia.**—Wiener regards chromic catgut as an unreliable suture material, but Pagenstecher linen, he thinks, is an excellent suture material. Silver wire, in some form, is a suitable suture material in many recurrent cases; and at primary operations when the tissues are poorly developed. Immediate recurrence, in uninfected cases, in his opinion, is usually due to chromic gut. There will be fewer recurrences, he declares, if surgeons entirely discard chromic gut sutures.

68. **Pneumatic Tourniquet.**—Bunts has devised an apparatus which is made of rubber and linen and consists virtually of two long rubber bags fastened together along their inner margins, but connected at the middle by an opening through this fastening which permits the air to circulate simultaneously in both tubes when inflated. If it be made of a single rubber bag, the inflation will cause the superimposed turns of the tourniquet to roll off of each other and thus relieve the constriction. With the double tubes this cannot occur, and the tourniquet remains exactly where placed. It is made of much the same material as the familiar obstetrical pad, which is sufficiently elastic, very strong and durable and can be readily sterilized. It has a tapering end which, after the tourniquet is in place, is tucked under the inflatable part and becomes fixed as soon as pressure is applied. From the middle of one of the bags projects a rubber tube with an offshoot and two stop-cocks, which permit, respectively, inflation by means of an attached bulb, and gradual diminution or total abolition of pressure by opening and allowing the escape of the air. If done slowly, undoubtedly venous engorgement would take place, but the inflation may be rapidly accomplished by a few pressures on the bulb, and if still greater precaution against congestion is needed, the limb may be elevated or a Martin badge applied before compressing with the tourniquet. It can be applied uninflated to the limb prior to its preparation for operation and then, when needed, the circulation can be shut off by compression of the bulb without any disarrangement of the preparations about the field of operation. If, for any reason during the operation, it is desired to restore the circulation or to see whether the vessels have been secured, the air may be slowly allowed to escape by the anesthetist or nurse by opening the stop-cock, and controlled instantly by the reinflation of the tourniquet, without having to readjust it.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

November

- 71 *Obstetrics and Modern Gynecology. A. A. Miller, Syracuse, N. Y.
- 72 *Present Status of the Colon Tube. H. W. Yates, Detroit.
- 73 *Diagnosis of the Chronic Surgical Lesions in the Upper Abdomen. C. N. Smith, Toledo, Ohio.
- 74 *Problems in Uterine Cancer. W. B. Chase, Brooklyn, N. Y.
- 75 *Statistics of Cancer in the Female. K. J. Sanes, Pittsburg, Pa.
- 76 *Technic of the Radical Abdominal Operation for Cancer of the Uterus. J. H. Jacobson, Toledo, Ohio.
- 77 *Diagnosis of Tubal Abortion and Rupture. C. E. Congdon, Buffalo, N. Y.
- 78 *Results at Lebanon Hospital of Deferred Operations for Extrauterine Pregnancy. R. Waldo, New York.
- 79 Tumors of the Bladder. J. F. Erdmann and J. F. McCarthy, New York.

- 80 *Puerperal Wound Intoxication and Wound Infection. H. Schwarz, St. Louis.
 81 *Serotherapy and Bacterial Vaccines in the Treatment of Puerperal Septicemia. H. Schwarz, St. Louis.
 82 Scarlatina. J. F. Bell, Englewood, N. J.
 83 Purpura. T. J. Etterich, Pittsburg, Pa.

71 to 75. 77. 78. Abstracted in THE JOURNAL, Oct. 8, 1910, pp. 1309-1312.

76. **Abdominal Operation for Cancer of the Uterus.**—The author's operation is a combination of Bier's spinal anesthesia with Bumm's modification of the Wertheim technic in which the vaginal vault is left open and early postoperative Roentgen-ray treatment instituted. Spinal anesthesia, he thinks, is especially adapted for this operation.

80. 81. Abstracted in THE JOURNAL, Oct. 15, 1910, p. 1402.

American Journal of Surgery, New York

November

- 84 Iodin: Its Most Important and Latest Uses. J. L. Wollbeim, New York.
 85 *Treatment of Lateral Curvature of the Spine. C. R. Keppler, New York.
 86 Fractures and Dislocations of the Spinal Column. W. L. Estes, South Bethlehem, Pa.
 87 Local Anesthesia. A. E. Hertzler, Kansas City, Mo.
 88 An Improved Composite Cystoscope. J. F. McCarthy, New York.
 89 A Foot and Leg Table, a Hand Table, for Use in Surgical Out-Patient Departments. W. M. Brickner, New York.

85. **Lateral Curvature of the Spine.**—For several years Keppler has been using in these cases a simple apparatus which he constructed. It works on the basis of leverage with the patient lying face downward on a mattress. To a vertical bar two long arms are attached by means of sliding joints; and fastened to these are two smaller bars with the corrective pads. At the free end of each arm is a hook on which the weight hangs. The patient lies in front of the machine with the convexity of the spinal curvature immediately opposite the upright base; if the curvature is a double one the dorsal deviation is placed thus. One arm is fastened very low on the upright, the pad being placed on the rib projection at the point of greatest deformity; thus the arm rises, the weight is high, pressure of the pad is down and outward. The other arm is fastened high on the upright, with the pad placed over the lower opposite deviation; it thus slants downward, the weight is low, the pad presses down and inward. The weights being attached—at first from 5 to 10 pounds each, later up to 25 pounds—the corrective act is exerted, and is continued from five to ten minutes. In single curvature only one pad is used; in round shoulders a smaller pad is placed between the scapulae, while the shoulders are raised by means of a sand bag placed under the clavicles; and the apparatus can be used actively by placing the pad against the concave side, attaching a light weight and having the patient push up and outward against it intermittently. To be effective, Keppler says the active treatment must be given at least twice or three times a week. The daily use of a few simple general exercises and some suspension apparatus is also desirable. In fact, the home life of the patient must be well systematized, and the hours of school, rest, sleep and play regulated. The time of treatment varies; in simple cases good results may be obtained in about six months with occasional subsequent supervision; in severe and spastic cases no time limit can be set.

Journal of the Arkansas Medical Society, Little Rock

October

- 90 Uncinariasis. C. W. Stiles, Washington, D. C.
 91 Etiology and Pathology of Uncinariasis. W. H. Denderick, Helena.
 92 Diagnosis and Symptomatology of Uncinariasis. A. G. McGill, Little Rock.
 93 Treatment of Uncinariasis. W. S. Stewart, Pine Bluff.
 94 Complications in Abdominal Surgery. C. S. Holt, Fort Smith.

Journal of the Minnesota Medical Association and the Northwestern Lancet, Minneapolis

November 1

- 95 *Nephropexy. W. Courtney, Brainerd.
 96 Necessity of Institutional Care for the Tuberculous. E. L. Tonby, Duluth.
 97 *Treatment of Varicose Ulcers. J. E. Moore, Minneapolis.
 98 Tigitalls. J. T. Moore, Minneapolis.

95. **Nephropexy.**—Courtney's method is, to some extent, a modification of the Elebohl operation. A transverse incision,

from 1 to 1½ inches in length, is made at each pole of the kidney, well over the curvatures, and these are joined, in the form of a capital letter I, by a longitudinal median-line incision on the convex surface of the kidney. The outlined flaps of fibrous capsule are reflected well downward on the lateral surfaces of the kidney, where they remain undetached, and are folded into a cord or ligament and so maintained by a whip-stitch of ten-day catgut. Four Pagenstecher linen or thirty-day catgut sutures are then placed at or near the four ends of the newly constructed cord or ligament. These sutures are inserted through the fibrous capsule, behind the ligament, over which a turn of each suture is made at a distance of about half an inch from the point of first insertion. The two ends of each suture are grasped separately by catch-forceps. The kidney is then partly returned within the wound, and the incised edge of the fatty capsule is brought forward and sutured to the fibrous capsule, below the newly constructed ligament, with fourteen-day catgut. The sutures may be interrupted at intervals of about three-fourths of an inch, and should surround the circumference of the opening in the fatty capsule. The kidney is then completely replaced within the body, and, by means of needles, the two upper linen sutures, previously placed behind and around the ligament, are passed through the muscular and fascial planes only, of the abdominal wall, external to the incision and as near the twelfth rib as may be conveniently possible. The ends of each of these two sutures are again grasped in catch-forceps until the two like sutures below have been similarly placed, when all are tied sufficiently snug to raise and maintain the denuded surface of the kidney in close apposition with the raw surface of the quadratus lumborum muscle. The wound, or incision, is closed in the usual tier-suture manner and without drainage.

97. **Varicose Ulcers.**—The principle of Moore's treatment is mild medication, combined with continuous pressure by means of properly adjusted strips of adhesive plaster. With the average ulcer, all the preparation necessary is a thorough washing with soap and water before applying the plaster. A painful or so-called irritable ulcer should be swabbed very thoroughly with 95 per cent. phenol, repeated several times at intervals of three or four days, before applying the adhesive strips. The phenol should be followed in about two minutes by alcohol, after which a gauze dressing should be applied. This treatment will relieve the pain and sensitiveness in a very few days, so that the pressure can be applied without causing pain. When there is eczema about the ulcer this should be healed by the usual methods before applying the adhesive plaster. In case of annular ulcer, involving the whole circumference of the limb, the only successful treatment is amputation. After washing and shaving the leg it should be held horizontal by placing the heel on the seat of one chair while the patient is seated on another. The ulcer is then covered with dry calomel so that the cavity is filled level with the skin. Beginning at a point about 2 inches below the ulcer, strips of adhesive plaster from an inch to an inch and a half in width should be applied around the limb, so that the strip above overlaps the strip below about a quarter of an inch, like the shingles on a roof. A sufficient number of strips should be applied so that the upper one extends 2 inches above the upper edge of the ulcer. They should be applied firmly, and flat against the leg, so that one edge does not press into the flesh. They should not completely encircle the leg, but should leave a strip of uncovered skin along the back about an inch wide. A roller-bandage should then be applied from the base of the toes to the knee. At first it is necessary to change the dressing every day, for the discharge from the ulcer mixes with the calomel, forming a thick paste which oozes out between the adhesive strips, and unless changed this often irritates the skin, loosens the strips and acquires an offensive odor. In a short time, however, the amount of discharge diminishes, and the strips can be left on for two or three days, the length of time being regulated by the amount of discharge. In a very few days the granulations begin to assume a healthy color, and a blue line of new skin appears around the edge of the ulcer. The progress is usually most gratifying, and after the discharge has diminished so that

the dressing requires changing only every third day, the patient can see the improvement that has taken place between dressings.

Southern Medical Journal, Nashville

October

- 99 Surgery of Tetanus. G. W. Broome, St. Louis.
100 Address at Opening of Jefferson Medical College, Philadelphia. G. C. Savage, Nashville.
101 *Preparation Required for the Practice of General Surgery. G. W. Green, Chicago.
102 Treatment of Advanced Cases of Appendicitis with Intestinal Paresis. J. N. Lewis, Roanoke, Va.
103 Capsule Cataract Operation. J. P. Crawford, Nashville.
104 Intubation in Desperate Cases. O. H. Wilson, Nashville.
105 Tubal or Extra-Uterine Pregnancy. J. H. Carter, Memphis, Tenn.
106 Methods for the Control of Fever. W. L. Secor, St. Petersburg, Fla.

101. Abstracted in THE JOURNAL, Sept. 24, 1910, p. 1134.

California State Journal of Medicine, San Francisco

November

- 107 Experimental Nephritis. E. C. Dickson, San Francisco.
108 Nephritis of Bacterial Origin. J. J. Hogan, Vallejo.
109 Hematuria; An Initial Symptom of Chronic Nephritis. R. L. Rigdon, San Francisco.
110 Dietetic Treatment of Nephritis. R. Bine, San Francisco.
111 Pellagra. W. A. Clark, San Leandro.
112 History of Rabies in Southern California. S. P. Black and L. M. Powers, Los Angeles.
113 Demonstration of a Dissection Showing an Anomaly of the Arteries of the Leg. F. E. Blaisdell, San Francisco.
114 *Ureterocystostomy. G. B. Somers, San Francisco.

114. **Ureterocystostomy.**—The chief feature of this operation is the deliberate opening of the bladder, for the purpose of affording working space in carrying out the anastomosis. With a liberal median incision, the pelvic cavity is thoroughly exposed. The ureter is liberated down to a point as near as possible to the base of the bladder. It is there cut off, leaving a free length of about $1\frac{1}{2}$ inches. The bladder is opened by a median longitudinal incision, about 2 inches in length. This gives free access to the whole of the interior, with plenty of working space. A point is selected on the surface of the bladder, which the free end of the ureter will easily reach. If there be any difficulty in making the ureter reach the bladder, the latter may be dissected away from the pubes sufficiently to allow approximation. The bladder is punctured at the selected point, and the ureter drawn through. When the broad ligament is present, the puncture is made to pass through this structure at a convenient point. The end of the ureter is split, so as to make an upper and a lower flap, each about 1 centimeter in length. The mucosa of the bladder where these flaps are to be united, is slightly denuded, and then each flap is sewed to the bladder wall by fine chromicized catgut. The operation is completed by closing the bladder and covering the remainder of the ureter as completely as possible with peritonem. In the after-treatment the bladder is kept empty by catheterizing every two or three hours for several days. A permanent catheter should not be used, as it is almost sure to produce cystitis.

Philippine Journal of Science, Manila

August

- 115 *Uncinariasis Among White Men in the Philippines. W. P. Chamberlain, U. S. Army.
116 *Prevalence of Intestinal Parasites in Rizal and Cavite Provinces and in Cagayan Valley. R. S. Rissler and Liborio Gomez, Manila.
117 Myzomyia Rossii as a Malaria-Carrier. W. T. deVogel, Samarang, Java.
118 *Antimalarial Prophylactic Measures and Their Results at the Naval Station, Olongapo. P. I. A. W. Dunbar, U. S. Navy.
119 Malaria in the Philippines, Especially Its Treatment with Arsenophenyglycin. F. B. Bowman, Manila.
120 Contagious Ophthalmia. G. E. Brook, Straits Settlements, Singapore.
121 Present Position of the Leper in View of the Resolutions Passed at the International Conference on Leprosy at Bergen, 1909. A. Perry, Ceylon.
122 Tuberculosis Among Filipinos. W. E. Musgrave and A. G. Sison, Manila.
123 Blood-Pressure in the Tropics. W. E. Musgrave and A. G. Sison, Manila.
124 Tuberculosis in the Philippine Islands. I. W. Brewer, U. S. Army.
125 *Mali-Mali, a Mimic Psychosis in the Philippine Islands. W. E. Musgrave and A. G. Sison, Manila.

115. **Statistical Study of Uncinariasis.**—According to Chamberlain, uncinariasis is found among the Philipinos in prob-

ably not over 15 per cent. of the general population, and is mild in type and of small economic importance. The percentage of infection is higher in adult males, reaching 50 or 60 per cent. among the Philipino scouts and Bilibid prisoners. From 65 to 85 per cent. of the southern-bred white recruits for the United States Army are infected with uncinaria, usually mildly, and these infected soldiers have been coming in considerable numbers to the Philippines, thus importing *Uncinaria americana*. The majority of these soldiers, if not reinfected, become free of the worms by natural processes in about five years. Uncinariasis, sufficiently marked to be evident clinically, is very rare among American men in the Philippines. Even a routine stool examination among Americans showed few cases; seventy-one out of 8,000 examinations at the Division Hospital and nineteen out of 800 examinations at the Fort William McKinley Hospital. An exhaustive stool examination among Americans in the Philippines, Chamberlain believes, would probably show a somewhat greater frequency. Of the ninety cases of uncinariasis found at the above hospitals, only eleven were admitted for uncinariasis. Forty-five were admitted for gastro-intestinal troubles, dysentery, diarrhea and sprue being the most frequent causes. In about thirty out of ninety cases (33 per cent.) there is a probability that the infection originated in the United States and was imported into the Philippines. In the remaining sixty cases it is probable that infection occurred in the Philippines, and there is reason to believe the parasites were usually introduced through the mouth with food or water. Chamberlain says that uncinariasis is of sufficient importance among Americans in the Islands to make an occasional careful search for ova desirable.

116. **Intestinal Parasites.**—The result of the work done by Rissler and Gomez is in accord with that of other authors regarding the almost universal infection of the whole population of the Philippines with intestinal parasites. The chief infections in the districts covered by this report are from *Ascaris* and *Trichuris*, and their distribution is rather uniform, although in Santa Isabel the percentage of infection with *Trichuris* fell very low. The distribution of the hookworm varies, Santa Isabel showing the highest percentage ever recorded in the Islands. Males were more affected than females. The percentage of hookworm infection does not appear to be affected by the nature of the soil on which the people live. The distribution of *Amaba* shows still greater variation. In and around Manila the percentage of infection is higher, but in the Cagayan Valley it is rather low. Infection with *Hymenolepis*, while not found in Cavite and Rizal Provinces, is rather frequent in the Cagayan Valley. Children are mainly infected. Tapeworms are also more frequent in Cagayan and Isabela than in Cavite and Rizal. The parasite known as the worm of Cochín-China diarrhea, or *Strongyloides intestinalis*, was not found in Cagayan and Isabela, whereas it was frequently encountered in Cavite and Rizal. Monads were found rather uniformly distributed in the cases, but ciliates were not encountered in the Cagayan Valley.

118. **Antimalarial Prophylactic Measures.**—The value of efficient sanitary measures is well shown in Dunbar's report. A board appointed for the purpose, recommended (1) filling in of the swampy land on the range and further clearing of the ground so that there should be no shelter for the mosquito within at least 200 yards of the range; (2) the erection of thoroughly screened quarters for officers and men. These recommendations were carried out and the quarters completed by the date of the opening of the target season. The buildings are of light construction, elevated about 4 feet from the ground, well ventilated and completely screened. During the first quarter of last year there were 105 admissions to the hospital ship, giving 2,214 sick days, and the station sick quarters were constantly kept filled, and this has been the yearly experience since the range was established. During the elapsed part, over one-half, of the first quarter of the year, there had been eight admissions to the hospital ship for malaria, giving 120 sick days, and there have been only fifty-three patients treated at the sick quarters. The administration of from 4 to 8 grams of quinin daily has been found

necessary. The treatment is, as a rule, continued for three weeks, but not necessarily or usually in the larger doses.

125. **Mali-Mali in the Philippines.**—Musgrave and Sison point out that the peculiar mimic psychosis in the Philippines known by the local name mali-mali is closely related to, but distinct from, the ties. Such somewhat doubtful ties as Giles de la Tonrette's disease, jumping tic of Beard, myriachit of Hammond, and the salutatory ties in general, have much in common with the Philippine affection, but in all of these, with the possible exception of latah, there are indications of autospasm which is lacking in the local disease. Ramaneniana, the dancing mania of Ramisiary, St. John's and St. Guy's dance, and perhaps other allied conditions, are more nearly hysterical manifestations; and while they have much in common with mali-mali, they all show evidence of autostimulation, and when once established are capable of prolongation without any outside influence. The authors believe that mali-mali is probably an expression of mental degeneracy similar to that generally accepted for other conditions of the same group. However, its clinical manifestations do not clinically agree with those given for any other similar disease, and for this reason it is classified by them, tentatively at least, as a clinical entity.

Vermont Medical Monthly, Burlington

October 15

- 126 A Decade in Medicine. W. B. Havens, Chester, Depot, Vt.
127 Diagnosis of Incipient Tuberculosis. W. C. Klotz, New York.
128 Fracture of the Patella. H. G. Stetson, Greenfield, Mass.

Pennsylvania Medical Journal, Athens

October

- 129 President's Address: Purposes of the Society. T. B. Appel, Lancaster.
130 Essentials of the Surgical Reconstruction of the Human Skeleton. J. B. Roberts, Philadelphia.
131 Simplest Method of Preparing Reliable Catgut. J. D. Singley, Pittsburg.
132 Ex Uno Plura. Diversiform Influenza. W. B. Konkle, Montoursville.
133 The County Society. W. T. Williams, Mount Carmel.
134 The County Society and the Unit. L. L. Doane, Butler.
135 What the General Practitioner Can Do in the Prophylaxis of Insanity. W. W. Richardson, Norristown.

American Medicine, Burlington, Vt.

October

- 136 The Personal or Business Side of a Doctor's Life. J. Macdonald, Jr., New York.
137 A Fool's Paradise—Snap Diagnoses. L. Kerr, Brooklyn, N. Y.
138 Treatment of Menorrhagia in Young Women. G. H. Mallett, New York.
139 Gastric Juice from the Living Pig and Its Therapeutic Application. M. Hepp, Paris, France.
140 Dermoids. J. H. Long, Brooklyn, N. Y.
141 Treatment of Typhoid. C. J. Strong, New York.
142 Acromegaly. M. Packard, New York.

Atlanta Journal-Record of Medicine, Georgia

October

- 143 Diagnostic Points of Mental Diseases and Why the Commitment Proceedings of the Insane of Georgia Should be Entirely Revised. J. C. King, Atlanta.
144 Ehrlich's "999" in Syphilis. E. G. Ballenger, Atlanta.
145 Pellagra. T. E. Taylor, Tuskegee, Ala.
146 Id. A. D. McLain, Salem, Ala.
147 Christian Science the "Religio-Medical Masquerade." H. R. Slack, LaGrange, Ga.
148 Intestinal Excessive Activity. G. M. Saleba, Ronnoke, Ala.
149 Pulmonary Tuberculosis Treated by Artificial Pneumothorax. M. E. Lapham, Highlands, N. C.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

October 29

- 1 *Diaphragmatic Hernias. A. Keith.
2 *Typhoid Perforations and Perforations of the Gall-Bladder. G. E. Armstrong.
3 *Bacillus Coli* Infections, Especially Their Recognition and Comparative Frequency. J. S. Dick.
4 *Diet of a Patient Before Operations Under General Anesthesia. R. W. Collum.
5 Ophthalmic School Clinics in the Country. R. B. Hird.
6 Submucous Resection of the Nasal Septum. F. J. Faulder.
7 Three Bad Prognostic Signs in Eclampsia. W. P. Shaw.
8 The Future of Dental Therapeutics. G. A. Berry.
9 Use of Carbon Dioxide Snow in Eye Work. N. B. Harman and E. R. Morton.

- 10 Conditions Which May Account for the Greater Prevalence of Cataract in India. L. J. Pisani.
11 Diagnostic Values of Ophthalmoplegia, Partial and Total. J. S. R. Russell.
12 Education of High Myopes. N. B. Harman.
13 Operative Treatment of High Myopia. A. H. Thompson.
14 Extended Use of Buccal Mucous Membrane in Enlarging Certain Forms of Contracted Socket. A. H. Benson.
15 The More Chronic Forms of Anterior Uveitis. W. T. H. Spicer and S. Mayou.
16 Drainage After Cataract Operations. G. H. Fink.
17 School Clinics. N. B. Harman.
18 Factors That Make for an Efficient Circulation. E. A. Schäfer.
19 Food Requirements for Sustenance and Work. C. H. Melville.
20 Demonstration on Tonometric Determination of Dissolved Cases. A. Krogh.
21 Forces Governing the Gas Exchange in the Lungs. A. Krogh.
22 *Excretion of Creatin in Diabetes Mellitus. M. R. Taylor.

1. **Diaphragmatic Hernia.**—Hernias through the diaphragm, Keith says, fall into two groups, the congenital and the acquired, the former being to the latter in the present series of thirty-four cases as 26:8. The congenital hernias are chiefly those which occur at the unclosed pleuro-peritoneal passages (twenty-one cases), the others being formed (five cases) by developmental extrusions of the abdominal viscera, chiefly liver, through the septum transversum. In a certain proportion of congenital cases it appears possible to adopt surgical measures for the cure of the condition.

2. **Typhoid Perforations.**—There were treated in the Montreal General Hospital from 1897 to May, 1910, 2,051 cases of typhoid. During this period there occurred ninety-three cases of perforation. In this series, then, perforation occurred in 4.53 per cent. of the cases. In addition, Armstrong operated on three patients with typhoid perforation in another hospital and on one patient in a private house; of these four patients, three recovered. There are then, ninety-seven perforations, of which seventy-eight were operated on, and twenty-four, or 30.76 per cent., recovered. During the year 1909, there were sixteen perforations: nine were operated on, and nine, or 56.25 per cent. of the patients recovered. The figures for the year 1909 and four months of 1910, or up to May last, are the best of all. During this period there were twenty-two perforations, nineteen of which were operated on, with nine, or 47.36 per cent., recoveries. In this series of twenty-two perforations two very promising cases were lost, apparently by delay in obtaining consent to operation after the perforation was diagnosed. The increased percentage of recoveries, according to Armstrong, is, in part, due to the character of the epidemic, but chiefly to earlier diagnosis and earlier closure of the opening. The earlier diagnosis has been due largely to the development of the idea among the resident hospital staff that it is a serious reflection on their skill and professional attainments to fail to recognize a typhoid perforation, no matter how slow and chronic may be its appearance. The final step toward lessening the mortality rate in typhoid perforation is the recognition by every one that it is a serious and humiliating oversight to fail to recognize a perforation when it occurs. An analysis of the cases show that perforation is more common in the severe forms of typhoid. Fifty of the perforations occurred in cases described as severe forms of typhoid. Fifty of the perforations occurred in cases described as severe, twenty in moderately severe cases, and one in a mild case. Six perforations occurred in ambulatory cases, and in one of these it seemed highly probable that perforation had occurred sixty hours before admission to the hospital. Strange to say, this man recovered. Of the ninety-seven patients in whom perforation occurred, only seventy-eight were submitted to operation. Nineteen patients were not operated on for various reasons, the chief being failure to obtain consent from the patient, parents or guardians, the desperate condition of the patient, and non-recognition of the lesion. Twenty-six cases of perforation were associated with hemorrhage. Among these are not included instances of small blood-stained stools but only those cases in which the quantity of blood lost amounted to several ounces. As a class they are unfavorable. Three of these patients, however, recovered. In six cases, or 7.7 per cent., more than one perforation was found at the time of operation. The perforations were generally not far removed from each other. In

four cases a second operation was undertaken for second perforation; with one recovery. In two cases, recovery would have followed the second operation had not a third perforation occurred—in one case seven days after the second operation and in the other twenty-one days after the second operation. In one case two operations were performed. At the first operation one perforation was closed. At the second operation two perforations were closed. The child finally died, and at the necropsy the lower two feet of the ileum were necrotic, twelve perforations being counted.

It has been Armstrong's practice to close the opening in the simplest way, that is, by one or two sutures through all coats, and a row of Lembert sutures placed transversely at right angles to the long axis of the bowel. He then infolds in a similar manner with a row of Lembert sutures all the ulcers found to have a thin, suspicious, necrotic-looking base. Two alternatives have been carried out in a few cases. In two the suspicious portion of the gut was resected with end-to-end anastomosis. Both patients died. In two the suspicious looking gut was delivered, and cared for outside. The gut was wrapped in gauze, and allowed to rest on the abdominal wall. These two patients, after doing well for a time, eventually succumbed, one of them from pneumonia. Armstrong says that resection should probably be reserved for special cases in which the danger of further perforations over a considerable section of intestines seems imminent, and the patient's general condition warrants undertaking an operation that requires a little more time and a little more shock.

4. **Diet Before Operation.**—Collum is more liberal in this respect than is customary. Thus, supposing an operation (in a healthy subject) is to be performed at 9 o'clock in the morning, he says the patient should be left asleep, unless he awakes of his own accord, until at any rate 7:30, when he may be given his enema. Then, if he be accustomed to breakfast about 8 o'clock, he may have a thin slice of bread-and-butter, or a small piece of toast, with as much tea to drink as he desires. He will then be able to settle down much more contentedly to his newspaper until the surgeon arrives. If the operation be at 10 or 11 o'clock, he may have a similar breakfast, but with two thin slices of bread-and-butter, if he wishes, or a somewhat larger piece of toast, provided his usual breakfast hour be 8 o'clock. If, however, he be accustomed to breakfast at 9, the amount of solid food should be as in the first case, unless the excitement of the approaching ordeal has caused him to awake earlier than usual, under which circumstances he may also have his small meal a little earlier. If the operation be arranged for 12 or 1 o'clock, he may be given an ordinary light breakfast at the usual time; meat, however, being avoided. A glass of water might in this case, be taken with advantage about 11 o'clock. For an operation at 2 or 3 o'clock, the ordinary breakfast should be taken at the usual time, and a cup of hot clear soup or beef-tea at 1 o'clock, together with a little water to drink. This same arrangement is suitable for a patient to be operated on at 4 o'clock, except that in this instance a little toast, bread, or biscuit may be given with the soup. If 5 o'clock be the appointed hour, the breakfast and lunch should remain the same, but in addition a cup of tea may be taken at, or a little before, 4 o'clock. If the hour is 6 o'clock, the patient may have his ordinary breakfast, and then a light luncheon consisting of fish or poultry at about 1 o'clock, followed by tea with bread-and-butter at 4 o'clock. Finally, a patient who is to be operated on at 7 o'clock may partake of his usual breakfast, lunch and tea, simply avoiding currant cake or anything rich at tea-time. No fruit of any kind should ever be taken on the day of the operation.

22. **Excretion of Creatin in Diabetes Mellitus.**—In Taylor's present series of cases—sixteen in number—it was found that the output of total nitrogen in diabetes was not always greatly increased even with a comparatively high intake of protein; indeed, the nitrogen was frequently abnormally low. There seemed to be some connection between the carbohydrate metabolism and the creatin-creatinin metabolism. As regards creatinin, it was found that the output was not increased to any considerable extent even when the patient

was on a highly nitrogenous diet. Creatin, on the other hand, a substance never found in the normal urine if the diet be free from creatin and creatinin, was always found. It was present even when the patient was kept on a creatin-creatinin free diet. Some further work was carried out in conjunction with Dr. E. P. Cathcart on the creatin excretion after the induction of glycosuria by means of injections of phloridzin. Here it was found that if the animal were allowed only a small quantity of carbohydrate in the diet creatin appeared in the urine during the time sugar was being excreted. It disappeared as soon as the sugar excretion ceased. On the other hand, if the animal were given very large amounts of carbohydrate, so that even during the period of glycosuria there was still an abundance of sugar in the body, then no excretion of creatin accompanied the output of sugar in the urine. It was further found that fats, even in very large amounts, could not replace the carbohydrate. A liberal supply of fat combined with an amount of carbohydrate, sufficient to prevent the appearance of creatin in the urine under normal conditions, did not check the excretion of creatin when glycosuria was induced.

Lancet, London

October 29

- 23 The Chief Aim of Medicine. S. Delépine.
- 24 Hematemesis. D. Duckworth.
- 25 Acute Pancreatitis; Operation; Recovery. A. E. Barker.
- 26 *Phagocytosis of Erythrocytes by Endothelial Cells. W. O. Meek.
- 27 Delayed Chloroform Poisoning. E. D. Telford.
- 28 Poisoning by Aconite. W. Edgewood.
- 29 Method of Removing Nasopharyngeal Fibromata. T. Guthrie.
- 30 *Treatment of Ascites by Drainage into the Subcutaneous Tissues of the Abdomen. P. Paterson.
- 31 Esophoria Not Caused by Refractive Errors. R. A. Morrell.
- 32 Malignant Pustule. L. A. Parry.
- 33 Treatment of Syphilis with Ehrlich's "606" (Dioxydiamidoarsenobenzol). W. Wechsleman.

26. **Phagocytosis of Erythrocytes by Endothelial Cells.**—Meek found that preparations of endothelial cells are especially suitable for observations on hemophagocytosis. Human blood serum, whether from "natural" or "immune" sources, which cause agglutination of other red-blood corpuscles, can be shown to also bring about phagocytosis of these erythrocytes by endothelial cells. The amount of "hemo-opsonin" in such sera is closely related to the amount of "hemagglutinin" which they contain.

30. **Ascites and Subcutaneous Drainage.**—Paterson employs a glass drain of such a shape that it will not slip into the peritoneal cavity. These drains or buttons are of various sizes, so that a suitable one can be chosen for each case. The buttons consist of a perforated glass cylinder expanded into a flange at each end. The largest size measures 1 inch across the flanges, and has a canal 1/12-inch wide. The flange itself has a thickness of about 1/16 inch. The diameter of the flanges and the width of the canal may be the same in the various sizes; but it is essential that the cylindrical part should vary in length, as this part has to pass through the thickness of the abdominal muscles, and as this thickness varies in different individuals so also must the length of this part of the button. Care must be taken to have all the edges and corners rounded and that every part is perfectly smooth. The operation is a simple one. An incision, about 3 inches long, is made in the middle line below the umbilicus, and the peritoneal cavity is opened in the line of the incision. If the abdomen has not been previously tapped the greater part of the ascitic fluid escapes at this stage. The omentum is then drawn down and removed at a level well above the point where the drain is to be placed, because, if left, it very soon passes into the opening in the drain and completely blocks it. The subcutaneous tissues are now dissected outward, on one side, till the semilunar line is exposed, and through this an opening is made into the peritoneal cavity. This opening should just be large enough to permit the button being placed in position. The drain may be passed either from the peritoneal or subcutaneous side, but if from the latter care must be taken to avoid stripping the peritoneum from the edge of the opening when inserting the tube, or the flange may come to lie between the peri-

toneum and the subperitoneal tissues. By slipping one flange edgeway through the opening there is no difficulty in placing the button in position. When a suitable size has been chosen one flange should lie flat on the peritoneum and one on the abdominal aponeurosis, without any pressure being exercised on the intervening tissues. If too long, the apparatus would project into the peritoneal cavity, and the intestines might get nipped between the flange and abdominal wall; while if too short, the button would tend to cut its way through the thickness of the tissues in its grasp. If the opening for the drain has been made too large and the edges do not grip the button firmly, a purse-string suture should be placed close to the button on the aponeurotic side, so that when tightened the soft tissues are brought into close contact with the groove in the drain. The subcutaneous tissues are next closely stitched by a continuous suture to the anterior layer of the sheath of the rectus. This suture is placed about 1 inch from the margin of the primary incision and parallel with it. By this means the superficial end of the drain is shut off in a compartment of its own, and the fluid, as it escapes from the peritoneal cavity, is prevented from throwing too much strain on the suture closing the skin incision. The primary wound is sutured in the usual manner, the skin being closely stitched by a buttonhole suture to prevent any leakage. A collodion dressing applied to the wound gives additional support. This dressing is reapplied as often as required till the skin wound is firmly healed. For one or two days afterward the patients usually complain of pain in the neighborhood of the button, but when this has passed off no further discomfort is experienced. If the quantity of peritoneal exudate be considerable, a fluctuant swelling, almost the size of the fist, forms within twenty-four hours in the subcutaneous tissues around the drain; but as absorption becomes established in the superficial vessels the swelling diminishes, till only a slight edema remains to show that fluid is still escaping. When the exudate is small in quantity the swelling does not pass beyond the state of edema. Paterson has performed this operation in several cases of ascites secondary to malignant disease, and also in cases of cirrhosis of the liver, with marked diminution of the abdominal distention, and to the great relief of the patients.

Australian Medical Journal, Melbourne

September

- 34 Flatulence and Its Treatment. J. Jamieson.
- 35 Quinsy. T. K. Hamilton.
- 36 Importance of the Upper Respiratory Tract in Everyday Practice. W. K. Hughes.
- 37 Headaches Caused by Eye-Strain. P. Webster.
- 38 Ophthalmology in Relation to General Medicine. E. L. Gault.
- 39 Squint. E. R. Sawrey.
- 40 Acute Septic Generalizing Peritonitis; Operation; Recovery. R. B. Duncan and W. R. Groves.
- 41 Third Series of Fifty Consecutive Celiotomies. A. J. Nylassy.

Quarterly Journal of Medicine, London

October

- 42 *The Pulse Immediately Preceding the Epileptic Attack. A. G. Gibson, T. S. Good and R. G. Penny.
- 43 *Influenzal Septicemia, with a Short Review of the Present Status of *Bacillus Influenzae*. H. Thursfield.
- 44 *Hereditary Hemophilia. T. Addis.
- 45 Hematoporphyria Not Due to Sulphonal. T. K. Monro.
- 46 *Two Cases of Acute Endocarditis. J. Cowan, A. M. Kennedy, A. R. Paterson and J. H. Teicher.
- 47 *Tuberculous (Tubercle) Scleriosis. J. S. Fowler and W. E. C. Dickson.
- 48 *Coupled Rhythms of the Heart. J. Cowan and W. T. Ritchie.
- 49 Outlook of Sufferers from Exophthalmic Goiter. W. H. White.

42. Pulse Preceding Epileptic Attack.—In the course of a research whose object was to determine in what way, if any, the action of the circulatory organs in epileptics differs from that in normal persons, the authors succeeded in obtaining satisfactory tracings immediately preceding and up to the fit in five epileptic major attacks. The tracings were taken with an Erlanger sphygmomanometer, using an external pressure that was usually below the minimum blood-pressure. The experiments consisted in taking long tracings at varying external pressures, together with a record of the respiration. The patient during the time lay comfortably on a bed. In all the records the respirations are markedly irregular; some-

times an occasional sighing respiration is seen, now and again a suspicion of Cheyne-Stokes respiration or slow tonic waves superimposed on the general respiratory undulations. In the opinion of the observers these variations bear no intimate relation to the fit, though they may be an expression of the conditions in the epileptic brain. They are seen in many epileptics quite apart from the fits or the "fitty" state, they vary much in the same patient from day to day, and they are often to be found in patients without epilepsy, especially in neurasthenics. In the first fit observed, the external pressure in the armlet was 78 mm. Toward the middle of the tracing was a deep respiration followed by a short character. The blood-pressure record is even except for the slight depression that occurs with the deep respiration. Immediately preceding the irregular movements of the lever which indicate the stage of tonic spasm, the upper and lower limits of the pulse oscillate somewhat, but there is no more than a slight lessening of the amplitude of pulsation, and even in the imperfect record of the pulsations when the tonic spasm has begun there are indications that cardiac action is uninterrupted. In the second case there was considerable irregularity in the respiratory tracing. The blood-pressure tracing, though taken at the external pressure of 100 mm., has a small amplitude; it shows well the respiratory undulation of pressure that some persons show more than others. In the second half of the tracings the amplitude lessens much and again increases toward the place where the irregularities which mark the onset of the fit begin. Pulse-beats continue right up to the tonic spasm with regularity and only a trivial alteration in general level. The onset of the fit was gradual and allowed of a more detailed study. The records put forward in this paper are said to prove that there is no alteration of the pulse sufficiently definite to effect the amplitude of the wave up to the point when clonic convulsions prevent its being properly recorded, and in more than one record the fit has been noticed to be in progress before the record was interfered with. As regards the blood-pressure, the authors assert that in none of the records does such a lowering of general blood-pressure take place as to suggest that cerebral anemia from a general cause could have produced the convulsion, for in conditions in which lowered blood-pressure produces a general spasm, as for instance in Stokes-Adams disease, the convulsions occur after a time interval of several seconds after the pulse has stopped. In more than one of the tracings the patient was noticed to be in the fit and unconscious while little recognizable change was evident in the pulse or blood-pressure.

43. Influenzal Septicemia.—The two cases of influenzal septicemia which Thursfield records, will, he says, when considered in the light of recent work on so-called influenzal meningitis, lead inevitably to the conclusion that what has been hitherto regarded as a specific organism is, in reality, only one of a group, the members of which have similar, if not identical, morphologic and cultural characteristics, but different pathogenic properties. In certain cases of endocarditis and septicemia, an organism identical in all respects with *B. influenzae* can be isolated from the blood, and is in all probability the cause of the illness. Furthermore, organisms identical in all respects with *B. influenzae* are found in a number of patients who die of the acute specific fevers, especially in the bronchopneumonic areas. Thursfield also believes that Bordet's bacillus, an organism identical in shape and size with *B. influenzae*, but capable of differentiation in culture, is the probable cause of pertussis, and that a bacillus identical with *B. influenzae*, both in morphologic and cultural characteristics, but capable of differentiation by a study of its pathogenic effects on animals, is the cause of a septicemic form of cerebrospinal meningitis. Again, an organism identical in all respects, morphologic, cultural, and pathogenic, with *B. influenzae* is a cause, he thinks, of suppuration in the middle ear and in the sinuses of the nose.

44. Hereditary Hemophilia.—Twelve patients were examined by Addis. They were descended from six different hemophilic stocks in Scotland, England and Germany. In none of these families was there any known instance of a departure from

the characteristic type of transmission, i. e., through the females to the males. His results showed conclusively that there is a delay in the coagulation of hemophilic blood, a delay which in some cases is very pronounced and which far exceeds any retardation of coagulation observed in other diseases. Clinically, the cases fall into three groups. The first is that in which the patients were scarcely ever free, for any length of time, from some sign or other of the disease, even in the absence of any traumatic accident greater than those inseparable from ordinary life. The second group is that in which trivial accidents did not lead to observable hemorrhage. In the third group a still greater degree of injury was required to lead to any appreciable amount of hemorrhage. The only practical difference between the patients of this group and ordinary individuals was that on the occurrence of such a wound or injury as would always produce an appreciable amount of bleeding in any one, the bleeding in them persisted for a longer time. The degree of the defect in coagulation corresponded with the degree of the severity of the clinical symptoms. The coagulation of blood flowing from a wound Addis says is induced by thrombokinase added to it from the tissues, and the rapidity of coagulation varies directly with the amount of this thrombokinase. Much larger quantities of thrombokinase are required to produce rapid clotting in hemophilic than in normal blood. In a wound in a hemophilic, coagulation may therefore only occur in those parts where the concentration of thrombokinase is highest, i. e., on the sides of the wound. But this clot prevents the addition of further quantities of thrombokinase from the tissues, and when the amount of thrombin liberated from the primary clot is insufficient to lead to the complete coagulation of the blood in the center of the wound, bleeding may continue indefinitely. Hemorrhage, Addis claims, is no more easily induced in a hemophilic than in a normal person. The distinction is not in the occurrence but in the amount of bleeding.

46. **Endocarditis.**—Microscopic examination of the *a.-v.* node and bundle in two cases of acute endocarditis revealed well-marked inflammatory lesions in the parts. In one case, in which the *a-c* interval in the jugular curve was prolonged, the lesions implicated the bundle; in the other, where the *a-c* interval was very short, the node alone was affected.

47. **Tuberous Sclerosis.**—The essential points in the case reported by Fowler and Dickson are: A female infant developed in an apparently normal fashion for a year; then had "fits" lasting for several hours, thereafter remained in a semiconscious condition for four weeks, dying of an intercurrent empyema. During the whole of her stay in the hospital her appearance suggested cerebral mischief, but having departed from the diagnosis of meningitis the authors did not know what was the matter. The lumbar fluid was perfectly clear when first withdrawn, but, as it cooled, became opalescent from a precipitation in it of minute shreds of fibrin about 0.5 mm. long. It was equally unlike the coagulum which often forms in the cerebrospinal fluid from a case of tuberculous meningitis, and the turbidity produced by pus. The brain was found to be slightly increased in size, and scattered over the surface of the cerebrum there were numerous nodules, varying from about the size of a pea to that of a small walnut, about a dozen or more being embedded in the surface of each hemisphere. These nodules were extremely firm, and their position could be determined most easily by running the fingers over the surface, the sudden transition from ordinary soft brain tissue to dense resistant nodules of almost stony hardness being very striking. In color they were pearly white. The pia-arachnoid, which was thin and comparatively non-vascular, was not adherent over them, stripping easily from their surface. The general contour of the convolutions was not disturbed by their presence; the affected convolutions were slightly thicker or broader than normal, and projected to a very slight but appreciable degree above the general level of the cerebral surface. Some of the nodules showed a moderate degree of umbilication, and other irregularities, which gave them a finely nodulated or granular appearance, while others, again, presented a perfectly smooth

surface. On section, the nodules were situated mostly in the grey matter, but the larger of them also projected well into the subjacent white matter, which they closely resembled in color. These appearances suggested that the condition was a replacement or diffuse infiltration of the affected areas by some sclerotic process, rather than anything of the nature of syphilitic gummata or tuberculous nodules. No nodules were found in the cerebellum, pons, medulla, or spinal cord, all of which, to the naked eye at all events, appeared normal. On making sections of the brain, numerous small nodules, about the size of hemp-seeds, were found projecting into the lateral ventricles. These were hard and firm like the larger cortical nodules, and were not connected with the choroids.

48. **Coupled Rhythms of the Heart.**—In all the cases of this series presenting a coupled rhythm there have been signs of mitral regurgitation or evidence of cardiac failure. The authors have never observed a coupled rhythm in an individual who did not manifest some evidence of cardiac weakness. The cases in which the coupled rhythm was long maintained were cases of pronounced heart failure; but in others, presenting a coupled rhythm for shorter periods, the degree of heart failure was almost as severe. With the exception of one case, in which the ventricular rate was 92.3 per minute, and cases of auriculo-ventricular heart-block, the ventricular rate was of moderate frequency. Some of the patients were taking digitalis, others were not. It is claimed that coupled rhythms of the heart may occur from various causes. They are often due to a regularly recurring extrasystole, which is most frequently of ventricular origin. Synchronous contraction of auricle and ventricle, and an undue prolongation of diastole necessarily produce an increase of the intracardiac pressures, and are often followed by a premature systole. It is suggested that, whenever an enfeebled heart is unduly irritable in an abnormal site, any excessive rise of intracardiac pressure may induce a regularly recurring premature systole which originates in the irritable area. The coupled rhythm so often noticed in cases of "perpetual arrhythmia" under the influence of substances of the digitalis series, is probably produced by a mechanism similar to that of the coupled rhythm in which an extrasystole recurs after each physiologic beat.

Medical Press and Circular, London

October 26

- 50 Respiration in Health and Disease. J. F. H. Dally.
- 51 The Appendix in Middle and Later Life. E. M. Corner.
- 52 Rheumatic Inflammation of the Serous Membranes. E. Mosler.
- 53 Symptoms and Treatment of Duodenal Ulcer. R. J. M. Buchanan.

Clinical Journal, London

October 16

- 54 Carcinoma of the Stomach. J. Sherren.
- 55 Inguinal Hernia in Children. O. L. Addison.
- 56 Demonstration of Pathologic Specimens. E. H. Shaw.

Archives des Maladies de l'App. Digestif, Paris

September, IV, No. 9, pp. 497-560

- 57 *Action of Alkaline-Saline Mineral Waters on the Gastric Secretion. A. Théohari and A. Babès.
- 58 *Hemorrhagic Infarct of the Mesentery and Intestine in Typhoid Fever. E. Chabrol.

57. **Action of Mineral Waters on the Gastric Secretion.**—This article reports the results of experimental research on dogs with a Pawlow fistula. The gastric secretion is notably influenced by different mineral waters, the various elements being influenced in different ways. The water of one of the springs tested contained 9.7 gm. of sodium chlorid and 9.7 gm. of sodium bicarbonate and this water invariably checked the gastric secretion. Water from another spring with 13.2 gm. of the chlorid and only 6.9 gm. of the bicarbonate stimulated the secretion, increasing it by 107 per cent. in some of the tests. The average increase was from 40 to 83 per cent. The free hydrochloric acid increased from 26 to 38 per cent. but the proportion of pepsin was reduced.

58. **Typhoid Infarct in the Mesentery and Intestine.**—Chabrol gives an illustrated description of the findings in the case reported and the clinical picture presented. Should the condition demand immediate operation, examination of the blood,

showing the absence of leukocytosis and hyperfibrinosis, will exclude peritonitis from perforation. Melena is common in both infarct and intestinal hemorrhage. He reviews the literature on the subject, saying that the lesion is generally in the small intestine, especially the jejunum, and that there may be superposed infection.

Lyon Médical, Lyons

October 9, CXXV, No. 41, pp. 589-628

- 59 *Erysipelas and Peritonitis. M. Vallas.
60 *Temporary Tracheotomy for Foreign Bodies in the Trachea or Bronchi. Collet.
61 Suppurative Thyroiditis During Whooping-Cough. Collet.

59. **Erysipelas and Peritonitis.**—Vallas' first patient was a healthy girl of 16, tending a woman with a severe erysipelas of the face. The young girl was suddenly taken with serious peritonitis, succumbing on the fifth day. Necropsy revealed an acute streptococcus seropurulent peritonitis but no sign of perforation; the genital organs were normal. In another case a woman of 45 developed symptoms suggesting acute peritonitis but the cecum and appendix were healthy and the focus was found in the peritoneum and the lower part of the ileum. Four days after the mother's laparotomy in the hospital, her child at home, 4 years old, developed erysipelas of the face. In Bonnet's case, an infant died with acute purulent peritonitis but all the abdominal viscera were found healthy. The second day after the child's death, the mother developed erysipelas of the face. These cases indicate that erysipelas may be contagious during the prodromal stage and that it may induce an isolated peritonitis, and that both the erysipelas and the peritonitis may have been drawn from the same source.

60. **Temporary Tracheotomy for Foreign Bodies in the Respiratory Tract.**—Collet advises a simple technic which he has found very useful. As soon as the trachea has been opened and the cannula introduced, he sutures on each side the lips of the wound in the trachea to the lips of the skin wound. This provides a large opening which can be made to gape still wider by traction on the threads. It provides an ample outlet for the foreign body, while it permits thorough inspection of the lower part of the trachea. In one case a cherry stone was coughed up several hours after this opening had been made; the cannula had been introduced and removed a number of times in the interim. In the case of one infant the head was lowered and the foreign body, a piece of bone, was readily removed. No special instruments are required as the bifurcation can be readily inspected as soon as the cannula is withdrawn. Collet's experience shows further the remarkable ease with which a foreign body moves around from one side to the other; bronchoscopy may show it on the right side at one time and on the left at the next. Another advantage of this technic is that it permits ample intake of air, even without the cannula; it might be found useful also, he thinks, in membranous croup.

Presse Médicale, Paris

October 22, XVIII, No. 85, pp. 785-800

- 62 Eosinophils in Sputum of Asthmatics. (L'éosinophilie du crachat des asthmatiques.) P. Bezanceon and S. E. de Jong.
63 Physiologic Bases of Medical Electricity. (Electricité et atrophie musculaires. La modalité optimale.) A. Zimmerman and P. Cottenot.
October 26, No. 86, pp. 801-808
64 *The Lung in Heart Disease in Children. (Le poumon dans les cardiopathies de l'enfance.) V. Hutinel.
October 29, No. 87, pp. 809-816
65 Metastasis in the Dorsolumbar Vertebrae of Latent Cancer in the Thyroid. A. Mignon and G. Bellot.

64. **The Lung in Heart Disease in Children.**—Hutinel comments on the difference between signs in the lungs and pleura in heart disease in children and in adults. There seems to be a closer connection in children between the pericardium and the pleura, he states, so that a process in either is liable to involve the other more readily. The coexistence of double pleurisy with endocarditis and pericarditis, for example, is so characteristic that it sometimes is a clue to the rheumatic nature of the heart trouble when tuberculosis might otherwise be suspected. In one such case a youth of 16 grew pale

and emaciated and finally was forced to keep to his bed. There was a history of tuberculous peritonitis in early childhood from which he had apparently entirely recovered. The discovery of right pleurisy led the physician to diagnose tuberculosis as the cause of the boy's illness, but Hutinel, who was called in consultation, found the pleurisy bilateral, a systolic murmur at the apex and other signs indicating cardiac involvement; inquiry brought out that there were certain vague pains in the knees. On these bases he excluded tuberculosis and the complete recovery, except for a slight heart trouble, has confirmed his conclusion. Extension of a pleural process to the pericardium is also common; the pleura and lungs should be closely supervised in all cases of heart affections in the young and the heart region explored and auscultated in cases of pleurisy, especially on the left side. Suppurative pericarditis may compress the lung and pleura and induce symptoms suggesting purulent pleurisy, but the attenuation or disappearance of these signs when the patient is placed in the knee-chest position, he declares, aids in differentiating. The smaller the child the narrower the chest, and the more chance for compression of the lung with a pericarditic process. When a child has severe heart disease be cautious in affirming the existence of tuberculosis no matter how extensive the râles. Even a positive response to the cutaneous tuberculin tests may indicate merely some minute tuberculous lesion elsewhere; a negative response is more instructive. As children do not expectorate, as a rule, the evolution of the affection is often the only clue to its real nature. He cites a number of instances of the various types, including two cases in which extreme hypertrophy of the heart caused phenomena suggesting pleurisy on the right or left side but necropsy revealed merely the compression by the enlarged heart. In nearly all the cases cited the condition had been erroneously diagnosed. As the heart is the causal factor in the syndromes, treatment should be directed in this line. When the heart is much dilated, the pulmonary veins empty themselves only imperfectly, the innervation suffers, and a superposed accidental infection entails serious functional disturbances. Restoration of the heart balance by appropriate measures, however, corrects the other disturbances.

Revue de Médecine, Paris

October, XXX, No. 10, pp. 785-856

- 66 *Venous Asystole with Hypertrophy of the Left Heart and Stenosis of the Right Ventricle. S. Bernheim.
67 *Infantilism as Result of Malarial Infection. H. de Brun.

66. **Venous Asystole with Hypertrophy of the Left Heart and Stenosis of the Right Ventricle.**—Bernheim gives the details of ten cases, all in adults between 25 and 64 years old, in which the left ventricle was much dilated with stenosis of the right ventricle. The lesion was a relic of aortic endocarditis in one case, in two it was due to an aortic valvular lesion, in three to atheroma of the aorta and in four to arteriosclerosis; in one case it was accompanied by interstitial and in another by tuberculous nephritis. In one case the patent Botallo's foramen was responsible for the dilatation of the ventricle; in six cases there was concomitant hypertrophy. This material, he states, shows the frequency of venous asystole with hypertrophy of the heart without degeneration of the muscle. It is the consequence of insufficiency of the right heart from stenosis, and this stenosis is produced by hypertrophy of the intraventricular septum which protrudes as a convex dome into the right cavity. He gives an illustration of the typical pathologic anatomic findings which were alike in all these cases. His clinical experience is still wider. The chief clinical sign of the mildest form of the condition is slight venous congestion with cyanosis of the face and enlargement of the jugular veins. The next stage is a more pronounced venous stasis with enlargement of the liver, the kidneys being of the cardiac type, with edema, but the lungs and respiration are still comparatively normal. In the third stage both the greater and lesser circulation show marked stasis and there is complete asystolia. The condition is frequently erroneously diagnosed, he asserts, as pulmonary emphysema with dilatation of the right heart; there may be actually a little

concomitant emphysema or complementary congestion of the lower part of the lung. Differentiation is most difficult when the excentric dilatation is mainly at the expense of the right ventricle, the vertical diameter of the heart not being notably enlarged. If the apparent hypertrophy of the left ventricle induces stasis only in the greater circulation, the thorax retaining its normal respiration and resonance, the trouble is sure to be stenosis rather than dilatation of the right ventricle.

67. **Malarial Infantilism.**—De Brun writes from Beyrouth reporting forty cases of children or youths of pronounced infantile type, weak and mentally backward. All had had chronic malaria since early childhood and part of the disturbances were evidently the result of the action of the malaria on the thyroid, suprarenals, or hypophysis. The small size, the absence of virility and the infantile genitals suggest that thyroid treatment might prove useful in such cases, and he will later report experiences in this line.

Semaine Médicale, Paris

October 26, XXX, No. 43, pp. 505-516

68 *Abortion. R. De Bovis.

68. **Abortion.**—De Bovis comments on the rising tide of abortions; the number of abortions requiring treatment in the public hospitals of Paris is said to have tripled during the last few years; Treub estimates the criminal abortions as 10 per cent. of all observed in Amsterdam and others there estimate the proportion up to 33 per cent.; at Utrecht, nearly 14 per cent.; at Groningen, 24 per cent., and de Bovis cites several American authorities and others to show the increasing importance of this subject. He warns against making a local examination of a woman threatened with abortion. If absolutely compelled to make an examination, he says, the finger should never be introduced until after the external genitals have been prepared as for a vaginal hysterectomy; otherwise, he says, puerperal infection is likely to ensue sooner or later and the physician alone will be responsible for it. If there is serious hemorrhage he insists on absolute repose with the patient lying flat; quiet is indispensable; if it cannot be obtained at home the patient should be sent to a hospital. If the hemorrhage persists and the physician is morally sure of the death of the fetus, curetting is in order, but there is no hurry, de Bovis says. He has had patients with hemorrhages for a month, one for four months and one for five or six months, and yet the pregnancy progressed to the birth of a living child. On the other hand, one patient insisted on being at once curetted and she died in a few hours from uncontrollable hemorrhage. The temperature will show when the ovum has separated sufficiently. When the patient is kept in an aseptic condition, that is, without local examination or other maneuvers, and hot douches are given only in numbers sufficient to combat alarming hemorrhage, the temperature keeps within normal range. Careful watching may show a slight rise; at the same time slight hemorrhage may recur or a very slight fetid odor may be noticed in the secretions. These signs show that the fetus is dead, that the placenta has become a foreign body and that the uterus is trying to expel it. This is the time for curetting if spontaneous expulsion does not rapidly follow. At this time the operation is easy and without danger, he says. In case of primary uterine infection with temperature above 38 C., the curette should be used at once. He remarks that it is easy to order injections at 45 or 48 C. (113 or 118 F.), but that they are generally given tepid and thus only aggravate the tendency to hemorrhage. Never forget, he reiterates, that each douche should be preceded by a careful toilet of the external genitals. In regard to curetting, he advises waiting until the uterus contracts, curetting gently during the period of relaxation after a contraction, and using the largest curette possible. The point is to curette at the moment when the placenta is almost entirely separated and the uterus offers a thick and resisting wall. Perforation may well be feared when there is infection in the uterus, for then one's hand is forced and the curetting may be done while the placenta is still too firmly adherent.

Berliner klinische Wochenschrift

October 17, XLVII, No. 42, pp. 1917-1956

- 69 Importance of Opsonins from Practical Standpoint. G. Michaelis.
70 *Relations Between Anaphylaxis and Infection. E. Friedberger.
71 *Anaphylaxis and Internal Secretion. R. Hoffmann.
72 Cultivation of *Spirocheta Pallida*. (Erkennung des Syphilis-erregers auf dem Wege der Züchtung der Spirochaete pallida.) J. Schereschewsky.
73 *Nature of Drug Eruptions. (Weitere Untersuchungen über das Wesen der Arzneianthemie.) C. Bruck.
74 The Bacteriologic Complement. H. Liefmann and M. Stutzer.
75 *Treatment of Tuberculosis by Vaccination with Tuberculin. (Behandlung der Tuberkulose mittels Hautimpfung mit Tuberkulin.) W. Pöppelmann.
76 Disputed Points in Biology of Tubercle Bacilli. G. Deycke and H. Much.
77 Mountain Sickness. (Bergfahrten und ihre gesundheitlichen Folgen.) Grossmann.

70. **Differentiation of Albumin by Anaphylaxis Test.**—Friedberger reports research which seems to confirm his view that anaphylaxis is an extremely acute form of infection and that infection is merely a milder, more protracted form of anaphylaxis. He has succeeded in producing in animals the typical symptoms of bacterial infection by repeated injections of small amounts of alien albumen; a single large injection induces the symptoms of anaphylaxis. The most striking characteristic of the latter is the sudden drop in temperature while the most striking characteristic of bacterial infection, perhaps, is the continuous or remittent temperature, and this can be induced at will by repeated small injections of the same substance which in a single large dose induces the anaphylactic shock. He has worked out in this line a method for forensic differentiation of albumin which, he states, is constant and more sensitive than any of the tests hitherto in vogue, not excepting the deviation of complement and precipitin tests. The standards for intravenous injection of sheep serum in the guinea-pig, for instance, are 5 c.c. for the fatal dose; 0.5 c.c. for the dose inducing the drop in temperature; 0.01 the dose below which the temperature does not drop; 0.005 the dose which raises the temperature, and 0.001 c.c. the dose below which the temperature is not modified in any way. Subcutaneous injection of 0.01 c.c. of sheep serum confers anaphylaxis on the guinea-pig, so that intravenous injection two weeks later of one-thousandth of the standard doses mentioned above has the same effect as the above dosage in the unprepared animal. That is, 0.005 c.c. proves fatal; 0.0005 c.c. is the limit dose for the drop in temperature; 0.00001 c.c. the limit below which there is no drop in temperature; 0.000005 c.c. the fever-inducing dose, and 0.000001 c.c. the limit dose below which there is no change in temperature.

71. **Anaphylaxis and Internal Secretions in Connection with Hay-Fever.**—Hoffmann regards the thyroid as the accumulator for the vagus and the suprarenals for the splanchnic domain. Hyperfunctioning of the thyroid makes the vagus more irritable and thus favors the development of bronchial asthma. Hay-fever he explains as a condition of special sensitiveness to alien albumin, and thyroid hyperfunctioning is a powerful predisposing factor. Among the arguments in favor of this view are the occurrence of dermatographism and urticaria in both hay-fever and exophthalmic goiter; the frequency of a tendency to goiter in hay-fever victims; the cure of all tendency to hay-fever in one of his patients, a chronic hay-fever victim, by operative removal of a goiter; the reflex conjunctival hyperemia, etc. induced in both hay-fever and hyperfunctioning of the thyroid by tickling the nasal mucosa; the resemblance between the syndrome of hay-fever and that of acute iodine poisoning, and, finally, by the similarity between the response on the part of the skin and temperature to subcutaneous injection of pollantin in hay-fever patients and of thyroïdin in exophthalmic goiter. The main points in treatment of hay-fever are thus, he says, to check the functioning of the thyroid and to reduce the irritability of the nasal mucosa. Strumectomy is the most radical measure, but Roentgen-ray treatment may also prove effectual in checking thyroid hyperfunctioning. The irritability of the nasal mucosa can be combated by topical measures, by a constricting band around the neck, by injection of alcohol into the nerve or by severing the nerve, or by massage or cauterization of the

nasal mucosa or other measures. His clinical experience has been very favorable with treatment based on these principles, the guiding idea being that hay-fever—pollen disease—is due to a special susceptibility to an alien albumin contained in the pollen of certain plants, plus thyroid hyper-functioning.

73. Drug Eruptions as Anaphylaxis.—Bruck states that a physician found that aphthae developed on his lips and tongue every time and almost immediately after he took a dose of antipyrin. He consequently refrained from using this drug for sixteen years; then he took another dose of 1 gm. and immediately the old aphthous reaction developed at once. Experiments with his serum on guinea-pigs confirmed the assumption that his idiosyncrasy to antipyrin and its derivatives is an actual anaphylactic phenomenon, and that the anaphylaxis could be transmitted to animals by injection of his serum.

75. Treatment of Tuberculosis by Inoculation of Skin with Tuberculin.—Pöppelmann has applied the v. Pirquet technic for systematic administration of tuberculin, and lauds its numerous advantages over the more complicated usual technics while it seems to surpass them in the mildness, constancy and more gradual action of the tuberculin incorporated in this way. He dips the blade of the scalpel in the "old" tuberculin and spreads the droplet thus taken up on the skin of the upper arm. Then he scratches the skin with a single stroke of the scalpel, the same as for ordinary vaccination. After all subsidence of the local and general reaction, he makes another scratch, crossing the first. The third time he adds two more scratches, thus forming a double cross; the fourth time two more, forming a lattice-work of scratches, adding two each time. He gives some typical case-reports to show the simplicity and convenience of the technic and its special therapeutic advantages. It seems evident, he declares, that the skin possesses certain biologic factors which enhance the curative and tonic action of tuberculin given in this way. With this technic, he says, tuberculin treatment becomes possible in everyday routine practice.

Medizinische Klinik, Berlin

October 23, VI. No. 43, pp. 1683-1726

- 78 *Ehrlich's "606" in Syphilis. W. Weintraud.
79 *Cancer and Infectious Disease. (Krebs und Infektionskrankheiten.) R. Schmidt.
80 Case of Disturbance in Heart Conduction. (Überleitungsstörung mit Vortauschung einer Umkehr der Schlagfolge.) D. v. Tabora.
81 Cardiac Neuroses. (Die sogenannte Herzneurosen.) M. Herz. Commenced in No. 42.
82 Lung Suction Mask in Treatment of Asthma. (Physikalische Behandlung des Asthma bronchiale.) E. Kuhn. Commenced in No. 42.

78. Ehrlich's "606" in Syphilis.—Weintraud concludes from his experience in 250 cases that syphilis is not definitely cured by a single injection of "606" and that no benefit can be anticipated from it in tabes. The syphilitic infection may injure a predisposed nervous system to such an extent that even the most thorough treatment may not prevent the development of tabetic spinal cord disease. In a few of his patients the new remedy failed to display any therapeutic action, and the Wassermann reaction persisted unmodified in many of the patients; in others, after a negative phase, it became positive again in a few weeks. The negative phase after treatment with "606," therefore, does not indicate a complete cure any more than after mercurial treatment. Recurrence was observed in fourteen out of eighty cases of recent and secondary syphilis. In only thirty-seven out of seventy-seven patients did the Wassermann reaction become permanently negative. In three cases the Wassermann reaction persisted unmodified even after a second and third injection of "606." He does not regard it as probable that the permanent results will be any better from increased dosage; in his experience intravenous infusion of the drug—which brings the whole organism under its influence more thoroughly—was not followed by a permanent cure any more than with the other technics. It seems that the body reacts as promptly and extensively to a small as to a large amount of the drug, and this reaction is the chief aim in the treat-

ment of human beings, while in animals the aim is to kill all the spirochetes at one stroke. Repetition of the doses may prove effectual as with mercury. None of the symptoms in his twenty cases of tabes seemed to be influenced by the "606" but it displayed great efficacy in patients refractory or intolerant to mercury and iodid. There is grave danger, he continues, that physicians and the public will regard the problem of the cure of syphilis as too simple and as already solved. It must be reiterated that the cure of syphilis in man is a far more complicated process than the cure of experimental syphilis.

79. Antagonism Between Infectious Diseases and Cancer.—Schmidt has been much impressed with the fact that in 241 cases of carcinoma, ninety-nine of the patients had never had any infectious disease, either in childhood or adult life, and that forty-nine had had only one of the children's diseases and no infections later in life, and fifteen only one infectious disease in adult life. Only three of the total 241 patients had passed through two or more infectious diseases since puberty; 180 had had no children's diseases, and 140 no infectious disease in adult life. His cancer patients had thus not had their organisms modified by infectious diseases, consequently the conclusion is evident that the infectious processes must modify the constitutional soil in such a way as to reduce the predisposition to cancer. He suggests that modern prophylaxis of infectious diseases, steering away from the Scylla of infection is liable to strike on the Charybdis of cancer. He calls the number of infectious diseases the individual has passed through, the "infection index," and urges others to study whether this index is as strikingly low in their cancer cases as he has found it at Vienna.

Münchener medizinische Wochenschrift

October 18, LVII, No. 42, pp. 2169-2216

- 83 *Therapeutic Artificial Reduction of Pressure of Air in Lungs. (Die künstliche Luftdruckerniedrigung über den Lungen: eine Methode zur Forderung der Blutzirkulation.) O. Bruns.
84 The Oxidase Reactions in Frozen Sections. (Oxydasereaktionen an Gewebsschnitten.) A. H. Schultze.
85 *Durable Anesthesia of the Tuberculous Larynx by Alcohol Infiltration of the Superior Laryngeal Nerve. G. Roth.
86 *Heart Disease and Trauma. (Herzkrankungen im Anschluss an ein Trauma.) C. Beckhaus.
87 Heart Disease as Contraindication to Administration of Ehrlich's "606." (Welche Herzkrankungen bilden voraussichtlich eine Kontraindikation gegen die Anwendung von Ehrlich-Hata "606.") K. Grassmann.
88 Technic and Dosage of Ehrlich's "606" in Soluble Form. Dubot.
89 Ehrlich's "606" in Syphilis. K. Taeger.
90 *Fatality After Injection of Ehrlich's "606" in Syphilis. E. Ehlers.
91 Technic of Intravenous Injections of Ehrlich's "606" in Children. W. Blacher.
92 Roentgen-Ray Treatment of Uterine Myomas. F. Bardachzi.
93 Irritation from Use of Iodized Benzin at Points Where Benzin Could Not Evaporate. R. Fürckhaner.
94 Importance of Disturbances in Lime Metabolism in Origin of Rachitis. (Bedeutung der Kalkstoffwechselstörungen für die Entstehung der Rachitis.) W. Dübelt.

83. Stimulation of the Circulation by Differential Pressure in the Lungs. Bruns expatiates on the important part played by the respiration in promoting the circulation, and states that this influence can be enhanced by differential pressure procedures. The method he has found most convenient is the artificial rarefaction of the air breathed into the lungs. This he realizes by having the patient breathe freely through a mask into a large tank in which the pressure of the air has been reduced by 8 to 10 c.c. water. The respiration-rate increases by 4 and the pulse rate by 8 to the minute, while various tests reveal that the procedure induces a rapid and ample aspiration of venous blood upward. The arteries also feel the stimulating effect of the more rapid emptying of the veins and a secondary increased arterial flow toward the periphery is rendered evident by the plethysmograph. The procedure promotes the return flow of the venous blood and it is thus specially indicated, he states, in case of weakness of the heart action from impeded respiration, in heart disturbances from kyphoscoliosis, with pleuritic adhesions, emphysema with rigid thorax and atelectatic processes in the lungs. It may be indicated further in case of weak heart action in the obese and anemic, in persons in sedentary occupations and in

myocardial lesions from preceding overexertion. The contraindications are the same as for any physical measure; advanced failing compensation with much edema, aneurysm, thrombosis and impending embolism. Even with failing compensation, patients bore the application of the procedure for fifteen minutes at a time without disturbance, no vertigo, palpitation or dyspnea being observed; the relief was so pronounced that the patients asked to have the course of treatment continued.

85. **Alcohol Infiltration of Nerve in Laryngeal Tuberculosis.**—Roth extols the advantages of injection of alcohol to deaden the superior laryngeal nerve and thus free the patients from the pain in swallowing which torments the victims of laryngeal tuberculosis. He has applied the measure in thirty-three cases and the effect was the immediate suppression of the pain in all but one case; the analgesia persisted for from one to twenty-one days, averaging about a week. Repetition of the injection does no harm and the patients clamor for it. In one case he repeated the injection five times; the effect seems to be felt earlier and to persist longer as the injections are repeated. He disinfects the skin with alcohol and mercury bichlorid, and presses the larynx toward the side of the tenderest point and introduces the needle at this point for about 1.5 cm. and then twists the needle upward and outward; a sharp pain radiating to the ear shows that the nerve has been reached. Then about 1 gm. of 85 per cent. alcohol, warmed to 45 C. in the water bath, is cautiously injected. The typical sensitive point is easily found between the hyoid bone and the ala of the thyroid cartilage, where the internal branch of the superior laryngeal nerve pierces the thyrohyoid membrane. This branch is the sensory nerve for the inside of the larynx and trachea.

86. **Heart Disease Following Trauma.**—Beekhaus' experience with three cases has shown that myocarditis may develop insidiously after a fall on the left chest or contusion of this region. Two of his patients were men over 50, previously healthy. The third patient was a younger man, and the heart was found apparently sound four months after the accident, the myocarditis not developing symptoms until after this interval. The heart disease was much milder in the case in which the patient had been treated by a month of repose after the accident. In all cases of injury affecting the left chest, he says, special attention should be paid to examination of the heart and the possibility of an organic affection later should not be forgotten. Otherwise the symptoms when they develop are liable to be ascribed to neurasthenia or hysteria.

90. **Fatality After Injection of Ehrlich's "606."**—Ehlers injected the drug according to the Wechselmann technic. The patient was a man of 40 with paralytic dementia which had considerably improved under psychiatric treatment, so that he was able to walk and read the papers and understand part of what he read. He had had two apoplectic attacks previously, one two years and one five weeks before the injection of "606." The injection was not followed by any local reaction but progressive symptoms on the part of the nervous system developed, tremor, sweating crises and weakness, and the patient died the fifth day of progressive heart weakness. No cause for the fatality could be discovered at necropsy except acute parenchymatous degeneration of the organs.

Therapeutische Monatshefte, Berlin

October, XXIV, No. 10, pp. 517-592

- 95 *Treatment of Fracture of the Humerus. P. Glaessner.
- 96 *Cure of Splenic Anemia by Successful Treatment of Pylorocystitis. (Einfluss einer chronischen Infektionskrankheit auf den Verlauf der Anemia splenica infantum.) G. Hartwig.
- 97 Fractioning Dose Increases Action of Narcotics. F. Beinaschewitz.

95. **Treatment of Fracture of the Humerus.**—Glaessner gives an illustrated description of the simple and convenient plaster cast which he applies for fracture of the humerus. It covers the top of the shoulder and extends over part of the chest and down to the wrist, fitting well over the chest from the axilla. After a week or so the outer third of the part on the arm and shoulder is cut out lengthwise, per-

mitting massage, after which the segment is bound in place again. The results in the twenty-one cases in which this cast has been applied have been satisfactory.

96. **Splenic Anemia in Infants and Chronic Infectious Processes.**—In the two cases, reported by Hartwig, improvement or cure of a chronic pylorocystitis was followed by retrogression or cure of severe splenic anemia. He has noticed also aggravation of the anemia in such cases by frequently recurring coryza and bronchitis, most of the children succumbing finally to the bronchial process.

Wiener klinische Wochenschrift, Vienna

October 20, XXIII, No. 42, pp. 1471-1506

- 98 *Behavior of Esophagus with Dilatation of the Heart. (Verhalten des Oesophagus bei Herzvergrößerung.) F. Kovacs and O. Stoerk.
- 99 Hereditary Deafness and the Laws of Its Inheritance. V. Hammerschlag.
- 100 Anaphylaxis and Hemolysin Intoxication. H. Pfeiffer.
- 101 *Ehrlich's "606" in Syphilis. W. Pick and P. Ehrlich.

October 27, No. 43, pp. 1507-1536

- 102 Treatment of Supernumerary Ureters. B. Cristofoletti.
- 103 *Improved Technic for Preservation of Serums and Antigens. S. Stökel.
- 104 Blood Findings in Lymphogranulomatosis, Lymphosarcomatosis and Glandular Tuberculosis. E. Fabian.
- 105 Nature of Wassermann Reaction. H. Guth.
- 106 *Ehrlich's "606" in Syphilis. R. Polland, R. Knaur and J. Fürth.

98. **The Esophagus with Enlargement of the Heart.**—Kovacs and Stoerk give a number of illustrations showing compression and extreme displacement of the esophagus liable to occur with dilatation of the heart. As the compression is by a soft and yielding body, the flattening and displacement have little practical importance as there is no subjective disturbance.

101. **Ehrlich's "606" in Syphilis.**—Pick states that since his first publication on this subject recurrence of symptoms has been observed in some of the cases previously reported as cures. He encountered six refractory patients among the 200 treated.

103. **Solidified Serums and Antigens.**—Stökel has found that serums and antigens will keep perfectly when mixed with sodium sulphate to bind the water. One c.c. of immune serum mixed with from 0.7 to 1 gm. of calcined sodium sulphate is taken up and the whole solidifies and can be pulverized. The total weight of the mass is from 1.7 to 2 gm. and, dissolved in 100 c.c. of distilled water, produces an isotonic fluid, corresponding to a salt content of 0.7 to 1 per cent. and a dilution of the active serum to 1 per cent. His experiences have confirmed the great convenience and the reliability of this technic.

106. **Ehrlich's "606" in Syphilis.**—Polland and Knaur found the Wassermann reaction positive in twenty-five out of twenty-eight patients after complete subsidence of all symptoms. One patient had high fever, accelerated pulse and retention of urine for seven days after injection of the "606" by the old methyl-alcohol technic which has since been abandoned. They encountered several refractory cases. Fürth calls attention to certain peculiarities in the recurring and secondary symptoms after the use of Ehrlich's remedy. It is evident, he says, that clinicians will have to make a distinction between the manifestations of syphilis after mercurial treatment and after treatment with "606." The pathology of syphilis is about to be revolutionized, he thinks, along with the prognosis.

Zeitschrift für Kinderheilkunde, Berlin

I, No. 1, pp. 1-133

- 107 Importance of Lime Salts for the Child Organism. (Bedeutung der Kalksalze für den Organismus des Kindes. Auf Grund klinischer Bestimmungen des Blutkalkes nach Wright.) R. Neurath.
- 108 Nature of the Physiologic Decline in Weight of New-Born Infants. (Wesenserklärung der physiologischen Gewichtsabnahme der Neugeborenen.) F. Rott.
- 109 Absorption of Diphtheria Antitoxin. (Quantitative Bestimmung des Resorptionsverlaufes subcutan eingeführten Diphtherieheilserums mittels intraarterieller Methodik.) M. Karasawa and B. Schick.
- 110 Salt Fever in Infants. (Zur Frage des Kochsalzfiebers beim Säugling.) H. Nothmann.
- 111 Infant Mortality and the Outdoor Temperature in Winter. (Säuglingssterblichkeit und Aussentemperatur in Winter.) H. Risel.

- 112 The Energy Requirements of Artificially Fed Infants. (Energiebedarf künstlich genährter junger Säuglinge.) M. Calvary.
- 113 Graphic Representation of Factors to be Regarded in Infant Feeding. (Schematische Darstellung der Säuglingsernährung zu Unterrichtszwecken.) C. v. Pirquet.
- 114 The Osmotic Pressure of the Blood in Infants. (Die physikalischen Erscheinungen des Blutes beim gesunden und kranken Säugling.) B. Salge.

Zentralblatt für Chirurgie, Leipsic

October 22, XXXVII, No. 43, pp. 1393-1416

- 115 Transthoracic Cardiotomy for Impassable Cicatricial Stenosis of the Esophagus. H. Fischer (New York).
- 116 *Operation for Extrophy of the Bladder. (Zur Operation der Blasenspalte.) F. Roloff.
- 117 Contra-Indications for Intravenous Saline Infusion. R. Bertelsmann.
- 118 Management of the Colon After Resection and Suture. C. Bayer.

116. Treatment of Extrophy of the Bladder.—Roloff's patient was a healthy, stout girl of 6. He cut out a segment of the bladder wall containing the mouths of the ureters, and then, through a laparotomy incision, slit the bowel at the sigmoid flexure. Twisting the segment of the bladder forward and upward, making a turn of about 180 degrees, he sutured it in the slit in the bowel. The uterus rested in the angle formed by the ureters and trigonum and was fastened here with a few sutures. The functional result was perfect from the first; the child is continent and there has been no disturbance to date. He suggests that this technic might be improved on by suturing the segment of bladder into a stretch of cecum plus some of the ileum, after exclusion of this section of the bowel, twisting the appendix around and suturing it in the rectum. Ascending infection from the bowel would be impeded by Bauhin's valve even if it could pass upward through the narrow appendix, the constant flow of urine being all the other way. The operation might be done at two sittings, the appendix being thoroughly sterilized and prepared during the interim.

Zentralblatt für Gynäkologie, Leipsic

October 29, XXXIV, No. 44, pp. 1409-1440

- 119 *Death of Parturient Allowed to Get Up Early After Abortion. (Ein Todesfall nach Frühaufstehen im Wochenbett.) A. Scherer.
- 120 Operative Treatment of Large Postoperative Ventral Hernia. S. Lindqvist.

119. Death of Parturient Allowed to Get Up Early.—Scherer states that he has been able to find records of only two or three fatalities from the custom of allowing parturients to get up earlier than has been the rule until within the last year or so. But he here reports a case in which the woman was allowed to get up and sit in a chair for half an hour on the third day after abortion at the third month. The temperature ran up the next day and fatal thrombosis developed in the pelvic veins. He remarks that if the patient had not left the bed so early the thrombosis might not have developed or the localization of the process might have been more favorable and the outcome better if the patient had been kept in bed longer. Among the 9,257 deliveries at the Budapest clinic, with which he is connected, thrombosis developed in only thirty-four cases, that is, in 0.36 per cent., and the outcome was fatal in only one of the two cases complicated by pulmonary embolism. On the other hand, this case of fatal thrombosis occurred in the small group of 200 parturients allowed to get up earlier than the usual rule.

Gazzetta degli Ospedali e delle Cliniche, Milan

October 6, LXVI, No. 120, pp. 1265-1272

- 121 Viscosity of Blood and the Eosinophils in Epileptics and the Insane. G. Vidoni and S. Gatti.
- 122 Test Diets in Intestinal Disease. (Le Diete di prova per l'esame delle funzioni intestinali.) M. V. Carletti.

Polliclinico, Rome

October 23, XVII, No. 43, pp. 1377-1378

- 123 *Early Diagnosis of Gastric Cancer. (La diagnosi precoce del cancro dello stomaco in relazione coll'intervento chirurgico.) G. Benacchio.
- 124 Treatment of Hypertrophy of the Prostate by Bottini's Galvano-Cautic Method. A. Rossi.

October, Surgical Section, No. 10, pp. 329-376

- 125 Isolated Tuberculous Focus in the Myometrium. (Tuberculosis del corpo dell'utero limitata al miometrio.) R. Alessandri.
- 126 Retrograde Incarceration of Intestine. (Strozzamento intestinale retrogrado.) A. Passaggi.
- 127 Streptothrix Experimental Infection. (Sulle streptotricie e sulla loro azione negli animali da esperimento.) F. Pirrura.
- 128 Fracture of the Carpal Scaphoid Bone. (Fratture dello scafoide del carpo.) R. Gabaglio. Commenced in No. 8.

123. Early Diagnosis of Gastric Cancer.—Benacchio reviews the various methods in vogue for detecting incipient gastric cancer, and adds that they mostly require special skill and experience for the technic of the tests and interpretation of the findings. Consequently the general practitioner should refer his patient to the specialists for these tests when he has the slightest suspicion that the patient may be developing gastric cancer. This is his task, and on his performance of this task depend the fate of the patient and the progress of science in this line.

Riforma Medica, Naples

October 17, XXV, No. 42, pp. 1119-1176

- 129 Intermittent Gastric Hypersecretion. (Gastropatie dinamiche ed organiche. VII.) G. Rummo.
- 130 Experimental Syphilis in the Rabbit. V. Chirivino.

Ugeskrift for Læger, Copenhagen

October 6, LXXII, No. 40, pp. 1189-1216

- 131 Ehrlich's "606" in Leprosy. E. Ehlers.
- 132 Comparative Tests of Various Methods for Bacteriologic Examination of Sputum. (Om Værdien af forskellige Homogeniserings- og Sedimenteringsmetoder til Paavisning af T. B. i Ekspektorat.) P. Bogason.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

BACTERIOLOGY AND SURGICAL TECHNIC FOR NURSES. By Emily M. A. Stoney, Superintendent of the Training School for Nurses, St. Anthony's Hospital, Rock Island, Ill. Third Edition, revised by Frederic R. Griffith, M.D. (Univ. of Penn.), Surgeon, Fellow of the New York Academy of Medicine. Cloth. Price, \$1.50 net. Pp. 311, with 204 illustrations. Philadelphia: W. B. Saunders Co., 1910.

ATLAS UND GRUNDRISSE DER VERBANDELEHRE FÜR-STUDIENDE UND ARZTE. Von Dr. Albert Hoffa, a. o. Professor an der Universität, Berlin. Nach des Verfassers Tod bearbeitet von Privatdozent Dr. Rudolf Grashey, München, Lehmann's Medizinische Handatanten. Band XIII. Fourth Edition. Cloth. Price, 10 marks. Pp. 152, with 170 illustrations. München: J. F. Lehmanns Verlag, 1910.

PROCEEDINGS OF THE TWENTY-EIGHTH ANNUAL MEETING OF THE MARYLAND PHARMACEUTICAL ASSOCIATION. Baltimore, June 16 to 19, 1910. Together with the Code of Ethics, Constitution and By-Laws, List of Officers and Members, etc. Paper. Pp. 252. E. F. Kelly, Secretary, 303 W. Pratt Street, Baltimore.

TREATISE ON DISEASES OF THE SKIN. For the Use of Advanced Students and Practitioners. By Henry W. Stelwagon, M.D., Professor of Dermatology in the Jefferson Medical College, Phil. Sixth Edition. Cloth. Price, \$6 net. Pp. 1195, with 323 illustrations. Philadelphia: W. B. Saunders Co., 1910.

A TEXT-BOOK OF GENERAL BACTERIOLOGY. By Edwin O. Jordan, Ph.D., Professor of Bacteriology in the University of Chicago and in Rush Medical College. Second Edition. Cloth. Price, \$3 net. Pp. 594, with 162 illustrations. Philadelphia: W. B. Saunders Co., 1910.

THE REFRACTIVE AND MOTOR MECHANISM OF THE EYE. By William N. Souter, M.D., Associate Ophthalmologist, Episcopal Eye, Ear and Throat Hospital, Washington, D. C. Cloth. Price, \$2. Pp. 347, with 148 illustrations. Philadelphia: The Keystone Publishing Co., 1910.

PRACTICAL PHYSIOLOGICAL CHEMISTRY. By R. H. Aders Plimber, D.Sc., Assistant Professor of Physiological Chemistry, University College, London. Cloth. Price, \$1.80. Pp. 270, with 49 illustrations. New York: Longmans, Green & Co., 1910.

INDEX-CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE, UNITED STATES ARMY. Authors and Subjects. Second Series. Vol. XV. 8.—Skin Grafting. Cloth. Pp. 777. Washington: Government Printing Office, 1910.

INSANITY IN EVERY-DAY PRACTICE. By E. G. Younger, M.D., Brux, Senior Physician, Plimbury Dispensary. Second Edition. Cloth. Price, \$1.25. Pp. 124. Chicago: Chicago Medical Book Co., 1910.

THE MEDICAL RECORD VISITING LIST OR PHYSICIANS' DIARY FOR 1911. New Revised Edition. Leather. Price, \$1.50. Sixty Patients per Week. New York: William Wood & Co. (1910).

HISTORY OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA, 1817-1909. Cloth. Price, \$3. Pp. 499, with illustrations. Washington: Medical Society of District of Columbia, 1909.

THE PRACTITIONER'S VISITING-LIST FOR 1911. Leather. Price, \$1.25. Pp. 192. Thirty Patients per Week. Philadelphia: Lea & Febiger, 1910.

THE JOHN CREER LIBRARY HANDBOOK, 1910. Paper. Pp. 16. Chicago: John Creer Library, 1910.

The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOL. LV, No. 23

CHICAGO, ILLINOIS

DECEMBER 3, 1910

THE ETIOLOGY OF THE PTOSES AND THEIR RELATION TO NEURASTHENIA*

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The application of surgical treatment to neurasthenia implies a belief that in the given case the nervous condition is the product of local suffering; and the attainment of the ultimate object of course implies the complete relief of the local suffering as the first step in the process of cure. It therefore seems logical that any discussion of the surgical aspects of neurasthenia should begin by consideration of the results which may be expected from the relief of the local symptomatology.

In this particular subject of the connection between the ptoses and neurasthenia we are met at the outset by the significant fact that after many years of collective experience in the surgical treatment of the ptoses, the discussion about the end results of operation is almost as active and as much a moot question as it was ten years ago.

It is further significant that a review of the literature of this subject during the past ten years shows at once that the controversy on it has been conducted almost without exception along the lines of advocacy of differing technical methods, with an almost entire neglect of any apparent interest in the cause of the lesions.

Now the whole history of surgical progress shows that the long persistence of such a technical question without satisfactory settlement always implies an unsettled pathology or etiology, and that such a technical controversy is usually brought to an end only by some advance in our theoretical knowledge of the cause of the lesions, after which the decision about methods is usually prompt and easy. Thus the selection of the etiology of the ptoses as the subject of the opening paper in this discussion has the double justification that it is at once the line of discussion which promises the most far-reaching results, and that which has been least worked out.

The first and most important point in the etiology of the ptoses is almost axiomatic. It needs no argument to show that they are never primary lesions, but are always secondary to some preexistent mechanical cause, either (a) in the failure of the natural supports of the organ, or (b) in the existence of some abnormal force antagonistic to the efforts of supports of normal strength. These two classes of cause now demand our further consideration.

The ptoses due to weakness of the supporting structures are far the best understood and may be considered first. Ptoses due solely to such weakness are, however, far less common than has been generally understood.

Much that has been written in the past on the subject of ptosis would lead one to believe that a spontaneous relaxation of the supports of some one organ was a common phenomenon. So far as my observations go they tend to show that this is an erroneous view and that the muscular relaxations are always general in their character. Cases which appear to be due to localized relaxation of the supports of a single organ will always prove on closer analysis to be due to an abnormal force which is pushing or pulling that organ out of position and which has overcome the tonicity of its natural supports.

The importance of general, constitutional, muscular relaxation, and loss of fat in the production of generalized ptosis is well understood; but so important a fact as this must not be lightly passed over.

It is, moreover, important to realize here that rapid loss of fat is by all odds the most important element in the causation of the class of cases in which the ptosis is the result purely of passive lengthening of the normal supports. The tissues in these relaxed cases have usually been previously stretched by the deposition of fat within them, and if this is suddenly lost lengthening of the so-called ligaments is inevitable.

In treatment it is most essential to recognize that in this class of cases operative treatment is almost never indicated. We must treat them in accordance with their causation. They will usually obtain relief under treatment directed toward the improvement of general muscular tone and increase of nutrition, and will never obtain satisfactory relief without such general improvement. Operative treatment should be adopted only in the very few instances in which the local symptoms which are the product of the ptosis so far interfere with digestion as to render it difficult to secure proper nutrition without it, and even then it must be remembered that subsequent improvement in nutrition and muscular tonicity is the ultimate object of the operation, and that every therapeutic device at our command should be directed toward its attainment.

The causation and management of ptoses of this first class is, however, generally well understood, and belongs to the domain of accepted surgical principles, but the theorem that there are many cases of ptosis which are primarily due to the existence of forces which are antagonistic to the normal supports of the viscera has only recently attracted attention. I believe that many, if not most, of our failures in the operative treatment of ptosis occur in cases of this second class, and are due to adoption of routine operative measures without previous investigation of the cause of the individual ptosis, and often in defiance of continuing forces which directly dispose to its reproduction. The discussion of these predisposing or directly causative anomalies, and of the surgical measures appropriate to their correction, forms, then, my main theme.

*The opening paper in a discussion on "The End Results of Operations for Ptosis" at a combined meeting of the American Surgical and American Gynecological Associations.

The forces which tend to produce ptosis may be of either local or general origin, and must be considered in detail, those of systemic origin and influence naturally coming first.

GENERAL STATIC FORCES

During the last four or five years my attention has been especially directed to a study of the influence of general static or mechanical conditions on the positions of the abdominal and intrapelvic organs, and much of my time has been given to a prolonged experimental, and, of late, clinical study of this subject in collaboration with Dr. R. W. Lovett. Our experimental studies as bearing on the relation between balance in the erect posture, backache, and the intrapelvic lesions, have been recently published,¹ to which paper I must refer in support of many of the statements which I shall make here. During the past year clinical papers bearing on the same subject as connected with ptosis have been published by



Fig. 1

Fig. 1.—The round-shouldered, hollow-backed position. An outline reproduction of a photograph from life. Not an extreme example.



Fig. 2

Fig. 2.—The overfeminine figure. An outline reproduction of a photograph from life. Not an extreme example.

several widely separated observers.² Dr. Lovett and I are now actively engaged in the collection of cases and the tabulation of symptoms and conditions for the purpose of studying these states from a clinical standpoint.

1. Reynolds, Edward, and Lovett, Robert W.: An Experimental Study of Certain Phases of Chronic Backache. *THE JOURNAL A. M. A.*, March 26, 1940, p. 1033.

2. Mosher, E. M.: Habits of Posture a Cause of Deformity and Displacement of the Uterus. *Woman's Med. Jour.*, December, 1909.

Lane, W. A.: Civilization in Relation to the Abdominal Viscera, with Remarks on the Corset. *Lancet*, London, Nov. 13, 1909.

Fish, Cecil E.: A Summary of Several Other Papers Referred to as the Heather Blig Controversy. *Lancet*, London, Feb. 5, 1910, p. 297.

Albin, A.: Visceral Ptosis a Constitutional Anomaly. *Berl. klin. Wehnschr.*, xlvj, No. 7, p. 285.

Landau, L.: Visceral Ptosis (Zur Lehre von der Splanchnoptose). *Berl. klin. Wehnschr.*, xlvj, No. 7, p. 285.

Goldthwait, Joel E.: The Relations of Posture to Human Efficiency and the Influence of Poise on the Support and Function of the Viscera. *Boston Med. and Surg. Jour.*, Dec. 9, 1909.

The following papers are also of interest in this connection: Lange, Fritz: *Schule und Korsett*. München. Separatdruck aus der *München. med. Wehnschr.*, Nos. 13 and 14, 1906.

Klapp, Rudolf: *Der Erwerb der aufrechten Körperhaltung und seine Bedeutung für die Entstehung orthogenetischer Erkrankungen*. München, med. Wehnschr., Nos. 11 and 12, 1910.

Kossman: *Allgemeine Gynecologie*. Berlin, Hirschwald, 1903.

Strutz: *Die Schönheit des weiblichen Körpers*. Stuttgart, Ende, 1899.

Strutz: *Der Körper des Kindes*. Stuttgart, Ende, 1909.

but, significant as we think that this study is proving in everyday clinical work, the number of cases which we have observed with accuracy is not yet sufficient for the publication of exact results. I must be content here with a merely preliminary, and I hope suggestive, outline statement of a few of the main facts which we have observed.

The variations which we have grown to think important are partly functional and partly congenital, or constitutional variations of skeletal form. First and perhaps most important among them is the attitude known to orthopedic surgeons as the round-shouldered, hollow-backed position illustrated in Figure 1. In this attitude the center of gravity is carried too far forward for easy maintenance of balance, and the capacity of the upper part of the abdomen is decreased by the forward droop of the upper dorsal spine and the descent of the ribs, while the relaxation of the anterior abdominal wall produced by the approximation of the ensiform cartilage to the pubes permits the formation of a pot-belly, with consequent increase in the capacity of the lower abdomen. During the gradual supervention of this abnormal attitude the contents of the upper abdomen necessarily tend to rearrange themselves downward in adjustment to the altering pressures, while the unduly forward position of the lumbar vertebrae, from the anterior face of which the intestines depend, leads to the impaction of their dependent coils against the anterior wall of the abdomen and pelvic cavity.

In the normal attitudes the impact of the intestines is directed against the posterior surface of the uterus and tends to hold it forward, but when, as in this attitude, the intestines necessarily slip into and out of the pelvis along its anterior wall they must sooner or later enter the uterovesical pouch during descent, and so force the uterus and its adnexa backward.³

This attitude is present in a surprisingly large fraction of all ptoses, and is causative toward the ptoses of all the viscera; since I have been led to look for it I have become shocked and ashamed at the blindness which has led to my utter failure to even see so noticeable a phenomenon during all the previous years in which I have been dealing with them. I think that this will be the experience of any operator who has not been previously impressed with the importance of this attitude.

If in such a case an operation for the relief of a ptosis of any one of the viscera is performed without correction of the vicious attitude the persistence of the latter and its consequences is of necessity a continuous force against the permanent endurance of the result. This posture is probably the product of a functional loss of correct balance and is due to factors the relative importance of which we are as yet unable to isolate with certainty.

The second abnormal posture of which we feel able to speak with some certainty is a developmental variation which has been heretofore neglected, but which we have ventured to describe as the overfeminine figure, and which is illustrated in Figures 2 and 3. These women have more or less overextended knees, large hips, hollow backs, and usually somewhat small waists and prominent busts. They are apt to become fat and to have noticeably

3. It has long been recognized that the intra-abdominal pressures correspond closely to hydrostatic laws owing to the nearly equal specific gravity of all the contents; but upon this very basis it is evident that intestinal coils which contain gas will tend to rise, and thereby displace downward those which contain fluid, hence the constant change in position of individual portions of the intestines during peristalsis.

small hands and feet. Their center of gravity is habitually carried too far forward. In them the inclined position of the anterior abdominal wall and the forward inclination of the lumbar spine tend again to impact of the intestines against the anterior pelvic wall, and consequently to displacement of the uterus. We have not, however, seen reason to think that this posture is often associated with the ptosis of the upper abdominal viscera, except when these are due to the dependent drag of a pendulous abdomen, which is, however, certainly an especially common accompaniment of this figure in middle life.⁴

We have worked so long on this subject that we are very anxious to put forth no statements which are not likely to be substantiated by further observations. We do already feel confident that the two variations of posture illustrated are of real importance in their relations to the ptoses, and that their habitual correction will lead to a higher degree of success in the operative treatment of ptosis than is possible without it. We have seen such correction of attitude lead to the relief of symptoms in cases which had previously been operative failures, and we have seen it yield both anatomic and

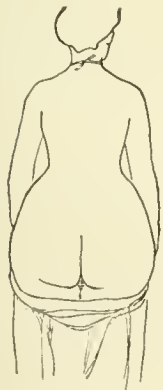


Fig. 3.



Fig. 4.

Fig. 3.—Dorsal view of subject shown in Figure 2. Note size of lumbosacral as contrasted with dorsal region. This variety of figure is a developmental exaggeration, and not radically alterable, though its consequences may be relieved.

Fig. 4.—Diagrammatic representation of a weight suspended by a sling.

symptomatic success without operation, in cases which we should formerly have considered operative.

Much curious information is also coming to hand on the relation of the lateral inequalities and distortions, such as lateral curvatures produced by short leg or unequal pelvis, *e. g.*, to the disturbances of anteroposterior balance, and to the production of unequal abdominal strains and ptoses; but, although we are frequently obtaining clinical relief in otherwise obstinate intra-pelvic and upper abdominal conditions by associated treatment of these distortions, all this is also too little worked out to be fit for more than the merest mention here.

Both of the attitudes illustrated are largely correctible. Their treatment lies in (a) gymnastic exercises, graduated outdoor exercises, improvement of nutrition and

similar methods; (b) in mechanical aids to balance and posture. The first class of treatment I shall not enter into, because, important and all-essential as it is, its methods are well established and I have nothing new to offer on it, but on the mechanical therapeutics of the trunk our experimental work has thrown some light which we think has been borne out by our clinical experience.

We believe that not only in the functional backaches, but also in the ptoses the essential factor in mechanical treatment is the rectification of the incorrect posture which is so constantly a factor, and apparently a determining factor, in their causation, and which is itself always dependent on an abnormal position of the center of gravity. Our experimental work has shown that this abnormality can be corrected by appliances far more simple and comfortable to the patient than many which are in use, and our clinical experience leads us to believe that equally good results are attained thereby.

The subjects of ptosis are almost invariably neurasthenic, and we believe most emphatically that in their treatment by mechanical appliances the first and prime necessity is that the apparatus used should be comfortable. The surgeon who fixes attention on a local condition and subjects a neurasthenic who is annoyed by a ptosis to prolonged and continuous discomfort from straps and steels does harm rather than good. He too often substitutes a greater discomfort for the lesser one which he is attempting to relieve. The great advantage which the therapeutic corset has over the complicated harnesses so often employed is that it can be made, and should always be made, a distinct comfort to the patient from the moment it is applied. It may be said of the corset, as it has long been said of the pessary, that if it is not comfortable it is not efficient, and with almost equal truth, that if it is not comfortable it is doing harm.

Extreme cases may demand extreme treatment, but we believe that a corset properly contrived to support the lower abdomen is for most cases the simplest, least harmful and most generally effective appliance, especially if it is backed up by proper shoes.

It is certainly true in my experience with nephroptosis that corsets, belts and pads adapted to make direct pressure on or below the prolapsed kidney have proved far less effective than those which are fitted to restore the normal direction to the general intra-abdominal pressure, both by properly directed compression and by restoration of balance.

Lack of space forbids me from entering fully into mechanical therapeutics here, but a few words descriptive of the mechanism by which the therapeutic corset chiefly corrects attitude may be of interest. As has been said, the leading general characteristic of all these attitudes is the carriage of the center of gravity of the body too far forward, with backward displacement of the buttocks and forward displacement of the upper part of the trunk. We have been able to demonstrate experimentally that the use of high-heeled shoes tends to sway the body as a whole backward from the ankle; also that certain forms of corsets, as well as other forms of apparatus, to which we have only referred incidentally in our publications, tend to bring the buttocks forward and the shoulders back, and this latter movement is effected by a mechanical principle which is also perhaps of sufficient interest to be mentioned here.

It is a general rule in mechanics that the action of opposing forces at rest is always opposite and equal, so that the downward pressure on the lower end of a sling

⁴ It is important to distinguish between the rotundity due to increased fat with increased abdominal pressure, and the protuberance due to true relaxation of the abdominal walls with decreased or even negative intra-abdominal pressure.

(Fig. 4, A) in which a weight is suspended is of necessity exactly equal to the traction on the upper end of the sling (Fig. 4, B): thus, if the weight of the pendulous abdomen is suspended by a belt or therapeutic corset which obtains its bearing from the posterior surface of the sacrum, that weight may be regarded as having been transferred from the anterior to the posterior side of the lower portion of the trunk. It is, in fact, mechanically equivalent to a weight placed on the sacral region: but if a weight is so placed on any portion of the posterior surface of the body it carries the center of gravity of the whole mass so far backward that the model must either fall backward or readjust the center of gravity;⁵ and if the weight is placed on the sacrum the necessary change is, in fact, effected by carrying the hips forward.

If, however, the hips were carried forward without alteration of the position of the trunk the center of gravity would at once be carried so far to the front that the subject would fall on her face; hence the forward motion of the hips superinduced by the weight on the sacrum is of necessity complemented by a backward motion of the shoulders. In practice as well as in theory the first among the many effects of the therapeutic corset is a readjustment of posture by moving the hips forward and the shoulders back, *i. e.*, the assumption of an erect posture. It is to be noted, too, that this straightening of the dorsal spine and squaring of the shoulders with consequent elevation of the ribs and expansion of the chest is effected by the patient's own muscles under the influence of an instinctive effort toward the maintenance of balance. It is an active and natural return to a desirable attitude under the influence of the change in the abdominal pressures and in the position of the center of gravity. As such it is therapeutically far more desirable than the enforced and passive assumption of the same attitude in opposition to the natural instincts which is produced by shoulder-straps and rigid back-braces.

One word of caution must be inserted. We have learned by experience, and considerably to our surprise, that the change of dorsal attitude so induced may easily be made so extreme as to cause new dorsal and cervical aches if it is pushed too rapidly. The first corset should not be so cut or adjusted as to produce all the effect that is ultimately to be desired. A moderate change of attitude is all that is at first permissible, and adjustment to this new position should be effected by graduated exercises before more is attempted.

Another great advantage of the therapeutic corset as a mechanical corrective is that, if properly made, it restricts the motion of the body above the waist exceedingly little and permits free play to the dorsal and scapular muscles throughout the patient's day.

In conclusion of this section I may say that no one can appreciate more fully than Dr. Lovett and I the elementary character of all that we are as yet ready to say on this subject, but we believe that our experiments and observations have already gone far enough to warrant our belief in the importance of posture in this as well as in some other relations; moreover, this belief is supported by the publications already alluded to. In practice, too, we are obtaining so much satisfaction that we feel confident of the importance of this subject. Many ptoses are dependent, as is yet to be said, on conditions

which can be remedied only by operation: many chronic backaches also are dependent on anatomic lesions which can be treated radically only by operation, but the great majority of both affections have a general static element in their etiology and demand its recognition in their treatment. In especial we may say that there are but few chronic backaches which cannot be remedied if both elements in their etiology are taken into consideration.

The abdominal surgeon must learn that in a large proportion of cases of the nature under consideration he must utilize the aid of mechanical and gymnastic therapy if he wishes complete results. The orthopedic surgeon also must learn that ptoses and backaches are by no means universally of purely static origin, and that whenever a case of this nature fails to react promptly to mechanical and gymnastic treatment an examination of the abdominal and intrapelvic organs should precede all further orthopedic effort. In many of these cases the two specialists must work together if really satisfactory results are to be attained.

LOCAL ABNORMALITIES

The static abnormalities are general in their action and may effect the relations of any or all of the abdominal viscera. The local causes of ptosis, now to be spoken of, are, on the contrary, individual to each organ. They are probably of equal importance throughout the abdomen, but in treating of them I propose to restrict myself here to the local causes of the intrapelvic ptoses only, since it is in that portion of the abdomen that these local causes are most easily worked out, and on the local causes of the ptoses of the upper abdomen I am not yet ready to speak.

The local causes of the pelvic ptoses are to be found in the inflammatory lesions, trauma, and some developmental anomalies, each of which with its treatment must now be taken up by itself.⁶

In this connection it is well to remember that the retrodisplacements are in themselves ptoses and are, moreover, no more than the first stage in complete ptosis of the genital organs. For the purposes of this paper, then, all the displacements of the uterus and its adnexa may be fairly considered as a single group of essentially similar lesions which can be dealt with here as a whole; and for economy of space they will be so treated.

In the pelvic ptoses due to obstetric trauma and inflammatory diseases the static predispositions are again of some importance, and at the risk of repetition I must again briefly refer to them here.

The operative treatment of the ptoses due to obstetric trauma is mainly concerned with the repair of lacerations, but it is well recognized that extensive obstetric trauma is sometimes followed by curiously little loss of support, while in other cases extremely slight solutions of continuity are followed by displacement, descensus, or perhaps by complete prolapse, and the explanations offered for these differences in result have not been heretofore wholly satisfactory. I believe that a valid explanation of them is now to be found in the existence, or non-existence, of the predisposing causes in the individual anatomy. I believe, too, that the search for these causes is all important in the treatment of these cases also, and that their correction will often contribute most satisfactorily to the avoidance of the failures which still too often follow on an operation for prolapse.

5. For suggestions leading to the elaboration of this and many other mechanical points we gladly acknowledge our indebtedness to personal communications from Dr. Ansel G. Cook of Hartford whose instinctive appreciation of the problems of balance is well known to the orthopedic portion of the profession.

6. Consideration of the ptoses due to the weight of new growths will be omitted here.

Perhaps the most prominent of all the local causes of the pelvic ptoses are the infections of the Fallopian tubes. It is universally recognized that adherent tubes drag the uterus backward and that the separation of the adhesions is the first step in the operation in these cases; the methods which should be adopted for the remainder of the operation constitute the only point in question. I believe that here we must rest on the original cause. When the history and physical examination warrant the belief that the occurrence of an infection in previously wholly normal organs was the only source of a displacement, the separation of the adhesions is a complete removal of the cause, and the operation which best holds the tubes away from the posterior peritoneum is the operation of choice. On the other hand, it must not be forgotten that the displaced genital organs are especially prone to inflammation and adhesions from slight causes, and that ptosis of the uterus and its adnexa, originally simple and the product of other local or general causes, may in time become complicated by inflammatory conditions which overshadow the original causes. In these cases the method of treatment adopted after the separation of adhesions should depend on the original cause of the lesion, whatever that may have been, precisely as in uncomplicated retroversions.

The developmental anomalies are of the utmost importance, since there can be little doubt that the whole subject of ptosis is closely related to that of general underdevelopment and should always be studied in that light. In the absence of the evidence of general underdevelopment the local anomalies are, however, ordinarily in themselves a sufficient explanation for the ptoses, and indicate at most only some modification of the ordinary operative treatment.

Among those developmental anomalies which are efficient local causes of uterine displacement, or ptosis, limited space prevents my mentioning more than the three which I have most frequently seen.

Normally the vagina and rectum separate somewhat below the level of the posterior cul-de-sac; exceptionally they are attached to each other throughout the whole length of the vagina, and even up to its actual attachment on the posterior surface of the uterus. In this anatomic condition the effort of emptying an overloaded rectum necessarily forces the uterus backward and downward, and if this condition is allowed to persist it will almost certainly militate against a good result from operation. It is not an extremely common anomaly, but I have seen it effective in a number of instances, and the possibility of its existence is well worth the momentary inspection which will detect it. If it is found, the separation of the rectum from the upper part of the vagina is easily effected, and should then be rendered permanent by a transverse suture of the incision. This small addition to the operation will in such cases make the whole difference between success and failure; without it the contest between the new mechanical conditions which were brought into being by the operation and the still existent abnormal rectal attachment, which drags the organ backward and downward, is likely to result either in the loss of the anatomic results of operation or, if they persist, in the production of a new pain.⁷

A not infrequent and a very important anomaly which has not attracted so much attention as it should

is the persistence into adult life of one of the so-called ileolumbar ligaments which are normally present in the fetus. These structures represent ontogenetically the primitive support of the genital organs, but have disappeared normally in the adult human female. It will be remembered that during fetal life the ovary, like the testicle, descends from its original position in the forward part of the celom to its final position in the pelvis, while at the same time the kidney moves in the reverse direction. These movements are bilateral, but on the right side of the abdomen they are complicated by the descent of the cecum and ileum. They are accompanied and probably facilitated by the development on each side of longitudinal folds of peritoneum containing freely developed smooth muscular fiber which have been described by numerous anatomists⁸ under several names (*e. g.*, ileolumbar, lumbo-ovarian, ileo-ovarian, appendiculo-ovarian ligaments).

During a portion of fetal life these ligaments are strong and well-marked longitudinal structures which draw the fundus upward and backward in opposition to the as yet little-developed round ligaments. With the progress of development they relax and permit the formation of the transverse broad ligaments. Eventually the ligament of the left side entirely disappears, while a portion of its fellow on the right side persists permanently. This structure is well known as a fold of peritoneum which originates sometimes in the mesentery of the appendix, sometimes in the mesentery of the ileum, sometimes in both, and from there runs downward to be lost in the general peritoneum at the brim of the pelvis. It has been recommended as a guide to the appendix.

I know of no instance in which the ileolumbar ligament of the left side has been found persistent, but I have seen numerous instances of its total or partial persistence on the right side. It then forms a band, which with its continuation, the utero-ovarian ligament, connects the right cornu with the peritoneum in the neighborhood of the ileocecal valve. When fully persistent it holds the uterus in forced retroversion; this condition is, however, probably rare, I have seen but one instance of it, but its partial persistence is not uncommon. It is then easily overlooked unless the uterus is drawn strongly forward with the intent of searching for it, when it springs into prominence. If it is not detected this effect will of course be produced as soon as the uterus is drawn into anteversion by any operative procedure. It then forms a retro-uterine guy on which the weight of the intestinal coils must necessarily rest when the patient reassumes the erect posture, and persists as a strong element against the success of the opera-

8. Graves, William P.: Incomplete Descent of the Ovary and Persistence of the Lumbo-ovarian Ligament as a Cause of Retro-deviation of the Uterus, *Bull. of the Free Hospital for Women*, March, 1903, 1, No. 1.

Durand: Le ligament ileo-ovarien (Appendiculo-ovarien de Clado); Contribution a l'etude du ligament large.

Gebhard: Pathologische Anatomie der weiblichen Sexualorgane, Leipzig, Hirzel, 1899.

Hasse, C.: Beobachtungen über die Lage der Eingeweide im weiblichen Beckeneingange, *Arch. f. Gynäk.*, 1875, viii, 402.

Küstner, O.: Lage und Bewegungs-Anomalien des Uterus, in Veit's Handbuch der Gynäkologie, Wiesbaden, 1897, 1, 63.

Poirier: Lymphatiques des organes génitaux de la femme, 1889.

Rouget, C.: Recherches sur les organes érectiles de la femme et sur l'appareil musculaire tubo-ovarien, dans leurs rapports avec l'ovulation et la menstruation, *Jour. de physiol.*, Paris, 1858, ix, 320.

Schultze, B. S.: Zur Kenntniss von der Lage der Eingeweide im weiblichen Becken., *Arch. f. Gynäk.*, 1876, x, 262.

Vallin, Paul: Situation et prolapsus des ovaires, Paris, 1887.

7. In this connection note also the recent development of intra-abdominal operations directed against the tissues immediately behind the cervix.

tion. My experience, which now covers thirteen years of observation, leads me to believe it a not uncommon anomaly.

I have also seen some reason to suspect that this anomaly may sometimes be responsible for a ptosis of the kidney, a view which its embryologic significance would tend to support. I have once seen it responsible for a displacement of a portion of the ileum.

If this ligament is found it should be divided and the cut edges of the peritoneum whipped over before any form of suspensory operation is done, care being taken that the division is sufficiently extensive to lead to full relaxation.

Perhaps the most important of all the developmental anomalies is, however, the condition known as antelexion of the cervix. This lesion, though familiar to every gynecologist, has, I think, not been generally recognized as a cause of retroversion. It is, in point of fact, a developmental failure, a partial persistence of an infantile condition, in which the cervix is held forward by a congenitally short anterior vaginal wall and similarly shortened uterovesical ligaments; but since the cervix is much the most firmly suspended portion of the uterus, a forward fixation of the cervix necessarily tends to a backward position of the body. That the forward position of the fundus which is originally characteristic of antelexion of the cervix is not, as is usually believed, necessarily due to an organic curvature of the body, is shown by the fact that forward fixation of the cervix is present in an extremely large proportion of all straight retroversions of the uterus, and that in each of these the reposition of the body by operation only restores the overbent condition from which the organ had escaped by straightening out into retroversion. Dysmenorrhœa which has been recovered from is often reestablished by such operations.

Lack of space forbids my entering at length into this subject, but my own experience in observation of it has been so conclusive, and already so extensive, that I am confident that any observer who will trouble himself to watch for this condition in his cases of retroversion will become convinced of its importance. Indeed, one has only to watch the effect of temporary anesthesia on uncomplicated cases of antelexion of the cervix to find that under the muscular relaxation so induced the fundus commonly falls backward, to be drawn forward again when muscular tone returns. It can then hardly fail to be a constant influence towards retroversion.

The condition is easily remedied by a transverse division of all the tissues in front of the cervix. The vaginal wall should be divided transversely with the knife just anterior to its junction with the cervix, the bladder should then be separated from the supravaginal cervix by blunt dissection with the finger, and the tissues on either side of the cervix and anterior to the broad ligaments should be somewhat widely separated by the same blunt dissection. The only bleeding will be from the cut edges of the vaginal wall and will be entirely controlled by the suture, which should be inserted transversely and for elongation of the vaginal wall. The deeper tissues need no attention. The adoption of this simple procedure as a preliminary to the abdominal treatment of retroversion in these cases has much improved my own end results, and I feel sure that this point is an important one.

I believe that the developmental anomalies of the viscera of the upper abdomen form a point well worthy of further study in connection with their ptoses.

In conclusion of my treatment of this first question, *i. e.*, of the local end results of operation, I must permit myself to say that I cannot help feeling, more and more clearly, with each succeeding year of the five which I have now devoted to the pursuit of this subject, that the careful study of the etiology of each case of ptosis promises in the end to clear up much of the confusion which has so long surrounded and still shrouds this question, and to lead to the intelligent adaptation of the form of operation chosen to the needs of the individual case; also that I am becoming persuaded that the detection and correction of auxiliary or predisposing causes before operation is undertaken, and their reasonably continued treatment after operation has been performed is even by itself of far more importance to both anatomic and therapeutic success than the exact form of operation which is selected.

The answer to the second question proposed to us—the effect of operations for ptosis in neurasthenics on the neurasthenia itself—seems to me to depend, first, on a definition, and, second, on another etiologic point.

The term "neurasthenia" is, like the term "rheumatism," one which covers so many different states as to have no satisfactory meaning in modern medicine. The mere definition of this term has in fact provoked in the last ten years a large neurologic literature of its own. It is therefore all important that any discussion on this subject should start with a definition of what is to be talked about.

I take it that as surgeons we are not concerned with the subtleties of neurologic classifications and that in using this loose and popular term we understand merely a state of low resistance to the depressing influences of the environment, irrespective of the cause to which this low resistance may be due. If this is what we mean, it follows as a logical necessity that our operations will improve the neurasthenic state in those cases in which the lessened resistance is due to the lesions on which we operate, and in no others. An attempt to relieve neurasthenia of psychological origin by surgical operations on local lesions will invariably make the abnormal psychological state worse. Self-evident as this may appear, it is a general principle which is too often forgotten.

From a practical standpoint it has seemed to me that the crucial test of whether the state of lessened resistance which we call neurasthenia is, or is not, dependent on the effects of local lesions lies in a careful study of the chronologic relations between the local and general symptomatology. If the neurasthenia has been pronounced and prolonged before local suffering appeared the patients will seldom be benefited by operation. If, however, prolonged suffering of local origin has preceded the advent of the neurasthenia, complete relief of the local suffering will usually result in general systemic improvement, and in increased power of resistance to the general wear and tear of life.

Two general principles must, however, be always borne in mind: First, even in these cases the only way in which the operation can benefit the neurasthenia itself is by resulting in a permanent relief of local suffering; for this reason no operation should be undertaken until the surgeon has convinced himself by close study that the local suffering is directly dependent on the local lesion and will be relieved by its repair. Second, in neurasthenics an operation which does not definitely and permanently relieve the local symptoms invariably increases the neurasthenia.

It must be remembered also that in all those cases with which we as surgeons can properly deal, the state

of lessened resistance to the wear and tear of life which we call neurasthenia is always the product of an excess of physiologic expenditure over and above physiologic income, and that even if this excess of expenditure be in part the result of local suffering, we can expect no satisfactory result from operation in patients who are so situated that their expenditure under the ordinary fatigue of life is, and must remain, in excess of their powers. In such cases the results of operation will be unsatisfactory unless the conditions of the patient's life can be so far altered that the vital expenditure after operation will be less than the patient's intrinsic vital income. I believe, then, that the attainment of satisfactory end effects on the neurasthenic state itself depends, first and primarily, on the selection for operation of cases in which the neurasthenia is the result of local suffering due to local lesions, and the exclusion from operation of all other cases; secondly, on the termination of local suffering by successful end results in the operation itself, and, thirdly, on successful regulation of the patient's life after operation, either by the surgeon himself or by an intelligent medical attendant.

The too frequent failures which we have all seen are usually the result of operating in the wrong cases; and, on the other hand, much injustice is undoubtedly done to many individuals who are subjected to what is generally regarded as the reproof of nervous invalidism when in reality their suffering is real, and derived from some remediable localized cause. Were we sufficiently wise in our selection of cases there would be few more satisfactory end results than those which we should attain in the treatment of the neurasthenic state itself by operation.

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RELATION OF RECRUITING TO PREVENTIVE MEDICINE*

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That old and trite saying that "the efficiency of an army or navy depends on the soundness of the health of the individuals composing it," was equally true in the past as in the present, when the study of preventive medicine is so much to the fore. To-day there is a deeper appreciation of the reality of this fact, and consequently the work of recruiting has assumed the serious rôle to which it is entitled.

"Since the most important factor in the efficiency of an army is its health, it follows that everything which may influence this in any way for the better or worse should be looked after with the utmost care. The men who compose an army are drawn from civil life, in which each individual has, to a greater or lesser extent, independent control of his time, choice of occupation, selection of food and dwelling-place, and general sanitary care. After enlistment, soldiers lose most of this independence; they are housed, clothed, fed and exercised under regulations which it is beyond their power to amend; they are moved from one point to another, differing perhaps very widely in climatic and other conditions, under orders which they may not presume to question; their hours for sleep, meals, work, and recreation are fixed for them without consultation with them,

and without regard to individual or communal preference."¹ This applies with equal force to men-o'-war's men.

The importance of the work of recruiting is more particularly emphasized when one considers the large percentage of rejections, 67 per cent., the few accepted, 33 per cent.; and of the latter, despite rules and regulations and utmost care, some must be discharged on the first re-examination on the receiving ship, the number surveyed each year not in the line of duty or existed prior to enlistment, besides the cost in time, labor and keep, loss to the government, and the hard fact that the physically undesirable recruit is filling the place otherwise occupied by a good man.

The life at sea is at times arduous, calling for stamina and unexpected demands at any hour of the day or night, for the man enlists for general service, for war as well as for peace, never forgetting that the question of the line of duty and pension may arise in each case.

The applicant, as he presents himself at the recruiting office, is not of a distinct and separate class; on the contrary, he represents all types and comes from all walks of life, from the highest to the lowest. He is the graduate in medicine, law, theology, the teacher, the pharmacist, the student, the actor, the artisan, the clerk, the laborer, the schoolboy, the gentleman hobo and the tramp; from nearly every field of human activity men seek entrance into the enlisted force of the United States Navy.

Among such a collection of potential men-o'-war's men are met all degrees of physical defects as well as physical perfection (so far as this is possible); all degrees of cleanliness of person and clothes; men with and without means of livelihood; the stupid and the mentally weak, ascending to the highly trained and educated; men of travel, men from home and the poor devils looking for a home, men of the city and men off the farm; those of unsavory reputation, the lovelorn and other runaways—in fact, there are no exceptions, for all classes of men, for all reasons, wend their way to the examining room of the recruiting office.

The vagrants, the great unwashed, are undesirable as a class; they bathe at long and irregular intervals; their habits morally, mentally and physically, are scarcely commendable, and they have learned to dislike work. Sometimes I think they should be excluded without exception; the price paid for the few good men is too exorbitant for the undesirables sure to gain entrance. Just as the chain is no stronger than its weakest link, so the man when needed will break at his weak point. The ounce of prevention is also valuable in the work of recruiting.

In all wars the number of deaths from disease has been far in excess of that of casualties, and more discharges are due to sickness than to injuries.

"The examination is very thorough, and includes the mental condition, the principal organs of the body, the general formation, the chest capacity, the condition of the teeth, skin, joints and feet, and the presence or absence of hernia, varicocele and other disqualifications."² The recruit must be well-built all around, superior to the average in muscular development, or, if in youth, have potential strength. He must be sound, ready for all kinds of work and sudden strain.

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-First Annual Session, held at St. Louis, June, 1910.

1. Harrington: *Practical Hygiene*, p. 565.
2. *Practical Hygiene*, p. 572

It must always be remembered that the man on the sick-list is counted on the ship's complement of enlisted force, and that his station would otherwise be filled by a capable man. "Such men are not merely ineffective themselves, but exercise a detrimental effect on the morale of their associates. The mental attitude of a man whose physical infirmities prevent him from fully meeting the demands of his station and surroundings soon becomes one of chronic discontent and discouragement, a nuisance to himself, his shipmates and his superior officers."³ A man, attempting to enter the navy conceals and makes light of any trouble, but once enlisted, the same man magnifies it. A man-o-war's man can not be coerced when the question of an operation arises and hence, he will often seek his discharge on the slightest provocation. "Certain disease influences are prevalent in, and more or less peculiar to, certain parts of the country, and applicants for enlistment from these sections represent the possibility of being the victims of them in such form and stage of development as would escape detection by the usual routine examination unless specially looked for."³ Such, for instance, are the apparent heart affections of altitudes like Denver.

"The examining surgeon shall consider carefully the adaptability of the applicant in relation to the character of the duties which he may be called on to perform. Moderate height and compact build are requisite in the rating of fireman and coal-passer. The duties pertaining to these ratings are extremely arduous, and applicants for such positions must conform in every particular to the required physical standard."⁴ The examining surgeon should remember that all candidates examined for the several special ratings are enlisted for the performance of all duties pertaining to the naval service, ashore and afloat.

The city-born and bred are already inured to certain hardships and to all diseases of children. Dr. Woodhull, lieutenant-colonel, Medical Department, United States Army, however, says on this point: "In raising new troops, when it is possible to select, for sharp and immediate active service take town-bred men. If a year or two can be added in which to train them, take country-bred men. Open-air military life is physical promotion to city men accustomed to irregular hours, unwholesome meals, and poorly ventilated rooms. To country lads the irregular and sometimes scanty meals, broken rest, necessity for prompt and exact action, and above all the certainty of acquiring such diseases as measles, whooping-cough, and mumps, which town boys always have in childhood, are very exhausting. After a year's training, country youths are more valuable."¹

The recruit must be sufficiently young and moldable in order to adapt himself to the new life on board ship which, at the best, is unnatural. The age for entrance must be between 17 and 35.¹

"It is almost the universal opinion that recruits ought not to be accepted below 20, or better, 22. At 18 years, the recruit is immature; the bones are not fully formed, nor have they reached their final hardness; the epiphyses have not become incorporated with the shafts of the long bones; the joints are not fully developed; the chest has by no means attained its full capacity; and the organs of the body, in general, are immature. So it happens that, at this age, it is useless to expect him to be in good condition after long-continued exertion, or to undergo privations which are nothing to the man of

mature years and strength. At this period of life, he is still in the growing stage and needs all the energy of his body to bring the organism to completion, and the influences which mature soldiers contend against with varying degrees of success, namely, vicissitudes of weather, long marches, hard work in trenches, possible overcrowding in barracks and camps, poor ventilation, and poor and insufficient food, send him very quickly to the hospital."¹

"Taken between the ages of 18 and 20, and drilled and trained with due regard to his immaturity and limit of endurance, the recruit often shows great progress in general development within the first year, particularly if, before enlistment, he was poorly fed, clothed, and housed, and engaged in an indoor occupation. His work should be moderate in the beginning and only gradually increased, since changes for the better in the human body can not be brought about suddenly like those for the worse, induced by attempting to do too much at the outset. Since his lungs, heart, and blood-vessels are not yet fully developed, he can neither go through the manual nor cover ground like a seasoned soldier. The heart is called on by the new and unaccustomed exercise to contract at a greater rate than had been its habit and the recruit soon becomes 'winded.'"¹

While it has been the experience that men below 20 or 22 are too immature physically to make good soldiers, this does not hold good in the case of sailors, whose training and work do begin in accordance with his strength, and is gradually increased in demands on the newly added growth; this training occurs under the most hygienic surroundings. The life on board ship and at sea is one filled with novelties, and an open-air existence and the duties incident to this life might well be compared to a course in physical culture, whereby there is obtained a broadening of the shoulders, deepening and expanding of the chest, and a general symmetrical rounding out of the muscular frame. The change in the first year is remarkable; natural growth can claim but a portion of this rapid development.

One must not lose sight of the fact that after enlistment the recruit receives the same watchful care as a new-born babe, or blooded animal. His bathing-hours are prescribed, his clothes selected for him and their cleanliness assured by frequent careful inspections, and his food, likewise, is provided with the same care and regularity.

Men over 35 may reenlist, and more leniency for minor defects is exercised. "An enlisted man, not under treatment, but with infirmities contracted in the line of duty, not such as to prevent his performing the duties of a soldier, may be reenlisted, since it is recognized that what he may lack in some minor particulars in soundness may be counterbalanced by experience and habits of discipline."¹

The examination is of necessity searching, since disability not only interferes with the best work, but there is in some cases the danger of carrying contagion to others. Every recruit is immediately vaccinated, and kept in the detention camp three weeks before he is permitted to come in contact with the other men. Every deviation from the normal must be noted for a final estimate, or summing up, in accordance with the navy standard.

In the British army defective development causes the greatest number of rejections, then defective vision, and third, diseases of the circulation. For the last quarter here in St. Louis, out of 689 applicants, 169, or 23 per

3. Report of Surgeon-General, United States Navy, 1909.
4. Instructions for Medical Officers, U. S. Navy, 1909.

cent. were accepted. Of these 689, 140 or 20 per cent. failed because of poor physique (underweight). The following rule is followed: Up to 5 feet 7 inches the weight should be twice the height or 2 pounds to the inch, and for every additional inch 7 pounds more in weight must be added. The chest measurement is a little less than one-half the height. The biggest men are the most deceptive in appearance, and can not be depended on for endurance; far from it. Men of the laboring class are often properly proud of their muscular development, and with great self-assurance undergo the physical examination, in many cases only to be bitterly and perplexedly disappointed.

Of the 689 applicants 102 or 14 per cent. failed because of defective vision.

"No applicant should be recommended as qualified for the rating of gun-pointer who can not read with the right (or aiming) eye at 20 feet the line on Snellen's test-card, which is normally seen at 15 feet (i. e., 20/15 vision). The minimum of 20/20 vision should be required with the eye not used in aiming. The test-card should be well illuminated."⁴

It is astounding how great is the amount of ignorance due to faulty eye-sight alone. Some men attempt to read the test-card twice with the same eye or to memorize the letters; one applicant with 3/20 vision in each eye had never worn glasses. Of the 689 applicants 13 per cent. were rejected for flat-foot, 6.5 per cent for heart affections, 5.5 per cent for defective teeth, and 4.5 for color-blindness.

For Asiatics, enlisted as mess attendants, the bars must be lowered from the American standard of physique to one corresponding with the former race, though one should always be on guard against such diseases as plague and beriberi. The Filipino is of smaller stature and the requirements are that young men of 18 to 19 years of age must weigh 105 pounds (15 pounds lighter than the American average) and have an expansion of 2 inches; those men of 21 years of age must be 62½ inches in height, must weigh 110 pounds and have a chest mobility of 2½ inches, in sharp contrast to the American of the same age, who must weigh 18 to 20 pounds more.

Men for the hospital corps must be superior to the average applicant; a grammar-school education is required for the men intended to perform a special and responsible work, to assist the surgeons in his varied duties, acting as his first assistant or anesthetist during major operations; in fact, their duties correspond to those of the male trained nurse of our professional brethren practicing ashore. To make assurance doubly sure, the recruit must sign a clean bill of health: "I believe myself to be physically qualified to perform the duties of the rating in which I may be enlisted." Likewise, the examining surgeon certifies that "I have carefully examined, agreeably to the regulations of the Navy, the above-named recruit, and find that, in my opinion, he is free from all bodily defects and mental infirmity which would in any way disqualify him from performing the duties of his ratings, and that he has stated to me that he has no disease concealed or likely to be inherited."

The one essential requirement for the best results in recruiting is the strict adherence to a fixed, invariable, systematic routine method of examination.

The medical officer must possess the proper spirit for recruiting to secure men physically good; he must exercise good judgment in the case of men on the border-

line, never forgetting the important reasons for giving the government the benefit of all doubt, being very careful to note all minor defects which do not necessitate the rejection of the applicant. All kinds of influence are brought to bear on the judgment of the examining surgeon, aside from the question of competition of the recruiting officers to make a record in number rather than the standard of recruits of those enlisted. Physicians in civil practice, as well as politicians at times make it very emphatic how desirable it is to the government to obtain the services of their sons or friends.

The opposite state of affairs is illustrated by a pathetic though rather amusing instance: A young man of 21 desired to enlist while we were at Savannah, Ga. The mother called on board and, with a distressing flow of tears, asked how her son could be enlisted when the family physician sent word that he was physically incapacitated. There being no defects, the boy was qualified physically, much to his own delight. The father came on board with a gun to compel, in this gentle way, the non-acceptance of his son. The boy decided to run away from his family and of his own volition, being of age, joined his chums at the railroad station. We sailed down the coast and up the Mississippi river as far as Cairo, Ill., making numerous stops for the purpose of recruiting, and in the course of about four months we returned to Savannah, Ga. Meantime the young man had sent home photographs and graphic accounts of the fascinating life of the training station. The first day in port the mother came on board and, with similar tears, begged us to enlist her younger son, who, by the irony of fate, failed to pass the physical examination.

It has been demonstrated repeatedly that physicians ashore do not obtain the best results in recruiting, simply because they have not had the peculiar training which is acquired only under actual service conditions.

After this brief review of some of the more salient features of the subject of recruiting for entrance into the United States Navy, I believe that all will agree with me that good powers of observation, a keen eye, mental alertness, considerable knowledge of human nature, complete understanding as to service conditions and the calls that are made in each rating, besides a proper interest for the service are prerequisites in the medical officer who is detailed for the recruiting office, where, by far, the major part in the way of preventive medicine is accomplished for the navy.

Yaws Transmitted by a Fly.—Dr. E. W. Gudger (*Science*, Nov. 4, 1910) calls attention to an old recorded observation that yaws is transmitted by a fly. The traveller, Henry Koster, in his account of travels in Brazil (1809-1815), gives a description of the disease, yaws, in which he says: "This horrible disorder is contracted by inhabiting the same room with the patient, and by inoculation; this is effected by means of a small fly, from which every precaution is oftentimes of no avail. Great numbers of the insects of this species appear in the morning, but they are not so much seen when the sun is powerful. If one of them chances to settle on the corner of the eye or mouth, or on the most trifling scratch, it is enough to inoculate the bobas, if the insect comes from a person who labors under the disease." In commenting on this Gudger says that it will be noted that, while Koster is not able to give the specific name of the fly, he definitely declares it to be a certain fly with well-marked characters. It may be well to add that the disease called "bobas" throughout Brazil, is identified by Koster himself as identical with the "yaws" prevalent in Venezuela and the Guianas.

THE CONSERVATIVE UTILIZATION OF THE
WASSERMANN REACTION

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The statements in this communication are based on a study of over 3,200 reactions, and in view of the confusion and uncertainty that still prevail in the minds of many physicians as to the significance and value of the Wassermann test I am hopeful that this work will tend to render clear some obscure points and enable us to handle the question of syphilis from a serologic point of view with greater accuracy than heretofore. The impression that I have received from almost two years' work with this reaction and the benefits that physicians and patients derive from its application is that the value of the Wassermann test for diagnosis and therapy has been greatly overrated. It still remains an interesting problem for the biologists to solve, but so far their work has not been decisive enough as to enable the practicing physician to rely implicitly on the outcome of a Wassermann test. I do not wish to discredit the work of Bordet and Gengou, nor is it my intention to belittle the application of the phenomenon of complement deviation to the diagnosis of syphilis. I do, however, maintain that the promiscuous use of the test by insufficiently instructed physicians is as dangerous as the use of reports from tyro serodiagnosticians. I lay particular stress on this point, because such use to my knowledge has been the cause of serious damage. The accompanying tables containing the material gathered during twenty months of work with the Wassermann test owe their scope and variety to the kind assistance of Dr. Abrahamson and the staff of physicians at the Montefiore Home. Its completion and the study of the effects of mercury on tabes was accomplished at the Neurological Institute, whose medical officers were ever ready to furnish necessary data for this work.

CONSIDERATION OF TABLES

The first and largest group of cases analyzed was composed of cases of locomotor ataxia. The Wassermann reaction in this disease, contrary to the still prevalent conception that all tabetics are syphilitic, was positive in 88 per cent. in one group of cases and 44 per cent. in another group. In considering tabes dorsalis one must not lose sight of the patient's condition, whether in the active tabetic state or in the quiescent. The physician's disappointment is quite evident when a negative Wassermann is reported on a patient with tabes; it is the conviction of many physicians that every tabetic ought to give a positive reaction, as they believe syphilis to be the only etiologic factor concerned in this disease. The tables show that over 300 cases of tabes dorsalis were analyzed and on an average only 66 per cent. of cases gave a positive outcome. Whatever the substance may be that is responsible for a positive Wassermann reaction in a patient with tabes, it may be taken as a sign first, that his tabes is of syphilitic origin, and secondly that if active manifestations are present mercury is indicated. The contention makes it quite evident that the knowledge of the tabetic manifestations is very essential to successful therapy. Whenever a serum is analyzed from a case of active tabes (crises, girdle, shooting pains) the reaction is usually positive (88 per cent.). This sig-

TABLE 1.—DISEASES OF THE NERVOUS SYSTEM

	Cases.		Positive.		Negative.	
	No.	%	No.	%	No.	%
Tabes, total cases.....	306	198	66	108	34	
Tabes, quiescent stage.....	249	110	44	139	56	
Tabes, active stage.....	57	51	88	6	12	
Paralysis agitans.....	12	0	0	12	100	
General paresis.....	64	56	88	8	12	
Pseudohypertrophic muscular dystrophies*.....	15	0	0	15	100	
Syringomyelia.....	4	0	0	4	100	
Progressive muscular atrophy.....	2	0	0	2	100	
Multiple sclerosis.....	16	0	0	16	100	
Hemiplegia.....	118	8	7	110	93	
Acute anterior poliomyelitis.....	5	0	0	5	100	
Tumors of brain.....	14	2	12	12	88	
Alcoholic neuritis.....	8	0	0	8	100	
Lead neuritis.....	4	0	0	4	100	
Bell's palsy.....	3	0	0	3	100	
Sciatica.....	8	2	25	6	75	
Symmetrical adenolipomatosis.....	3	0	0	3	100	
Adiposis dolorosa.....	2	0	0	2	100	
Myasthenia gravis.....	1	0	0	1	100	
Amyotrophic lateral sclerosis.....	4	0	0	4	100	
Myelitis.....	8	2	25	6	75	
Erb's luetic spinal paralysis.....	1	1	100	0	0	
Spastic paraplegia.....	11	3	27	8	73	
Tumors of spinal cord.....	9	2	22	7	78	
Chiasm disease.....	4	0	0	4	100	
Ophthalmoplegia.....	3	0	0	3	100	
Optic nerve atrophy.....	4	0	0	4	100	

* In two instances the parents were also examined with negative results.

TABLE 2.—DISEASES OF THE SKIN AND GENITOURINARY
ORGANS

	Cases.		Positive.		Negative.	
	No.	%	No.	%	No.	%
Scleroderma*.....	5	5	100	0	0	
Psoriasis.....	26	17	4	25	96	
Furunculosis.....	4	0	0	4	100	
Rhinocleroma.....	2	0	0	2	100	
Lepra §.....	8	8	100	0	0	
Primary lues, less than 3 weeks' duration, no Hg.....	101	90	89	11	11	
Primary lues, less than 3 weeks' duration, after Hg. treatment.....	20	12	60	8	40	
Primary lues, more than 3 weeks' dura- tion, no Hg.....	74	72	97	2	3	
Primary lues, more than 3 weeks' dura- tion, after Hg. treatment.....	36	26	72	10	28	
Secondary lues.....	340	296	87	44	13	
Tertiary lues.....	290	212	73	78	27	

* Another patient was examined with a negative result, but the diagnosis of scleroderma was uncertain.

† In the positive case the patient admitted syphilis.

§ These were all cases of long duration.

TABLE 3.—DISEASES OF THE VEGETATIVE ORGANS

	Cases.		Positive.		Negative.	
	No.	%	No.	%	No.	%
Aortic aneurism.....	16	12	75	4	25	
Aortic stenosis.....	2	0	0	2	100	
Tricuspid stenosis.....	1	1	100	0	0	
Obliteration of anterior tibial.....	1	0	0	1	100	
Chronic endocarditis.....	38	7	19	31	81	
Pulmonary tuberculosis.....	28	6*	..	27	..	
Asthma.....	24	17	4	23	96	
Chronic bronchitis.....	28	0	0	28	100	
Tumors of the lung.....	6	4	67	2	33	
Tumors of the liver.....	3	2	67	1	33	
Tumors of the kidney.....	2‡	0	0	2	100	
Tumors of the esophagus.....	2	0	0	2	100	
Tumor of the iris.....	1	1	100	0	0	
Tumors of the sternum.....	2	0	0	2	100	
Noma.....	3	0	0	3	100	

* In 2 of the positive cases the patients were cured and at no time showed tubercle bacilli. In the other 2 cases tubercle bacilli were present; also a history of lues.

† In the positive case the history was suspicious.

‡ At the autopsy one tumor proved to be a hypernephroma, the other a metastatic carcinoma.

TABLE 4.—MISCELLANEOUS DISEASES *

	Cases.		Positive.		Negative.	
	No.	%	No.	%	No.	%
Exophthalmic goiter.....	10	0	0	10	100	
Arthritis deformans.....	28	4	14	24	86	
Gastric anacidity.....	15	10	67	5	33	
Diabetes.....	36	8	25	28	75	
Perniciou anemia.....	2	0	0	2	100	
Polycythemia.....	4	2	50	2	50	
Colitis.....	8	0	0	8	100	
Gout.....	10	0	0	10	100	
Acute articular rheumatism.....	18	0	0	18	100	
Hodgkin's disease.....	4	0	0	4	100	
Hemophilia.....	3	0	0	3	100	
Arteriosclerosis basis cranii.....	14	4	28	10	72	
Raynaud's disease.....	6	2†	33	4	67	

* Of 540 cases analyzed for diagnosis, unmistakably positive findings were obtained in 80 per cent. Weakly positive reactions were obtained 8 times in cases which most likely were not luetic; 6 of the patients had jaundice.

† The 2 positive cases improved with iodids.

nifies that the disease is most likely of a luetic etiology and that mercury will not injure the patient. In case the reaction is negative in a patient with active manifestations it is safer not to use mercury, as in such a case the cause of the tabes is likely not syphilis. In patients with straightforward tabetic signs without active manifestations the reaction is positive in only 44 per cent., as I found, and antisypilitic therapy is as a rule of no avail. It is quite evident that the ataxia and other symptoms the result of the degenerative process can not be influenced by drugs. It is consequently a better policy to leave the patient alone even if the Wassermann reaction is positive, provided he is in a state of comparative comfort.

I have examined fifty-one serums from active tabetics and found the reaction positive in forty-four, *i. e.*, 88 per cent. It is my belief that this form of exudative tabes is due to syphilis when the reaction is positive and that in about 12 per cent. of active tabetics the etiologic factor in case of a negative Wassermann still remains an open question. As the etiology of tabes is an important factor from a therapeutic and sociologic point of view, it is to the credit of the Wassermann test, which materially enhanced our knowledge in this direction and brought us considerably nearer to the truth than we were before the era of serodiagnosis in syphilis.

The results of my work support the old contention of von Leyden, who is against the idea that all tabetics are infected with syphilis, and tend to disprove the teachings of Erb, who believes that they are all of luetic origin. The administration of mercury in any of its forms in the case of an active tabetic should always be preceded by a careful Wassermann reaction and the drug used only when the result is positive.

It came to the notice of Dr. Joseph Fraenkel that some forms of tabes were decidedly harmed by mercury and that the course of the disease was markedly aggravated. I was enabled to follow this experience with the Wassermann reaction and found that in patients with the active form of the disease with a negative reaction mercury did no good and in some cases harm. It has been clinically observed that the Duchenne form of tabes is made decidedly worse by the use of mercury. I may therefore say with justice that if a clinically undoubted active tabes gives a negative Wassermann reaction, it may be taken, in view of what has been said before, as better to abstain from antiluetic treatment. Furthermore, the Wassermann test intelligently used will help us to solve more definitely the differentiation between the real tabes and the genuine general paresis of the old type, from the so-called pseudotabes and pseudoparesis and the so-called mixed forms, placing them all under one category of syphilis of the cerebrospinal system. Applied to therapy, the Wassermann test points out the indication for or against the use of mercury in the exudative types and the advisability of treating degenerative tabes is left to the clinician. As a rule the uselessness of mercury in these cases is conceded and the irreparability of the diseased tissues is accepted.

THE WASSERMANN REACTION AND HG IN TABES

Active Exudative Tabes.—Reaction positive, Hg indicated. Reaction negative, Hg contra-indicated.

Quiescent Degenerative Tabes.—Positive or negative there is very little that Hg can do to restore function.

To come to the conclusion as to the etiology of a case from the therapeutic efficiency of mercury is also erroneous. In the case of tabes we know that improvement

may follow any and no treatment. It is advisable not to form an opinion as to the etiology of a disease from the accepted therapeutic specificity of a drug like mercury.

A patient in the Montefiore Home with all the signs of a brain tumor was treated by Dr. Fraenkel some fifteen years ago. The mercury apparently did some good and the etiology at that time was uncontrovertibly established. After three years of rather good health the patient succumbed to a relapse of the previous condition and at the autopsy showed a sarcoma from the thalamus to the fourth ventricle.

Another case (from the service of Dr. Spiller, to whom I am very thankful for this fact) showed a positive Wassermann reaction from a very competent worker. In this case also the patient was suffering from a brain tumor. The reaction was the occasion of vigorous mercury treatment which did no good whatsoever. After a short time the patient died and the autopsy in this case revealed a gliosarcoma of the brain and on abdominal examination a gumma of the liver. This warns one not to be too much dependent on laboratory reports and never to permit one's clinical acumen to be eclipsed, no matter how trustworthy the laboratory worker. In the above case it may have been of vital importance to have an operation performed if the possibility of a dual cause were recognized; mercury was given the preference as a result of the Wassermann reaction. This experience teaches a lesson: never to allow the Wassermann test to decide for or against an operation.

In general paresis mercury is as useless as in degenerative tabes. The poison that brings about the changes in the nervous system is very often stimulated to increased energy by the administration of mercury. I know of two instances in which the patients were reduced to invalidism, although previous to the use of mercury their vegetable organs were in a perfect condition. Two months after the use of the drug the patients died. In both the reaction was positive. The surprising therapeutic results with mercury in general paresis and the reported cures need closer investigation. There are very few distinctions between some cases of general paresis and some forms of syphilis of the brain and spinal cord. It is not at all too far-fetched to consider these improvements and cures as having been effected on patients suffering from syphilis of the brain and cord. The Wassermann reaction in these cases does not shed any light on the condition although the Munich school claims to be able to differentiate between the two clinical states. The only distinction that Plaut says can be found in the cerebrospinal fluid when a Wassermann test is performed, is that the reaction is always negative in syphilis of the brain and cord, and positive in general paresis.

Among the fifteen cases of pseudohypertrophic muscular dystrophy of various types all reacting negatively, the parents were examined in two instances, also giving a negative result.

It is of interest to note the positive results obtained in scleroderma. The fact that the reaction was positive does not in the least establish the etiology of this skin condition. It is personally known to me that mercury used for a long time in no way influenced the course of the disease.

The large percentage of positive results (75 per cent.) in aortic aneurisms greatly reflects on the cause of this disease. The predilection of involving blood-vessels is

a well-known peculiarity of the syphilitic incitor, and the improvement that follows the timely administration of mercury in some cases tends to confirm the etiology in many instances.

In pulmonary affections the presence of the tubercle bacillus decides the etiology. I examined 280 cases and found the reaction six times positive. Two patients at no time showed the tubercle bacillus, and improved after mercury; two others also showed the presence of the bacillus; of these one improved and one died. An autopsy showed tubercles and a gumma in the lung and endarteritis luetica of the larger blood-vessels, especially the aorta. The cases of gastric subacidity gave a positive outcome in ten serums. These patients showed an increase in acid values after mercury. The positive Wassermann reaction need not introduce the idea that lues was the cause for the subacidity. I wish to thank Dr. W. G. Lyle for pointing out to me these facts, who at the time when these tests were made did not wish to express an opinion as to the significance of the coincidence. In a few cases a history of lues was obtained.

I encountered four cases of arthritis deformans with positive reactions; one of these improved after mercury administration; the course of the other three is unknown to me.

I shall now endeavor to form a conclusion as to the value of a negative Wassermann obtained from a study of the behavior of the test in patients with primary lesions and patients with symptoms bordering on this period.

THE VALUE OF A NEGATIVE WASSERMANN TEST

The table shows the percentage of positive reactions in primary lesions and in cases bordering on this period to be rather large. It is this class of patients that furnishes the greatest number of positive results. A negative outcome in a patient showing a primary lesion, or clinical signs suggestive of the symptoms of the stage bordering on the *ulcus durum* period ought to put the physician on guard as to the true etiology of the symptoms. A negative reaction during this period carries great weight, as the reaction is usually strongest during this period, and with even little technical knowledge usually gives a strong positive result. Comparing the chances of error from a clinical and serologic point of view it seems to me that it is much easier to err clinically than serologically, of course bearing in mind the stage of the disease. I would suggest that in such a case in which the reaction is negative, in view of the above symptoms, whenever the patient's condition permits it the physician should pursue the orthodox method of waiting until more evidence for or against syphilis appears. This is especially recommended in dermatologic practice, bearing in mind at the same time that waiting gives the spirochetes a firmer hold on the patient's constitution. I also believe that it is less harmful to let the patient wait than to subject him at once on meager evidence to the influence of mercury and have him ever afterward carry the odious knowledge of having been treated for syphilis. There are many such patients who years later consult a physician for unimportant ailments and when the possibility of syphilis is inquired into as a matter of routine their experience of the past gives a dominating impression and potassium iodid is prescribed. There are many such cases unjustly stamped luetic. The practice of waiting for corroborative evidence is a useful one because, first, we will not treat an innocent lesion for syphilis, and secondly, we may be able

better to judge the value of Wassermann reactions. The experiences with Wassermann test brought me fourteen such patients. All of these were told to wait. In six cases undoubted signs of syphilis developed; the remaining eight at no time showed any symptoms suggestive of specific disease, in spite of the fact that no specific treatment was carried out. It is therefore my conviction that, whenever under the above circumstances it is possible to wait without placing in jeopardy the patient's health, this delay should be employed.

There is no test at hand to-day, no matter how carefully performed, that will infallibly demonstrate the true state of affairs and especially with such a treacherous disease as syphilis. Since the introduction of the Wassermann test many patients come to the serodiagnostician to ascertain if the disease is out of their system. They admit that long ago they had an eruption or a sore and were placed on mercury. The physician wishes to ascertain the efficiency of his treatment. As a rule most of these patients react negatively; first, because not sufficient time has elapsed since the last administration of mercury, which tends to negative the reaction; secondly if sufficient time did elapse, it may not be at all impossible that the lesion or eruption was not specific. In the absence of any help beside one's clinical training, before the days of the Wassermann reaction, it was very easy to make a mistake. It is gratifying to know that to-day, thanks to the Wassermann test, very few innocent lesions are submitted to antiluetic treatment and restrictions, and only those are obliged to carry the knowledge of having syphilis who were really infected.

SYPHILOPHOBES

There are some patients who take up the physician's time with unfounded fears as to the condition of their blood. Such patients are in great fear of having had remotely a syphilitic infection. A few come with ready-made diagnoses and bring in evidence the statements of a physician who told them they had the disease. If such a patient presents clinically no signs of syphilis, in any of its stages, and if this present opinion issues from a syphilologist, the reassurance to the patient is greatly enhanced when the report of the Wassermann reaction is negative. My point is carried if it is understood so far, that the diagnosis for or against syphilis clinically, and the negative or positive laboratory reports are of decisive significance only when used together.

As to the constancy of the Wassermann reaction in syphilis, the last word has not been said; as far as frequency and sharpness are concerned old leprosy cases present a much more definitely positive reaction than old syphilis. It is worthy of mention at this juncture that the older the leprosy the more marked the reaction, unlike the majority of cases of old lues. What there is in common between lues and leprosy is a speculative subject; the future may find the link that makes both diseases interfere with hemolysis while using the same inhibitory extract.

THE WASSERMANN REACTION AND ANTILUETIC THERAPY

If in a well-treated case of syphilis a previously positive reaction becomes negative, it is permissible to draw a favorable prognosis therefrom. It is certainly gratifying to note the disappearance of the Wassermann reaction, provided the clinical manifestations go hand in hand. A negative Wassermann in a patient presenting clinically vestiges of lues is not to be considered conclu-

sive. It is much more rational and useful to obtain a cure clinically first and to have the laboratory corroborate the cure with a serum reaction. In tertiary syphilis a negative reaction is of no value after treatment, except when the patient's serum is so negative that when added to another positive serum the combined mixture will result in a negative outcome. The test is performed as follows:

Five hundredths of a c.c. of an established positive luetic serum are placed in a test-tube and mixed with 0.2 c.c. of the negative luetic serum to be tested; the mixture is incubated for half an hour and complement added. This is incubated another hour, and cells and amboceptor added. Observations are then taken.

A somewhat analogous method was recently advocated by Braner.¹ The author omits the study of the effects of the mercury serum (serum from patients without syphilis who received mercury injections) from normal individuals on luetic serums, a study to which I refer in a recent article.² The consideration of the Wassermann reaction from the therapeutic standpoint is not exhausted by the few examples cited. It must be borne in mind that some tertiary syphilitic manifestations can never be improved by antiluetic treatment and it must not necessarily follow that a luetic process is at a standstill because of a negative Wassermann reaction. I know of patients with tertiary syphilis in whom a negative reaction could never be obtained, no matter how thoroughly mercury was administered.

EFFICIENCY OF WORKERS

It is not to be denied that the Wassermann reactions reported on by beginners in insufficiently equipped laboratories certainly did some harm; even the best work from laboratories equipped for the sole purpose of performing the reaction loses much of its value when used promiscuously by physicians who look for too much help from such reports. I know of instances in which negative reports decided the etiology of a disease without further clinical investigation. Such confidence is met rarely to-day, as physicians begin to appreciate that even a positive Wassermann reaction does not always spell syphilis.

It becomes the duty of everyone actively engaged in the performance of the reaction to render clear certain shortcomings of the test and to place clearly before the physician who is to use the submitted report, the significance of a positive, a weakly positive and a negative reaction, and to what extent the test can be relied on as a whole. It is needless to emphasize that such advice should hail from matured workers only, who not only know how to perform the test, but whose enthusiasm has cooled as the result of an extensive experience. It is to be granted that the best workers make mistakes; some are pardonable, others not; but when we consider the delicate adjustments of the test, it is no wonder that different serologists report differently on the same serum. The clinicians as a rule, in the case of conflicting evidence, form their own opinion and treat the condition on its merits.

A negative report on a ripe syphilitic serum, however, does reflect on the abilities of the serologist (considering the difficulties of the reaction) as well as positive report on a serum from a healthy person. It is impor-

tant to bear in mind that the value of a negative Wassermann reaction for diagnosis, except in the instances mentioned before, is almost *nil*; it is different when the report is requested to ascertain the therapeutic efficiency of a treatment. The patient's well-being and the time elapsed since the last use of the drug must be noted. There is generally an error committed in sending patients to the laboratory without stating the time elapsed since the last treatment. A negative Wassermann reaction together with a complete absence of subjective and objective symptoms, with treatment as remote as possible (six months or more) is the *ultimum bonum* the clinician desires to attain.

The instructions to such patients are to have them report at stated intervals for a physical examination in order that the least deviation from the normal may be investigated with the help of a Wassermann reaction. Discharged patients should be systematically supervised with the help of the laboratory; the reactions should be kept on record, and the patients giving persistently negative results may be considered as practically cured. Such patients may even be permitted to marry. Some physicians use the Wassermann test for therapy only and depend very little on its help for diagnosis. In many instances the test is performed with the sole intention of reassuring the patient.

READING AND REPORTING RESULTS

It is very sad but nevertheless true that our knowledge of the reaction has not progressed far enough to make all work on these lines uniform in all laboratories. In fact, the same serum if sent to a number of laboratories will result in as many different interpretations. These conflicting reports fundamentally shake the confidence of the clinicians who are to use them.

There is a movement on foot in New York to bring together practical serologists and render their methods for work and standardization more uniform than heretofore. Such endeavor, I believe, will bring about more accurate work and less conflicting results. It may perfect the methods so that the physicians will be able to use it more extensively, especially for therapeutic purposes. It may also change the conception of the syphilitic etiology of some diseases; for instance, locomotor ataxia. For the present, I believe that the only way of rendering useful service to the cause of serodiagnosis is to employ in the case of the Wassermann test the original method plus another modification and to become thoroughly conversant with its peculiarities. To minimize chances of error it is best to perform the reaction twice with each method and to report results after the elimination of every reaction that is not unquestionably positive. I wish to emphasize particularly this manner of coming to conclusions and to disregard any form of reading results and reporting to the doctor in an unintelligible and confusing manner. I am referring to the attempt made by some workers to designate the results of their reactions as 80 per cent. or 90 per cent., etc. Citron had some such arrangements using a certain number of crosses (+ + +) and dashes (+ —) or (+ — —) to impress on physicians the intensity or weakness of his results.

I wish to be placed on record as considering this form of arriving at conclusions quantitatively as absolutely unreliable, for the simple reason that, no matter how uniform the every-day work of a serologist, he will on many occasions report differently on the same serum. Irrespective of this, we are not at all advanced enough

1. Braner: München, med. Wehnschr., 1910, No. 17.

2. Kaplan, D. M.: The Theoretical Consideration of the Wassermann Reaction and Its Practical Application, Jour. Am. Med. Soc., July, 1910.

nor are our methods uniform enough to justify the adoption of such a meaningless scale for recording the results of Wassermann tests. While one will have 80 per cent, another will have 90 per cent, and a third something different again. I believe that the answer "positive" or "negative" for diagnostic purposes is all that our colleagues expect from us and that a confusing report of 80 per cent, positive, especially where a definite answer is expected, will tend only to mislead the physician. When the reaction is performed to ascertain the effect of treatment no patient should be discharged until the serum behaves like a normal serum. The serologists who wish to express their results numerically may be excused in the case of therapeutic tests, as physicians are sufficiently instructed in the majority of instances to know that only the entire disappearance of the reaction from the serum is of value in successful therapy.

The method of forming conclusions is an important qualification of every serologist and no one ought to consider himself thoroughly competent to work with serum unless this degree of perfection is attained. Luckily it is not so dangerous to make a negative report in a syphilitic individual as it is to make a positive report in an innocent patient. I therefore state again that it is proper to perform the reaction twice, using the original Wassermann test and, as I have been in the habit of doing, also a Noguchi test. These tests are best repeated on the following day and anything that is not distinctly positive ought not to be used for diagnosis. No dubious results ought to be reported. It is every time better and by far safer to admit that the result of the Wassermann reaction is inconclusive and that another reaction ought to be performed. In case the reaction is performed for therapy and the serum does not behave like an absolutely normal serum (negative) the patient ought to be treated more and have his serum reexamined after a suitable time has elapsed.

SUMMARY

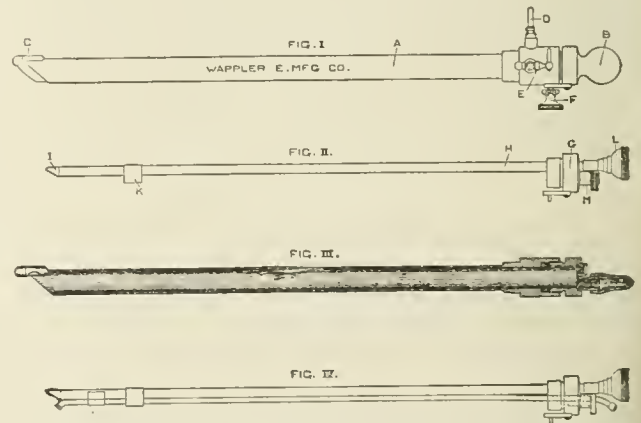
1. When a serum is submitted for diagnosis the laboratory report should read "negative" or "positive." No qualifications as to degree are necessary.
2. For diagnostic and therapeutic purposes the laboratory report should always be collated with clinical findings.
3. Negative reports are of value in therapy.
4. Treatment should be stopped for four to six months after the patient becomes clinically and serologically normal and at the end of this period the test should be repeated.
5. All patients cured of syphilis ought to have for preventive purposes a test performed twice a year.
6. Any reappearance of the reaction even in traces is to be dealt with as under Paragraph 4.
7. Some patients who have had syphilis never lose the positive reaction in spite of any therapy.
8. A negative report obtained on a serum from a suspicious case should defer treatment until the course of the disease decides the etiology, provided there is no danger in delaying treatment.
9. With a positive report one must not lose sight of the possibility of another disease being present besides syphilis.
10. In my experience advanced scleroderma and old leprosy are more positive than old syphilis, quantitatively and qualitatively.
11. In active tabs 88 per cent, and in quiescent tabs 41 per cent, of positive reactions were obtained.

THE COLONOSCOPE

HEINRICH STERN, M.D.
NEW YORK

I have devised an instrument for the inspection of the sigmoid flexure which possesses a number of advantages over other instruments intended for the same purpose. The following description will prove this contention:

Figure 1 represents the sheath with obturator. A is the sheath of $\frac{5}{8}$ inch diameter and 12 inch working length. B is the obturator, C the lamp. The wiring for the lamp is armored in the wall of the tube. The conduit projects neither on the inside nor on the outside of the sheath. The lamp itself is loaded in a capsule with a water-tight screwtop and a glass window. The capsule projects somewhat beyond the distal opening of the sheath, and is of material assistance in pushing aside rectal folds in the vicinity of the mouth of the sigmoid flexure, and may be utilized as a guide. The light arrangement is a novelty in all rectal examining devices. It permits the use of a telescope or optical system to see at right angles, thus enabling one to inspect the first and even the second portions of the flexure. D is an improved electric coupling with on and off switch; this coupling is very reliable. E is a stop-cock, to which may be attached the air-inflating apparatus.



F is a locking and releasing device for the conical fittings of sheath and optical system. Its function is to lock and separate the sheath and its members while the instrument is in position without jarring, and to avoid discomfort to the patient.

Figure 2 is a double optical system; through the long tube one is enabled to see at right angles to the axis of the instrument, and through another eyepiece the portions in front are magnified, which facilitates their minute inspection. G is the cone fitting in sheath. H designates the telescope tube. I is the objective, giving a right sided and upright image. K shows a circular spring-holding tube, with lens system on one side of the tube. L is the eye-piece of the optical system, and M the eye-piece, which is removable and gives a magnified view of the parts straight ahead.

Figure 3 is a longitudinal section of the sheath, with an end for air-tight closing. It has a lens for bringing the object at the distal end of the tube nearer the operator's eye, and a rubber nipple admitting instruments for operation and application while the rectum and flexure are under air distention.

Figure 4 illustrates a lens system, with a tube bent on the far end for guiding and deflecting applicators into the flexure. 250 West Seventy-Third Street.

Military Versus Medical Heroes.—It is a curious commentary on our civilization of to day that we litter every public place with granite tributes to brigadiers, while the families of these men [Reed, Carroll, Lazear and others] beat at the doors of Congress for adequate support and the crowd passes thoughtlessly by their graves.—Martin Cooley, *Jour. Outdoor Life*, October

EXOPHTHALMOS IN BRAIN TUMOR

WITH REPORT OF EIGHT CASES *

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PHILADELPHIA

Little emphasis has been placed on the occurrence of exophthalmos in brain tumor if the literature on this subject is taken into consideration, and yet in the clinical description of such cases it is not infrequently mentioned. My attention was particularly directed to this subject by a number of cases of brain tumor in which exophthalmos was a prominent symptom, and in a cursory examination of the histories of patients with brain tumor which I have observed during the last five years, protrusion of the eyeballs was present either unilaterally or bilaterally in ten, five with necropsy. Of these, eight are here reported.

With the exception of isolated instances, the only extensive papers on the subject are by G. Flatau,¹ and, to a less extent, by Rosenblath,² who together collected twenty-four cases of tumor accompanied by exophthalmos. The neoplasms were located in practically every part of the cranial cavity: Six were in the frontal lobe, two in the hypophysis, one in the pineal gland, one a basal tumor involving the pons, medulla and cerebellum, two in the cerebello-pontile angle, one in the pons, two in the cerebellum, two in the temporal lobe, one in the right lateral ventricle, and six were instances of internal hydrocephalus.

The nature of the growths varied, consisting of glioma, sarcoma, neuroma, endothelioma, psammoma, and echinococcus, and it is evident from this that the character of the tumor probably had no direct bearing on the occurrence of exophthalmos any more than that certain forms of tumor may give metastasis.

In some of these cases the orbits were examined, and in others the nature of the growths was such as to preclude the opinion that there was metastasis to the orbital cavity. Exophthalmic goiter was excluded in all.

The exophthalmos was bilateral in all the cases of internal hydrocephalus and in those tumors in which the lesion involved both sides of the brain, with the exception of one basal tumor. In the unilateral growths the ocular protrusion was one-sided. In all the protrusion was on the side of the lesion, with the exception of one cerebello-pontile tumor.

With the exception of the above no attempt is made to quote the cases from the literature. Of my personal cases only a brief abstract of the histories is given.

REPORT OF CASES

CASE 1.—*Gliomatous tumor of lateral and third ventricle compressing and implicating one optic thalamus with bilateral exophthalmos.*—Previously reported.³ The patient was Miss M—n, a girl about 20, who presented, as one of the early symptoms, a tendency to write in a perpendicular direction instead of horizontally, this being followed by gradual loss of vision. Examination showed a marked bilateral choked disk. The symptoms of intracranial pressure were very prominent. When she was examined by me, she had bulging of both eyeballs, with ptosis and deviation of the eyes in a downward direction, paralysis of associated ocular movement, and of convergence upward, less to the right and left, and least down-

wards. At necropsy there was found a tumor of the left lateral ventricle, which grew into the third through the foramen of Monro, and compressed the optic thalamus. All the symptoms which she presented were readily explained with the exception of the exophthalmos.

The tumor was a vascular glioma. In the process of its growth from the lateral to the third ventricle it compressed the choroid plexus, the velum interpositum and the veins of Galen, and it is probable that it caused a stasis in the cavernous sinus, although unfortunately no orbital examination was made. She had, however, a congestion of the veins in the eyelid, with edema and great pulsation of the vessels of the neck (Fig. 1).

CASE 2.—*Tumor of the third ventricle, compressing both optic thalami with mild exophthalmos.*—The patient, Miss C—s, was a girl of 17, who had marked pressure symptoms of brain tumor with choked disk of 5 diopters. She had besides weakness of both external recti, paralysis of associated ocular movement upwards, with loss of convergence in the same direction, and a drunken, ataxic gait, with incoordination of the limbs. At necropsy an extensive gliomatous tumor was found in the third ventricle, compressing both optic thalami and extending downward and bisecting the cerebral peduncles. In this case the orbit was not examined, but there was no reason to suspect metastasis.

CASE 3.—*Clinically diagnosed as tumor of the third ventricle with unilateral exophthalmos.*—The history of this patient (Miss M—z) is very similar to that of Patient 2, but unfortunately no necropsy was permitted. It was that of a girl of 27, who had choked disk of 6 diopters in the right eye and 4 in the left, with marked headache, nausea, vomiting, vertigo, temporary attacks of loss of vision, and a moderate prominence of the right eye. Examination demonstrated weakness of associated ocular movement and of convergence upwards, and irregular nystagmus when attempting to look in the same direction; distinct cerebellar gait and incoordination, more marked on the left. The symptoms were indicative of a possible tumor in the third ventricle, as they resembled very much the case cited above. It is noticeable that the exophthalmos was on the side of the greater swelling of the optic nerve.

CASE 4.—*Clinically diagnosed as tumor in the third ventricle. Bilateral exophthalmos.*—The patient, R—n, a boy of 12, had cerebrospinal purulent meningitis (?) from which he recovered. Two months afterward he began to have headache, dizziness, nausea, vomiting, dimness of vision, weakness, and a staggering gait. Examination showed paralysis of associated ocular movement upward and some impairment to the left, with disturbance of convergence in the same directions, weakness in the right face, arm and leg with Babinski reflex, and protrusion of both eyeballs, which was equally marked on both sides, and marked choked disk. Unfortunately no necropsy was obtained.

CASE 5.—*Clinically diagnosed as glioma of the pons and peduncle. Bilateral exophthalmos.*—The patient C—y was a boy of 14, who began with headache, nausea, vomiting, diplopia and difficulty in walking, which brought him to the Will's Eye Hospital, where it was found that he had a bilateral marked choked disk of 6 diopters. Examination demonstrated bulging of both eyeballs, more of the right, with paralysis of associated ocular movement and of convergence upward and to the left, which later also involved associated movements to the right. Besides, there was a distinct cerebellar gait, with weakness of the right arm and leg and peripheral weakness of the left seventh nerve. The symptoms were indicative of a gliomatous tumor in the upper part of the pons and peduncle, principally on the left side. It was noticeable that the exophthalmos was greater on the right, although the symptoms were indicative of a greater tumor on the left.

CASE 6.—*Glioma involving the posterior part of the medulla, pons and cerebral peduncle. Unilateral exophthalmos.*—This case has already been reported.⁴ The patient, R—y, was 14

* Read before the Section on Ophthalmology, College of Physicians, April, 1910.

1. Flatau, G.: Deutsch. Arch. f. klin. Med., 1903, lxxvii, 433.

2. Rosenblath: Deutsch. Ztschr. f. Nervenhe., 1906, xxi, 335.

3. Weisenburg, T. H., and Gullfoyle, W. F.: Rev. Neurol. and Psychiat., June, 1910, p. 325.

4. Weisenburg, T. H.: Extensive Gliomatous Tumor Involving the Cerebellum and the Posterior Portions of the Medulla, Pons and Cerebral Peduncle and the Posterior Limb of One Internal Capsule. THE JOURNAL A. M. A., Dec. 18, 1909, p. 2086.

years of age, and gradually developed general pressure and local symptoms of a right cerebellar tumor, with a choked disk of about 3 diopters. He was operated on over the right cerebellar area, but nothing was found. While before the operation there was only a partial weakness of the right third and of the sixth, some diminution of hearing in both ears and a little difficulty in articulation, after it there gradually developed a protrusion of the right eyeball and increased weakness in the distribution of the right third, and later paralysis of the right motor and sensory fifth, seventh and twelfth. Besides there was difficulty in articulation and swallowing. At necropsy, an extensive gliomatous tumor was found which involved practically all portions of the cerebellum, but especially the vermis in its inferior part and the left lateral lobe. It also extended diffusely into all the cerebellar peduncles, the posterior portions of the medulla almost as low down as the decussation, the posterior part of the pons and cerebral peduncles, and extended into the posterior portion of the left optic thalamus and internal capsule.

In this case the exophthalmos was unilateral, and on the side on which the cerebellar exploration was performed, and developed after the operation. It is to be noted that the symptoms of cranial nerve and cerebellar involvement gradually developed and became much more marked after the operation and coincidentally with the exophthalmos, and were explained by the growth of the tumor. There was no metastasis to the orbit.

CASE 7.—Basal tumor in posterior cranial fossa. Bilateral exophthalmos.—The patient, Miss M—s, was a young woman of 20, whom I first saw in the Will's Eye Hospital and subsequently transferred to my wards in the Philadelphia General Hospital. She had all the pressure-symptoms of brain tumor, with marked choked disk, cerebellar gait, incoordination, central weakness of the right seventh, motor fifth and tongue, weakness of all the limbs, possibly more of the right, with increased reflexes. Very early she developed exophthalmos, more marked on the left, and there was besides immobility of the left eyeball with ptosis, the only movement possible being a slight movement downward and inward. The right eye could be moved downward, but not well in an upward direction. The patient died in the service of Dr. Spiller,⁵ who found a very large tumor in the posterior cranial fossa. The occipital lobes had been pushed apart and the cerebellum displaced almost to a right angle with the brain stem.

CASE 8.—Sarcoma, compressing the temporal lobe, optic chiasm and posterior orbital bones. Unilateral exophthalmos.—This patient, Mrs. S—a, whose case was reported a year ago by Dr. de Schweinitz before the Section on Ophthalmology, was a woman of 63, who, in 1900, injured the right orbit, but not very severely. Eight months afterward she began to have a bulging of the right eye, which from then on progressed. Dr. Wendell Reber studied her for a long time, and he states that there were never present ocular palsies. She had optic atrophy. The accessory sinuses were always normal. X-ray examination was negative. Eight years after the beginning of the exophthalmos, she was admitted to my wards in the Philadelphia Hospital, having then general epileptic convulsions, which were followed by temporary left hemiplegia. She never had any general symptoms of brain tumor. She died eight years after the beginning of the exophthalmos (Fig. 2).

At necropsy a tumor, a sarcoma, was found resting in the middle cranial fossa, it being about the size of a small orange. It compressed the orbital bones, the orbital surface of the temporal, the posterior part of the orbital surface of the frontal and the extreme anterior part of the cerebellar lobe. It also deviated and pressed on the optic chiasm, displacing it slightly to the opposite side, and also pressed on the foot of the cerebral peduncle (Fig. 3).

Dr. de Schweinitz, who was present at the autopsy, does not believe that the exophthalmos was the result of pressure on the cavernous sinus, although he cannot prove that it was not the result of this. He carefully dissected the specimen and

there was no direct pressure on the sinns, nor was there on any of the nerves passing into the orbit. He says, however, that it is perfectly possible that the exophthalmos might have had such an origin. There was, he further states, a rather hard edema of the posterior tissues of the orbit.

In view of the autopsy, I do not know that it is possible to explain the exophthalmos in any other way than from a purely local cause, and the only local cause that can be given is pressure on the cavernous sinns, which possibility Dr. de Schweinitz himself admits. In support of this, the second, third, fourth and sixth nerves on this side were found diseased, this being especially true of the second, showing that pressure was exerted on it. Besides, the optic chiasm was compressed and deviated to the other side and the foot of the cerebral peduncle was distorted.

REMARKS

In a summary of my cases it is noticeable that in four, Cases 1, 2, 3 and 4, the diagnosis was tumor in the third ventricle, and in two, Cases 5 and 6, a glioma which involved both the pons and peduncle. In Case 7 the growth was in the posterior cranial fossa and was of such size that it compressed the occipital lobes, and twisted the cerebellum on its axis. In Case 8 there was a sarcoma in the anterior portion of the middle fossa which directly pressed on the orbit and the exophthalmos was undoubtedly the result of pressure on the cavernous sinus.

In all, the intracranial pressure was extreme, as indicated by the prominence of the headache, nausea, vomiting, vertigo and especially the choked disk. It is evident also that in the first six there was interference with the flow of the cerebrospinal fluid, inasmuch as there was either direct involvement of the third ventricle or pressure on the aqueduct of Sylvius.

The exophthalmos was bilateral in five and unilateral in three. In those in which it was unilateral either the lesion or the intracranial pressure was greater on the same side. In one, Case 3, there was supposedly a tumor in the third ventricle and the exophthalmos was present on the side of the greater swelling of the optic nerve. It is possible that protrusion of the left eyeball might have developed later. In the second, Case 6, the exophthalmos developed, after the exploratory operation, on the same side, and coincidentally with the development of other cranial symptoms. In the last, Case 8, the exophthalmos was the result of pressure of the tumor directly on the cavernous sinus.

In those in which the exophthalmos was bilateral the lesion was also bilateral and with the exception of one, Case 5, there was a greater prominence of the eyeball on the side of the greater involvement. The grade of the exophthalmos varied, it being marked in some and mild in others. In all it was progressive and came on early.

These observations agree with the collected cases quoted.

The conclusion, then, which can be drawn from the above is that exophthalmos occurs in brain tumor and especially in those cases in which there is great intracranial pressure and interference with the flow of the cerebrospinal fluid.

The question naturally arises how these factors produce exophthalmos. It is well known, especially through the physiologic studies of Leonard Hill, that the earliest manifestation of increase in intracranial pressure is engorgement of the venous circulation, this producing the familiar dilatation and tortuosity of the retinal vessels. There are, however, as has been mentioned by Cushing,⁶ other external evidences equally characteristic,

5. Spiller, William G.: A Further Contribution to Palliative Operations for Brain Tumor, *THE JOURNAL A. M. A.*, Jan. 23, 1909, p. 277.

6. Osler's Modern Medicine, VIII, 431.

although less often commented on, which consist in dilatation of the vessels of the scalp and particularly the smaller venules of the eyelids.

If in addition to the above there is exerted pressure on the cavernous sinus, thrombosis of which is the common cause of exophthalmos, the explanation is not at all difficult. Such was the fact in my cases, for in all there was direct pressure on the cavernous sinus. In the first four the tumor was in the third ventricle and pressure must have been exerted on the optic chiasm and basal



Fig. 1.—Exophthalmos in tumor of the third ventricle. Case 1.



Fig. 2.—Unilateral exophthalmos from tumor in the middle fossa. Case 8.

sinuses, while in Cases 5 and 6 there was obstruction of the cerebrospinal fluid in the aqueduct of Sylvius, this undoubtedly causing dilatation of the third ventricle. In the last two there was direct pressure on the sinus by the tumor.

Flatcan advanced a very plausible theory for the occurrence of exophthalmos in those cases in which there is no direct pressure on the cavernous sinus. According

to him the blood of the orbit under normal conditions is not depleted by the facial vein but by the cavernous sinus, and the outflow can be interrupted either directly by pressure on the ophthalmic vein or indirectly from a distant sinus; and tumors, for example, of the posterior cranial fossa can so obstruct the outflow of the blood in their own sinns that a portion must flow out by means of the cavernous sinus. Therefore, the back flow of the blood through the eye will be made so difficult that there will result a stasis in the orbit, this producing exophthalmos.

It is noteworthy, however, that in the material at my disposal, which consisted of the records of about 75 cases of brain tumor, exophthalmos occurred only in the cases mentioned and was readily explained by direct pressure on the cavernous sinus.

CONCLUSIONS

The conclusions which can be drawn from the study of this subject are:

1. Exophthalmos accompanies brain tumor more frequently than is generally supposed.



Fig. 3.—Tumor in middle fossa, producing unilateral exophthalmos in patient whose photograph is shown in Fig. 2.

2. It occurs only in those cases in which there is great intracranial pressure, especially when there is in addition direct interference with the normal flow of the cerebrospinal fluid.

3. Exophthalmos is produced by direct pressure on the cavernous sinus.

4. Its presence is of some clinical value inasmuch as unilateral exophthalmos is nearly always indicative of an intracranial lesion on the same side.

5. In those cases in which the protrusion is bilateral there is nearly always a greater exophthalmos on the side of the greater intracranial pressure or lesion.

2030 Chestnut Street.

Diagnosis of Extragenital Chancres.—The main point in the diagnosis of extragenital chancres is to remember that they may occur on any part of the body; if they are not thought of they will escape diagnosis. The old adage is here reversed—it is a case of out of mind, out of sight.—C. F. Marshall, in the *Practitioner*.

BRAIN TUMOR OF PSYCHOMOTOR AREA

CAUSING JACKSONIAN AND GENERALIZED CONVULSIONS,
VISUAL HALLUCINATIONS, SOMATIC DELUSIONS,
ASTEREAGNOSIS AND HEMIPLEGIC PARALY-
SIS. OPERATION. RECOVERY, MENTAL
AND PHYSICAL *

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NEUROLOGIC REPORT BY DR. LANGDON

The case here reported presents no unusual features pertaining to the growth itself, its localization, the operative procedures or the recovery therefrom. In fact, it may fairly be classed as commonplace in those respects. It had been considered worthy of record, however, by reason of its peculiar symptom-complex, combining marked psychic as well as somatic disturbances; the practical absence of those important "general" symptoms; headache, vomiting, vertigo and papilledema; and the small amount of functional defect remaining at this date (March 16, 1910) four months after operation.

History.—Nov. 5, 1909, Dr. R. B. Hannah,² of Georgetown, Ohio, asked me to see a woman who had been developing some mental symptoms for a few weeks. It was also stated that preceding these evidences of insanity there had been some convulsive attacks, local and general. The development of the abnormal mental state, however, appeared to be the determining factor in seeking a consultation. Dr. Hannah had been in charge of the case a short time only, and at once recognized the probability of physical disease as a foundation for the nervous and mental manifestations.

The patient was a farmer's daughter, aged 39, single, intelligent and capable up to two years previous to my visit. She had for some years performed important clerical duties as a railway agent and telephone operator at a local station. The family history and surroundings were excellent and prosperous. There was a history of a blow with a croquet mallet on the left parietal region in childhood. There were no sequelæ of importance following this injury; the patient was not unconscious and not confined to the house on account of it. There was no scar at the alleged site of the blow. Two years previous to this examination there had been a "jerking" of the right hand and arm, followed in a few moments by "unconsciousness." These attacks had been repeated about twenty times in the two years just past. Following them was a progressively increasing weakness of the right hand. Two weeks previous to this examination the patient had visual hallucinations and some delusions that surgical operations had been made on her eyes and right leg.

First Examination.—This was made at the home of the patient Nov. 5, 1909. The patient was in bed. Consciousness was somewhat eluded, but the patient carried on ordinary conversation fairly well. She appeared mildly elated, or perhaps a state of euphoria would better describe the emotional state. Asked if she sees anything unusual, she answered "Yes; holes in the ceiling and walls; small ones; many of them." There was no defect in ceiling, nor was it papered. There was nothing to be mistaken for holes; in other words, this was a true hallucination, not an illusion. While the pupillary reactions were being looked for, she volunteered the

information that her "eyes had been operated on recently" (probably the ophthalmoscopic examination made a few days previously). Asked if anything else had been done, she replied: "Yes, my right leg was cut off recently." This was stated in quite a matter-of-fact manner, without any evidence of regret or emotion. The patient conversed rationally on many ordinary topics, but on being questioned as to any speech defect, she said she "loses a word occasionally." Speech tests showed reception and understanding good for ordinary words. Test-words and sentences were repeated correctly and without defect of articulation. Internal speech appeared good; she could describe objects, letters, words, etc., and tell their meanings. With the practically powerless right hand she could tell the shape of objects, but could not name them (astereognosis). Owing to weakness in this hand, she could not grasp a pencil.

Cranial Nerves: I, not tested; II, ordinary vision, good; no fundus changes reported by Dr. H. P. Shelton, who kindly examined the eyes a few days before my visit; III, IV, VI, no ocular palsies; pupils reacted well to light and accommodation; V, no defects noted; VII, slight weakness in lower right face group; VIII, hearing good to ordinary tests (voice and watch); IX, X, XI, no defects noted; XII, tongue movements good; no trophic changes.

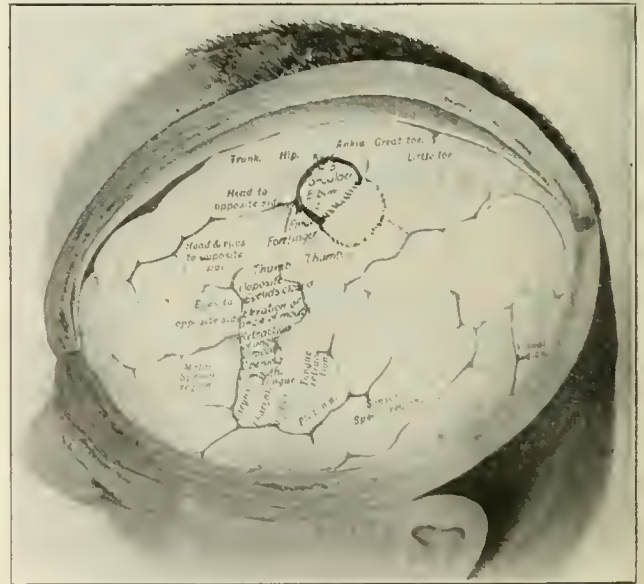


Fig. 1.—Location of brain tumor.

Trunk and Extremities; Motion: Right hand and entire arm useless, relaxed; could bend elbow and wrist and close fingers, but had no grasp; patient could not hold pencil; right leg also weak; could move joints, but could not walk; power in left arm, hand, leg and foot appeared good.

Sensation: No anesthesia to ordinary touch and pin-prick; no differences noted between the two sides of body and limbs.

Reflexes: Organic—Not defective. Tendinous—Knee-jerks diminished, but distinctly present. No difference in the two sides. No spasticity. Cutaneous—Plantar—no response, or occasionally a flexor response; no difference in the two sides.

Trophic symptoms absent; vasomotor symptoms absent.

Diagnosis.—Irritative lesion of the left psychomotor area, probably tumor; possibly a cyst or abscess.

Removal to hospital for further observation and probable operation was advised and the patient was taken to Cincinnati on Nov. 9, 1910.

Second Examination.—Nov. 10, 1910, Ophthalmoscopic examination by Drs. Robert Sattler and Victor Ray revealed no changes in the fundus. Blood examination by Dr. W. E. Schenck, on the same day, showed reds, 4,460,000; whites, 3,600; hemoglobin, 65 per cent.; color index, 0.74.

Differential count: Polymorphonuclear, 81; mononuclear (small) 10, large 5; eosinophils, 4; total, 100.

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-First Annual Session, held at St. Louis, June, 1910.

1. Acknowledgments are due and hereby tendered to Dr. Hannah for kindly contributing his personal notes and observations of the patient.

Diagnosis.—Secondary anemia.

Uranalysis (by Dr. H. L. Woodward): Color, amber; reaction, acid. Albumin, trace (probably due to fecal contamination; disappeared later).

OPERATION REPORT BY DR. KRAMER

First Operation.—Nov. 13, 1909, under ether anesthesia, an opening was made in the skull over the upper half of the left Rolandic area, two inches in diameter. There was no bulging of the dura and no pulsation visible. In the center of the operative field the dura was flattened and darker in appearance. Palpation revealed the presence of a circumscribed mass, harder in consistence than the surrounding cortex. The patient was not very strong before the operation and, as a result of the cranial resection there developed considerable shock. For this reason, the scalp was sutured and the removal of the tumor was delayed for a second operation, after the method of Sir Victor Horsley. After an interval of ten days the patient improved markedly in strength and on Nov. 23, 1909, the second operation was done.

Second Operation.—On opening the dura, we found a tumor imbedded in the brain, adherent to the pia mater, involving

was no "jerking" in the face, arm or leg. On the eighth day patient could move the paralyzed (right) leg, but could not stand alone. She could move the fingers of right hand, but had no use of it for any purpose. She was removed to her home (forty miles) on a traction car at this time. After arrival home she sat up daily in her chair. Dec. 20, 1909, twenty-seven days after final operation, she took a few steps, with assistance. Jan. 1, 1910, she walked alone across the room.

April 7, 1910, 4½ months after operation, she traveled forty miles on a traction car and called at my office for reexamination, when the following notes were made:

Height, 5 feet 1½ inches; weight, 96 pounds; no mental defect; no speech defect.

Motion: No "Jacksonian attacks," convulsions or unconscious attacks since the operation. Walks well; no defect of gait or station.

Power: Can close right hand, but cannot "register" on dynamometer (standard). Grasp in left hand registers 20 K. Moves right upper extremity freely at all joints, but has little use of hand; cannot oppose the thumb and fingers or make a "fist."

Some "silver-fork aspect" of right hand and wrist. The right shoulder droops slightly. The left sternomastoid muscle is weak, but competent in turning head.

Sensation: Good for tact, pain, heat and cold, everywhere in both hands and arms. Astereognosis *complete* of right hand, front and back, extending half way up forearm. Patient cannot recognize any difference between a pocket knife, finger, coin or wisp of cotton with hand. Half way up forearm on flexor surface she recognizes a silver half dollar as "hard and flat." Some sensory defect in sole of right foot, where cotton and a finger touch feel "the same," but recognizes a touch with a "stick" (toothpick). "Tickle sense" good in both feet.

Reflexes: Organic—No impairment. Tendinous—Knee-jerks slightly plus and equal. Ankle-clonus absent on both sides. Cutaneous—Plantar reflexes, flexor; the right less marked than the left. Oppenheim reflex absent.

Patient goes about the house and grounds daily and attends to personal needs so far as the defective right hand permits. She feels that she is gaining steadily and is cheerful and hopeful generally.

5 Garfield Place—4 West Seventh Street.

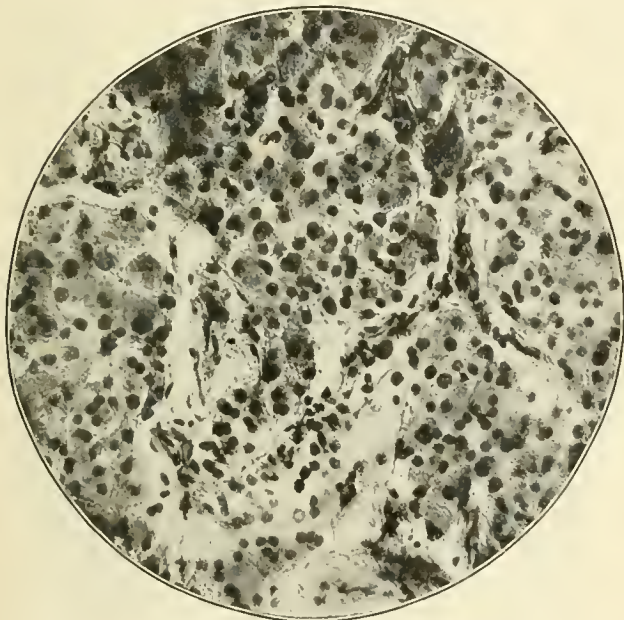


Fig. 2.—Photomicrograph of section of tumor (endothelioma).

THREE CASES OF TUMOR IN THE CEREBELLO-PONTILE ANGLE *

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CHICAGO

Since the subject of tumor of the brain has ceased to have a mere academic interest, and has become the coveted point of attack of every progressive surgeon, reports of well-observed cases have become regular topics for discussion in neurologic and surgical gatherings. From the point of view of successful removal, next to neoplasms situated in the Rolandic area, tumors growing in the angle between cerebellum and pons offer the greatest possibilities for success, and this for two reasons: First, thanks to the labors of modern physiologists and clinicians, the localization of tumors in this region has become comparatively easy; second, the surgical technic has reached a high degree of perfection.

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

principally the precentral convolution and the Rolandic fissure (Fig. 1).

The tumor was easily lifted from its bed in the brain, after severing a few slight adhesions to the pia mater. Hemorrhage was insignificant and there was but little shock. At the time of the second operation the brain pulsated very plainly as the result of the previous decompression. The tumor occupied the middle third of the left precentral convolution, growing downward and diagonally backward across the Rolandic fissure and displacing, but not invading, the postcentral convolution. The long axis of the tumor (55 mm.) ran across the Rolandic fissure, downward and backward.

Examination of Tumor.—The tumor was encapsulated, firm and resistant on palpation, presenting numerous small protrusions and cysts on its buried surface. It was not adherent to the dura mater. The tumor weighed 26 gm. and on section proved to be an endothelioma springing from the pia mater (Fig. 2).

The recovery from the surgical procedure was uneventful and the patient returned to her home eight days after the second operation.

Postoperative Notes (L).—Patient put to bed in good condition, conscious; improvement was steady. The hallucinations and delusions had disappeared on the second day. There

When, therefore, a diagnosis can be made early and a skilled surgeon is at hand, a perfect result should be obtained in those cases in which the tumor is at all removable. Nevertheless there will always remain a large number in which removal is impossible, either because the tumor is too large, or because it belongs to the infiltrating variety.

Being of the opinion that our failures are sometimes more interesting than our successes, and also that statistics which exclude unsuccessful cases are fallacious, I am reporting three cases of tumor in the cerebello-pontile angle in which the diagnosis was correct, but which were nevertheless failures, if by success we mean with Charles K. Mills not only exact localization, but also the successful removal of a tumor, and at least partial success as regards removal of the disease.

As the entire subject of cerebellar and cerebello-pontile angle tumors has been ably reviewed by Mills, Frazier, Weisenburg and Frenkel,¹ also by Harvey Cushing,² and quite recently by Risien Russell,³ I refer the reader to these authors for a complete account of the varied symptomatology of these neoplasms.

The interest in my report being centered in the cases themselves, I shall follow each case with some general remarks:

CASE 1.—Patient.—A. B., aged 24, single, clerk, with negative family and personal history, was first seen by me Dec. 28, 1905. His brother, a physician, who accompanied him, stated that, though physically always in good health, the patient has been considered nervous since childhood. At an early age he had suffered from night-terrors and even at the time of examination he regularly appeared dazed and confused on awaking in the morning. He was a moderate drinker and smoker and had never acquired syphilis.

Present Illness.—In August, 1905, the patient felt a weakness in the left leg and somewhat later in the left arm; the face was not involved. In the following September he began to suffer from occasional headaches of moderate severity, which were always diurnal, aggravated by physical exercise and localized in the frontal region and the nape of the neck. At about the same time transient attacks of dizziness appeared whenever he rose suddenly from the recumbent posture. Soon thereafter vision began to fail; the eyes were blurred and attacks of blindness occurred, which, on passing off, left black spots in his visual fields. Accompanying the disturbances of sight were attacks of dizziness, but never nausea or vomiting. Of irritative motor phenomena the patient described peculiar jerking and twitchings of the chest muscles, especially marked during excitement. During the month preceding this examination he had been almost constantly tired; the slightest exertion brought on extreme fatigue and sleep was not refreshing; vision had been failing rapidly and the gait showed some staggering to the left. While these symptoms were developing two ophthalmologists were consulted. Each discovered a papilledema and suggested neurologic treatment. The next physician in attendance pronounced the case a functional neurosis. The brother, not satisfied with the diagnosis, brought the patient to my office Dec. 28, 1905, about a month after the previous consultations.

Examination.—This revealed a well-nourished young man of average weight and height, whose viscera were normal, pulse regular and 72 beats per minute. Paralysis of any kind was not apparent. Though the left half of the face seemed somewhat relaxed while at rest, yet when the patient was speaking and performing the usual motor tests nothing abnormal could be detected. The left hand-grasp was somewhat weaker than the right and the left leg showed a slight degree of weakness when made to move against resistance. The gait was somewhat uncertain and slightly ataxic, with a tendency to reel more often to the left than to the right.

Cranial Nerves: The olfactory nerves were not involved. The optic nerves showed choked disk and beginning atrophy, in consequence of which vision was markedly reduced. The pupils responded somewhat sluggishly both to light and in accommodation. Nystagmoid jerking appeared when the eyes were directed in extreme lateral positions. The third, fourth and sixth nerves were not involved. When first examined patient made no complaint of paresthesia in the region of the left trigeminal, nor was anything found objectively. Two months later, however, corneal areflexia was distinct and analgesia pronounced in the same region. With the exception of a slight degree of relaxation the left seventh nerve appeared normal. A systematic examination disclosed the existence of nerve-deafness unknown to the patient and limited to the left side. The cranial nerves from the ninth to the twelfth, inclusive, were not in the least affected.

Reflexes: All the superficial reflexes were present and of about normal intensity. The deep reflexes in upper and lower extremities were markedly exaggerated, more so on the left side; ankle clonus, Babinski, Oppenheim, or Gordon signs were not obtainable.

Coordination: Slight static and dynamic ataxia was present in the lower extremities. When each leg was tested separately the greater degree of incoordination was found in the left. The finger-to-nose test showed marked tremor in the left hand—more of an ataxic than an intention tremor. Cerebellar asynergy in trunk and lower extremities was absent, likewise Babinski's adiokokinesia sign.

Diagnosis and Treatment.—My diagnosis was tumor in the left cerebello-pontile angle. Immediate operation was recommended with the expectation of saving what was left of patient's vision. The brother having charge of the case successively engaged three surgeons, who performed a number of operations within a period of about two months. The first surgeon trephined over the left cerebellum; but, on discovering the presence of pulsation and no tumor, he replaced the bone and closed the wound. One week later the same surgeon attempted a ventricular tapping, but found no fluid. About two weeks later another surgeon was consulted, who also trephined over the left cerebellum. After an unsuccessful search in the region of the left angle he concluded the operation by decompressing the right subtemporal area. Meanwhile the patient had become completely blind. This circumstance caused me to discourage further operative undertakings. Nevertheless, a third surgeon was found who reluctantly yielded to the brother's request to make a new hunt for the elusive tumor. Again the left cerebellum was uncovered and the left cerebello-pontile angle explored. The operation was a bloody one and lasted several hours. In spite of a profuse hemorrhage, which dictated a discontinuance of the operation, the surgeon was urged on to continue at any cost. At last his persistence was rewarded by finding a neurofibroma, which he thought probably originated in the sheath of the left acoustic nerve. Because of the patient's precarious condition it was possible only to remove a part of the tumor, namely, a piece the size of a cherry. The surgeon concluded the operation by making subtentorial decompression over the left cerebellum.

Subsequent History.—Recovery from the operation was uneventful and the patient became free from headache and dizziness, but the tumor symptoms were even more numerous and more pronounced. To mention them only, there were: adiokokinesia, reeling gait, left-sided motor weakness, optic atrophy, left corneal areflexia, complete paralysis of the sensory trigeminal and left-sided deafness. The patient's condition remained practically the same until the middle of September, 1909, when severe headaches made their appearance. These resisted all forms of medication, and surgical treatment was again considered. Dr. Allen B. Kanavel, with whom consultation was had, favored a cautiously performed lumbar puncture rather than a ventricular tapping, being fully aware that such procedure has been condemned in tumors of the posterior fossa. A small quantity of spinal fluid was removed, but this sufficed to give immediate relief from headache; the patient was again able to be about as before. Unfortunately this remission was of but short duration, for the end came unexpectedly on Dec. 2, 1909. While the patient was conversing over the telephone he

1. New York Med. Jour., Feb. 11, 18, and 25, 1905.

2. Cushing, Harvey: Boston Med. and Surg. Jour., clxi, No. 31, p. 71; Interstate Med. Jour., September, 1909.

3. Russell, Risien: Brit. Med. Jour., Feb. 19 and 26, and March 5, 1910.

had a peculiar seizure, in which he fell backward, striking the ground with his head and becoming unconscious. Coma supervened and he died within two hours after the fall.

Post-mortem Examination.—Owing to delay in obtaining permission, the brain could not be examined until eighteen hours after death, which, of course, was fatal to the application of the finer neuroglia stains. Macroscopically the brain presented two hernial protrusions: one situated over the right subtemporal region, probably the result of a decompression operation; the other hernia was seen over the left cerebellum, the site of several operations. In my attempt to remove the brain from the cranial cavity I ruptured a cyst containing about six ounces of fluid blood, evidently a recent hemorrhage. The cyst-wall was adherent to the petrous portion of the left temporal bone and constituted a part of the hernial protrusion over the left cerebellum. After hardening the brain in formaldehyd solution neurologic frontal sections were made. With the exception of bilateral internal hydrocephalus, more marked on the right side, nothing pathologic was discovered in the cerebrum. The hydrocephalus was probably the result of obliteration of the foramen of Magendie and of the foramina of

Pathologic Diagnosis.—Because of the presence of areas resembling sarcoma, and of others corresponding to the appearances of glioma, the diagnosis presented difficulties. There are those who call such tumors gliosarcomata, while others think that this term is merely a cloak for our ignorance. It cannot be denied that rarely both epiplastic and mesoblastic formations may occur in the same tumor, but I incline to the view that most of those reported as gliosarcomata have been either gliomata or sarcomata. It is generally believed that glioma in its varied metamorphosis is capable of producing pictures like sarcoma. The preponderating appearance of my specimen was like that found in glioma; besides, the growth did not overstep physiologic and anatomical boundaries. My diagnosis was glioma cerebelli. In the discussion which ensued on my presentation of the brain with microscopic sections in the joint meeting of the Chicago Pathological and the Chicago Neurological Society, this diagnosis received substantial support.

COMMENT

It is interesting to note that in this, as in many another neurologic case, the ophthalmologists were the first to call attention to the brain as the probable seat of the lesion in a supposed affection of the eye; further, that neurasthenic symptoms had at one period so overtopped the underlying basic trouble that an experienced physician had made the diagnosis of neurasthenia four weeks prior to my seeing the patient, at a time when tumor symptoms must have been present. Another point worth noting is the unusual beginning of the trouble with weakness in the left leg and arm, a weakness which corresponded to the asthenia of Luciani, and was not the result of a motor paralysis, there having been neither disability nor spasticity and pathologic reflexes. The case began, then, with asthenia confined to the left side, without any known cranial nerve disturbances—unless nerve-deafness had existed for some time, of which the patient had no knowledge. Then followed headache, dizziness, and visual disturbances, all general symptoms of brain tumor. Later still came cerebellar incoordination and only after several operations had been performed was trigeminus anesthesia noted.

A retrospect of the surgery in this case brings out the following important points:

1. The presence of pulsation does not necessarily mean an absence of tumor underneath.

2. Once a tumor patient has become blind and his other symptoms, such as severe headache, vomiting and vertigo, are not troublesome, a radical operation may possibly verify a doubtful diagnosis, but is of no service to the patient.

3. A knowledge of the previous point should lead to the performance of "decompression" before blindness has occurred.

4. The much-dreaded lumbar puncture in tumors of the posterior fossæ may occasionally prove beneficial in the hands of those who exercise due care in preventing a sudden escape of the spinal fluid. In this case the removal of only about an ounce of cerebrospinal fluid was sufficient to relieve a headache which resisted all other treatment.

In respect to the discrepancies existing between the ante-mortem pathology, which showed a neurofibroma, and the post-mortem findings, which revealed a glioma, two possibilities must be considered. Either the glioma, which, it will be recalled, contained areas resembling sarcoma, developed since the operation and grew into a previously existing sarcoma—the latter a malignant transformation of remaining fibroma tissue—or else the portion of tumor removed at operation was not a fibroma. Not having seen the first specimen, but hav-



Enormously enlarged left half of cerebellum, pushing pons-medulla over to the right and containing large glioma.

Lusehka. The conspicuous pathologic condition was in the cerebellum. The entire left hemisphere was occupied by one large mass of denser consistency, but not of different configuration from the normal cerebellum, encroaching somewhat on the structures of the right half (see illustration). A horizontal section through the entire left half of the cerebellum revealed a surface of mottled appearance, strongly suggestive of old and new hemorrhages. Microscopically the sections showed parts in which dense networks of fibrillar ground-substance were in close relation with numerous polymorphous cellular elements, varying in size from the small round cell to the long spindle-shaped cell, each containing a granular nucleus. In other parts of the sections could be seen islets of round cells of varying size with scarcely any intervening intercellular substance. In addition there were noticeable throughout the tumor mass numerous vessels of varying caliber. The mottled appearance, previously observed with the naked eye, under the microscope proved to be irregularly scattered hemorrhages of various sizes and ages. For the microscopic sections I am greatly indebted to Dr. C. D. Hauch, and also Prof. F. R. Zeit, in whose laboratory they were prepared.

ing carefully examined the post-mortem sections, I incline to the view that the tumor was a glioma from the beginning.

Equally uncertain is the exact origin of the hemorrhagic cyst. It is quite possible that the fall which occurred when the patient was standing at the telephone was entirely accidental and the cause of the large hemorrhage which produced death by suddenly compressing the medulla. It is more probable, however, that the large hemorrhage was spontaneous and originated in the same way as did the other numerous large and small hemorrhages, which were not sufficiently extensive to press on the pons-medulla and thereby to cause death. Neither the macroscopic nor the microscopic examination, however, threw any light on this question.

As for the internal hydrocephalus, its occurrence has been frequently noted in tumors of the cerebellum and the cerebello-pontile angle, and has been attributed either to agglutination of the foramina connecting the fourth ventricle with the subarachnoid lymph-spaces, or else to the compression by the tumor of the veins of Galen, preventing drainage of the interior.

CASE 2.—Patient.—Miss A. C., aged 26, bookkeeper, consulted Dr. R. C. Pattillo in the spring of 1905 for an affection of the eyes. He discovered a refractive error requiring correction with lenses. These having been prescribed, the patient was placed in the care of Dr. Frederick Menge for the treatment of peculiar sensory troubles in the face, presumably caused by antrum disease. Repeated examinations by Dr. Menge failed to disclose the existence of either antrum or sinus disease. The patient was returned to Dr. Pattillo, who made several ophthalmoscopic examinations, and, finding the optic disks normal and no other ophthalmic lesion, concluded that the case required neurologic treatment. Through his courtesy I saw the patient for the first time in July, 1905, and obtained the following history:

History.—The family record, though not of the best, was free from nervous and mental disease, nor could I discover a history of tuberculosis or neoplasm. The patient, never very robust, had always been well until added responsibilities had of late caused a "nervous breakdown." She stated that within the past three months she had developed attacks of sudden blindness, which were momentary in duration and most often occurred when she was recumbent. Though these symptoms at first alarmed her, she continued at work until more troublesome visual disturbances appeared in the form of mists or clouds rising before her eyes, which temporarily obscured her vision while at her books. After a series of these attacks she was obliged to take a few days' rest, but she regularly returned to her work thereafter. A complaint to which she paid little heed, but which had persisted several months before the eye symptoms became prominent, was a peculiar heaviness and pressure feeling, with an occasional sharp pain in the left cheek, often radiating into the left eye. Not infrequently she experienced sensations of "grittiness" in both eyes, followed as a rule by an irresistible desire to sleep. While eliciting this history I discovered marked deafness in the patient's left ear, which, she explained, had come on gradually after more or less constant ringing had persisted in that ear for several months. And finally she laid particular stress on the existence of a feeling of fatigue, especially on rising in the morning, complained of general nervousness and dull headaches, and also of occasional numbness in the finger tips.

Examination.—The patient, an intelligent young woman, of about 26, appearing rather nervous and somewhat depressed, recited her story in great detail and gave it the coloring of the hysterical. A physical examination disclosed normal viscera. Motor paralysis was nowhere discernible, nor could twitching of muscles be seen anywhere. Gait and station were normal. The sensory examination revealed slight hypesthesia over the entire left half of body, including the face. Superficial and deep reflexes were all normal, with the sole exception of some reduction of the conjunctival and corneal reflexes

on the left side. The pupils responded well to light and in accommodation. The optic disks were neither congested nor pale; in fact, they appeared typically normal. Hearing was completely abolished in the left and normal in the right ear. Additional findings were: A point of tenderness over the vertex, several such points over the spine and a hypersensitive spot in the left ovarian region. As the symptoms, both positive and negative, were those frequently encountered in functional nervous disease, and as none of the objective signs appeared to me definitely characteristic of organic disease, I diagnosed hysteria and treated the patient accordingly. She visited me several times, seemingly improved at first, but not so during the last two or three visits.

Subsequent History.—In the middle of September, 1905—six weeks after my first examination—the patient entered my office staggering and in a state of alarm. With great consternation she related to me that, as she was crossing the street, she became dizzy, staggered, and everything appeared black to her. It was marvellous, she said, that she escaped being killed, having become blind while crossing the busy thoroughfare. Her sight had gradually returned, but she feared a recurrence of the attack. She also informed me that two days previously she had suffered intense headache, had developed dizziness and had vomited several times. Never before had the last-mentioned symptoms been in evidence. Her gait had become ataxic—a reeling from side to side. The ophthalmoscopic examination revealed to me, for the first time in this case, extreme bilateral choking of the disk.

Diagnosis.—The advent of such symptoms compelled a revision of the diagnosis. Everything suddenly appeared clear to me: The deafness, having come without antecedent local cause and having been preceded for months by tinnitus aurium, could now be readily explained by pressure on the acoustic. And similarly, the paresthetic disorder in the left half of the face, which had given rise to the suspicion of antrum disease, could easily be ascribed to pressure on the trigeminus. The frequent and peculiar visual disturbances, in spite of the presence of normal disks in the early history of the case, could be accounted for by transient attacks of edema. Of course, with the appearance of headache, vomiting and vertigo, added to the cerebellar gait, in a patient who had had acoustic and trigeminus involvement, the diagnosis of tumor in the cerebello-pontile angle on the side of the cranial nerve lesions became almost a certainty.

With this diagnosis and the advice to operate immediately, the patient was returned to her family physician. Two weeks later a two-step operation was performed over the cerebellum, during the progress of which the diagnosis was verified, but the patient died. Consent was not obtained for a post-mortem examination.

COMMENT

In this, as in the preceding case, eye symptoms were among the earliest to attract attention. Paresthesia in the left trigeminus, though antedating the visual disturbances by several months, failed to impress the patient with its seriousness. Likewise, a deafness which was complete—discovered during a routine examination—barely received mention on the part of the patient. To her the visual and neurasthenoid symptoms were of far greater importance, and by manner and statement she succeeded in impressing her physician with a similar belief. This may perhaps explain why manifestations which were unmistakable local signs of tumor in the cerebello-pontile angle, did not receive due consideration until the general symptoms of brain tumor appeared. Further, this case helps to support the following conclusions:

1. Unilateral sensory disturbances, be they ever so slight, should arouse a suspicion of organic disease, because these are not invariably the result of functional neurosis.

2. The focal signs of neoplasm of the brain, and particularly of that growing in the cerebello-pontile recess,

often precede the general symptoms by a considerable period of time.

3. Choked disk may occur late, but rapidly, in tumors of the posterior fossæ.

CASE 3.—Patient.—C. T., a woman, aged 55, entered Cook County Hospital on Nov. 26, 1909, in the service of Dr. G. W. Hall, by whose courtesy I am reporting this case. A few days after her admission I made an examination and learned that the patient, whose family and personal history were negative, had been well until about six months previous. At that time she developed dull headaches, which came at irregular intervals, each attack usually lasting several hours. Their localization was principally over the right fronto-parietal region and occasionally over the occiput. Soon after this symptom there appeared more or less constant dizziness, which was always aggravated by the upright posture and by sudden rising from recumbency. Following this, came ataxia of a type which caused the patient, unless supported, to reel and fall mostly to the right, but occasionally to the left and forward. The aforementioned symptoms were rapidly succeeded by attacks of nausea and projectile vomiting having no relation whatever to the ingestion of food. From the beginning of her illness vision had been gradually failing, but she could still read newspapers six weeks before admission; from that time on her sight had deteriorated rapidly, so that at this examination she could only count fingers. An additional complaint was, that six months previously she had developed what was considered a "stroke" on the right side, which left some weakness on the same side.

Examination.—The patient, a well-nourished woman of about 55 years, walked slowly, with short steps, her gait presenting a good example of the intoxicated, but not that of one suffering from past or present motor paralysis. The facial musculature appeared somewhat relaxed on the right side, although on inspection no definite paralysis was detectable. On the application of the usual tests I discovered no noticeable inequality in wrinkling the forehead, but winking was less frequent on the right than on the left side; further, in a voluntary attempt to raise the upper lip, the right half was somewhat retarded, and puckering of the lips as well as whistling seemed impossible. The tongue, when protruded, deviated markedly to the right and the mucous membrane of the right half was thrown into folds, giving the typical appearance of lingual hemiatrophy. With the exception of distinct paralysis of the right external rectus, the ocular muscles showed no anomalies beyond a slight nystagmus, slow in character and most marked when patient looked to the extreme right. The pupils were dilated and responded but faintly to light and accommodation. Vision was reduced to finger-counting. Involvement of the trigeminus was manifest by the presence of hypæsthesia and hypalgesia in its entire distribution, including cornea, conjunctiva, nasal and oral mucous membranes. Hearing was entirely abolished in the right and slightly below normal in the left ear. At this point it is well to state that about twelve weeks before entrance an incision in the right external auditory meatus had been made, which resulted in a chronic purulent discharge from that ear. The reason for such treatment was not ascertainable.

Reflexes: The corneal and conjunctival reflexes were absent on the right, present on the left side. Epigastric and abdominal reflexes were not elicitable on either side. Masseter, supinator, biceps, triceps, knee and Achilles tendon reflexes were present bilaterally and were of normal intensity.

Sensation: This was nowhere impaired, except in the right trigeminus distribution.

Coordination: There was undoubted incoordination of both station and locomotion of the variety described as cerebellar; a tendency to fall sidewise when standing or walking, which was not aggravated by closure of the eyes. The cerebellar symptom described by Babinski under the term *adiadokokinesia* was present and well-marked; the patient was unable alternately to pronate and supinate the right forearm, but could accomplish these movements readily with the left.

The viscera were all normal; likewise the blood and urine, which were frequently examined. A Wassermann test, kindly made for us by Dr. Frederick Harris, proved negative.

Diagnosis.—This was easy in the presence of the many general and local symptoms of brain pressure as found in our case. In addition to the general symptoms of brain tumor, such as headache, nausea and vomiting, bilateral choked disk, there was nystagmus and cerebellar ataxia, which latter symptoms enabled localization in or about the cerebellum. Further, the implication of the trigeminus, sixth, seventh, eighth and of the twelfth nerves on the right side, was sufficient to localize the neoplasm more definitely. When I presented the patient in my Cook County Hospital clinic, I made the diagnosis of rapidly growing tumor in the right cerebello-pontile angle, and suggested immediate operation.

Operation.—Dr. Schroeder, of the Cook County Hospital staff, performed the operation on Dec. 17, 1909. A large tumor mass was discovered in the right cerebello-pontile recess, which he considered irremovable. He contented himself with making cerebellar decompression and then closed the wound.

The patient made a good recovery from the operation, but died a few days later—December 27—from the effects of facial erysipelas. Post-mortem examination was refused.

COMMENT

There could have been no difficulties in the diagnosis of a case so rich in classical symptomatology as this one. Only the unusual features therefore will be touched on.

The headache, it will be recalled, was principally in the fronto-parietal region and only occasionally in the occiput, its usual place of election. Had there been no other symptoms, this might have caused confusion in the mind of the examiner and would have created a doubt as to location. It must be recollected, however, that the situation of a headache has but limited localizing value and that in many cases of cerebellar tumor the headache has been entirely frontal.

A symptom which still constitutes a topic of lively debate among neurologists is the muscular weakness occurring in cerebellar and cerebello-pontile angle tumors, some maintaining that it is a real motor paralysis and the result of motor tract involvement, others assigning to it a purely cerebellar cause and explaining it as a sign of cerebellar asthenia. To the latter group of men belongs Luciani, who described three symptoms as characteristic of a cerebellar lesion produced experimentally, namely, atonia, asthenia and abasia. Clinicians have found this triad of symptoms in disease of the cerebellum, and particularly in tumor of that region.

In my last case a diagnosis of cerebral hemiplegia had actually been made because of a rather sudden appearance of right-sided weakness combined with facial involvement. Had the type of facial paresis been investigated, it would have been found to belong to the peripheral-nerve variety, the upper branch being implicated. The absence of pathologic reflexes in the extremities presumably paralyzed, and the uncrossed character of the asthenia—being homolateral with the several cranial-nerve lesions—negatived the diagnosis of hemiplegia and favored that of cerebellar asthenia on the same side as the tumor.

100 State Street.

Multiple Exostoses.—A boy aged 4, when 18 months old, developed symptoms which were attributed to left hip-disease. He was treated with a Thomas' hip-splint for two and a half years. He was then brought to the hospital with a supposed fracture of the forearm. The deformity and limitation of movement at the elbow were found to be due to an exostosis growing from the radius. The patient had numerous exostoses growing from scapula, ribs and ends of long bones. —Harold Burrows, *Proc. Roy. Soc. Med.*, July, 1910.

THE TOPOGRAPHIC DIAGNOSIS OF SUBTENTORIAL BRAIN TUMORS *

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TOPOGRAPHIC DIAGNOSIS

The question as to whether or not we shall operate for tumors in this region, and if we operate, whether the operation shall be radical or palliative, can be decided only by an accurate topographic diagnosis. The subject of differential topographic diagnosis is therefore of prime importance. Surgical intervention is dangerous, or not, in the cerebellar region in direct ratio to the amount of exploration, handling and bruising to which the cerebellum is subjected. Moreover, if we know, from the location of the growth, that the chief disturbance produced is by an internal hydrocephalus, as in Case 1, the nature of the surgical interference will be



Fig. 1. Case 2.—The photograph illustrates paralysis of right external rectus, right facial, and left-sided hemiataxia.

different from that which is indicated if the growth itself, by local pressure, is threatening the life of the patient. More accurate topographic diagnosis will not only enable us to be more precise in advocating or refusing to advise surgical intervention, but it will enable us to say whether the suboccipital or subtemporal region is to be the seat of the operation, and, if suboccipital, which side.

Have we signs sufficiently positive to enable us to say that a growth is in the brain-stem, in the cerebello-pontine angle or intracerebellar, and if the latter, on which side it is located?

The cerebral surgical triumphs of the last decade have been achieved in relieving cysts and tumors of the cerebellum itself, and those of the cerebello-pontine

angle. The diagnosis of the latter growth, as we shall see, is comparatively easy. It is the chief object of this paper to analyze the signs and symptoms which indicate a lesion of the cerebellum itself. I shall assume that such a localization can be arrived at only by exclusion, and I shall therefore briefly state the history of cases, in which there were illustrative lesions, which must be excluded in the topographic diagnosis of intra-cerebellar growths.



Fig. 2. Case 3.—Typical tumor of the left acoustic nerve in the left cerebello-pontine angle.



Fig. 3. Case 6.—Tumor of the right frontal lobe simulating a cerebellar symptom-complex.

TUMORS OF CORPORA QUADRIGEMINA

The first case to which I shall call attention is typical of tumors of the region of the corpora quadrigemina. I shall give but a brief outline of the history, because the case itself will form the basis of a future paper.

We have here a typical case which illustrates the syndrome of tumors of the corpora quadrigemina: Paralysis

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

* For reasons of space, part of this article is omitted from THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

of the external eye-muscles, involvement of both eyes, inability to turn eyeballs upward, ability to turn them down, pupillary paralysis, ptosis of both lids, blindness, incoordination of gait, some staggering static ataxia; no loss of sensation or of motor power in the extremities. The only discordant note is that deafness is often associated with lesion of the corpora quadrigemina, but in our case hearing remained normal. The other unusual feature is the extreme ataxia which came on toward the end. Patient when in bed used arms and legs freely but was unable to stand at all on account of the ataxia, and showed marked retropulsion on attempting to walk. Intention tremor, athetosis and nystagmus were absent in this case. The autopsy showed that the tumor was practically limited to the corpora-quadrigemina region.

TUMORS OF PONS

Tumors of the pons offer quite a different syndrome from that of the tumors of the region of the corpora quadrigemina as the following case will illustrate:

CASE 2.—Patient.—C. W., aged 12, school-girl. Family history was negative. There was no tuberculosis in the immediate family. Patient was well up to four months ago. Onset of trouble was marked by a slight defect in the right eye; patient saw double; at times had some fever; headache occasionally at first; later, more frequent, and just previous to the time she was first seen had attacks of vertigo, and staggered; had vomited every morning. No defect of hearing.

Examination.—At the time of examination the mental condition was normal; pupils equal and responded to light; optic disks normal; there was paralysis of both internal and both external recti muscles; the eyes could be moved upward and downward; paralysis of the right facial, both upper and lower branches; right eye could not be closed. The tongue deviated to left; arms were normal in all respects; in the right leg the patellar reflex was practically abolished; left patellar reflex exaggerated; left ankle-clonus, bilateral Babinski sign; no weakness in legs; hearing normal; when eyes were closed patient walked with a staggering gait, with a tendency to turn toward the left. There was no static ataxia, no ataxia in recumbent position.

Course of Disease.—Two weeks later the condition remained the same, but a horizontal nystagmus had been developed, on looking to right. After four weeks there developed an ataxia of both arms, without any loss of muscular power; with blindfolded eyes patient could not walk forward at all, but invariably was forced toward the left. She staggered to left when walking, and fell to left in Romberg test. Hearing had become defective in the right ear, both to bone and air conduction. Papillæ remained normal; left eye movement upward somewhat diminished; left patellar reflex had returned and both were now exaggerated.

May 24, 1910, mental condition was good; optic discs normal; eye muscles as before; paresis of soft palate; patient choked on swallowing. Right side of face remained unchanged; no loss of sensation anywhere; no areflexia cornea. Speech was difficult; dysarthria was present; patient developed some weakness, but a very acute ataxia of the left side, both arm and leg; adiadokinesia of the left arm was marked; patient was unable to walk without assistance on account of the left-sided ataxia. Ankle-clonus was present on the left side; exaggerated patellar reflexes.

This case presented the typical history of an infiltrating tumor of the pons. The damage wrought is caused by a gradual destruction of the various nuclei and structures of the pons, partly by invasion, partly by compression.

The symptoms are chiefly bilateral; viz., bilateral involvement of the eyes, bilateral ataxia of the arms, bilateral increase of the patellar reflexes, but the involvement of the seventh and eighth on the right side, paresis of the left leg with ankle-clonus on the left side and

ataxia of left arm and leg later on, shows the typical condition of pontine and medullary growths, viz., paralysis alternans.

TUMORS OF CEREBELLO-PONTINE ANGLE

And now let me call attention to tumors of the cerebello-pontine angle. The typical tumor here is of very slow growth, usually a fibroma or endothelioma, growing from the trunk of the auditory nerve; but the seventh and fifth may also be the seat of origin. The typical early syndrome is that of defective hearing on one side, gradually increasing, with occasional attacks of vertigo, with loud noises and ringing in the ear; then the general symptoms of headache, vomiting, vertigo, unsteady gait, plus more or less pronounced involvement of the fifth, sixth, seventh and eighth cranial nerves, on one side, with perhaps an indication of ataxia of arm or leg on the same side, and finally, signs and symptoms which point to a compression of the medulla and pons. This syndrome is so typical that in the majority of cases the localizing diagnosis is easy. Let me here introduce a typical case:

CASE 3.—Patient.—R. M. R., aged 49, examined July 9, 1908. Father of four children; superintendent of Normal school, state of Kentucky; patient of O. L. Smith, Lexington, Ky. He had had meningitis (?) when 9 years old; no venereal diseases; influenza yearly for five or six years; had been partially deaf in the left ear for the previous six years. Dr. Smith wrote that in March, 1907, patient had "some contraction of the field of vision, occasional sinistral hemianopia, dextral arm and leg numbness, and inability to nominate with his usual facility." Patient stated that for the previous year he had had occasional attacks of vertigo and could not see out of the temporal half of the left eye; that he could not hear well with his left ear. He staggered at times, but to no special side; lost confidence when he attempted walking in the dark.

Examination.—Mental condition, memory and speech normal; left pupil somewhat larger than the right; both responded to light and accommodation; no choked disk; some weakness of internal rectus of right eye and external rectus of left; horizontal oscillations of eyeballs when turned to extreme left, but no typical nystagmus. The patient could not hear well in left ear, but bone conduction was normal. Sensation in the facial region was normal; reflexes of cornea normal. No loss of function in regions supplied by the other cranial nerves. Sensation, muscular power and reflexes of the extremities normal; no ataxia in upper or lower extremities.

Diagnosis.—No positive diagnosis could be made; neoplasm suspected.

During his vacation patient noticed that his gait was slightly ataxic. In October and November, 1908, he suddenly fell on two occasions. His legs simply gave way under him; was able to arise unassisted and go on with his work.

Feb. 10, 1909, patient stated that he had some headache and vertigo in the fall of 1908; that he was unsteady on his feet and staggered occasionally as if drunk. Six weeks prior to above date he had a sudden onset of violent headaches and vomiting. This continued since; patient was confined to bed and treated for uremia.

Examination.—Patient had not been able to walk without support, and when put on his feet staggered and fell to the left. He was very weak; pulse 96; vomited constantly, and had violent headaches. Pupils reacted to light. Patient had very marked choked disks, but could see well; stated that vision in left eye became blurred occasionally; weakness of internal rectus of right eye and external rectus of left eye; horizontal wavering of eyeballs when turned to the left. (Nystagmus?). He showed a tendency to lie on left side; gait weak and staggering, and fell to the right; no typical cerebellar gait. Nasolabial fold seemed less marked on right side than on the left. No ataxia of the arm; right arm normal in muscular power; the right leg was perhaps a little weaker than the left; urinalysis negative.

Course of Disease.—For two weeks patient stopped vomiting; then vomited occasionally. Seemed much improved on treatment of iodid of potassium. No new symptoms or signs developed for six weeks.

April 5, 1909: Rapid increase, rather suddenly, of weakness in the legs; when put on feet, fell to the right and dragged the right leg. Reflexes of legs exaggerated; had suddenly developed bilateral ankle-clonus and slight patellar clonus, plantar reflex normal on both sides; no disturbance of sensation, no ataxia in the recumbent position, no weakness of arms; other signs and symptoms remained as before, except pulse, which was very weak; 120 per minute.

Diagnosis.—Cerebellar tumor, probably on the left side. Dr. Ransohoff was called in to operate. Dr. Zenner also saw the case.

Operation.—On account of the weakness of the patient, it was decided to do a typical subtemporal decompression on the right side, rather than take the increased risk of perhaps a bilateral suboccipital operation. The bulging of the dura was enormous; dura opened and pulsation in brain reestablished; patient left operating room barely alive, on account of cardiac weakness. Twenty-four hours after operation patient suddenly developed a typical tachycardia; pulse 240 beats per minute at heart; irregular, no radial pulse. This condition yielded to stimulation and subcutaneous infusions of salt solution, pulse returning to 108. The bilateral ankle-clonus disappeared, headache and vomiting ceased, and patient became comfortable.

Subsequent Course.—On third day paralysis of the pharynx was noticed, and up to his death patient was unable to swallow. On the fifth day patient had a convulsion, suddenly lost consciousness, became rigid all over, head thrown back in opisthotonus, radial pulse lost, tachycardia again persistent, respiration suspended; marked asphyxia. Patient recovered consciousness and seemed fairly well with the exception of the paralysis of the pharynx. In twenty-four hours he had a second attack of convulsions; this was followed by tachycardia and quick, shallow respiration. There was a ptosis of the right eyelid, loss of corneal reflex, corneal ulceration on the left eye; no loss of sensation in the left side of face. There was paralysis of the right arm and right leg, and perhaps of the left leg; death.

Autopsy.—This was made three hours after death. The cerebrum was dry and apparently completely drained of cerebrospinal fluid. There was more fluid below the tentorium cerebelli. On removing the tentorium, a tumor, the size of an English walnut, was found partly attached to the petrous portion of the temporal bone, loosely adherent, but apparently growing from the left acoustic nerve. It seemed so soft as to give the impression of being a cyst. The fifth nerve was stretched over the middle of the tumor, anteriorly. The entire cerebellum and brain stem seemed displaced, more especially the left lobe of the cerebellum, which was displaced downward and backward. The lower left half of the pons and adjacent portion of the medulla were markedly compressed (Fig. 2).

The case also illustrates the difficulties in localizing even such a typical tumor as neoplasms of the acoustic nerve in the cerebello-pontine angle. Theoretically, this should be easy, but Bruns, Cushing and others have called attention to the absence of signs, and in this case up to within a few days of the operation there were practically no symptoms and signs which indicated with any degree of certainty that the growth was in the cerebello-pontine angle. I believe in our case the extreme softness, almost fluid consistency of the growth during life (although it became quite solid in formaldehyd solution), accounts for the absence of symptoms of pressure; the nerve trunks, being more firm than the tumor itself, were not compressed. Even the fifth nerve, which was stretched and flattened out over the tumor, showed no signs of loss of function, except twenty-four hours before death.

In this case we have typical history of a gradual diminution of hearing in left ear (side of lesion) beginning six years before the tumor caused general symptoms.

Horizontal oscillations (jerking) of the eyeballs when turned toward side of lesion. No areflexia cornea at any period before the operation except a few days before death, although the autopsy showed that the fifth nerve was flattened into a ribbon over the tumor. There was no change in sensation, muscular power and reflexes in either upper or lower extremities. There was no choked disk until two months before the operation. In a word for six years after beginning deafness was noticed, no signs or symptoms of tumor of the cerebello-pontine angle were present. A few months before the operation, however, all general and focal signs rapidly set in. Then we have attacks, not continuous, of staggering gait; two attacks of astasia-abasia; inability to walk on account of static ataxia. Patient falls to the left; has no objective loss of power in arms or legs; perhaps a slight weakness of right leg; no ataxia of either arm; nystagmic jerking; weakness of internal rectus of right eye and external rectus of the left. Gait is not typically cerebellar; later on, weakness of right leg develops; bilateral ankle clonus; no ataxia in either upper or lower extremities when in recumbent position; no disturbance of sensation.

BASILAR MENINGITIS SIMULATING TUMOR

In this connection it is appropriate to note another case* which I believe to be a case of basilar syphilitic meningitis, although there is no autopsy report to confirm the diagnosis. Both Weisenberg and Mills have placed similar cases on record. Oppenheim in a recent case report warns us not to place too much importance on a positive Wassermann reaction or on temporary success of the antisyphilitic treatment, in a similar case.

This case was one of a typical syndrome of tumor of the cerebello-pontine angle: General symptoms of brain tumor plus one-sided involvement of the fifth, sixth, seventh and eighth nerves, with ataxia of one extremity on the same side.

The facts, however, that the patient had had a paraplegia six years before which disappeared completely under potassium iodid, and that she died suddenly with all the signs of an acute bulbar palsy, led me to believe that the case was one of basilar syphilitic meningitis. I did not recommend an operation, but placed her on gray oil injections, too late, however, to accomplish any results. This case only strengthens the rule that a careful history and a consideration of the symptoms in the chronologic order of their occurrence is necessary to make the differential diagnosis.

EARLY DIAGNOSIS

I cannot lay too much stress on the early diagnosis of tumors of the cerebello-pontine angle. They are very amenable to surgical treatment, as the numerous cases on record testify; but when the case has advanced to the point of compression of the pons, as in my case, little is to be hoped for from surgical interference. The aurist should be the first to recognize these cases, because of the early involvement of hearing, and should be on the lookout for the early symptoms, viz., progressive loss of hearing with middle ear normal, vestibular attacks of vertigo, slight weakness of face and areflexia cornea on the same side, with perhaps weakness of external rectus of same eye. No other focal lesion, with the possible exception of basilar syphilis, produces this syndrome.

* The details of the history are given in the Transactions and in the author's reprints.

After the consideration of these cases we may say that tumors of the cerebello-pontine angle show a predominance of unilateral focal signs on part of the fifth, sixth, seventh and eighth, whereas tumors of the pons and medulla show bilateral focal signs with a clear indication of hemiplegia alternate. In both, the focal signs may precede the general signs of brain tumor, and frequently do. Pons and medulla tumors, being small, produce less marked general signs of brain tumor, whereas, the angle tumors have later on marked general signs. Choked disk is characterized by its absence in pons tumors, although this is not invariably the rule, whereas, the cerebello-pontine angle tumors manifest general signs. Choked disk is almost invariably present, together with headache, vomiting and vertigo, partly due to an associated internal hydrocephalus.

DIAGNOSIS OF CYSTS AND TUMORS OF CEREBELLUM

And now let us proceed to the consideration of that part of our subject which to my mind has the greatest practical importance, namely, the early diagnosis of cysts and tumors of the cerebellum itself. When these tumors and cysts have grown to such a size as to compress the cranial nerves and the pons itself, the diagnosis is not difficult, but the surgical prognosis is bad; whereas, the outlook is good if an early localizing diagnosis can be made before the tumor has grown beyond the confines of the cerebellum. This early diagnosis is very difficult. Not only is it difficult to say whether the growth is located on one side or the other, in the hemisphere, but it is often difficult to rule out the growths of the frontal lobe or to say with certainty whether the symptom complex is caused by a tumor, by acquired internal hydrocephalus, or whether we are dealing with the so-called pseudo-tumor symptom-complex.

CEREBELLAR CASES

Let me briefly introduce two cases here which will illustrate the difficulty of making an early exact localizing diagnosis in cerebellar cases:

CASE 5.—Patient.—J. P. C., Nashville, Tenn., a man aged 47, single; occupation, sheet-writer. Parents both dead; cause unknown. The patient had never had syphilis or a chancre; had been a drinking man for past ten years, but had never been sick. Onset of present illness eight months previous to examination. The chief symptom was a constant headache, usually occipital, but at times frontal. These headaches were very severe in character, and the periods of freedom were few and short in duration. Any physical strain, and also coughing, made the headache worse. When the headaches were bad the patient was confined to bed, but when he attempted to walk he staggered and showed a tendency to fall to the right.

Examination.—May 30, 1909. The pupils were equal in size, and responded to light. The eyeballs were prominent; external muscles of eyes normal; papilla normal; corneal reflexes normal; hearing normal in both ears. Left nasolabial fold not so prominent as the right; no defect of function in regions supplied by any other cranial nerve. Muscular power, sensation and reflexes of both upper and lower extremities were normal. There was some static ataxia; marked ataxic gait; patient staggering toward the right.

In the course of the following six weeks there were no new developments, except that the headache and vomiting became worse, to the extent that they were very severe and almost constant. The gait became so ataxic that patient was not able to walk or stand without support. No choked disk developed.

Diagnosis.—Cerebellar tumor, probably of the right side.

Operation.—A suboccipital decompression on the right side was decided on, and the operation was performed by Dr. Horace Whitacre. No tumor was found. The cerebello-pontine angle was explored. The intracranial pressure was very great.

About one-third of the right lobe of the cerebellum was removed.

Result.—The immediate result of the operation was a complete relief from headache and vomiting. There was some ataxia of the right hand after the operation. After two weeks the patient was able to sit up, and gradually began to walk. His gait, however, was decidedly ataxic. During the four weeks at the hospital, following the operation, he suffered but one headache. Five months after the operation his condition is fair, but he does not walk much better and has occasional attacks of headache.

CASE 6.—Patient.—M. M., a woman aged 36, was referred to me by Dr. F. Forchheimer on June 14, 1909. Patient was ill when an infant, but has since been in good health. Had influenza and whooping-cough four years ago. Had influenza nine weeks ago; since then constant headaches: partly frontal, partly occipital, the pain radiating into the shoulders. Had vomiting spells almost daily since the headache became constant. Had vertigo when the head was moved from side to side, or when asked to walk. Vision gradually failed, until patient was unable to read ordinary print.

Examination.—June 14, 1909. Facial expression one of great suffering; slight drooping of left eyelid; bilateral papilloedema discovered by Dr. Walter Forchheimer one week ago; no loss of corneal reflexes; slight static ataxia when standing on right foot. The examination was otherwise negative.

During the next five weeks the condition gradually grew worse. Patient had repeated attacks of cerebellar spasms, during which there would be a momentary loss of consciousness, with general muscular rigidity. She also lost the patellar reflexes in both sides, and occasionally had double vision. There was no loss of muscular power in the legs, but the ataxia became so marked that patient refused to walk, but was able to walk with assistance. The vision rapidly grew worse, and a suboccipital decompression was resolved on, the left side being chosen as the probable seat of the tumor, on account of the drooping of the left eyelid and a tendency to stagger toward the left.

Operation.—The operation was performed by Dr. Horace Whitacre. A cyst, about the size of an English walnut, was found at the seat of the operation. It was subcortical, involving the posterior portion of the cerebellum, and on opening it a pale amber-colored fluid was discharged, followed by a collapse of the lobe of the cerebellum. Recovery from shock and anesthesia was rapid.

Results.—Headache and vomiting ceased for a while, and the vision improved greatly, but the other signs remained unchanged. The choked disk continued, the double vision likewise. The patellar reflexes did not return. A sinus established itself automatically, and cerebrospinal fluid escaped in large quantities. After two weeks the headache and somnolence returned. There was an occasional attack of vomiting. There developed an acute ataxia of the left arm and leg, which rendered the patient unable to walk at all. There was also a marked weakness of the left arm. Incontinence of urine and feces developed, and there was a return of the cerebellar seizures. At this time I went away on my summer vacation and left the case in charge of Drs. Whitacre and Langdon. An attempt was made to relieve the patient by draining the lateral ventricles, but the patient died within twenty four hours after the operation.

TOPOGRAPHIC DIAGNOSIS OF CEREBELLAR TUMORS

The chief interest in the study of the differential topographic diagnosis of tumors below the tentorium cerebelli is whether we have arrived at that state of diagnostic acumen which will enable us to say with any degree of certainty whether a growth is located in the cerebellum itself, and above all, which lobe of the cerebellum is involved. I believe that we can say with some accuracy whether a growth is in the pons, or the region of the corpora quadrigemina, and I believe that the diagnosis of growths in the cerebro-pontine angle can be made with almost equal facility; but the great stumbling-block is offered by tumors of the cerebellum

itself. We have seen what signs and symptoms are peculiar to neoplasms of the pons, of the region of the corpora quadrigemina and of the cerebello-pontine angle.

In arriving at a diagnosis of tumors of the cerebellar hemisphere our first step is one of exclusion; we must exclude tumors in the above locations. Then we must exclude frontal lobe tumors. We cannot here go into the symptomatology of frontal lobe tumors, but suffice it to say that there are well known physiologic facts and clinical and surgical experiences which attest the fact that at times it is practically impossible to say whether the tumor is in the frontal lobe or in the cerebellum.

The physiologic fact to which I refer is that the loss or disturbance of function of one cerebellar hemisphere when removed in animal experiments, especially the ataxia, quickly disappears after the operation, but if the animal is then deprived of the opposite frontal lobe, all the cerebellar symptoms return. In a word, the frontal lobe in a measure takes up, or at least compensates for the loss of the function of the crossed cerebellar hemisphere. This interaction of function takes place through the fronto-bridge-cerebellar tract. It is also a well-known fact, that tumors of the frontal lobe, both by causing ataxia, and by producing distance pressure signs, can cause a symptom-complex, which at times can hardly be distinguished from a cerebellar symptom-complex. Moreover, it is not unusual to have unilateral spasms and even Jacksonian seizures in cerebellar lesions, as the cases of Mills and Weisenberg and Case 4 of this paper show, which complicates the matter still more.

FRONTAL TUMORS

Following is a short history of a case of left frontal tumor:

CASE 7.—*Patient*.—G. von L., aged 41, was admitted to Cincinnati Hospital Aug. 5, 1901, in a maniacal state, complaining of pain in the left occipital region. He denied venereal diseases and alcoholism. The patient was unable to give a history of his case. According to the wife's statement, he had failed in business six months previously; much worried. For the past six months she noticed a mental deterioration; he did not seem bright; was forgetful. For previous two months he had complained much of pain in the left occipital region. Six weeks before admission, while beating a carpet, patient suddenly staggered backward, was supported to a chair, stared at his wife, was unable to speak, became blue in the face, but did not lose consciousness. At the same time he had a spasm in the right leg, but none in the right arm. The patient said that he felt as if he were going up to the ceiling. He had about ten such attacks that night, three or four the next day and then they became less frequent and finally stopped. This was followed by fornication and numbness of right foot. Later he had an attack of paralysis of the right side, which soon passed away and patient returned to his business. There was no headache or vertigo during this period. At times the patient would stagger and show a tendency to fall to the right side, and could not walk without support for the past few days. After a severe attack of pain in the left occipital region a few days before admission, patient had numbness and weakness of the right leg. He began to vomit and had attacks of vertigo. At night he became delirious and in a few days became maniacal and was brought to the hospital.

Examination.—Mental condition was bad; could be aroused from stupor, but was unable to give an account of himself; did not seem to understand the questions put to him; did not speak voluntarily; when asked a question, repeated it slowly, but gave no answer. Paresis of left facial was present; paresis of left side of tongue doubtful; patient was unable to state whether right hand was weak or not on account of mental condition; right leg was dragged when patient attempted to walk. Patient fell to right side. There was no ankle-clonus,

no Babinski in right side. On ophthalmoscopic examination double choked disk was observed, with hemorrhagic retinitis; right pupil larger than the left; left pupil did not respond to light; right one responded. Slight ptosis of right eyelid; paresis of external rectus of both eyes.

Operation.—An unsuccessful operation was done over left cerebellar hemisphere. Patient died within thirty-six hours.

Autopsy.—Autopsy revealed a tumor the size of a hen's egg, which grew from the dura on the lower surface of the frontal lobe up into the frontal lobe. It was not infiltrating, and the frontal lobe surrounded the tumor like a shell.

This patient was operated on for a cerebellar growth chiefly owing to the fact that there was a hemiplegia alternans, involvement of the external recti of both sides and history of a staggering gait with tendency to fall to one side.

Only recently an autopsy was made in a similar case in which one feature of the clinical history was that the patient at times had a staggering gait. Dercum recently reported a similar case, in which the operation was made over the cerebellum and the autopsy revealed frontal tumor. We are gradually, however, improving our knowledge of frontal growths, as well as of those of the cerebellum. I believe that we shall make fewer mistakes along these lines if we pay greater attention to the chronologic order of the development of signs and symptoms, and I believe that in frontal growths some change in the mental state will occur, and will often even antedate the general symptoms of brain tumor, whereas, mental symptoms if they occur at all, occur late in cerebellar tumors. In at least two cases of frontal tumors in my observation the mental deterioration was manifest, the above history showing that the patient at times even became maniacal, and was brought into the hospital in this condition. In the other case, which I refer to above, aside from a progressive loss of vision and the ataxia, there were no mental symptoms, except a remarkable euphoria, a cheerfulness which continued to death, lasting over four years, which is certainly unusual in brain tumor cases of other location.

Only recently Reich has shown that we may even have areflexia cornea, which is looked on as a positive diagnostic sign of tumors of the cerebello-pontine angle, in frontal tumors. This, however, is so rare that it need not complicate the diagnosis.

PSEUDOTUMORS OF THE BRAIN

In making the diagnosis of cerebellar growths, we must also rule out pseudotumors of the brain, a subject which has been placed on record by Nonne, Oppenheim, myself and others. This pseudotumor symptom-complex is more apt to resemble the cerebellar symptom-complex than any other. Its pathology is unknown. The autopsy in one of my cases was entirely negative, so far as the brain was concerned. Here is a summary of the typical syndrome: headache, violent vertigo, vomiting, bilateral choked disk, paresis of the external recti muscles of the eyes, areflexia cornea, especially of the right eye; tinnitus, with diminished hearing on the same side, cerebellar ataxia and deflection of head and even entire body to one side. These signs of pseudotumor are in a manner similar to acquired internal hydrocephalus or serous meningitis. These two conditions must be ruled out, and the only means at our command are the presence of other signs and symptoms, on which I shall presently lay stress, which are present in cerebellar cases, and absent in the above symptom-complexes.

PHYSIOLOGY OF THE CEREBELLUM

A few words on the physiology of the cerebellum will be in place here. The chief function of the cerebellum as ascertained by animal experimentation, is that of automatic coordination. Through the medium of the cerebellar tract, Gowers' tract, the posterior column cerebellar tract, and the vestibular nerve, all of which Bruce holds end in the cortex of the vermiciform lobe, the cerebellum obtains knowledge of the state of contraction, and the tone of all muscles of the body and the position of the body. When these tracts are interfered with within the cerebellum we have the chief symptom of cerebellar disease, viz., cerebellar ataxia. Lesions of the cerebellum, however, are not the only factor in the production of cerebellar ataxia. We know that tracts lead from the cerebellum to the pons through the corpora quadrigemina and to the opposite cerebral hemisphere, and that the destruction of any one of these tracts will cause cerebellar ataxia. Hence, lesions of the frontal lobe, of the corpora quadrigemina and of the pons may cause cerebellar ataxia. In the lesions of the cerebellum, however, we have ataxia without any associated signs, such as will form part of the syndrome in lesions of the frontal lobe of the corpora quadrigemina and of the pons. In considering cerebellar ataxia and other signs of cerebellar lesions we must not forget, that the loss of function of one cerebellar hemisphere, as Munk and others have shown, may be compensated by the opposite frontal lobe, and that symptoms may disappear; or that disease of one hemisphere may even run a latent course. Babinski lays much stress on a physiologic phenomenon which Munk attributes to the cerebellum, viz., a harmonious interaction between the movements of the extremities and those of the trunk. Babinski calls this function *synergie* and the loss of it *asynergie cerebelleuse*. By this is meant a loss of harmony, which shows itself when walking, for instance, by an attempt to bring the leg forward, while the trunk does not change its position or may even go backward. This symptom was typically illustrated by the tendency to retropulsion on attempting to walk in Case 1, or by the inability in Case 2, of the patient to walk forward when the eyes were closed. *Asynergie cerebelleuse* may be confined to one side—hemiasynergy—as in Case 6; and Babinski says that it points to a lesion of the cerebellar hemisphere on that side or to one of the tracts leading to the hemisphere, or from the hemisphere on that side. Oppenheim seems to agree to this; Spiller dissents. Forced movements are seen in animals, rolling movements, but Munk does not attribute them to lesions of the cerebellum, but to other causes. In the human being we see a tendency to assume certain positions in bed, or to hold the head to one side, the diagnostic value of which we will consider later.

Astasia-abasia, hemiatatic movements, homolateral weakness of muscles, homolateral convulsions, will be considered as localizing signs later on, as will also speech disturbances and nystagmus, all of which have been attributed to loss of function of the cerebellum.

FOCAL SIGNS

What are the focal signs which clinical experience has taught us as pointing to tumors of the cerebellum? The following syndrome calls for analysis:

1. Cerebellar ataxia.
2. Atactic movements, hemiataxia, *asynergie cerebelleuse*, hemiasynergy and tremor.
3. Vertigo.

4. Nystagmic jerking and other eye-muscle signs.
5. Atonic paresis of trunk and extremity muscles on one side.
6. Adiadokokinesia and speech disturbances.
7. Convulsions, unilateral or bilateral.
8. Attitude of the head.

Let us take up the signs and symptoms in the order as they are given:

Cerebellar Ataxia.—The typical, reeling staggering gait is probably seen only in tumors of the vermiciform lobe. Perhaps also in quadrigemina tumors (Case 1), but here it will be associated with extensive eye-palsies, which will be absent in the cerebellar lesion.

What is more commonly seen is staggering to one side and a tendency to fall to one side. I believe that when unassociated with pontine signs or symptoms, this may be looked on as fairly characteristic of lesions of the cerebellar hemisphere. It would be of great value, if it could be established as a law, that the patient reels or falls to the side of the lesion. Weisenburg seems to think that this is the case. Two of my patients showed a tendency to fall toward the side of the lesion; one did not. Oppenheim and Siemerling and Spiller hold that we cannot rely on this sign as pointing to the side of the lesion. Siemerling says that cerebellar ataxia may be entirely absent. If the vermis is the seat of the growth, the ataxia may be so great that the patient is unable to stand at all. This is true likewise of growths of the corpora quadrigemina, as Case 1 shows; but in advanced cases, as Nos. 3, 5 and 6 show, may be present in pressure in or on the lateral lobes, or in tumors of the brain stem. But this may be explained by distal or contiguous pressure on the vermiciform lobe or cerebellar tracts, in all three of these cases.

Hemiataxia and Hemiasynergy.—These, which Oppenheim thinks may be identical manifestations of cerebellar incoordination, are often present, and may, after further investigation, be found to be of great topographic diagnostic importance as pointing to lesions in the same side of the cerebellum.

Bruns says that hemiataxia is a valuable sign, because it occurs early, and is a sign of an intracerebellar lesion. In the four cases reported by him it occurred in the homolateral arm in each case.

Soques reports hemiasynergy and adiadokokinesia on the same side, homolateral, in a case of tumor of the cerebello-pontine angle.

In Case 3, presumably a pons tumor, very marked hemiataxia, perhaps hemiasynergy, and certainly adiadokokinesia, developed four or five months after the onset of the first symptoms.

The homolateral ataxia which was seen in Case 5 after the operation, is in effect a physiologic observation. No tumor having been found, a large portion of the cerebellar hemisphere was removed, and the homolateral ataxia was noticed after a few days.

In Case 6 there was static ataxia of the right leg (side of cyst), before the operation, loss of patellar reflexes and atony of both legs, but no loss of muscular power. The ataxia became so marked that patient refused to attempt to walk. After the operation the ataxia of the left arm and leg became very acute. In a word, the cyst was found on the left side, and the ataxia was most marked on the left side, the right arm and leg being free. When ataxia is suspected but not present in the ordinary way of standing or walking, Oppenheim recommends that the patient be placed in the ordinary Romberg position, and be asked to bend forward with closed eyes. As a rule, not only will the

loss of equilibrium show itself, but also the side toward which the patient sways, will show itself. Some stress has been laid on unilateral tremor of multiple sclerosis, as a sign of cerebellar disease. Collins, Bruns, Siemerling and Oppenheim have called attention to this sign, and when present, it is usually homolateral.

Atonic Paresis.—Atony of the trunk muscles on side of the lesion, homolateral weakness in the atactic limb and loss of patellar reflexes on one side or both, may occur, as seen in Case 6. Bruns says that it occurs only in acute cases after removal of a part of the cerebellum. Siemerling says that it is still a debatable sign. A sudden and acute onset of atasia-abasia, disappearing just as suddenly, was seen in Case 3.

Vertigo.—This, which is invariably present in subtentorial growths, is not of much localizing value. The exact differentiation between vertigo of intra- and extracerebellar origin, as defined by Stewart and Holmes, has not been verified by others and needs further investigation, namely, that in intracerebellar tumors the objects and the apparent movements of their own bodies are from the side of the lesion to the opposite side, and in extracerebellar tumors the apparent movement is toward the side of the lesion. If, however, vertigo is brought about by changing the position of the body or of the head, we may safely say that this occurs when the body or the head is turned away from the side of the lesion.

Nystagmus.—Not the typical nystagmus seen in multiple sclerosis, but a nystagmic jerking, when the eyes are turned to one side or the other, is frequently seen in subtentorial growths. Munk says that strabismus and nystagmus are not seen in animals as a result of the removal of one-half of the cerebellum, but as a result of injuries to the neighboring parts. Siemerling, although admitting it as a sign of intracerebellar lesion, thinks that it is caused by pressure on the pons or corpora quadrigemina. H. Neuman and Collins look on it as a cerebellar sign. Nystagmic jerking is usually seen when the eyes are turned toward the side of the lesion, but this is not the invariable rule. It was present toward the side of lesion in Case 3. It was not present in Case 5 either before or after the operation; nor was it present in Case 6.

Spiller, in a case of cerebellar abscess, says that the nystagmus became more marked when the patient looked toward the seat of the lesion. H. Neuman has confirmed this in a later communication.

Siemerling does not feel that the direction of the nystagmus has a positive localizing value, while Oppenheim thinks that nystagmus may be a sign of intracerebellar disease, although it more frequently is the result of distal pressure. I have never seen general ataxia of the eyeballs such as Spiller and Weisenburg describe in a subtentorial tumor, but have seen it in a case of nuclear degeneration of the centers in a case of chronic bulbar palsy.

Attitude.—In this respect, I wish to call attention to the fact that the position of the head and the position of the body have a marked influence on bringing out signs of cerebellar tumors that may be latent. In Case 3 nystagmus occurred only when the eyes were turned toward the seat of the lesion. Oppenheim in a recent article gives his experiences on this subject. He cites two cases of tumor of the cerebellum in which a nystagmus was only slightly indicated when the patients, in a standing position, looked to one side or the other, but which become very marked even when the eyes were

at rest, if the patients reclined on one side. In another case in which nystagmus was absent when standing or lying on the back, if the patient lay on his right side and looked toward the left, nystagmus appeared at once, and a paresis of the external rectus became apparent. In another case, nystagmus on looking toward the side of the lesion appeared only after the patient had been turned on a revolving chair, two or three times. In two other cases of subtentorial tumors, areflexia cornea was produced by having the patient lie on the side opposite to the tumor.

Convulsions.—General convulsions or unilateral convulsions, of the cerebellar type, viz., opisthotonos, momentary loss of consciousness with a general clonic spasm of very short duration, are indicative of subtentorial pressure and irritation of the pons, rather than of intracerebellar tumor. They were seen in Case 6 (cyst of hemisphere), as well as in Case 3 (tumor of cerebello-pontine angle). Probably one of the most valuable signs which will indicate the side of the lesion is one to which Babinski has called attention, namely:

Adiadokokinesia.—By this is meant a slowing of movements of an alternating character, and is best illustrated by successive pronation and supination of hand and forearm. In lesions of the cerebellar hemispheres there is a marked diminution in the rapidity with which these movements can be alternated, and occurs always on the homolateral side. Oppenheim and Collins and Siemerling lay much stress on this sign, and especially Siemerling, who says that he always found it after his attention was called to it.

Adiadokokinesia, according to Boenhoeffer, who describes speech disturbance in a case of cerebellar tumor, manifests itself as bradyphasia; he says that it is due to an inability of the patient to rearrange his lip and tongue muscles rapidly, which is necessary for fluent speech. Other speech disturbances have been ascribed to cerebellar lesions, as a staccato, jerky mode of talking, which has been attributed to incoordination or ataxia of the muscles of tongue, lip and larynx. Speech becomes slow, repetition of long words causes a chopped-off reproduction, and at times stumbling and stammering. Rapid speech is impossible, but there is no anarthria. The attitude of the head may give us some indication as to the side of the lesion. Baten called attention to the fact that the head is inclined in such a way that the occiput points to the side of the tumor, and the chin is pointed away from that side. Collins, in a case of hemorrhage, describes just the opposite condition. Oppenheim says that there is no rule, but that the patient assumes such a position of the head and body as cause him least inconvenience. Spiller also thinks that there is no rule. In my cases I could not confirm the rule. Sholz has used the Neisser puncture test to determine the side of lesion, and located the tumor in two out of three cases by this means. Oppenheim calls attention to a difference in the percussion note on the two sides, and says that we may find more dulness on the side of the lesion. Bruns calls attention, especially in children, to tenderness on percussion, and the cracked-pot sign, on the side of the lesion.

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BIBLIOGRAPHY

- Reich: Berl. Klin. Wehnschr., 1908, No. 9, p. 476.
 Nonne: Deutsch. Ztschr. f. Nervenh., xxxv, 169.
 Oppenheim: Lehrbuch der Nervenkrankheiten, 1908.
 Hoppe: Jour. Nerv. and Ment. Dis., February, 1907.
 Munk: Die Functionen von Hirn und Rückenmark, Berlin, 1903.
 Babinski: Rev. Neurol., 1899.

Weisenburg: *Diagnosis of Tumors and Other Lesions in the Cerebello-Pontile Angle*, THE JOURNAL A. M. A., April 18, 1908, p. 1251.

Oppenheim: *Neurol. Centralbl.*, 1910, Nos. 3 and 7.

Bruns: *Gehirngeschwülste*.

Siemering: *Berl. klin. Wchnschr.*, 1908, Nos. 13 and 14.

Collins: *Med. Rec.*, lxxvii, 763.

Babinski: *Rev. Neurol.*, 1902, No. 21.

Neuman: *Arch. f. Ohrenh.*, lxxvii, 191.

Spiller: In Posey and Spiller's *The Eye and the Nervous System*.

Boenhoeffer: *Monatsschr. f. Psychiat.*, xxiv, 379.

Bruns: *Neurol. Centralbl.*, 1904, p. 578.

Soques: *Paris Neurolog. Soc. Report*, 1909.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. HOPPE, LANGDON AND KRAMER, AND GRINKER

DR. C. H. HUGHES, St. Louis: Papers of this character are always exceedingly interesting from the light they give us on the subject of diagnosis. Symptomatically in all we have choked disk and titubating, unstable gait. No paper has yet been given presenting a case so markedly unilateral as to give us that characteristic symptom in the gait, of a disposition to describe a semicircle in the walking of the patient.

The subject of brain tumors becomes especially interesting for the purpose of diagnosis, particularly focal diagnosis, as they impinge on the origin or a course of certain cranial nerves. Tumors of the posterior portion of the brain and cerebellum often result in loss of vision which is quite characteristic, but the tumor in the white matter of the brain causes choked disk only from the general involvement of the brain, and its congestive condition apparently, so far as my observation has gone.

When as a surgeon, I was called to preside over a hospital for the insane, I used to think that it was the province of a surgeon to operate in every case when opportunity offered, especially for epilepsy and tumors. But I am not so hasty now in operative suggestion. I recall an instance of unilateral involvement of the cerebellum accompanied by the characteristic tendency to describe a circle on the opposite side of the lesion in attempting to walk; I was agreeably surprised in that case, after the use of extensive doses of cathartics and sodium bromid, etc., to see that symptom disappear. Notwithstanding, the man died and I made the autopsy which McLean Hamilton reproduced in his classical work on that subject at the time. We have not all the light that is coming to us yet on the subject of tumors, but we are getting more light than we had some years ago.

DR. G. W. HALL, Chicago: In one case that Dr. Grinker reports, the patient, who came on my service at the Cook County Hospital, showed the typical findings of the process in the right cerebello-pontile angle, and the question at that time so far as the diagnosis was concerned was whether or not there was an abscess or tumor. As Dr. Grinker brought out in the history of the case, it was at first very puzzling, because the patient had also a discharging ear; but the fact that the ear had been punctured by a physician, on the outside, at a more recent date than the onset of the symptoms, easily cleared up the history, sufficiently to guarantee the advisability of an operation.

In connection with that case I might mention also the conditions which Dr. Hoppe brought out as to frontal tumors. No one can make an absolutely accurate diagnosis as to localization of tumors of the brain perhaps outside of the cerebello-pontile angle. We have seen instances occur in which diagnosis of cerebellar processes have been made, and the processes were found in the frontal lobe or in the brain proper.

Dr. Hoppe's statement as to the mental symptoms occurring in the frontal tumors rather than in the cerebellar tumors seems to be a point well taken. That was especially dwelt on by Dr. Beavor in one case he had on his service in the hospital at Queen's Square, London, in which he made the probable diagnosis of a frontal tumor rather than a tumor of the cerebellar process because of certain mental symptoms present in that case.

DR. CHARLES L. DANA, New York: A few years ago the subject of brain tumors had become interesting, because the success of surgical intervention was so poor, but in the last four years we have been much more successful in localizing and removing

tumors, especially subtentorial tumors. In historical justice to American neurologists, Dr. Grinker ought to state that the attention to the clinical facts regarding tumors of the cerebello-pontile angle, was first brought out by Dr. Hunt and Dr. Franckel about four years ago in a series of papers and reports which they made at that time; it antedated any emphatic recognition of these tumors by any foreign or American neurologist or surgeon that I know of. At that time they reported several cases and three operations, all unsuccessful; but they then drew attention to the fact of the ease with which such tumors can as a rule, be recognized. One point which they made was that in some of these patients there was a neurofibromatosis of the skin, so that in some cases the possibility of a tumor of the cerebello-pontile angle was suggested by the fact that a great many little fibromas of the skin had been noticed in the patient.

There is a symptom in cerebellar disease sometimes seen in tumors, hemorrhages and softening and atrophic conditions, that is, a certain tendency to catatonia.

The cerebellar seizures that have been referred to vary somewhat in character, but are most frequently, I think, either sudden plunges forward or sudden droppings down by the patient as though he had been struck by lightning, or suddenly fainted; at other times the patients fall down and assume the sprawling attitude and tonic spasms such as are seen in animals experimentally operated on. These cerebellar seizures generally come from lesions that begin from an extramedullary source—tumors of the pontile angle or of meningeal origin.

DR. THEODORE DILLER, Pittsburg: Those who attended the Section last year at Atlantic City will remember a patient that I showed before the Section at that time, from whom a cerebellar tumor had been removed. This patient suffered from very severe headaches, showed a high grade of optic neuritis, 6 or 7 D., and had a posture of the head to the left, away from the tumor. The tumor was removed from the anterior margin of the cerebellum after about one-third of the cerebellar lobe had been removed. I saw this patient about a month ago; he is working on a farm. His gait, which was extremely uncertain, is good. He is entirely free from pain. He says that he sees well, and is comfortable in every way, and the only thing that we can discover wrong with him is a moderate grade of optic atrophy. This case is now of about eighteen months' standing.

I commend very much Dr. Hoppe's method of presenting his case here today by the pictures. It is difficult to transport specimens to a meeting; but stereopticon views like these give as plain a perspective view of the tumor as the actual specimen would.

With regard to this point of the confusion between frontal and cerebellar lesions, let me say that recently I saw a patient whose history was that he had fallen, and that an operation had been done in the frontal region, and a small amount of pus removed a year ago. When I saw this patient he was having a great deal of pain in the occipital region; he was complaining of very severe pain confined to the frontal region and his head was extended backward very far. He had no fever; and he had not the slightest pain in the frontal region. We hurried him off to the hospital. An operation was done over the frontal region and an abscess was found immediately below the site of the old wound, and I think fully an ounce of pus came out. The case is very striking. The only thing the man complained of was very severe pain in the occipital region (not localized as to the side—probably bilateral), and this was due to an abscess in the frontal lobe.

DR. D'ORSAY HECHT, Chicago: The interest taken in cerebellar neoplasms and the discussions arising therefrom, have resulted in a gratifying percentage of accurate localizations in operations in this region. This is particularly true of cases with acustic symptoms. As soon as a suspected tumor presents in a marked degree eighth nerve involvement, the tendency is to designate it as a cerebello-pontile angle tumor. I should like to get some expression from the members with regard to the propriety of calling tumors, necessarily wide-spread in their extent over the cerebellum or in the cerebello-pontile space, angle tumors. We are in truth not dealing with an angle, so far as the invasion by tumor of this area is concerned. We are

rather dealing with a quadrilateral space, something that has more of the configuration of a rectangle. I feel, therefore, that if we get away from the designation of angles in these cases we may be serving cranial topography with more accuracy, so far as this site of predilection for certain tumors is concerned.

In Dr. Grinker's paper, I think that, aside from the complete report of his cases, chief interest centers in the character of his summary, in which he dwells upon the question of glioma and sarcoma, as well as the expediency of lumbar puncture. I think that we as neurologists are quite agreed that lumbar puncture of itself is a relatively innocuous adjunct to our diagnostic technic, but it may prove a decidedly dangerous measure in the presence of a brain tumor. Perhaps this particular fact is not sufficiently impressed on internists or general practitioners. I have not infrequently heard physicians who busy themselves more or less with the modern routine in neurologic examination, ask whether a lumbar puncture has been made, forgetting, I think, that lumbar puncture may be of real danger to the patient when we are dealing with obvious symptoms of intracranial pressure of tumor origin. I should advise extreme conservatism in doing lumbar puncture in this type of case.

I think, too, that in those cases in which cerebral tumor of solid formation is suspected, we are not infrequently surprised to find a cyst, capable of evacuation, and therefore yielding a better prognosis than was admissible from the premises prior to operation. I recall such an experience five or six months ago, when it was my privilege to see a case of brain tumor at the request of Dr. Alfred Murray. I made a localization of cerebellar tumor and the patient was operated on by Dr. Albert L. Halstead, of Chicago. The acoustic findings were of very material value in referring the tumor to the cerebello-pontile space (or angle, if you wish) and on a very extensive decompression, exposing both sides of the cerebellum very widely and spaciouly, it was found that the suspected area was filled with a fairly large cyst, which was properly evacuated, and at a recent date, the patient was doing very well in his own home, and able to be up and about, for a time even following his occupation as a pharmacist.

I agree with Dr. Dana that we should not forsake the old and well-tried clinical criteria in arriving at a localization, but, on the other hand, I feel that we should put due emphasis on some of the newer additions to our technic and credit with importance such a symptom as, for instance, has been advanced by the French school, and called "adiadokokinesia." I have noted it in several instances, and I think, as an evidence of asynergy, it is quite as important as are other symptoms entering into the question of the coordinating function, as it depends upon the cerebellum.

DR. JULIUS GRINKER, Chicago: I wish to emphasize a point of general practical interest, namely, that hysteria and neurasthenia are diagnosed often in cases requiring more extended investigation. I recall several such cases of my own, in which the symptoms at first pointed to functional disease, but brain symptoms developed later and the diagnosis of organic disease had to be made.

One point which has not received due emphasis in this discussion is that cerebello-pontile angle tumor may begin with hemiplegic symptoms. My third case, which for lack of time could not be reported in full, was diagnosed as hemiplegia at a time when there were hemiplegic manifestations in the form of one-sided asthenia, that is, a unilateral weakness resulting from cerebellar atonia. In these cases there is neither exaggeration of reflexes, nor Babinski sign.

I am very thankful to Dr. Dana for correcting my short reference to the historical development of this subject. It is quite true that Drs. Hunt and Franckel were the first to call attention to tumors in the cerebello-pontile angle; they also furnished splendid contributions to the symptomatology.

In my opinion the new cerebellar sign described by Babinski under the term "adiadokokinesia" is not valueless. When present, it is a reliable sign. It is more often absent than present and frequently it only appears after an operation has been performed on the cerebellum, certainly too late to be of value in diagnosis. In one of my cases this symptom was present before any of the others. While, then, this sign may not be of the greatest value, we may nevertheless consider it,

if only the observation may serve to determine its proper place in the symptomatology of cerebellar tumor.

Staggering to one side is not a reliable focal sign. In two of my cases the staggering was on the side of the tumor; in the third case the patient staggered to either side.

Concerning speech disturbance, my first case showed an utterance which might be called "jerky" speech, rather than bradyphasia. The so-called "cracked-pot" resonance I have not found in my cases, but I have often observed it in the hydrocephalus of children.

EHRlich's BIOCHEMICAL THEORY. ITS CONCEPTION AND APPLICATION *

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It is my privilege in this paper to take up the subject of specific chemical therapeutics, which is equivalent to saying that I am to expound the work that Professor Paul Ehrlich has accomplished in the past seven years, during which time he has done far more than merely lay the foundation of this new science. It can be said that this basic idea, which he has followed logically from the very beginning of his experimental work, down through his present world-stirring discovery; namely, that a specific chemical affinity exists between specific living cells and specific chemical substances, is his main, most valuable, broadest and most suggestive contribution to science.

It was this idea that was at the foundation of his famous studies on the morphology of the cellular constitution of the blood. As is known, Ehrlich was the first to describe correctly the leukocytes, and to teach us to differentiate not only different parts of the body of the leukocyte from one another, but also the different kinds of leukocytes one from the other, by showing that these different parts stain differently with the same dye-stuffs.

Following up this work in the field of morphology he studied vital staining and demonstrated even more clearly the selective action of many different substances for different tissues of the body. The best-known experiment in this connection is the one performed with methylene blue, whereby he showed that if the substance be injected directly into the circulation, on section of the animal some time later, the tissues of the nervous system will be the only ones colored blue. He found further that those cells of the body which demand the most oxygen would not be colored at all, but would turn blue after an exposure to the air. This led to the publication of a work¹ which stands out as a beacon light in the realm of science, and is surpassed only by his original publication of his fundamental theory concerning the distribution and selective action of chemicals in the human body.

Further following out his idea he happened to feed mice with ricin and abrin, the vegetable poisons contained in the castor oil and jiquirity beans, and found that he could immunize them against these poisons. Not only was this the first time that animals were highly immunized to vegetable poisons, but it was also the first time that the degree of immunity was definitely known. He also discovered the coagulative action of ricin on the red blood-corpuscles and found

* Delivered by invitation before the Anglo-American Medical Association of Berlin, Sept. 10, 1910.

1. The Oxygen Requirements of the Organism.

that he could prevent this by adding to a mixture of ricin and red blood-corpuscles a small quantity of the blood-serum of a previously immunized animal.

As the opportunity was given to Ehrlich to follow out on a large scale researches that he had long hoped to be enabled to carry on, and to which he was much more forcibly attracted, he left the other fields of research to undertake the study of specific chemical therapeutics.

Ehrlich believed (and this belief found sufficient support in his twenty-five years of experience) that for each specific parasite a specific curative drug must and could be found.

An important question to be solved in starting this work was the selection of a suitable parasite and a suitable animal for experimentation.

Because of the sleeping-sickness epidemic in Africa, and because the trypanosome is easily transferable to mice, Ehrlich began working with trypanosomes. At first he used many dyestuffs, some entirely new, some old. He soon succeeded, in connection with Weinberg, in producing a new dyestuff, trypan-red, which absolutely cured every infected mouse with one injection. This was the first time that a living organism was completely sterilized; that is, that every one of the parasites within the body was completely destroyed by a disinfectant.

The complete sterilization of the animal's body with trypan-red was but the first step forward in this new science. It was found that if a slightly smaller dose was injected than was necessary completely to destroy all the trypanosomes, then these would entirely disappear from the circulation for a period directly proportional to the dose given, but after that period they would again return. If the mouse were again injected with the same dose, the parasites would again disappear only to return after a shorter interval. If the injection was repeated several times, a strain of trypanosomes would be obtained on which trypan-red had not the slightest effect. In other words, the parasites became completely resistant to the large dose of trypan-red that it was possible to inject into a mouse without causing injury to it, and this resistance was transmitted to the trypanosomes for many generations. It is possible that if a strain of trypanosomes could be brought to the maximum immunity towards a given drug, this characteristic would become constant. For example, we have in our laboratory a strain of trypanosomes which nearly four years ago was made resistant to atoxyl, and is still resistant after three and one-half years passage through normal mice.

And again, I have succeeded after three and one-half years of arduous work in producing a strain of paratyphoid bacilli resistant to arsenious acid. I have grown them on agar containing increasing quantities of the drug. At first a dilution of 1 to 28,000 was sufficient to prevent the growth of the bacilli, but now they grow freely on an agar containing a dilution of 1 to 3,500. The chemical receptors of the bacteria as well as the agglutinative receptors are entirely different from those of the original strain; for instance, the resistant strain is completely resistant to antimony, which the original strain is not. At first when the dilutions were very great it was easy to bring the strain back to normal by passing it several times on ordinary agar. However, we have passed a highly resistant strain on ordinary agar 150 times, without succeeding in bringing it back to normal.

The demonstration that these parasites could so readily become resistant to different chemical substances led to the logical conclusion that in order permanently to

cure a parasitic disease it is necessary to destroy in the shortest time every single parasite with one injection of a drug, as it can readily be seen that if complete sterilization is not achieved, and frequently repeated doses are necessary, the substance would soon lose all effect, and the person or animal treated would then be worse off than before the treatment was begun.

This, then, became Ehrlich's aim: to produce a substance which was so specific for given parasites that they would be completely destroyed by one injection.

Just as a general to make sure of victory when trying to capture a fort on a hill attacks it from all sides, so Ehrlich went to work. As the parasites have many receptors specific for different groups of substances, many different substances are tried out; in other words, a combination treatment is aimed at. Therefore Ehrlich has striven in the last few years to produce more than one drug which would act as specific on the same parasite. This combination treatment also has the additional advantage that much smaller and less dangerous doses can be given than would be necessary if the maximum tolerable dose of one drug were used.

As has always been the case in the treatment of diseases, all possible drugs were tried on animals and people infected with trypanosomes. Bruce was the first to find that arsenic was a drug of appreciable value in the treatment of surra (trypanosomiasis of horses). Soon after Ehrlich started his work on trypanosomes, Thomas found that atoxyl, a compound of arsenic and anilin, would cure a large percentage of infected laboratory animals. Then Kopke used atoxyl in the treatment of human sleeping-sickness in Africa. Ehrlich started to work with atoxyl and found that it was an entirely different substance from what Béchamp, its discoverer, had thought it to be: instead of the arsenic being connected directly with the nitrogen of the anilin, and instead of this combination of anilin and arsenic being a very loose one, the arsenic was directly connected with the benzol ring of the anilin and the combination was a stable one and capable of entering into many different kinds of substitution products.

Almost at the beginning of the work it was discovered that although trypan-red possessed the power of destroying all the trypanosomes in the body of a heavily infected mouse, it had no effect whatever when mixed in a test-tube with a blood-suspension containing trypanosomes even in the strongest dilution. It was also found by Mesnil that atoxyl, which caused the trypanosomes to disappear within several hours from the circulation and glands of patients suffering from sleeping-sickness, possessed absolutely no effect on trypanosomes outside of the body in a test-tube. These two phenomena Ehrlich designated as a paradoxical or indirect action.

In order to explain this phenomenon it is necessary to glance over the general theories underlying this science as they have frequently been expounded by Ehrlich. First, what are the drugs that come under consideration at all? and then, how are these drugs effective?

Of these drugs there are three groups:

1. The arsenic group, examples of which are arsenious acid, atoxyl, and later the new atoxyl substitution products, such as acetylatoxyl, arsenophenyglycin and dioxydiamidoarsenobenzol. To this group can also be added the antimony compounds.

2. Certain azo-dyestuffs, such as trypan-red, discovered by Ehrlich and Weinberg, and trypan-blue and trypan-violet, discovered by Mesnil.

3. Certain basic triphenylmethan dyestuffs, such as pararufuchsin, methyl-violet and pyronin.

The mode of action of these different drugs varies, according to Ehrlich, as follows:

1. Some substances have no effect on the parasite in test-tubes and possess no curative properties; in other words, the trypanosomes possess no receptor which fits into the atom grouping of the substances.

2. The substance has a highly destructive action on the parasites outside the body; but has absolutely no curative effect. This is best illustrated by the experiment of Koch with anthrax bacilli and bichlorid of mercury.

3. The substance has absolutely no effect on the parasites outside the body, but shows a highly or completely curative action when within the body. This is the indirect action which I have just spoken of, and under this category can be placed most of those drugs which are of practical interest.

Ehrlich has now brought forth sufficient proofs that this paradoxical or indirect action, which many other dyestuffs and arsenic compounds also possess, is due to one of the following conditions:

The first condition is that the substance, which outside the body has no effect on the parasites, is so changed in the body that it becomes effective. In the case of atoxyl Ehrlich has proved that the effect is due to a reduction of the substance within the body, and that the reduced substance is probably a compound called paramidophenylarsenoxyl. This substance he manufactured in the laboratory by reducing atoxyl, which then destroyed the trypanosomes in a test-tube in the amazing dilution of three or four millions. He theorizes from the results which he has obtained with many hundred arsenic compounds that the trypanosomes have a receptor which will combine only with three-valent arsenic and not with the five-valent arsenic, as it is present in atoxyl.

The second possibility of the indirect action is due to an inhibition of certain functions of the parasite which have to do with its reproduction or the destruction of some of its constituent parts. This is shown by the often repeated experiment in which, when trypanosomes are mixed in test-tubes with weak dilutions of certain basic dyestuffs, the trypanosomes continue to live and move, but if this mixture is injected into a mouse no infection will take place. B. Busk also proved the correctness of this by showing that certain paramecia live for many weeks in a strong solution of trypan-red but fail to multiply as usual.

A clinching discovery was that of Werbitzki, working under Ehrlich, who found that if trypanosomes were treated with certain dyestuffs (pyronin) they would lose very rapidly their blepharoplast, and that this characteristic was inherited by the offspring for many generations.

This brings us to the consideration of the several methods by which specific substances can bring about a lasting cure. Either the drug destroys all the parasites within the body by its direct and specific action, or the curative substance need kill only a certain number of the parasites, when the remaining ones will be destroyed by the rapidly formed antibodies, as has been shown by Wassermann, Schilling and Mesnil.

These are some of the fundamental theories on which a mighty structure has already been erected. Let us turn now to the practical results achieved.

Trypan-red proved a curative agent only for mice. It had no effect when used in the treatment of larger animals infected with trypanosomes. Since then it has been found by Mantoufel and Uhlenhuth to have a distinct curative action on some forms of spirilla. Nuttall

has found that trypan-red is a most effective remedy in the treatment of a widely distributed disease of cattle, known best under the name of Texas fever. It has been possible to produce a drug known as arsenophenyl-glycin which absolutely and lastingly cures with one injection of a proper dose all animals suffering from trypanosome-infection. It has been tried on human beings suffering with sleeping-sickness with varying success. In West Africa von Raven has succeeded in curing a number of cases of human sleeping-sickness with a relatively small dose. On the other hand in East Africa, where the epidemic really is at the present moment, the results have not been so promising. It is hard to imagine what a difficult thing it is to obtain satisfactory results when the field of action is so far distant; and more important still, when the dose of a new drug that a human being can safely stand is absolutely unknown.

This can be better appreciated when we know, for instance, that the largest single dose of arsenophenyl-glycin in East Africa has not exceeded 1 gm., whereas lately in the Congo, Broden has given as much as 4 gm. in one injection. Frequently the specific instructions given by Ehrlich are misunderstood or the individual worker tries out his own theories. It has been Ehrlich's wish that the largest possible dose be given in one injection in fresh cases of sleeping-sickness, that have not been previously treated with other arsenic preparations, principally atoxyl. Notwithstanding these specific instructions many cases have been treated in the later stages of the disease in which permanent changes in the nervous system have already taken place or where the eye has already been damaged by a previous atoxyl treatment. Hence the results are variable and it is easy to see why any statement as to the ultimate value of this drug must be of the most conservative nature. Until a large number of fresh cases of sleeping-sickness, in which the trypanosomes have not yet invaded the spinal canal, are treated with the largest possible dose that can be given to a human being without injuring the body, our final conclusions must be withheld. At the present time in Africa two dyestuffs, trypanosan and agridinium, trypanocidal substances of very great value, are being used in combination with the arsenophenyl-glycin.

After having produced this latter drug and after it had been shown that syphilis could be transferred to rabbits, an animal that is easy to work with in the laboratory, Ehrlich turned his attention to that group of diseases caused by the spirilla: syphilis, relapsing fever and chicken spirillosis. Only a short time elapsed before dioxydiamidoarsenobenzol, better known as "606," was brought forward. Hata soon found that this drug definitely cured chicken spirillosis in a dose fifty-eight times smaller than the *dosis tolerata*, or the largest dose that could be given with safety to any animal. The spirilla of relapsing fever when present in the body of a mouse were also easily killed by one injection of a small dose. One-seventh of the *dosis tolerata* was sufficient to cure a rabbit infected with syphilis. This relatively small dose caused the *Spirochæta pallida* to disappear completely from the lesions within twenty-four hours. After repeatedly securing these results, Ehrlich decided carefully to start some trials with the substance on human beings. First of all, the drug was sent to Professor Alt, who tried it on dogs, and then on two of his assistants, who volunteered, in order to make sure that it would have no evil effects. It was then tried on patients. To Iversen in Russia, Ehrlich entrusted the substance to treat

human cases of relapsing fever, which he did with signal success. With one injection of 0.3 gm. Iversen was able to cure completely for the first time relapsing fever in 90 per cent. of his patients. Within a few hours after the injection, the patient usually suffers a chill of greater or less severity, followed by profuse sweating and a rapid decline of the fever to normal, at which point it remains indefinitely. The action of this drug on such an important disease as relapsing fever we must not allow to be overlooked in the fury and clamor concerning its action on syphilis.

Now to that which no doubt interests us mostly: the results of the treatment thus far obtained in cases of syphilis.

In order to be absolutely sure of his ground and to know exactly when, how, and how much of this substance could be given, Ehrlich has given away over 20,000 doses free of cost to more than 500 selected physicians throughout the world. And all he asked of them was to treat certain classes of patients (which, by the way, many of them have not done), under certain rigid restrictions which he laid down, to the effect that all patients must be confined to bed in a hospital for several days after the injection in order to be under careful observation; that only syphilitics who have healthy hearts and kidneys and sound eyes, that is, in whom no degeneration is present, be treated. From these physicians he now has records of about 6,000 cases and at least 2,000 additional patients have been treated, whose records have not yet been sent in.

The great majority of investigators are astounded at the completeness and rapidity of its action. Naturally some had results have already been reported, but to find the cause of this has been an easy matter. For instance, we heard some time ago, that certain investigators had seen in a remarkably large percentage of cases paralysis of the bladder and rectum. As soon as their technic became known it could easily be seen that the symptoms were those of methyl-alcohol poisoning, this having been used in too large quantities to dissolve the drug, and possibly being impure at that. It is remarkable that in some of these clinics where hundreds of patients have been treated, no evil effects have been found (aside from a few necroses due to a too superficial injection of the drug, usually when given in suspension). It must also be impressed on every one that Ehrlich has never claimed that this drug is harmless. On the contrary, he has on every occasion stated that in his opinion *a drug will never be found which will completely destroy all the parasites in the body with one or two injections that will be without its dangers.* He has also frequently stated that the therapist can only do with his chemical knife what the surgeon does with his steel scalpel.

The entire process of manufacturing the substance is a most difficult one, as it must take place under nitrogen and absolutely without contact with the air, being a highly reduced product. It is kept in little glass tubes in a vacuum. In treating patients each tube must be opened and the contents either dissolved or suspended, as the case may be, and injected immediately.

Now as to the dose: We do not yet know how much can be given to a human being without causing injury. If the dose be calculated from the average animal dose (including the monkey), a human being could be given 5 or 6 gm. at one injection. It is, however, possible that a human being can stand less than even the most susceptible animal, and that half this quantity would be the maximum dose. Even should this prove to be the

case, it is clear that the doses now being employed are very small ones (0.3 to 0.8 gm.). One gram has already been given in one intravenous injection without causing any severe reaction. A difference must of course be made between the subcutaneous and intramuscular injections, and the intravenous route; but the doses now being employed are about the same for both. The average doses given are about 0.6 gm. for women and 0.8 gm. for men by the two former, and 0.3 to 0.5 gm. by the last. There are some, however, who never use less than 1 gm. intramuscularly, and 0.8 gm. intravenously.

Under the head of technic it must be mentioned that the substance can be administered in two ways: either in a clear solution or in a neutral suspension. The clear solution of the drug is either acid or alkaline; both of these can cause considerable pain, but their effect is decidedly better than that of the suspension, which is, on the other hand, practically painless. The intravenous injection is not only painless, but in the hands of experienced workers is also without danger. The method of Iversen, recently published, by which he first gives an intravenous injection of 0.5 gm. and two days later an intramuscular injection of a suspension, with the idea of creating a storage of the drug, deserves serious consideration and promises to be the method chosen by careful workers in the future.

The great fear that this drug would have a bad effect on the optic nerve as do atoxyl and acetylatoxyl, experience has proved to be groundless. In about 12,000 cases that have been treated, not one report has been made of injury to the eyes. There have been a number of relapses, due to the smallness of the dose which was administered in the beginning of this work. A repetition of the injection, with a dose even larger than that first given, has also been found to be possible and causes the symptoms again to disappear completely.

It has been found by Hoppe that in the case of the intramuscular injection arsenic can be demonstrated in the urine and feces up to the tenth day, while in the case of the intravenous injection no arsenic can be found on the fourth day. One injection of the drug into infected animals causes the spirochetes to disappear completely within twenty-four hours, and in human beings within three days.

The rapidity of the cure in the primary stage depends on the character of the primary lesion. An erosive one heals completely within four or five days, whereas it requires eight to twenty days for an indurative chancre to be healed. The effects on the secondary symptoms are even better than on the primary. The eruptions disappear in some cases as if by magic, and throat lesions also heal within two or three days. Still more wonderful is the effect of the drug on tertiary lesions. This sounds paradoxical, but Ehrlich thinks it is due to the presence in the body of large quantities of antibodies which have had time to develop. Gummata disappear, and deep ulcers become clean and granulating within a very few days.

These results seem almost incredible, but they are demonstrated daily in the clinic of Wechselmann in the Virchow Krankenhaus, and in other clinics where the drug has been used. Whether dioxidiamidoarsenobenzol effects a permanent cure of syphilis by one injection in the majority of cases, only observations covering a long period of time can show. One thing, however, is now already certain: that it is not only superior to mercury and iodid of potash in the treatment of syphilis, but that it surpasses any known drug on account of the rapidity and apparent thoroughness of its action.

As I have stated above, acid or alkaline solutions can cause considerable pain, while the neutral suspension is practically painless; but its absorption and effect is slower. The amount of pain and discomfort following an injection varies with different patients. In general, it is said that women seem to suffer less than men, and babies apparently have no pain even from a strongly alkaline solution. It has generally been found that on the second or third day after injection, there is a slight rise of temperature which abates again within a few hours, and a slight tenderness at the site of the injection.

It should be mentioned again that "606" is a powerful medicinal agent, and it should be used only after the various technics have been thoroughly studied and mastered. It will never be a drug that can be used altogether in office practice like the frequent injections of the different mercurial salts; and the greatest caution must be exercised by those who use it, after it is given to the medical profession at large. An unattainable ideal would be to have the drug used only by trained genito-urinary specialists, just as a laparotomy is performed to-day only by a surgeon.

It is for this reason that Ehrlich has withheld the preparation from the general profession until many thousand cases have been recorded by competent and careful workers. The records of these cases will act as a bulwark against any future misuse of the drug by the incompetent.

Sandhof-trasse 14.

A CASE OF TORSION OF THE GREAT OMENTUM

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Although the case reports of torsion of the great omentum have greatly increased since the recognition of this condition has become more general, still it is of sufficient rarity to warrant the report of all cases, particularly of the intra-abdominal variety.

History.—R., male, aged 45, referred by Dr. W. V. C. Francis, with the following history: Appendectomy during an acute attack five years ago, with suppuration of the wound; since then the patient has had frequent attacks of abdominal pain of a colicky nature. July 22, 1910, an attack of unusual severity was followed by the formation of a tumor in the right iliac region which was tender to pressure. The temperature varied from normal to 101 F. The patient had not vomited. The bowels had moved daily. August 1, ten days after the commencement of his illness, the acute symptoms had subsided. He complained of little pain and appeared quite comfortable. The evening temperature was 100 F. The pulse was not accelerated. The abdominal walls were thick. There was no tympany nor rigidity. In the right iliac region, just lateral to a broad oblique scar, was a tumor about the size of a fist, slightly tender to touch and apparently superficial to the abdominal muscles. A diagnosis was made of strangulated epiplocele and operation suggested.

Operation and Findings.—The operation on August 3 revealed a mass of strangulated omentum about the size of a duck's egg, within a hernial sac, to which it was firmly adherent. The pedicle, two finger-breadths in thickness, was found continuous with a mass of matted and deeply congested omentum within the abdomen. This intra-abdominal mass was about the size of a goose egg, firmly attached by old adhesions to the intestines, from which it was separated with difficulty. This mass was, in turn, attached by a pedicle the thickness of the thumb to the remainder of the great omentum. Both pedicles showed plainly the marks of torsion, and both omental masses the effects of venous obstruction. The strangulation

was more intense in the intra-hernial mass, but in neither was it sufficient to cause gangrene. The patient probably would have recovered from this attack, as he had from previous less severe ones, as evidenced by the dense adhesions of both masses. Both omental masses were removed and the hernial opening closed by overlapping. Recovery was uneventful.

Adhering to the classification suggested in my previous article,¹ this case belongs to the group of intra-hernial and intra-abdominal torsion about two points.

MYIASIS DERMATOSA DUE TO THE OX-WARBLE FLIES

ROBERT T. MILLER, JR., M.D.
PITTSBURG, PA.

Myiasis dermatosa, or infection of the skin with the larval stage of dipterous insects, is fairly common in the tropics though less so in temperate zones, the infection in man most commonly being due to the screw-worm (*Comptosomyia macellaria*²) or to *Dermatobia hominis*.³ The following case of human infection due to *Hypoderma lineata*, one of the ox-warble flies and a parasite of cattle almost exclusively, merits report because of its rarity.

Patient.—H. S., a white boy, aged 11, of Roanoke, Va., was admitted to Johns Hopkins Hospital, Baltimore, March 13, 1908, complaining of "swelling under the chin." His family and personal history are negative.

Present Illness.—In December, 1907, the boy noticed a small round lump just below the left knee; this lump was slightly red and very tender especially at night. About two days later the lump had disappeared from the original position and was found some three inches above the knee; the following day it was still higher on the thigh and during successive days it appeared at different points along a course up the abdomen, under the axilla, over the scapula, up the right side of the neck, irregularly about the scalp, finally passing back of the ear and to the submental region which it reached about two months after its first appearance; there it remained stationary, tenderness and pain having meantime greatly decreased. During January, 1908, there appeared in the left groin a second similar lump about the size of a finger-nail. This lump followed a course up the abdomen, under the right axilla and up to the back of the neck, reaching the occipital region in about three weeks, at which time it "came to a head"; the patient picked the seal off and pulled out a "white worm about one inch long and as thick as a darning-needle," alive and moving. These lumps were occasionally stationary but generally migrated three to four inches a day. The pain was not extreme but, with the tenderness and a stinging sensation, was more pronounced at night. At times the lumps would increase to the "size of his two fists" and become very painful.

Physical Examination.—In the submental region was a superficial fluctuating mass 2 cm. in diameter about which there was but little induration or inflammatory reaction. The cervical and axillary glands were generally palpable but small. Hemoglobin 75 per cent. White blood cells 7,700.

Differential count:

Polymorphonuclear neutrophils	.....	51	per cent.
Polymorphonuclear eosinophils	.....	8	per cent.
Mononuclears	.....	30	per cent.
Transitional cells	.....	1.5	per cent.
Unclassified cells	.....	3.5	per cent.
Pulse and temperature normal. Urine negative.			

March 13, under cocaine anesthesia, the submental mass was incised, disclosing a small amount of finely granular detritus

1. Torsion of the Great Omentum, THE JOURNAL A. M. A., May 11, 1907, p. 1590.
2. Stiles: Osler's Modern Medicine, 1, 637.
3. Adams, J. Lee: Tropical Cutaneous Myiasis in Man, THE JOURNAL A. M. A., April 9, 1904, p. 947.

and a white larva lying in a cavity possibly 1 cm. in diameter and situated entirely in the skin. No motion was observed in the larva.

The larva was sent to Washington where, through the courtesy of Professor C. W. Stiles, it was identified as "the larva of *Hypoderma lineata* in the second stage."

The patient reported under date of June 24, 1910, that he was quite well and had had no further trouble.

While there are probably other cases recorded I have found in the accessible literature but one somewhat similar case⁴ in which a small lump wandered irregularly over the chest wall, arm and back finally, at the end of five months, arriving on the cheek where it suppurated and was lanced discharging a larva subsequently identified at Washington as the larva of *Hypoderma bovis*. This case occurred in McKean County, Pa.

Hypoderma lineata and *Hypoderma bovis*, the ox-warble flies, are parasites of cattle. According to Curlic⁵ the eggs of the former are deposited on the hair of the animal, carried by licking into the mouth and esophagus, where they adhere until the development of the larva which burrow through the tissues of the neck arriving at the skin, whence they travel in the skin itself to the back of the animal thus doing permanent injury to the hide. Folsom states that in six months of 1889 *Hypoderma lineata* alone was responsible for a loss of more than three and a quarter million dollars of which almost seven hundred thousand dollars represented injury to the hides.

In the present instance, however, the egg seems to have been deposited in the skin about the left knee, from which point the larva immediately began its migration through the skin without penetrating the deeper tissues. Neither in this case nor in Kane's case were there any constitutional symptoms, the sole inconveniences having been pain and local reaction caused by the burrowing of the larva.

I wish to express my thanks to Professor W. S. Halsted through whose courtesy this case is reported and to Dr. Thomas R. Boggs as well as to Professor C. W. Stiles for identification of the larva.

1018 Westinghouse Building.

REVISED DIRECTIONS FOR MAKING AND USING THE WRIGHT BLOOD-STAIN *

JAMES HOMER WRIGHT, M.D., S.D.
BOSTON

Reports of unsatisfactory results obtained by some workers with the blood-staining fluid which I devised a number of years ago, and recent personal experience with it, have made clear to me that the directions for its preparation and application should be revised in order that certain faults in its working may be corrected or prevented. It is believed that the revised directions which are here given will enable the multitude of users of this reagent to obtain by it brilliant staining effects with more certainty and constancy than heretofore.

PREPARATION OF THE STAINING FLUID

To a 0.5 per cent. aqueous solution of sodium bicarbonate add methylene blue (B. X. or "medicinally pure") in the proportion of 1 gm. of the dye to each 100 c.c. of the solution.

Heat the mixture in a steam sterilizer at 100 C. for one full hour, counting the time after the sterilizer has become thoroughly heated. The mixture is to be contained in a flask, or flasks, of such size and shape that it forms a layer not more than 6 cm. deep. After heating, allow the mixture to cool, placing the flask in cold water if desired, and then filter it to remove the precipitate which has formed in it. It should, when cold, have a deep purple-red color when viewed in a thin layer by transmitted yellowish artificial light. It does not show this color while it is warm.

To each 100 c.c. of the filtered mixture add 500 c.c. of a 0.1 per cent. aqueous solution of "yellowish, water-soluble" eosin and mix thoroughly. Collect the abundant precipitate which immediately appears on a filter. When the precipitate is dry, dissolve it in methylic alcohol (Merck's "reagent") in the proportion of 0.1 gm. to 60 c.c. of the alcohol. In order to facilitate solution, the precipitate is to be rubbed up with the alcohol in a porcelain dish or mortar with a spatula or pestle.

This alcoholic solution of the precipitate is the staining fluid. It should be kept in a well-stoppered bottle because of the volatility of the alcohol. If it becomes too concentrated by evaporation and thus stains too deeply, or forms a precipitate on the blood-smear, the addition of a suitable quantity of methylic alcohol will quickly correct such faults. It does not undergo any spontaneous change other than that of concentration by evaporation, according to my personal experience.

A most important fault encountered in the working of some samples of this fluid is that it fails to stain the red blood-corpuscles a yellow or orange color, but stains them a blue color which can not readily be removed by washing with water. This fault I have recently discovered to be due to a peculiarity of the eosin employed. It can be eliminated by using a proper "yellowish, water-soluble" eosin. Such an eosin I have obtained from R. L. Emerson, 739 Boylston Street, Boston.

APPLICATION OF THE STAINING FLUID TO BLOOD-FILMS

1. Cover the film with a noted quantity of the staining fluid by means of a medicine dropper.

2. After one minute add to the staining fluid on the film the same quantity of distilled water by means of the medicine dropper and allow the mixture to remain for two or three minutes, according to the intensity of the staining desired. A longer period of staining may produce a precipitate. Eosinophilic granules are best brought out by a short period of staining.

The quantity of the diluted fluid on the preparation should not be so large that some of it runs off.

3. Wash the preparation in water for thirty seconds or until the thinner portions of the film become yellow or pink in color.

4. Dry and mount in balsam.

Films more than a few hours old do not stain as well as fresh ones.

95 Mountfort Street.

Treatment of Diphtheria.—That our present method of treating diphtheria by antitoxic serum is defective is the contention of Sir Almroth E. Wright (*Proc. Roy. Soc. Med.*, October, 1910). Instead of adapting itself to the requirements of each individual case, it takes into consideration only the diphtheria bacillus and aims only at securing a high average of success. The method ignores the associated pathogenic organisms, such as the streptococci, whose presence may involve almost as much danger to life as the diphtheria bacillus itself. The laboratory bacteriologist aims to produce a serum that will conform to accepted laboratory tests and achieve the highest possible antitoxic potency, leaving out of sight the fact that a diphtheric infection is something more than an intoxication by diphtheric poi-son.

4. Kane: *Insect Life*, ii, 238.

5. Curlic: *Insect Life*, ii, 238.

*From the Pathological Laboratory, Massachusetts General Hospital

New and Nonofficial Remedies

SINCE THE PUBLICATION OF THE BOOK "NEW AND NONOFFICIAL REMEDIES, 1910," THE FOLLOWING ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK ARE ASKED FOR.

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT SO FAR AS KNOWN IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

Articles which have already been mentioned in detail in THE JOURNAL are as follows:

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Fillicic Acid, Amorphous.
Filmaron (Merk & Co.).
Filmaron Oil (Merk & Co.).

April 9, 1910, page 1208

Thiol (Riedel & Co.).
Thiol Dry (Riedel & Co.).
Thiol Liquid (Riedel & Co.).
Maltine with Cod Liver Oil (Maltine Co.).
Maltine with Cascara Sagrada (Maltine Co.).
Maltine with Creosote (Maltine Co.).
Maltine Ferrated (Maltine Co.).
Maltine with Hypophosphites (Maltine Co.).
Maltine with Wine of Pepsin (Maltine Co.).
Malto Yerbine (Maltine Co.).
Maltine with Olive Oil and Hypophosphites (Maltine Co.).
Maltine with Phosphate of Iron, Quinia and Strychnia (Maltine Co.).

May 7, 1910, page 1575

Agar-Agar.
Copper Citrate.
Carbosant.

May 28, 1910, page 1789

Chinosol (Chinosol Co.).
Digipuratum (Knoll & Co.).
Digipuratum Tablets (Knoll & Co.).
Secacornin (Hoffmann-LaRoche Chemical Works).
Desiccated Thymus, Armour (Armour & Co.).
Thymus Tablets, Armour (Armour & Co.).

June 4, 1910, page 1869

Mammary Substance, Armour (Armour & Co.).
Mammary Substance Tablets, Armour (Armour & Co.).
Desiccated Spleen, Armour (Armour & Co.).
Spleen Tablets, Armour (Armour & Co.).
Desiccated Parotid Gland, Armour (Armour & Co.).
Parotid Tablets, Armour (Armour & Co.).
Ovarian Substance, Armour (Armour & Co.).
Ovarian Substance Tablets, Armour (Armour & Co.).
Orchic Substance, Armour (Armour & Co.).
Orchic Substance Tablets, Armour (Armour & Co.).

Aug. 6, 1910, page 503

Nuclein.
Nucleic Acid.
Sodium Nucleate.
Nuclein, Abbott (Abbott Alkaloidal Co.).
Nuclein Solution, Abbott (Abbott Alkaloidal Co.).
Nuclein Tablets, Abbott (Abbott Alkaloidal Co.).
Pituitary Body, Desiccated, Armour (Armour & Co.).
Pituitary Tablets, Armour (Armour & Co.).
Desiccated Corpus Luteum, Armour (Armour & Co.).
Parathyroid Tablets, Armour (Armour & Co.).

Aug. 20, 1910, page 666

Diapsirin (Farbenfabriken of Elberfeld Co.).
Ferratin (Merk & Co.).
Arsenoferratin (Merk & Co.).
Arsenoferratin Tablets (Merk & Co.).
Arsenoferrate (Merk & Co.).
Thig-nol (Hoffmann-LaRoche Chemical Works).
Supraepsulin.
Supraepsulin Solution (Cudahy Packing Co.).

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Gualacodolme (New York Quinine & Chemical Works).
Sophol (Farbenfabriken vorm. Friedr. Bayer & Co.).
Adrin Inhalant Comp.
Adrin Trochos.
Eriable Tablets Protan, 2½ grains.
Eriable Tablets Protan, 5 grains.
Eriable Tablets Protan, 7½ grains.
Extractum Chinæ Nanning (Reinschild Chemical Co.).

THEOPHYLLIN SODIO-ACETATE—Theophyllinæ sodio-acetas—Theophyllin sodium acetate $C_7H_7N_3O_5Na + CH_3COONa + H_2O$, is a double salt of sodium acetate and 1, 3-dimethylxanthine-sodium (theophyllin sodium).

It is a white crystalline powder, containing about 60 per cent. of anhydrous theophyllin. It dissolves in about 20 parts of water at 25° C. (77° F.), but is insoluble in alcohol or ether.

Actions and Uses.—It has the diuretic properties of theophyllin reinforced by the diuretic action of sodium acetate, and being more soluble, it is claimed to be more readily absorbed and to be better tolerated than theophyllin.

It is said to be useful in cardiac affections, nephritis, dropsy, etc.

Dosage.—0.2 to 0.35 Gm. (3 to 5 grains), best given after meals.

Proprietary Preparation:

ACET-THEOPHYLLIN-SODIUM—Acet-Theophyllin-Sodium is a name applied to theophyllin sodio-acetate.

Manufactured by C. F. Boehringer & Soehne, Mannheim, Germany (Merk & Co., New York). U. S. patent Nos. 667,381 (Feb. 5, 1901; expires 1918); 757,328, 757,329 (April 12, 1904; expires 1921).

PHARMACEUTICAL PREPARATIONS ACCEPTED FOR N. N. R.

The following dosage forms of accepted proprietary articles have been accepted for N.N.R.:

Syrup Thiocol Roche.—A syrup containing thiocol 10.5 gm. in 100 c.c. (6 grains in a fluidram).

Therapeutics

THYROID

The thyroid is a ductless gland that has so many physiologic activities that it belongs in a class by itself. The desiccated thyroid glands of the Pharmacopeia are offered as a yellow, amorphous powder, having but slight odor or taste, and being but partially soluble in water. This powder is prepared from the thyroid glands of the sheep, and one part of this official powder should represent about five parts of the fresh gland.

Around the thyroid are small gland structures called parathyroids, and in early experiments with animals in which the thyroids were removed more or less of these parathyroids were also removed; consequently, many of the symptoms described as due to thyroid extirpation were really due to the combined removal of both thyroid and parathyroids. It has since been positively determined that these two gland structures have very different physiologic activities and that both are necessary for the health and welfare of the individual.

In 1895, Schiff first showed that dogs could not live when these glands had been totally removed, but would live if part of the thyroid, and, therefore, some parathyroids, were left. It has since been shown that the convulsions are really due to removal of the parathyroids. The adult human thyroid varies considerably in size, depending on the age of the individual, on the sex, and on the locality in which the individual resides. It may vary in weight from 20 to 60 grams. In the female, the gland enlarges during menstruation and pregnancy, and much more frequently becomes diseased (either simply enlarged or atrophied, or hypersecretes or hyposecretes) in the female than in the male. In both sexes the gland more or less atrophies after the age of 50. It has been proved that the thyroid glands are larger in individuals residing at the seashore, and larger in certain regions than in other regions, this being due, possibly, to the character of the water drunk or to the different constituents of the atmosphere. At the seashore there is more iodine in the air, and iodine in any form is a stimulant to the thyroid gland.

Exactly how the thyroid carries on its various activities has not been discovered. The colloid secretion is an important part of its function, and although not directly utilized, it may be used by the gland as a storehouse for the substances that it needs in performing its other work. If it is in large amount the gland is pathologic, and it

very large amount a cystic goiter is the condition. If the thyroid, as a whole, underfunctionates, various symptoms and conditions develop, which will be explained later, and if it becomes actually diseased and its secretion becomes greatly diminished or even nil, *cretinism* and *myxedema* are the consequences. If, on the other hand, its normal activities are increased, various symptoms develop, which will also later be described, and if the secretion is excessive the conditions of Graves' thyroid disease, *exophthalmic goiter*, is the consequence. It is certainly readily conceivable and seems to be true from clinical experience that certain activities of the thyroid can be perfect while other of its activities are impaired, and varying symptoms are the results of such physiologic changes. It is probable that certain activities of the thyroid may be permanently increased, diminished, or absent, and yet other activities be normal, and many unexplained clinical conditions follow.

If the activity of this gland, as is true of all the internal secreting glands, is greatly impaired, other glands may take up, or assume, or attempt to do part of the thyroid's work. This seems to be especially true of the hypophysis cerebri when the thyroid is diseased. The opposite is also true, that the thyroid becomes disturbed in pituitary disease.

The physiologic functions of the thyroid may be summed up as follows: Its perfect secretion is necessary to the growth of the body in childhood; it is necessary for normal mental ability; it is necessary for proper nitrogenous metabolism; it is necessary for the proper development and distribution of fat; it is necessary for the proper development of the genital organs and their secretions, for normal menstruation and normal pregnancy, and to prevent nitrogenous toxemias.

If the thyroid is absent or its secretion is insufficient in the child, the child becomes a *cretin*, which means that it shows short, stunted growth; is fat and flabby; has a round, full, expressionless face; has a sluggish mentation; and is a semi-idiot. If the gland is extirpated or its secretion becomes enormously diminished or absent, *myxedema* is the result, a condition occurring most frequently in women after the menopause, in which there is an enormous putting on of weight, mostly fat; a puffy condition of the skin, due to an excessive amount of mucin in its interstices; a gradually diminishing mental ability; the same condition of expressionless, fat, rounded face as seen in the cretin; soon circulatory debility; various maldigestions; and kidney insufficiency.

If any individual does not have normal thyroid secretion his mental ability is impaired, and the administration of thyroid substance will often improve the condition. Disease of the thyroid may even be the cause of some melancholic insanities, and such insanities are sometimes improved by the administration of thyroid.

The administration of thyroid will increase nitrogenous metabolism and increase nitrogenous waste, as shown by the excretion of nitrogen in the urine. When the nitrogenous metabolism is impaired and not sufficient nitrogen is excreted, the feeding of thyroid will increase the nitrogen excreted and improve the general condition. Also in nitrogenous toxemias as occurs in puerperal eclampsia and in uremia from kidney insufficiency, thyroid will often prevent the cerebral toxemia and may aid in curing the condition.

If the thyroid is insufficient in its secretion and not sufficiently diminished to cause myxedema, the weight is increased by large deposits of fat. This is noticed when the thyroid normally diminishes its secretion after the age of 45 or 50, when most individuals put on

weight, especially women. It is also noticeable at other ages, especially in women, if the menstruation unaccountably ceases. This deposit of fat is the marked feature of *adiposis dolorosa*, and all of these patients are benefited, the fat is diminished and the weight is decreased by administration of thyroid. *Per contra*, if the thyroid secretion is excessive, as in Graves' disease, the patient loses weight and the fat is diminished.

The thyroid should be fully developed at puberty, and it seems to be one of the predisposing causes of the beginning of menstruation in girls. If the thyroid is not developed and normally secreting the genital organs do not develop or properly functionate. If it does not secrete properly amenorrhea is the consequence. If it over-secretes, menorrhagia is the result. It normally enlarges a few days before the menstrual epoch, and with this hyperemia comes all the exciting and nervous disturbances which increased secretion of the thyroid can cause. The anemic condition termed *chlorosis* bears some close relation to disturbance of the thyroid, and the administration of thyroid is as efficient in correcting chlorosis and in causing normal menstruation (and often more efficient) as iron. The healthy enlargement and increased secretion of the thyroid during *pregnancy* is essential for the proper growth of the fetus and the prevention of nitrogenous toxemias from the double metabolism of both mother and child. If the thyroid does not diminish its secretion after the *menopause*, symptoms of its activity are troublesomely evident, viz., hot flashes and vasomotor dilatation, nervousness, breathlessness, sleeplessness, and palpitation.

The less the ability of the thyroid to functionate normally the less the protein that should be taken into the system; also, much meat tends to keep up the hyperactivity of the thyroid in Graves' disease, the nitrogen seeming to stimulate the gland. Certain it is, such patients do better without meat. On the other hand, in under-secretion of the thyroid as generally seen after the age of 60, the patient demands and requires less and less meat, and is doubtless better off without much meat.

The tendency of the human being from 45 upward gradually to have an increase of blood-pressure, and gradually to develop a tendency to connective tissue formations in various parts of the body, is *pari passu* with the diminished thyroid secretion. Thyroid secretion has a constant activity in lowering blood-pressure, and the administration of thyroid will do the same. If the thyroid is removed from young animals they do not grow, become stupid, have a lower temperature, and unless thyroid is administered, sooner or later die. If an older animal has the thyroid removed, the mental condition becomes sluggish, the muscles become weak, the skin thickens, the hair may fall out, he may or may not lose weight, the temperature is diminished, circulation is impaired, anemia may develop, and if the animal lives long-enough sclerosis of the larger vessels may occur.

It has been estimated that there are sufficient blood-vessels passing through the thyroid to allow the whole blood of the body to pass through the gland at least once an hour. If the circulation of the thyroid is enormously increased, as it is in the dilated condition of the blood-vessels in Graves' disease, the blood could go through the gland perhaps twice as frequently as normal, consequently the blood would contain twice as much thyroid secretion as normal. This fact alone would be a cause of the thyroid intoxication and symptoms of exophthalmic goiter.

The colloid secretion consists of two albuminous bodies, and there is a small amount of phosphorus and a

nucleoalbumin in the gland. In 1895, Baumann discovered iodine in the colloid secretion and prepared a substance which he called iodothyron, which is an iodine protein combination which it was supposed would represent the activity of the gland, but has been proved not to act like thyroid substance. While the colloid substance is the chief seat of the iodine content, the thyroalbumin of the follicular cells has been shown to contain the element (Aeschbacher, *Berl. klin. Wchnschr.*, Feb 12, 1906).

The administration of thyroid will increase the nitrogen, sodium chloride, and phosphorus output in the urine, while a diminished secretion of thyroid may decrease the output of nitrogen and phosphorus. The thyroid is probably the only organ of the body that contains iodine, and there is more iodine in the thyroids of individuals living at the seashore or where goiter is endemic than in other regions. There is also more iodine in the thyroid during its period of greatest activity, viz., from 15 to 40. The activity of the thyroid is diminished after perhaps its primary stimulation, in *infectious diseases, tuberculosis, and chronic alcoholism*, and the iodine is also decreased in these conditions. *Circulatory disturbances* that would cause chronic passive congestion seem to diminish the activity of the thyroid and the amount of iodine it contains. *Carcinoma* has been shown to cause an increased amount of iodine in the thyroid. The administration of iodine is a stimulant to the thyroid gland and will increase the iodine content to a certain amount, and then it is increased no more. This shows that there is no necessity for enormous doses of iodine since its best action is perhaps in stimulation of the thyroid and increasing its iodine content. *Syphilis* and the prolonged administration of mercury seem to diminish the secretion of the thyroid and may cause its early atrophy, hence perhaps the cause of the frequent connective tissue sclerosis and arteriosclerosis that occurs after this disease and its cure by mercury. *Chronic lead poisoning* will cause the thyroid secretion to be diminished. Ordinary circulatory stimulation, especially with such drugs as caffeine, tea and coffee, will stimulate the gland to increased activity. So do single doses of alcohol; but not so chronic alcoholism. Arsenic is a stimulant to the thyroid secretion; phosphorus is a stimulant to the thyroid. The glycerophosphates seem to diminish thyroid secretion. The thyroid seems to regulate the calcium metabolism, and it has seemed that thyroid feeding was valuable in the slow deposit of callus about a fracture. Also, the lack of bone growth in the cretin child is so stimulated by thyroid as to suggest an action on calcium or phosphate metabolism.

Various investigators, notably Hunt and Marine, have shown that iodine is necessary for the normal thyroid activity and is an index of the physiologic value of the thyroid secretion (thyroglobulin). As to whether the administration of iodine will increase the activity of the thyroid gland depends on the gland's ability to store it and not on the method of administration. In other words, the greater the glandular hyperplasia the greater the amount of iodine it will store. The percentage of iodine which the thyroid may contain varies, and the thyroid gland substance obtained from various sources varies greatly in its iodine content, and consequently greatly in thyroid activity.

Reid Hunt (*THE JOURNAL*, October 19, 1907) has shown that the iodine of the thyroid glands of animals not only varies in different animals, but from time to time in the same animal, and varies with the character of the food taken. He has found that while thyroid sub-

stance that does not contain iodine is not absolutely inactive, it has a low degree of activity. He has shown that animals are more susceptible to morphine if their thyroids are normally active or if they are given active iodine-containing thyroid stuff. Hence this bears out the clinical findings that patients with Graves' disease often do not bear morphine well, and, as he suggests, this may be the reason that they do not bear ether and chloroform well, their susceptibility to narcotics being perhaps increased by the increased thyroid secretion. As the activity of the thyroid substance depends so largely on iodine, and as the iodine content varies so greatly in the different preparations on the market, it may be well when thyroid treatment is indicated to administer conjointly a small amount of iodine, perhaps best as sodium iodide.

The activity of thyroid, when administered, seems to be parallel with its iodine content, and frequently hyperplastic thyroids will become smaller in size under the administration of any iodine-containing substance. Marine and Lenhart seem to have shown (*Arch. Int. Med.*, November, 1909) that iodine in sufficient amount will prevent enlargement of the thyroid or hyperplasia of the thyroid. This seems negatively to show that goiter develops on account of insufficient iodine, and that the regions where goiter develops are regions where iodine is deficient in the water and air. It seems proved that during the stages of enlargement of the thyroid the iodine is deficient. This does not always of necessity mean that iodine is absent or deficient in the air or water or foods taken, but that for some reason or other it is not assimilated and, therefore, that there is a starvation of iodine.

Although boiling the water or changing the water seems to decrease goiter in some instances, this by no means is an argument absolutely in favor of the infectious origin of goiter. Boiling the water might cause such a deposit or chemical change in the substances in the water as to remove a chemical substance that was antagonistic to the iodine normally taken into the body, or that caused the formation of a compound which would prevent the iodine from being normally absorbed or normally utilized by the thyroid.

Marine and Lenhart report the following findings: The iodine content of the thyroid gland varies inversely with the degree of active hyperplasia; partial removal of the thyroid is normally followed by a compensatory hyperplasia of the remaining portion; iodine starvation increases the amount of the hyperplasia; the administration of iodine causes the hyperplasias of the thyroids of all animals to revert to the colloid state; in whatever form iodine enters the organism, it is stored in the thyroid, and that regardless of how much there is in other tissues; the rapidity of accumulation and the amount of iodine thus taken up by the thyroid depends on its size and the degree of active hyperplasia; and the nitrogen excretion seems to bear a distinct relation to the amount of iodine in organic combination in the system.

It has been shown that thyroid substance is the most active of any iodine-carrying compound as a stimulant to thyroid gland activity. Clinically it has been found that iodine, even in small doses, administered as an iodide, when there is hyperactivity of the thyroid, has caused the same disturbance that desiccated thyroid has caused, when administered under the same conditions. This is not true in patients who have normal thyroids. In other words, iodine has no noticeable effect clinically on the activity of the thyroid in normal individuals, while thyroid feeding will cause its physiologic action in such individuals.

It seems to be a fact that in exophthalmic goiter the thyroid is abnormal either by hypersecreting or by having a perverted secretion, and this seems to be a cause of the disease. The active enlargement may be a compensatory condition caused by a disturbance of nutrition. It seems positively demonstrated and known that hyperplasia of the thyroid occurs at some period in every case of exophthalmic goiter, and the severity of a case of exophthalmic goiter generally varies directly with the degree of colloid and coincident lymphoid hyperplasia. It is stated that the operative mortality of exophthalmic goiter is greater in these instances than in those in which there is marked hyperplasia and a low iodine content. Also, the greater the lymphoid hyperplasia of other glands apparently the greater the mortality. It seems, then, in exophthalmic goiter that the gland is hyperactive, and that its hyperactivity is compensatory for some deficiency in the organism.

Marine claims that the hypersecretion of the thyroid in exophthalmic goiter is a quantitative increase, but really a deficient qualitative secretion, and that the final stage of every case of exophthalmic goiter, if the patients do not soon die, will be myxedema or relative recovery; in other words, under-secretion of the gland. Myxedema and cretinism represent the final stage of a prolonged deficient secretion.

It has been noted that the thyroids of new-born animals do not contain iodine. It has also been noted that when part of the thyroid gland is removed the other part will show an increased amount of iodine. Hunt states, too, that an exclusive meat diet leads to a diminution of the amount of iodine in the thyroid. It has also been shown that if the iodine content of the thyroid is diminished and the thyroglobulin consequently diminished, the thyroid tends to hypertrophy, and a cystic goiter generally shows a diminution of iodine.

Hunt says that the normal swelling of the thyroid gland during menstruation and pregnancy is more marked in goitrous regions than elsewhere, and in these places, he says, there is less iodine in the thyroid. Consequently, the inference should be drawn that a simple hyperplastic thyroid without a great increase in colloid will become normal in size by the administration of a small amount of iodine, sometimes a few doses being sufficient, each perhaps not more than 0.20 gram (3 grains). If, however, the condition was that of marked Graves' disease, iodine would perhaps increase the activity and do no harm.

Either thyroid or iodine may increase the menstrual flow as has often been proved clinically, while large doses of an iodide may cause its cessation.

Hunt has found that the feeding of potassium iodide to animals has diminished their resistance to morphine as does thyroid feeding, because it stimulates the thyroid gland. The stimulation, however, with any iodine soon reaches its limit, as Hunt says, probably when all the thyroglobulin has its full iodine content. The adult thyroid contains about 0.004 gram of iodine.

Thyroid has no action locally, but acts only after absorption. Its preparations are probably broken up in the stomach into various proteid combinations, but the gastro-intestinal secretions do not impair its activity. If taken on an empty stomach, if in at all large dose, it causes some nausea. Its first action is as a vasodilator, and the blood-pressure is somewhat lowered. While very large doses quickly absorbed might cause cardiac depression and cerebral excitation, such symptoms from one dose are rarely seen. It is only from small doses con-

tinued for some time that its physiologic action is evident. The symptoms that it causes when its action is thoroughly in evidence are nervous excitation, restlessness, sleeplessness, palpitation, a feeling of general warmth by vasodilatation, sweating, loss of weight, perhaps loss of appetite, diuresis, and an increase of nitrogen and phosphorus (P_2O_5) in the urine. Such an action from thyroid represents intoxication from it, and is undesirable, and should be avoided. If such action occurs the drug should be given in smaller dose, or perhaps not administered at all.

The iodothyron of Baumann does not represent the whole of the activities of the thyroid, consequently thyroidectomized animals can not be kept alive or in health by feeding iodothyron as they can by feeding thyroid substance. From the thyroid have been obtained a nucleoproteid which contains phosphorus and a globulin which contains iodine. This last is termed thyroglobulin, and Oswald (*Münch. med. Wchschr.*, Aug. 15, 1897) says that it is the iodine globulin that increases nitrogenous elimination, while the nucleoproteids, phosphorus stuff, do not. The iodine of this thyroglobulin varies in amount, while the elements of carbon, nitrogen, oxygen, hydrogen, and sulphur remain constant. If iodide of potassium is fed to an animal before its thyroid is removed the colloid will contain more iodine than if such is not administered. Oswald thinks that, when the thyroglobulin which circulates in the blood is metabolized and broken up, the iodine is not entirely lost, but again returns to the thyroid and may again be used. Investigators seem to have proved that to increase nitrogenous metabolism the thyroglobulin of the thyroid substance fed must contain iodine. They also seem to show that it is the iodine combination that gives the thyroid its antitoxic power. In other words, a thyroid short on iodine does not allow normal nitrogenous metabolism to take place in the body and is not normally antagonistic to either infections or to the toxins of metabolism.

While iodine has been found in the parathyroid glands, it has not been determined that it is constant in these glands. It is possible that the parathyroids may assist in thyroid work if the latter is diseased, and it has been shown that the parathyroids hypertrophy if the thyroid is in large part removed. The same is true of the hypophysis cerebri. The reverse is also true; if the hypophysis is diseased or the parathyroids in part removed, the thyroid secretion seems to be disturbed.

The antitoxic importance of the thyroid secretion is shown by the fact that the urine of animals deprived of their thyroids is much more toxic than of normal.

Directly or indirectly, the thyroid also seems to have some control over the development of connective tissue; as when the thyroid secretion is diminished from any cause or this occurs normally at the age of the thyroid's atrophy (*viz.*, after 45) the connective tissue may increase in various parts of the body.

The apparent size of the thyroid gland is no criterion as to the amount of normal secretion it is furnishing. It may be large and be producing much less than the proper amount of normal secretion, and it may be apparently small or not at all enlarged and be producing a much increased amount of secretion. It is positive that an increased secretion from this gland stimulates and irritates the brain and that a diminished secretion causes mental apathy and mental sluggishness, but whether an increased secretion or abnormal secretion can excite a brain to a mania, or an under-secretion can cause cerebral degeneration, has not been determined.

(To be continued)

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 DEARBORN AVENUE . . . CHICAGO, ILL.

Cable Address "Medic, Chicago"

Subscription price Five dollars per annum in advance

[For other information see second page following reading matter]

SATURDAY, DECEMBER 3, 1910

CHRONIC ANTIMONY POISONING AMONG TYPESETTERS

The occupational diseases form a group of disorders which have not received the attention which their importance merits. Too often it happens that the physician is satisfied with an indefinite or incomplete statement from the patient as to the nature of his vocation or calling. A fact of prime etiologic significance is thus lost and the patient is the sufferer in more than one particular. In considering the common occupational diseases there is also the danger of assuming that atypical symptoms are unusual manifestations of the suspected cause. Further inquiry might elicit valuable clues.

This is well illustrated by the recent studies of Strumpf and Zabel,¹ who have been in a position to follow carefully the physical condition of a large number of typesetters in Strassburg, Germany. One thing which impressed them was the rarity of typical cases of lead-poisoning. They observed, however, with great frequency, a clinical syndrome characterized by a fatigued expression, nervousness, irritability, insomnia, exhaustion especially in the morning hours, vertigo, headache, particularly in the frontal and occipital regions, general or local muscular pains, neuralgic pains in the extremities, nausea and vomiting, and constipation. Mild, moderately severe and severe cases were encountered. The authors find evidence in the literature that this symptom-complex has been looked on as a manifestation of chronic lead-poisoning. The patients showed no elevation of blood-pressure, which, as Krehl has shown, is so common in plumbism from spasm of the arterial walls; the erythrocytes had no basophilic granules; and leukocytosis was lacking. Nor did the urine show traces of albumin or bile. On the contrary, the red count was almost or quite normal even in the severe cases with an absence of basophilic granules and there was leukopenia with eosinophilia between 10 and 25 per cent. (Typesetters without symptoms possessed as high as 9 per cent. eosinophils.) The urine was normal and likewise the blood-pressure.

Since the facts observed suggested no connection with plumbism, Strumpf and Zabel visited the presses where

the men were employed, and found, on inquiry, that a mixture containing lead (70 to 80 per cent.), tin (5 per cent.), and antimony (15 to 20 per cent.) was used in covering the type. As tin is without importance toxicologically, their attention was directed to antimony. Rabbits were subjected to chronic antimony poisoning and soon exhibited a well-marked reduction in number of the white cells with increase in the eosinophils up to 25 per cent. The feces of the poisoned rabbits yielded an antimony mirror with Marsh's test.

From this experimental evidence, corroborating their clinical blood-findings as it did, Strumpf and Zabel felt that their patients had been suffering from chronic antimonial poisoning. Since they obtained a positive Marsh test for antimony from the stools of two patients, there can be little doubt that their surmise is correct.

Absence from work for two to three weeks, with exercise in the open air and a milk diet, sufficed usually to restore the patients' health. Thus a new danger to typesetters working with antimonial compounds is brought to light and a distinct contribution added to the growing subject of occupational diseases.

INSANITY IN THE MILITARY SERVICE

Among the medical officers of the Army and of the Navy lately there has been a remarkable growth of interest in psychiatry. In other countries, notably France and Germany, the relation of insanity to conditions of military service has received considerable attention and an extensive literature on the subject is available, but till now the matter has been almost ignored in the United States. The interest which is now being shown in so many different ways is due in part to the influence of the clinical instruction given by Dr. William A. White to the student-officers of the service schools at Washington.

The opportunities for obtaining practical work in psychiatry, even at the best medical schools, are pitifully meager, and it is not at all surprising that the adequate presentation of the subject under such conditions as the Government Hospital for the Insane affords should enlist the attention and, in many cases, the enthusiasm, of the young officers and of the older ones who are assigned from time to time for courses of instruction at the Army and Navy medical schools. One result of the newly awakened interest is that already valuable observations on insanity in the military service are being published.

Some observations of especial interest are those of Passed Assistant-Surgeon Heber Butts¹ and Captain Robert L. Richards, Medical Corps U. S. Army.² Dr. Butts gives interesting statistics regarding the 528 officers and men who have been admitted to the Govern-

1. United States Naval Medical Bulletin, October, 1910; abstracted in THE JOURNAL, Oct. 22, 1910, p. 1501.

2. Am. Jour. Insanity, July, 1910; abstracted at length in THE JOURNAL, Sept. 3, 1910, p. 875.

1. Strumpf and Zabel: Ztschr. f. exper. Path. u. Pharmacol., 1910, lxviii, 242.

ment Hospital for the Insane at Washington from the active lists of the Navy and Marine Corps during the period from Jan. 1, 1899, to June 1, 1910. He comments on some of the relations of race, rank or rating, types of mental disease and etiologic factors in this group of cases. Some of the observations agree with the facts ascertained by statistical studies of admissions to state hospitals for the insane, but there are some interesting variations which must reflect the effects of conditions of military service and which must have great interest for military medical officers when they have been studied at greater length.

In spite of a high prevalence of syphilitic infection among the enlisted men of the Navy, only 5.11 per cent. of all admissions to the hospital were for general paresis. In the New York state hospitals for the insane, paretics form about 19 per cent. of all male first admissions. It is safe to conclude that by far the larger proportion of cases of paresis in sailors occur after they have served their enlistments and left the Navy. The government suffers from the large number of men incapacitated from duty on account of syphilis, but the communities in which the discharged seamen take up their residences subsequently bear the burden of supporting the paretics who find their way into state institutions a dozen years after their careers in the Navy have closed.

The large proportion of cases of dementia præcox, 33.52 per cent. of all admissions in this group, is largely accounted for by the low ratio of paretics and by the youth of the men admitted, the number of cases of involuntional psychoses and of senile deterioration, which form so large a part of all admissions to state hospitals, being for these reasons much less.

By far the most important phase of insanity in the military forces is, as Dr. Butts points out, its relation to recruiting. He shows that the expense to the government which enlistment of an insane man occasions, the detriment to the efficiency of the service involved by his presence and the difficulty in deciding whether or not he shall be given the benefits which come to those who have received their disability in "line of duty," all combine to make the determination of the mental status of the applicant for enlistment of the highest importance. In forty-four cases, or nearly 9 per cent. of all in the group considered, mental disease became apparent within thirty days from the time of enlistment, and synopses of typical cases are given in which there was plenty of evidence at the time of enlistment that the men were insane or mentally inferior. This seems to indicate that the present system of examination is inadequate to exclude with a conspicuous degree of success actually or potentially insane men from the Navy and Marine Corps. It is to be remembered that the Navy is particularly exposed to this danger, for, besides the men who enlist for reasons which are actually the outgrowth of delusions, a considerable number enlist for

the purpose of escaping from an environment in which they have failed to "make good," and not a few for the purpose of being sent to remote places where they hope to escape the consequences of misdeeds. Among men of this class many are constitutionally inferior and some are insane.

To guard against enlisting such men is an important duty of medical officers. Dr. Butts suggests the advisability of devising some means of giving a practical mental examination, and that accepted candidates be required to serve a six months' period of probation in order to determine their mental status and their aptitude for the service and for the rating in which they have enlisted. We are inclined to think that the factor which will have the most influence in selecting recruits with a smaller percentage of insane and mentally defective men will prove to be the successive classes of young medical officers coming into active duty with practical knowledge of the fundamentals of clinical psychiatry. When a considerable number of the earnest and well-trained young medical men who are at present entering the Navy add to their professional training in other directions such a knowledge of mental diseases as can be obtained at St. Elizabeth's, there will be fewer insane men enlisted, especially of the type of which Dr. Butts gives examples. This work is of so much practical importance that it seems that even more attention might be given it in the courses of instruction at the service medical schools at Washington.

AMERICAN JOURNAL OF DISEASES OF CHILDREN

The first number of the *American Journal of Diseases of Children*, the new periodical to be published by the American Medical Association, will appear in January, 1911. This journal is established at the request of a large number of the leading pediatricians of the country. At the St. Louis session, the Board of Trustees recommended to the House of Delegates that such a journal be established and the recommendation was adopted. At its meeting in June the board decided that the publication should begin in January, and that there should be an editorial board of six, as in the case of the *Archives of Internal Medicine*. At the October meeting the Trustees selected, from those recommended by a committee of pediatricians previously appointed for the purpose, the following Editorial Board: William Fitch Cheney, San Francisco; Frank Spooner Churchill, Chicago; Edwin E. Graham, Philadelphia; John Howland, New York City; Abraham Jacobi, New York City; John Lovett Morse, Boston.

The journal will be of a high order. The character of the members of the editorial board is a guarantee that the articles presented will be creditable to American pediatrics. The interests of the general practitioner are to be kept especially in view, inasmuch as the treatment of children forms a large portion of his work.

The more technical articles of the specialist and the research worker of course will have the prominent place in the journal. Among the contributors to the first number will be Abt, Bevan, Dunn, Fetterolf, Gittings, Hamill and Blackfan, and Jacobi will write an introductory editorial. In addition, there will be comments on live topics in pediatrics, as well as abstracts of current pediatric literature by pediatricists who know what is of real interest.

From a mechanical point of view—paper, printing, illustrations, etc.—the *American Journal of Diseases of Children* will be equal to the *Archives of Internal Medicine*, which means that it will be equal, if not superior, to any other scientific periodical in this or in any other country.

It is needless to say that the new journal is not published as a money-making proposition. It is expected to pay its way; that is all. The Association is now peculiarly well equipped to publish high-class medical periodicals—better even than the majority of the large printing establishments. When the transfer is made to its new building this month, the printing establishment of the American Medical Association will be one of the most complete of the kind anywhere, making it possible to produce the best work in the most economical manner. As a matter of fact, no private individual could produce such a journal as the *Archives of Internal Medicine* at its subscription price, unless he did it for purely altruistic purposes, disregarding business principles. Likewise, it would be impossible, at the proposed subscription price, for a private individual to publish without loss a journal such as the *American Journal of Diseases of Children* will be.

Our European confrères are being led to acknowledge that American medicine, in all its branches, is forging to the front. In fact, they are forced to concede that in some branches we excel. They will soon have to admit that our current periodical literature is also setting a standard. It is intended that the *American Journal of Diseases of Children* shall be a credit to American pediatrics, and we bespeak for it the hearty support of the profession. An announcement, with the subscription price, appears¹ in the advertising pages of this issue.

Current Comment

MEDICAL EDUCATION IN COLORADO

Early in the present year an agreement was made to merge the Denver and Gross College of Medicine, of Denver, with the University of Colorado School of Medicine, the latter school being located at Boulder. By the terms of the merger the work of the first two years would be continued at Boulder, but the work of the clinical years would be conducted at Denver, where better hospital facilities were obtainable. Before such an

arrangement could be made, however, it was necessary to secure an amendment to the state constitution, which specifically stated that all the work of the state university should be conducted in Boulder. An amendment, therefore, providing that "all but the first two years of the departments of medicine, dentistry and pharmacy" might be conducted at Denver, was submitted to the people at the recent election. Incidentally, perhaps this is the first time that the people individually have had the opportunity to express an opinion in regard to medical education. The result shows that, at least in Colorado, they are in favor of better standards, for the amendment was adopted by a large majority. This amendment permits the merger between the two medical schools to be completed Jan. 1, 1911, according to the terms of the agreement. Thereafter, Colorado will have but one medical school and that will be conducted by the University of Colorado. Two years of collegiate work are required as the minimum of preliminary education, which standard has been adopted also by the Colorado Board of Medical Examiners. Prospects are good, therefore, for the rapid improvement of medical education in Colorado.

FILTRATION OF WATER-SUPPLIES

A recent number of the *South African Journal of Science* contains a paper by Dr. D. M. Tomory on methods of water purification, which indicates that South Africa is alive to the important question of pure water-supplies. The Modder River, which supplies Bloemfontein, cannot be effectively purified by sand filters, since they become clogged by the clay held in suspension. A remarkable improvement was obtained by precipitating with lime and permanganate and filtering rapidly through a mechanical filter, which caused a reduction of the deaths from typhoid fever from 83 per 10,000 in 1896 to 2.75 per 10,000 in 1908. On account of the necessity of increasing the capacity of the plant, the authorities made a tour of inspection in Europe and America to obtain ideas on water purification. In the northern United States and in England, sand filtration was generally found efficient, but in the southern United States and in Egypt conditions analogous to those in South Africa were found, which had been met in similar ways, by precipitation and mechanical filtrations. Tomory concludes that the extraordinary rapidity of mechanical filtration is not accompanied by special risk of pollution when the process is used intelligently in connection with chemical precipitation processes, and that, in cases of non-settling waters which can be purified only by such precipitation, rapid filtration is decidedly preferable as at once more efficient and economical.

HEALTH IN THE TROPICS

The remarkable success of Colonel Gorgas and his co-workers in doing away with the excessive prevalence of infectious diseases in the Canal Zone has been referred to previously.¹ The direct effect of tropical conditions on the human organism cannot, however, be viewed with as much satisfaction as is entertained by Colonel Gorgas if

1. Advertising page 43, this issue.

1. THE JOURNAL, Aug. 27, 1910, p. 783.

we accept the opinion of an editorial writer in the *June Bulletin of the Manila Medical Society*. This writer presents a rather depressing view of the effect on health of prolonged and permanent residence in tropical countries. He pictures vividly the steady decline in energy and efficiency in those from temperate climates who take up their residence in the Philippines. He remarks gloomily that if one "is so constituted that he can accept this lowered energy efficiency as a conservation process and regulate his life accordingly" he "usually gets along fairly well for a number of years and finally reaches a condition of general sluggishness of mind and body which is characteristic of the majority of those whose lives are spent in tropic climates." In other words, life in the tropics is simply life on a lower plane of accomplishment. The condition is not one of disease, but simply normal life governed by a different measure of efficiency. This writer is especially severe on foreigners from temperate climates who attempt to rear children under tropical conditions.

RED CROSS SEALS—A WARNING

Last week we called attention to the American National Red Cross seals, and heartily endorsed this method of raising funds for a splendid cause. The American National Red Cross, of course, has no control over the idea, and cannot prevent others from adopting it. We probably should have given this word of caution last week, so that physicians would not be misled into endorsing some imitation of the idea without thorough investigation. During the last few days we have received letters from physicians showing that another stamp is being promoted, and at least one physician has been misled. This bears the label of the "National Antituberculosis Association, Chicago," has in its center the word "hope" in white on an orange background, and, instead of the red cross, has the ordinary cross in black. The American National Red Cross has appointed the Illinois State Association for the Prevention of Tuberculosis as its sole state agent for Illinois for the distribution of the Red Cross seals. We have consulted the officers of this organization, who state that this "National Antituberculosis Association, Chicago," is not recognized by them. From the officers of the Chicago Tuberculosis Institute we learn that the organization issuing this black cross stamp has not made known how its funds would be disposed of, and that they do not recommend it to the public for support. It is reported that those who retail these particular stamps make a profit of 40 cents on the dollar; those who sell the American National Red Cross seals do it for altruistic purposes. We again urge physicians to cooperate heartily with the American National Red Cross and the branches of the National Association for the Study and Prevention of Tuberculosis, in their work, and also to discountenance any unauthorized scheme that may mislead the public.

1. In the form letter which the "National Antituberculosis Association, Chicago," is sending out, signed by John P. Klein, secretary, it is stated: "This association does not ask any club to do this work entirely for charity, as we feel that some compensation should be given for the time and energy used in selling these stamps, and we allow clubs, or individual members of clubs, a commission of 40 per cent., so that on every \$10 worth of stamps sold the club or person selling the stamps makes a revenue of \$4."

Medical News

CALIFORNIA

Personal.—Dr. S. M. Augustine, San Rafael, has donated \$2,000, bequeathed by the will of the late William Patton, toward the construction of a playground for school children of the city.—Dr. Pauline S. Nusbaumer has been appointed city bacteriologist of Oakland.

Offenders Against the Law.—Robert Thompson, San Francisco, said to have been convicted of murder in the second degree by the performance of a criminal operation on a young stenographer, was sentenced to twenty years' imprisonment in the San Quentin Penitentiary, November 19.—Julian MacRae, Los Angeles, is said to have pleaded guilty in the United States District Court, November 12, of the charge of unlawfully using the United States mail, and to have been fined \$100.—Jose Benito, Oakland, charged with selling medicine not put up by a licensed pharmacist and manufacturing in violation of the state law, is said to have been found guilty in a justice court, November 17. The defendant claimed that the medicine which he was selling cured consumption, asthma, appendicitis, and every other ailment.

ILLINOIS

Assessed for Hospital Expense.—The board of managers of the Whiteside Public Hospital, Sterling, at its meeting November 1, is said to have assessed the eight practitioners who form the corporation, \$50 each, to apply on the expenses of the institution.

Personal.—Dr. Charles M. Noble, Bloomington, who was painfully injured in a machinery accident in Sunflower, Miss., has been brought to St. Joseph's Hospital, Bloomington, and is reported improving.—Dr. Frank L. Clemens has been appointed a member of the medical staff of Graham Hospital, Canton, vice Dr. D. Dennison Kirby, resigned.—Dr. Titus P. Yerkes, Upper Alton, has gone to Rochester, Minn., for a surgical operation.

Small-Pox in the State.—Four cases of small-pox are reported in Anna. The schools have been closed and church services and other public gatherings have been interdicted for a few days.—A case of small-pox was found at a cheap lodging house in Chicago, November 14. The 800 lodgers were vaccinated, the hotel was ordered under quarantine, and the patient was removed to the isolation hospital.—Two cases of small-pox were reported in Peoria, November 17, the first to occur in that city for several months.

Chicago

Poses as Physician.—Louis Jappe was fined \$100 in Judge Scovel's court, November 17, for practicing medicine without a license. The defendant is said to have claimed to be able to cure epilepsy in three treatments.

Physicians Aid Strikers.—At a special meeting of the West Side Physicians' Club, Dr. Benjamin H. Breakstone suggested that all members of the club furnish medical aid without cost to any striking garment worker applying for assistance. Sixteen members of the club volunteered their services.

Hospital Closes.—After a continuous existence of more than twenty years the Chicago Charity Hospital, 2407 Dearborn Street, has been forced to close its doors because of lack of support. The twenty-seven patients were removed to their homes or other hospitals November 18. Wesley Hospital has purchased the building and grounds.

Personal.—Dr. William E. Morgan, who was operated on for appendicitis at Mercy Hospital, November 25, is reported to be going on well toward recovery.—Dr. and Mrs. Isaac K. Abt have returned from abroad where Dr. Abt has been making a study of hospital construction, with especial reference to hospitals for children.—Dr. Alice Conklin suffered \$3,000 loss in a fire which almost destroyed the apartment building in which she resided, November 18.

Health League Formed.—The Citizens' Health Alliance was organized at Hull House, November 27. The main purpose of the alliance is said to be the improvement of markets, improvement of hygienic conditions in schools, the eradication of insanitary conditions in tenements, the improvement of home conditions of school children, the creation of a public sanitary conscience, and the passage of a new ordinance and laws gov-

erning the sanitary conditions. The following officers were elected: president, Dr. Hyman Cohen; vice-president, Miss Jane Addams, Alderman A. W. Fulton, and Rev. Jenkins Lloyd Jones; secretary, Mr. G. A. Graves, and treasurer, Miss L. C. Rose.

Hospital Notes.—The Union Park Hospital has been incorporated with capital stock of \$100,000. The building will be erected on Washington Boulevard west of Union Park, will accommodate seventy-five patients, will be ready for occupancy in a year, and will be under the charge of Dr. Charles C. O'Byrne.—An \$80,000 addition to the Norwegian Deaconess' Home and Hospital was formally dedicated November 20. The building is 120 feet long, 50 feet wide, and 4 stories and basement in height, and is to be used as a hospital and deaconess' home. With the old building, the institution now has accommodation for 100 patients and fifty deaconesses.—Health Commissioner Evans has asked the finance committee of the city council to set aside \$1,500 for furnishing the Iroquois Memorial Hospital, the cornerstone of which was laid several weeks ago, and which is now fast nearing completion.—A meeting was held at the Bethel African Methodist Episcopal Church, November 13, to further plans for the establishment of a home for the prevention, cure and treatment of tuberculosis, to be called the Paul Laurence Dunbar Sanatorium. The board of directors consists of Dr. Anna R. Cooper, president; Mrs. L. Waller, secretary; Mrs. F. Turner, treasurer, and Rev. D. P. Roberts.—Plans are under way for the establishment of a day-and-night clinic for tuberculosis patients in connection with the dispensary system of the Municipal Tuberculosis Sanatorium. It is expected that the new sanatorium will be located in the Iroquois Memorial Hospital.

INDIANA

Public Gatherings Interdicted.—As there have been more than 50 cases of diphtheria in Linton during the last two weeks, the city board of health has issued orders that all churches, public schools, moving-picture shows, skating rinks, theaters, pool rooms and billiard halls, and other places where crowds gather be closed.

Appoints Board.—The governor has appointed the following board of trustees for the State Tuberculosis Hospital recently built near Rockville: Dr. Henry Moore, Indianapolis, Dr. Oliver V. Schuman, Columbia City, and Mr. Isaac Strouse, Rockville. The hospital is ready for occupancy but no funds are available for its maintenance.

Personal.—At a recent election in Indianapolis, Dr. Charles O. Durham was elected coroner and appointed the following deputies: Drs. Ralph S. Chappell and M. Cortez Leeth.—Dr. Charles W. Stolzel, for several years in practice at Springhill, Tenn., has returned to Indianapolis.—Dr. Louis A. Bolling, Attica, has become medical director of Mudlavia, Kramer, Ind.

First-Aid Outfit in Patrol Boxes.—Dr. Jewett V. Reed, superintendent of the Indianapolis City Dispensary, has suggested that each patrol box in the city be equipped with a tourniquet and a first-aid package. Many people who suffer from accidents on the streets, have had to wait for the arrival of the ambulance, and by this method the police might apply first-aid dressings at once.

Advertise Tuberculosis Clinics.—A new method for the advertising of the benefits of free tuberculosis clinics will be inaugurated in Indianapolis, December 15. A meeting will be held in Tomlinson Hall at which Ex-Mayor Charles A. Bookwalter will preside and which will be addressed by Dr. Charles O. Probst, Columbus, Secretary of the Ohio State Board of Health. Invitations will be issued only to employers and their employees, the object being to show the employers that from a purely business standpoint, cooperation with a clinic will more than repay them.

Recommendations to Legislature.—At a special meeting of the State Board of Health, November 26, the following recommendations to the next legislature were decided on: medical inspection of school children; regulation of building of school-houses and providing that every schoolhouse built hereafter must be approved by the State Board of Health and must be sanitary in every particular; additional legislation governing the pollution of streams; additional legislation protecting the water supplies in the state; additional legislation governing

the construction of sewers, and lodging in the State Board of Health the supervision of sewer construction so as to guarantee scientific sewerage systems; the enactment of legislation tending to reduce blindness by compelling physicians and midwives to give proper attention to the eyes of children immediately after birth; legislation to control hydrophobia by placing an additional tax on dogs with which to raise and maintain a Pasteur institute for the free treatment of victims of rabid dogs; giving the inspectors of the state pure food and drug department authority to inspect weights and measures and to file affidavits for maintaining false weights and measures and making it incumbent on prosecuting attorneys to prosecute; amending the pure food law so as to make it possible by insertion of the word "himself" to prosecute the owners of dairies and creameries who are found to be adulterating milk and milk products, and amending the pure food law so as to prevent the traffic in decayed eggs by the insertion of the word "knowingly."

Pure Drugs.—The Indiana Physicians' Pure Drug Association, was formed in Indianapolis, November 20, and the following officers were elected: Dr. Edmund D. Clark, president; Dr. Charles E. Cottingham, secretary-treasurer, and Dr. Frank M. Morrison, Dr. Frederic C. Heath, Dr. Thomas C. Kennedy and Dr. G. H. Roberts, vice-presidents, all of Indianapolis. The objects of this organization are to enforce the state and national pure drug laws as well as to secure better. The reports from the state laboratory show that during the year ended last September, 444 samples of drugs were analyzed. Of these 242 were legal and 202 below the standard. Out of ninety-two samples of spirits of camphor twenty-eight were found to be legal, and 64 illegal. Out of seventy-two samples of tincture of iodine only twenty-six were found to be legal, while forty-six were illegal. In tincture of iron seventeen were legal, and sixteen illegal. In fluid extract of belladonna six samples were legal and seven illegal. When the physicians of Attica received this report they agreed to refuse to buy supplies, even full strength drugs, from those houses shown by these bulletins to be guilty of making any weak drugs. This attitude is characteristic of medical men throughout the state. They refuse to take any chances, and say it is impossible to protect their patients unless the drugs used are pure and full strength. Four of the pharmaceutical manufacturers in the state have been prosecuted for violations of the pure drug laws, but the fines and court costs have not been over \$22 in any case. This absurd sum is only a small part of the profit that can be made on the sale of a single barrel of below-standard drugs.

KENTUCKY

New Rule for City Hospital.—At a meeting of the staff physicians of Louisville City Hospital, which was held November 17, over which Dr. Joseph B. Marvin presided and at which Dr. Henry Enos Tuley acted as secretary, a set of rules was adopted governing the physicians and interns of the hospital.

County Society Meeting.—The Hardin County Medical Society held its annual meeting in Elizabethtown, November 10, and elected the following officers: president, Dr. D. Elmo McClure, Sonora; vice-president, Dr. John R. Cowherd, Vine Grove; secretary, Dr. John M. English, Elizabethtown, and delegate to the state medical association, Dr. James C. Mobley, Elizabethtown.

Sanatorium Needs New Buildings.—For the purpose of erecting the necessary buildings for curable cases of tuberculosis and an infirmary for advanced cases, and to pay off the debt incurred before the opening of the institution, the trustees of the Louisville Antituberculosis Association Sanatorium have begun a campaign to secure subscriptions for the \$26,000 needed for these purposes.

Meeting of Eastern Kentucky Physicians.—The Eastern Kentucky Medical Association held its annual meeting in Winchester, November 16, and selected Richmond as the place of next meeting. The following officers were elected: president, Dr. J. H. Schultz, Jeffersonton; vice-president, Dr. John P. Huff, Plummer's Landing; Secretary, Dr. Thomas A. E. Evans, Farmers, and treasurer, Dr. William M. Price, Dabney.

Dinner to Dr. Bodine.—Dr. James Morrison Bodine, president of the medical faculty of the University of Louisville,

and for forty-one successive years its dean, has been tendered a testimonial dinner to be given at the Seelbach Hotel, Louisville, December 16, to which his pupils and friends throughout the country are invited. Dr. Isadore N. Bloom, Atherton Building, Louisville, is chairman of the committee which has the dinner in charge.

Louisville

Bakeries Inspected.—All of the bakeries in Louisville have been inspected twice by the Pure Food and Drug Division of the Kentucky Experiment Station and the results of the inspection reported to each bakery. All bakers who were heavily scored were given a personal hearing by Mr. R. M. Allen, chief of the division. Of the 150 bakeries which were inspected, thirteen had not made a substantial attempt to comply with the law as found on the third inspection, and prosecutions resulted. Twelve pleaded guilty and one was tried, found guilty, and sentenced to pay a fine of \$50 and to imprisonment for ten days in jail. The individual sentenced is said to have conducted his plant in a very filthy cellar, and to have used such ingredients as imitation jellies and anilin egg color substitute. The rest of the bakers are reported as having made most substantial progress in complying with the regulations of the department.

Pure Drug Prosecutions.—The Kentucky Experiment Station, through the head of the Pure Food and Drug Division, R. M. Allen, has brought a number of prosecutions in magistrates' courts in Louisville and has obtained convictions and fines against druggists for selling products below the standard prescribed by the United States Pharmacopeia. The principal products examined and found deficient are as follows: tincture of iodine, seven cases, varying from 47 per cent. to 84 per cent. of the required strength and from containing no potassium iodid to 43 per cent. of the required strength and one sample with undissolved potassium iodid; acetic acid, 76 per cent. of the required strength; tincture of opium, 12.8 per cent. of the required strength; camphor liniment, seven cases, varying from 14 per cent. to 58 per cent. in strength, one sample containing paraffin oil; lime water, being 27 per cent. of the required strength; and precipitated sulphur, 40 per cent. In Covington and Newport other cases are being reported for prosecution; most of them of similar nature with the exception of a firm prosecuted for selling witch hazel containing wood alcohol and a case of another firm for selling zinc oxid containing 90 per cent. of silica. Glycerin, sweet spirits of nitre, collodion, alcohol, citric acid, and tartaric acid are still under consideration because of questions with respect to deterioration or manufacture. The department is trying to determine in each case of a deteriorated product whether it is due to the fault of the manufacturer, the wholesaler, or the dealer, and the division is making an attempt to educate the Kentucky trade with respect to the proper preservation of perishable drug products.

LOUISIANA

Room for More Tuberculosis Patients.—The Louisiana Anti-tuberculosis League announces that there is room in Camp Hygeia for ten more patients in the first stages of tuberculosis.

Sentenced to Life Imprisonment.—Dr. Emmett C. McKowen, Jackson, convicted of the murder of E. K. Judson, New Orleans, an inmate of the State Insane Hospital, Jackson, is said to have been taken to the penitentiary to begin serving his sentence of life imprisonment.

State Health Train.—The health exhibit train, to which THE JOURNAL recently referred, is making a tour of the state. Great interest is manifested in the exhibit and in the lectures delivered at the towns at which it stops. The chief subjects dealt with by the lecturers who accompany the train are "Pure Food," "Tuberculosis and Its Prevention," and "Sanitation." The train is equipped with complete anatomic and pathologic exhibits supplied by the Medical Department of Tulane University, the Souchon Museum of Anatomy and the federal and state governments.

Personal.—Dr. John L. Seales, formerly of Alden Bridge, has returned after eighteen months in London and Vienna, spent in special work on diseases of the eye, ear, nose and throat, and associated himself with Dr. Oscar Dowling, Shreveport.—Dr. Gustav Mann, professor of physiology in Tulane University, who sustained serious injury to the head in an accident due to the breaking of a centrifuge in his laboratory October 31, has recovered.—Dr. William J. Headrick, Logansport, is reported to be critically ill.—Dr. Sidney D. Porter, Moreauville, has been placed in charge of the Hookworm Commission of Louisiana.

MARYLAND

Typhoid Fever.—No new cases of typhoid fever have developed among the cadets at the Naval Academy for several days, and it is believed the epidemic is at an end; 23 cases were reported.—During the week ended November 26, sixty cases of typhoid fever were reported in Baltimore with 13 deaths. Of these forty were in the eastern portion of the city and seven are reported in one family.

Society Meeting.—At the annual meeting of the Queen Anne County Medical Society, at Centreville, November 18, the following officers were elected: president, Dr. James W. Stack, Wye Mills; vice-president, Dr. Rowland H. Ford, Queenstown, secretary-treasurer, Dr. H. F. McPherson, Centreville; delegate to the Medical and Chirurgical Faculty of Maryland, Dr. Norman S. Dudley, Church Hill; and alternate, Dr. William G. Copping, Church Hill.

Personal.—Dr. John E. O'Neill has been appointed assistant superintendent of the State Tuberculosis Sanatorium, vice Dr. E. W. Glidden, resigned to become superintendent of the Georgia Sanatorium. Dr. Glidden was presented with a gold watch by the patients before leaving.—Dr. Robert T. Winterode, pathologist of the State Hospital for the Insane, Catonsville, has resigned to accept the position of superintendent of the State Hospital for Colored Insane.

MISSOURI

St. Louis

In Memory of Dr. Baumgarten.—The Alumni Association of the Medical Department of Washington University has appointed a committee to raise funds for the erection of a memorial tablet of the late Dr. Gustav Baumgarten, to be placed in the Medical Library Building beside those in memory of Dr. Gregory and Boisliniere.

New Contagious Disease Hospital.—The hospital board, on November 16, appointed a committee to investigate and report plans for the new contagious disease hospital to be located on ground owned by the city between the Municipal Sanatorium and the City Infirmary. Authority has been given to equip the Female Hospital buildings as a temporary contagious disease hospital.

New Hospital.—The Sisters of St. Joseph's Convent of Mercy applied on November 21, for a building permit to erect a hospital and convent to cost \$350,000 to be known as St. John's Hospital, on a plot of ground recently acquired, bounded by Audubon Ave., Kingshighway, Parkview and Euclid Avenues. The proposed hospital will be a U-shaped, five-story building which will accommodate 250 patients.

Changes in Hospital Staff.—Dr. Meyer Wiener has been added to the staff of the ophthalmologic department of the City Hospital, and Dr. Alexander E. Horwitz to the department of deformities.—Drs. Martin F. Engman and William H. Mook have resigned from the department of deformities and syphilology.—The medical staff, at its meeting for organization, elected Dr. George C. Crandall, president, and Dr. Hanau W. Loeb, secretary, and directed the formation of an executive committee composed of the chairman of each of the twelve departments of the staff.

NEW JERSEY

Gifts to Preventorium.—The Tuberculosis Preventorium for Children, which was removed from Lakewood, N. J., to Farmingdale last April, has received from the estate of Arthur Brisbane 64 acres of land and a free lease for twenty-five years of the Windsor stock farm comprising 240 acres under cultivation. Nathan Straus has contributed \$50,000 toward buildings to be constructed on the farm, and the board of health auxiliary connected with the Association of Tuberculosis Clinics has subscribed \$4,500 to build an open shack for which it will select the children. The preventorium will require \$50,000 more for buildings and additional memberships of \$85,000.

NEW YORK

Prizes for Selling Tuberculosis Seals.—The Committee on the Prevention of Tuberculosis of the State Charities Aid Association offers prizes valued at \$5,250 to be divided among cities and villages selling the largest number of Red Cross Christmas Seals per capita of school registration before January next.

New County Sanatorium.—Application was made to the Department of Health, November 3, by the Metropolitan Insurance Company for a hearing on its application to build a sanatorium to cost \$100,000 for employees afflicted with tuberculosis. The company desires to build the hospital on Mount McGregor at Moreau, Saratoga County.

Appropriation for Health.—The state has appropriated to guard against sickness in the interior of the state, \$180,680; for the suppression of epidemics, \$7,500; for tuberculosis exhibits, \$10,000; for ophthalmia neonatorum, \$5,000; for the cancer laboratory, \$39,000; for investigations, \$10,000; for the antitoxin laboratory, \$1,800; for the hygienic laboratory, \$14,000. An appropriation of \$242,550 has also been made for the health officer of the port of New York.

Ban on Common Drinking Cup.—The State Department of Health is seeking the cooperation of various railroads operating in this state in abolishing the common drinking cup from trains and railroad stations. They have issued a statement pointing out the dangers of this practice and showing that there is no use for its continuance when a cup can be procured from a "penny in the slot machine." They also show that the same dangers accompany the common towel; in fact, that the common towel may be even more dangerous than the common drinking cup.

Practical Instruction of Health Officers.—The State Department of Health announces a new practical course of instruction open to sanitary officers, local health officers, at Albany, beginning December 7, and continuing for three days. The general subject of instruction at this conference will be water and sewage purification. There will be laboratory talks and demonstrations at the State Hygienic Laboratory, Albany, supplemented by inspections of the water filtration plants at Rensselaer and Albany and the sewage disposal systems at Ballston and Saratoga.

New York City

Samuel Alexander Dead.—As we go to press a notice is received of the death, on November 29, of Dr. Samuel Alexander of New York City, professor of clinical surgery in the Medical Department of Cornell University, aged 51.

Harvey Lecture.—The fourth lecture of the present course of Harvey Society Lectures will be given at the New York Academy of Medicine December 10 at 8:15 p. m. by Dr. Harvey Cushing of Johns Hopkins University on "Certain Clinical Aspects of Dyspituitarism."

Crusade on Smoking Autos.—The sanitary inspectors of the health department have the duty of watching for smoking automobiles, and since November 1 100 arrests have been made, and of this number about seventy have been convicted. The fines for the first eleven days of this month amounted to \$127.

New Day-and-Night Tuberculosis Camp.—A new tuberculosis day-and-night camp was opened November 15, in the annex of the New York Throat, Nose and Lung Hospital, 233 East Fifty-Seventh Street. The night camp will be for incipient and moderately advanced cases, and the day camp for patients in all stages of the disease.

Two Deaths from Cholera.—The Italian liner, *San Giorgio*, which arrived from Naples and Palermo with 629 steerage passengers, was held at quarantine for five days. A woman and a child died during the voyage of cholera, the woman being buried a few miles off Sandy Hook. Another child supposed to have cholera was taken to Swinburne Island and bacteriologic examinations confirmed the suspicion.

Hospital to Move.—The New York Society for the Ruptured and Crippled has obtained permission to sell its property at Forty-Second Street and Lexington Avenue to the New York State Realty and Terminal Company for \$1,350,000. The New York Central Railroad will get a portion of the property. It is the intention of the trustees to establish a new hospital in New York City and a branch hospital in the country.

Many Diseases on Liner.—The Cunard steamer *Carpathia* arrived November 18 from the Mediterranean with a variety of diseases on board. While there was no cholera, scarlet fever wrought harm to the children of the steerage, five having died and been buried at sea. An epidemic of measles also broke out, and there were thirty-four cases when the vessel arrived at quarantine. There were also two cases of erysipelas and one of typhoid fever.

Advisory Board of Statisticians.—The health commissioner has secured the assistance of Drs. Roger S. Tracy, William H. Gilfooy and Cressy L. Wilbur, Washington, D. C., as members of an advisory board of statisticians to the health department. Associated with these physicians are Prof. C. E. A. Winslow of the City College, and Prof. Walter L. Wilcox of Cornell University, the latter of whom is also consulting statistician to the State Board of Health.

For the Prevention of Insanity.—A special committee on mental hygiene has been appointed by the State Charities Aid

Association, which will initiate a campaign for the prevention of insanity. The campaign will be conducted on lines similar to the crusade against tuberculosis. Among the members of the committee are Drs. M. Allen Starr, Charles L. Dana, Frederick Peterson, Bernard Sachs, Albert Warren Ferris, William Mabon and William L. Russell. Mr. Homer Folks is chairman of the committee.

Randall's Island Designs Approved.—Designs for the proposed plan of buildings on Randall's Island, at an estimated cost of \$4,500,000, have received the preliminary approval of the Municipal Art Commission. Fifteen groups of cottages for the patients will be situated on the southern, southeastern and southwestern slopes of the island, surrounding on three sides the central school house and the general medical and surgical hospital. The isolation hospital for contagious diseases will be situated on the western shore.

New Clinic.—At a recent meeting of the faculty of the University and Bellevue Hospital Medical College it was stated that funds sufficient for equipment and the maintenance for one year of a clinic for minor surgical operations had been secured. The clinic will handle minor operations which cannot secure free treatment in the city hospitals and which few physicians' offices are equipped to handle. The department will offer students better opportunities for practical observation of methods of modern antiseptic surgery than is possible at more serious operations.

Plans of the Milk Committee.—The New York Milk Committee has obtained a certificate of incorporation which sets forth that the organization proposes to improve the milk supply of New York City and educate the public in the proper use of milk for infant feeding and other purposes. The committee will hold a conference December 2 and 3 for the purpose of discussing the most efficient ways of controlling the municipal milk supply. Physicians, sanitarians, research workers and representatives of the municipal, state and national health and agricultural departments have signified their intention of being present at this conference, and the public has been invited to attend.

Sanitary Code Violated.—Inspectors have reported that the sanitary code has been flagrantly violated all over the city, and Raymond B. Fosdick, commissioner of accounts, has undertaken an investigation. It has been found that bread-stuffs are being baked under conditions of "unspeakable filth," and that sulphurous acid has been used in the manufacture of candy and to stay the decomposition of meat. Disgraceful conditions have been revealed in the chicken slaughter houses of the east side, and it is stated that these violations could not have occurred except through the inefficiency or venality of certain of the inspectors. Commissioner Fosdick has heard that large sums of money have been paid to politicians in order that certain interests might obtain permits from the Bureau of Food Inspection to the exclusion of other interests. The Bureau of Chemistry of the Department of Agriculture has, through Dr. Harvey W. Wiley, tendered the use of all the facilities of that office in the investigation to be carried on.

NORTH CAROLINA

Medical Legislators.—At the November election the following physicians were elected to office: congress, Dr. John M. Faison, Faison, Duplin County; state senate, Dr. Robert N. Cartwright, Fairfield; house of representatives, Drs. Alfred A. Kent, Lenoir; John H. Mease, Canton; Robert P. Floyd, Louisburg, and Mark B. Pitt, Tarboro.

Personal.—Dr. Julian E. Wood, Elizabeth City, is said to be critically ill with heart disease at his home.—The office of Dr. R. Vance Brawley, Salisbury, was entered by thieves recently and a number of valuable instruments and fixtures were stolen.—Dr. Henry T. Bahnon, Winston-Salem, has been elected honorary fellow of the Virginia State Medical Society.

OREGON

Personal.—Dr. Walter E. Carl, Oregon City, is a patient in St. Vincent's Hospital, Portland, suffering from a diphtheria infection of the eye.

New Professor of Physiology.—The University of Oregon, Department of Medicine, has secured the services of Dr. John Dice MacLaren of the University of Oklahoma, who will occupy the chair of physiology. It is stated that Dr. MacLaren will devote his entire time to teaching and research.

Sanatorium Opened.—After great delay the State Sanatorium for Tuberculosis opened to receive patients, November 21. There were thirty-seven applications received before the

opening of the institution. Thus far \$30,000 has been spent in the erection of buildings and maintenance. The institution is located in the old State Mute School building near Salem.

PENNSYLVANIA

Hospital for Doylestown.—A gift of a large sum of money to establish a hospital in Doylestown was announced at a meeting of the Doylestown section of the County Medical Society on November 18. The source of the gift has not been made known and there are conditions requiring the citizens of the town to contribute an equal sum.

Personal.—Dr. William C. White, Pittsburg, has resigned the superintendency of Waverly and Hazelwood Antituberculosis Sanatoriums, Louisville. —The Westchester School Board has elected Dr. Jane R. Baker, Embreeville, examining physician of the school children. —Dr. Charles H. Brown has resigned as health officer of Franklin. —Dr. George Boehm, Arona, was thrown over an embankment 200 feet high in a runaway accident, recently, but fortunately was not seriously injured. —Dr. Morris P. Boyle, Glenside, is reported to be critically ill at Germantown Hospital, Philadelphia.

Philadelphia

Diphtheria Closes a School.—Owing to the illness of several pupils with diphtheria, the John Barry Public School was closed for fumigation on November 18.

To Enlarge Hospital.—Howard Hospital, at Broad and Catherine Streets, has purchased adjacent property on Catherine and Webster Streets for \$9,866.66.

Free Clinic Opened.—The Jewish Consumptive Institute, Philadelphia, has opened a free clinic at 406 Wharton Street. The clinic is open every day after 12 o'clock.

Temporary Biologic Laboratory.—The Department of Health of Pennsylvania has leased the building at 2000 Arch Street for temporary use as a biologic laboratory.

Hospital Buys Two Lots.—The German Hospital has purchased the property at the southeast corner of Corinthian Avenue and Cambridge Street and the adjoining property on Corinthian Avenue, lot 40.9x84.9, for \$8,000. Both lots are directly opposite the hospital.

Measles on Steamship.—Among the steerage passengers of the American liner *Merion*, which docked November 14, two women and eight children were found to be suffering with measles and were taken at once to the Philadelphia Hospital. The rest of the steerage passengers were discharged.

Epidemics Closed City Schools.—On account of scarlet fever and diphtheria, seven of the city's public schools were closed for fumigation, November 21, by order of the Board of Health. In all except one of these institutions at least two or three cases of contagious disease, scarlet fever or diphtheria were discovered.

Dr. Willard's Will.—Among the bequests included in the will of the late Dr. DeForrest Willard are the following: To the trustees of the University of Pennsylvania is left \$300 for a free bed in the Children's Orthopedic Department. To the Union Benevolent Association is bequeathed \$1,000 in trust, the income to be applied to the Gladys Willard baby fund. The Christian Association of the University of Pennsylvania receives \$250 for settlement work, and the Presbyterian Hospital \$1,000.

Officers Elected.—At the annual meeting of the Aid Association of the Philadelphia County Medical Society, the following officers were elected: president, Dr. Roland G. Curtin; vice-president, Dr. Jacob R. Shellenberger; secretary, Dr. Lewis H. Adler, Jr.; treasurer, Dr. John B. Turner; directors (for three years), Drs. Oscar H. Allis, John C. DaCosta and Richard A. Cleeman. In addition to these, new directors were chosen to fill the places of the late Drs. DeForest Willard and James B. Walker. These were Drs. Samuel D. Risley and William S. Wray.

Ovation for Dr. Smith.—Edgar Fahs Smith, M.D., vice-provost of the University of Pennsylvania and professor of chemistry in the same institution, was elected provost to succeed Charles C. Harrison, at a special meeting of the Board of Trustees, November 15. When this fact became known to the students, every one, no matter what his department, left his classroom and for the first time in years all the students assembled in one vast throng. They made their way to the Harrison Chemical Laboratory to show to Dr. Smith their great rejoicing over his election. Many had been named to fill Dr. Harrison's place, but Dr. Smith was the choice of faculty, alumni and students.

New Hospital Recommended.—At a conference of the State Board of Charities with state officials and the heads of the state insane hospitals in the central district, it was decided to recommend state provision for an institution for the care of the tuberculous insane. The superintendent strongly urged that some provision for such persons be made, owing to the necessity of isolating tuberculous patients. The State Commissioner of Health supported the plan and, on his recommendation, the board decided to include provision for a building and grounds similar to the state tuberculosis sanatoriums. The cost will be from \$100,000 to \$150,000 and state property adjacent to one of the state hospitals will be chosen.

Personal.—Dr. Charles K. Mills, professor of neurology, and Dr. William G. Spiller, professor of neuro-pathology at the University of Pennsylvania, have been notified of their election as corresponding members of the Gesellschaft der Deutschen Nerven Artzen. —Dr. Charles W. Burr has been elected physician to the Orthopedic Hospital and Infirmary for Nervous Diseases, vice Dr. Wharton Sinkler, deceased. The three chiefs of clinics now are Drs. Morris J. Lewis, John K. Mitchell and Charles W. Burr, with Dr. S. Weir Mitchell as chief emeritus. —Dr. Maurice Ostheimer has been elected physician to the medical dispensary of the Children's Hospital, vice Dr. J. Claxton Gittings, resigned, to accept the position of physician to the Children's Hospital.

WISCONSIN

New Dispensary.—The Milwaukee Maternity Hospital and Free Dispensary Association opened its south side free dispensary for the sick poor, 391 Mitchell Street, November 16. A benefit for the dispensary was given at the Majestic Theatre, November 22.

Found Guilty.—Fletcher P. Riley, charged with using obscene medical advertising in newspapers, is said to have been found guilty October 28, on five separate charges and fined \$25 and costs in each case. His assistant, Benjamin W. Kinsey, is said to have pleaded guilty and to have been fined \$50 on each count.

Bubbling Fountains.—The Health Commissioner of Milwaukee has asked that two bubbling fountains be placed at each entrance or inside the lobby of the Auditorium Building for the accommodation of patrons. —Two bubbling fountains were installed on West Water Street in Grand Avenue by the health department recently.

Public Health League Organized.—At a meeting of the people of Kenosha, October 25, plans were completed for the incorporation of the Kenosha Antituberculosis and Public Health League, a reorganization of the Kenosha Antituberculosis Committee. The new organization will be in close affiliation with the state and national organizations.

Personal.—Drs. George J. Jurss, Arthur R. F. Grob and Gustave A. Hipke have been appointed trustees of the Emergency Hospital, Milwaukee. —Dr. George R. McManus, health officer of Stoughton, is reported to be seriously ill with septicemia. —Dr. Frank E. Darling has been appointed assistant health commissioner of Milwaukee, vice Dr. Louis F. Jermain, who, on his return from Europe recently, resigned. —Dr. Richard J. Fleischer, Milwaukee, was seriously injured in a street car collision recently. —Dr. Christian Bergh and family, Whitehall, have returned from Norway. —Dr. Edward W. Quick, Appleton, has removed to Greenbay, where he will be chief of staff of St. Vincent's Hospital.

GENERAL NEWS

New Publishers for Journal.—The Rebmman Company, New York City, announces that at the beginning of the year, it will take over the publication of the *Journal of Cutaneous Diseases*.

Meeting of Hawaiian Society.—The annual meeting of the Hawaiian Territory Medical Society was held in Honolulu, October 29-31, and the following officers were elected: president, Dr. W. G. Rogers; vice-president, Dr. W. D. Baldwin; secretary-treasurer, Dr. William C. Hobdy; and executive committee, Drs. St. David G. Waters and Clifford B. Wood, all of Honolulu.

Museum of Safety.—The American Museum of Safety, whose object is the conservation of human life, was formally opened at the United Engineering Society Building, 29 West Thirty-Ninth Street, New York City, November 21. The organization proposes to erect a museum of safety and sanitation which will be a clearing house for every worthy device and every worthy thought for safety.

Soo Line Surgeons Hold Meeting.—The fourth annual meeting of the Minneapolis, St. Paul and Sault Ste. Marie Surgical Association was held in St. Paul, November 16 and 17, under the presidency of Dr. Justus Obage, St. Paul. The following officers were elected: president, Dr. Albert E. Halstead, Chicago; vice-president, Dr. Charles E. McComb, Duluth, Minn.; and secretary-treasurer, Dr. John H. Rishmiller, Minneapolis, Minn. The next meeting will be held in Chicago.

Personal.—Dr. Kenneth W. Millican, formerly a member of the editorial staff of THE JOURNAL, sailed, November 4, for England on invitation of the *Lancet* to take a position on its editorial staff.—Dr. Samuel T. Darling of the Ancon (C. Z.) Hospital Laboratory and J. J. McGuigan of the Panama Health Office, left, October 24, to investigate the report as to small-pox in the Province of Los Santos.—Dr. H. J. Howard, formerly of Rochester, N. Y., has been appointed chief of the ophthalmological staff of the University of Pennsylvania Medical School and Hospital, Canton, China, and will sail for his new post of duty December 13.

Tri-State Physicians Meet.—The Tri-State Medical Society of Arkansas, Texas and Louisiana held its annual meeting in Shreveport, La., November 15 and 16, under the presidency of Dr. Robert H. T. Mann, Texarkana. The following officers were elected: president, Dr. Thomas P. Lloyd, Shreveport, La.; vice-presidents, Drs. Edward H. Martin, Hot Springs, for Arkansas; Thomas J. Allison, Gladewater, for Texas, and Robert H. Blackman, Monroe, for Louisiana; councilors, Drs. Robert F. Kittrell, Texarkana, for Arkansas; Clarence M. Tucker, Haughton, for Louisiana, and Samuel F. Vaughan, Jonesville, for Texas, and secretary-treasurer, Dr. Jacob M. Bodenheimer, Shreveport, La. (reelected).

Nu Sigma Nu Convention.—The sixteenth biennial convention of the Grand Chapter of the Nu Sigma Nu Medical Fraternity was held in Cleveland November 25 and 26. Applications for charters were received from students in the medical departments of Wisconsin University and of Tufts College; both were refused. The following officers were elected for the ensuing two years: Dr. Torald Sollmann, Western Reserve, to succeed Dr. William H. Welch as honorary president; Dr. Frank F. Wesbrook, University of Minnesota, as honorary vice-president; Dr. R. Burton Opitz, Columbia University, honorary secretary; Dr. Harold A. Miller, Pittsburg, honorary treasurer, and Dr. William H. Parks, New York, honorary historian. The acting executive officers elected were Dr. Henry J. Prentiss, Iowa University, president; Dr. Ernest E. Irons, Rush Medical College, secretary and treasurer, and Dr. Henry W. Stiles, Syracuse University, grand custodian.

FOREIGN NEWS

Personal.—Dr. A. Pulido, member of the Spanish parliament and one of the editors of the *Siglo Medico*, recently received the decoration of the grand cross of the order del Merito Militar and at the same time was presented with an album containing the autographs of all the army professors as a token of gratitude for his efforts in and outside of the legislature to improve the medical service in the army and enhance its prestige.

Ehrlich's "606" and the Italian Dermatologists.—At the annual meeting of the Associazione dei Dermatologi Italiani resolutions were adopted in regard to Ehrlich's new remedy for syphilis, calling attention to the harm that may result from the way in which it has been advertised and warning the public against interested exaggeration of its therapeutic efficacy. Physicians are urged not to charge exorbitantly for injections of the new drug when it is put on the market, as some are said to have done already.

The Pirogoff Centennial.—The profession in Russia celebrated in various ways, November 26, the hundredth anniversary of the birth of Nicolai Pirogoff, the great Russian surgeon, chief of the military medical service during the Crimean and the Russo-Turkish wars, and long professor of surgery at the Military Academy. His first work, published in 1836, on the anatomy of arteries and fascia not only gave him an international reputation but blazed the way for the surgery of the future. The national medical association of Russia has for its official title, the "Society in Honor of the Memory of Pirogoff."

Deaths in the Profession Abroad.—In addition to the deaths mentioned by our foreign correspondents, the profession has lost Dr. R. U. Krönlein, until the last few months professor of surgery at Zurich, Switzerland, and a frequent contributor to surgical literature, aged 63. The twenty-fifth anniversary of his connection with the Zurich faculty was celebrated by his friends in 1906.—From Buenos Aires is reported the

death of two members of the medical faculty of the university. Drs. O. Hernandez and R. H. Vegas, professors of pathology and surgery, respectively.—Dr. A. Hauser, of Teplitz, the leading spirit in the successful organization of the profession in Bohemia in recent years and in numerous lines of preventive medicine and in determining the therapeutic radioactivity of the mineral springs of Bohemia, died suddenly at Teplitz, recently, aged 39. He was one of the first to emphasize the necessity for a press committee as a powerful means to further the interests of the organized profession.—S. Mayer, professor of histology at the German University of Prague.—Dr. E. Below of Hannover, well known as a literary writer, especially on America, where he had long resided, died October 31, aged 65.—Dr. Lombe Atthill, University of Dublin, formerly president of the Royal College of Physicians, Ireland, vice-president of the Dublin Obstetric Society from 1900 to 1903, president of the Royal Academy of Medicine in Ireland, whose work entitled "Lectures on Diseases Peculiar to Women," is well known and ran through many editions, died at Stroud, Kent, September 14, from heart disease, aged 82.—Dr. John Anderson, F.R.C.P., for many years an officer in the Royal Army, Medical Corps, and later a specialist in tropical medicine and a general consulting physician, died at his home in London, October 10, from cerebral hemorrhage, aged 70.—Dr. Sidney Ringer, consulting physician to University College Hospital and Holme professor of clinical medicine in University College, London; the author of "Handbook of Therapeutics"; a clinician and pharmacologist of great repute, died at his country residence in Yorkshire, October 14, aged 75.

MANILA LETTER

(From Our Regular Correspondent)

MANILA, Oct. 21, 1910.

New Water-System for Manila

The new water-system for Manila has been inaugurated and accepted by the municipal board. This insures not only more but also vastly better water for Manila's inhabitants. The main reservoir back of the dam, which has a capacity of 500,000,000 gallons, is fed by the waters of the Mariquina River which rises high in the mountains of Central Luzon. For several years the water-supply of Manila has been inadequate and not altogether free from pollution. The protection of the city's new water-supply is guaranteed by the Mariquina reservation water-shed near Bosoboso, where a great area, more than 100 square miles in extent, is a safeguard against pollution of the water flowing into the Montalbon reservoir. This area is absolutely uninhabited; it is owned by the city and no one will be allowed to settle there. No filtration plant is included in the present system, nor is any planned for the immediate future, partly because of lack of funds, and partly because up to the present sanitary engineers have not devised a filtration plant which will deliver water free of amebas to the mains. The amebas, although much larger than many micro-organisms which are taken out by filtration plants, seem to pass readily through each of the various types of filters. As the contamination of the present water-supply is mostly that of amebas, the city is content to let the filtration plant rest till further successful experiments have been made along this line.

Almost No Cholera in Manila

The cholera situation in Manila at present has only one lamentable aspect. The physician from the Bureau of Science who has been carrying on investigations on cholera at the San Lazaro Hospital for infectious diseases is rather disappointed that the number of cases for the past few weeks has not been sufficient even for purposes of investigation. While southern Europe is suffering and excited over epidemics of cholera, Manila, with whose name cholera has so long been closely associated, goes for one, two, three or more weeks without seeing a case; this, too, right in the midst of the rainy season. The director of the Bureau of Health says that the quarter ending Sept. 30, 1910, has been perhaps the most satisfactory from the standpoint of the occurrence of infectious diseases, of any quarter since American occupation. Similar encouraging reports in regard to cholera also have been received from the provinces.

The Philippine Islands Association for the Study and Prevention of Tuberculosis

Through the influence of the Philippine Islands Association for the Study and Prevention of Tuberculosis school children are taught how tuberculosis spreads, its effects, and the per-

sonal sanitary precautions necessary to avoid the disease in the Philippine Islands. Popular lectures on tuberculosis have been given at the churches and at some of the clubs. The police stations, the schoolhouses and other municipal buildings have been used as places for instructing the native how to care for himself. These public "clinics" are to be held from time to time in all parts of the city. The director of health has declared tuberculosis a dangerous communicable disease which thus becomes reportable according to the sanitary code of Manila. The people of Manila have been liberal in subscribing funds and commodities to carry on the work of the society, and these subscriptions have enabled it to open up a simple fresh-air sanitarium at the edge of town for treatment and the isolation of advanced cases.

New Medical Journal

A new monthly medical journal, the *Revista de Medicina y Farmacia*, has begun publication in Manila. This journal is in Spanish and is the official organ of the Colegio Medico-Farmacéutico de Filipinas and to a greater or less degree of that portion of the medical profession in Manila who do not speak English.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Nov. 19, 1910.

The Falling Birth-Rate

In the quarter ending September the births in England and Wales were in the proportion of 24.9 annually per thousand of the population. This is the lowest birth-rate recorded in any third quarter since the establishment of civil registration. The deaths were in the proportion of 11.4 annually per thousand persons living, which is the lowest death-rate recorded.

The Institute of Hygiene

The Incorporated Institute of Hygiene is a peculiar and very useful body to which there is probably no parallel in other countries. Like many other institutions in this country, where so much is left to private initiative that is done by the government in other countries, it discharges important public functions. The governing body consists of some of the most eminent physicians in the country. There is a council of over fifty which devotes itself chiefly to awakening interest and spreading knowledge in regard to hygiene. The feeding and rearing of children, the responsibilities of motherhood, the hygiene of the home, food and dietetics, cooking, physical training and home nursing are some of the subjects comprised. Many lectures by authorities on these subjects are arranged by the institute. Examinations are organized and held periodically in every large center in the United Kingdom and many young women and men enter as candidates to secure the certificate of the institute. Many of these candidates are school teachers, who will use their knowledge in teaching. Museums, too, have been established as centers of information in regard to foods, beverages, clothing and domestic hygiene. Perhaps the most valuable work done by the institute is that of maintaining and raising the standard of purity and quality of food. The means are very simple. The maker is invited to submit his product for examination; samples are received and are also bought in the open market. These are analyzed in the laboratory. A report is drawn up and comes before an examining board which sits every month and is composed of members who have attained distinction in analytical work. The claims made for the article are considered. Those articles which are found to be pure and up to the standard of their claims are granted the certificate of the institute. This is issued for only one year and a condition of its renewal is that the purity and standard of the article must be maintained. As the results of the analysis are registered at the laboratory a strict watch is kept on the articles certified. The greater part of the funds of the institution have been contributed by the members of the council but an appeal is now being made to the public for funds to extend the work to all the large centers of population.

The Epizootic of Rat Plague

The systematic destruction of rats in the plague-infected districts of Suffolk, described in my last letter [November 26, p. 1903], has been carried out with most effective results in the last fortnight. Men employed for the purpose of destruction are making house-to-house visitations to inquire if there are any rats on the premises and to offer to destroy

them. Persons who are believed to have an unusual number of rats or mice on their premises are receiving notices from the sanitary inspectors requesting them to take measures for the abatement of the nuisance. The government has conferred on the local authorities special powers for the destruction of rats in districts where plague is present or suspected or in which there is an unusual mortality among rats. A memorandum on plague describing its early symptoms and means of prevention has also been issued. As it is now nearly two months since the four cases of plague in man, recorded in previous letters to THE JOURNAL, have occurred and no suspicious cases have followed, the danger of an epidemic of the disease is considered slight. The danger of plague attacking Europeans is emphasized in a letter to the *Lancet* by Professor W. J. Simpson, a well-known authority on tropical diseases, who has been sent by the government to the tropics to inquire into several epidemics of plague and other diseases. In the outbreak of plague at Capetown, South Africa, a comparatively small town, he found that the cases were distributed as follows: Europeans, 164, colored (Asiatics, etc.) 342, and natives 133. Rats died a considerable time before the outbreak, but their connection with human plague was accepted only in a half-hearted manner and proper precautions were taken only late in the outbreak.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Nov. 11, 1910.

Arsenobenzol (606) at the Society of Dermatology

The Société de dermatologie devoted its November session almost exclusively to the study of (1) the efficacy of "606," and (2) the technic of the injections. Professor Bayet, of Brussels, reported results in 100 cases (he treated 175, but the last seventy-five had not been observed long enough to justify a report). Bayet used Wechselmann's procedure with injections in the interseapular region. These injections often caused troublesome local consequences, persistent infiltrations, even gangrenes, one of which lasted six months without cicatrizing. The general effects were not serious: a little fever and kind of arsenical rheumatism, sometimes erythemas. Bayet found arsenobenzol efficacious, especially in certain cases; it is perhaps, he thinks, a more active remedy than mercury. On the other hand, it fails to act in certain cases of primary and secondary syphilis, offers no guarantee against recurrences, which are frequent, and has scarcely any effect on the Wassermann reaction.

Dr. Brocq, physician of the St. Louis Hospital, reported results which he obtained in the treatment of twenty syphilitics for a month by Ehrlich's method, which he compared with results from the old methods of treatment. Brocq thinks that the mercurial treatment has changed somewhat within ten years. Gray oil, which on account of the facility with which it can be employed has come into general use, is an unreliable remedy apart from its danger. Little by little syphilologists who employ it almost exclusively have become accustomed to obtaining only imperfect results; hence their admiration for the results given by "606." But mercury should be in the form of calomel or injections of the soluble salts, or even of Van Swieten's solution taken internally and associated with iodids, to be fairly compared with "606." One almost never sees a case really intractable to mercury in these forms. Some have asserted the superiority of arsenobenzol over mercury because in certain cases an injection of arsenobenzol has had a beneficial effect on conditions which prolonged mercurial treatment would not cure; but in such cases arsenobenzol has had only the effect of arsenic administered in the old forms, such as tonics and sulphurous waters, which after long mercurial treatment often bring about a cure of hitherto refractory conditions. One can, therefore, judge of the action of the drug only in entirely untreated cases, in which it appears to be an excellent antisyphilitic remedy which ought to be placed by the side of mercury. If it is to become generally used, however, it needs to have the technic of injection perfected. Its efficacy is sometimes perhaps superior to that of good mercurial treatment in moist syphilides, in precocious malignant syphilides, and in tertiary ulcerations of the mucosæ. It is almost equal to that of mercury in certain papulous syphilides and in ulcerating tertiary syphilides of the skin. It seems inferior to that of mercury in certain roseolas and in acneiform and tuberculosquamous syphilides. No longer periods of immunity from complications seem to be afforded by arsenobenzol than by good methods of mercurial treatment. It seems, then, that the new

remedy ought not to replace mercury and the iodids in the treatment of syphilis, all the more since the contra-indications to its use are so important that the detractors of the remedy say that arsenobenzol is a remedy for syphilitics who are rather healthy.

Drs. Levy-Bing and Lafay advise the use of oil as the vehicle to diminish the pain which accompanies the injection. Their method is like that recommended by Kromayer in Germany, but a different kind of oil is used. Levy-Bing and Lafay use a mixture of one part of hydrated wool fat to nine parts of poppy oil. These injections of "606" in an oil medium are well borne. There is no pain at the time of the injection, and the patients are not obliged to keep to their beds. Dr. Emery, who has just made an investigation in Germany on results obtained from various present-day methods, admits that injections in oil emulsions seem less painful and irritating than the injections used by Wechselsmann, but both have the important disadvantage of sometimes becoming encysted and of being slowly absorbed always. The intravenous injections recommended now by Ehrlich, to be repeated several times followed, after some days or months, by an intramuscular injection, constitute the treatment of choice.

Dr. Milian remarks that although with the oil preparations there is little or no pain at the time of injection, that is really of small consequence, for the immediate pain lasts only a few minutes. What counts is the pain later on, which is produced the third or fourth day. The latter is almost inevitable, for it is due, not to the method employed, but to the absorption of the drug and to the inflammatory reaction provoked in the tissues.

Mortality from Tuberculosis in France

At the Académie de médecine on November 8, Prof. Albert Robin remarked that the statistics which gave France an unfavorable position in the ranks of tuberculosis mortality, attributing to it 150,000 deaths annually, were inexact. According to the official statistics of the ministry of the interior, the number of deaths from tuberculosis in 1908, for example, was only 85,271, or 21.7 deaths per 1,000 inhabitants. Some of the deaths from tuberculosis are recorded under categories such as acute bronchitis, chronic bronchitis, diseases of respiratory organs, etc.; but the number of deaths in these various classes continues to diminish from year to year like the deaths from tuberculosis. The indications are that the campaign against tuberculosis in France is efficacious, although sanitariums are less used here than in other countries.

The Insufficiency of the Equipment of Our Clinics

On his return from Copenhagen, where he had been invited to be present at the inauguration of the new Rigshospital clinics, Prof. J. Teissier, of Lyons, published an article comparing the parsimony of allowances made to our services of instruction and the insufficiency of the equipment of our laboratories with the richness of analogous equipments abroad. Professor Teissier thinks that there is no more need to discuss the respective merits of a corps of *agrégés* appointed after a more or less perfect competition or of a privat-docent system about which some are beginning to complain in Germany and which Italy thinks of replacing by our much-abused *concours d'agrégation*. The first necessity is to provide the necessary equipment and income and to liberate medical instruction from the public charities and from the hospital administrations by creating government establishments for the purpose. Professor Quénu, of Paris, likewise complains of the insufficient funds for clinical instruction; the annual budget of the laboratory attached to Dr. Quénu's surgical service does not exceed \$400 (2,000 francs).

Repair of the Damages from the Fire in the Toulouse Medical School

On the day after the fire which destroyed the library of the Toulouse medical school, the mini-try of public instruction ordered an investigation of the results of the fire. There were over 150,000 volumes, brochures, theses, etc., destroyed. They were insured for \$50,000 (250,000 francs), but they were worth much more. The university is requesting donations of duplicates and original publications from French and foreign universities and institutions of learning—a plan successfully employed by Turin and Ottawa after their libraries were destroyed by fire.

Personal

In its session of November 8 the Académie de médecine elected two foreign associate members, Professors Loeffler, of Greifswald, and Retzius, of Stockholm.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Nov. 10, 1910.

The Puro Trial

The court process against the maker of the "Puro" meat juice, which I reported to you last year has had a second trial after an appeal by the convicted manufacturer, Dr. Scholl. After the evidence of various medical experts, both for and against the accused, he was convicted this time not of fraud but of breaking the food law and was condemned to a money fine of \$250 (1,000 marks) but not to imprisonment. As a basis of the verdict, it was shown that the statements in the advertisements and on the labels were incorrect, and that the claim of the accused, that these statements had inadvertently been allowed to remain after the change in the manufacture of "Puro," was not credible. No property injury was assumed, as it was considered proved that the material was utilizable for its purpose and that the price was not exorbitant. Dr. Scholl has also appealed from this ruling.

Peculiar Fee Offered to a Physician

In a hunting magazine a few weeks ago, the following amusing advertisement appeared: "Opportunity to hunt a good stag is offered to a well-known authority in diseases of women. As compensation it is required that he make a correct diagnosis of the case of my wife during his stay at the hunting lodge." It is not known whether he has found a gynecologist to undertake the task.

Official Circular Regarding the Use of the Nursing-Bottle

With reference to the question of introducing or rejecting a law like that of France, forbidding the sale of all nursing-bottles with a tube, the question has been asked the Prussian authorities whether regulations on this matter should be established. The minister of education has inquired of his subordinates whether the use of this form of bottle is increasing or diminishing, what its disadvantages are and to what extent industrial interests would be affected by forbidding its use.

Literary Books for Physicians

The members of the Hamburg medical society numbering several hundred, have determined to place in their library a department for literary works which have been written by physicians or in which physicians or medical questions play a large rôle. These books are to be accessible to the members in the same way as the other departments of the library.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Nov. 15, 1910.

A Forest and Garden-Zone Around Vienna

Some weeks ago, a new park, constituting another link in the chain of parks and gardens around Vienna, was opened in this city. The idea of ensuring a constant supply of pure air for this city with its sad distinction of being a hotbed of tuberculosis is due to the late mayor of Vienna, with whom the gratitude of the future generations will always associate the "garden-zone." Owing to the enormous growth of the city, the outskirts are being studded with factories and buildings; the prevalent winds, northwest and southeast, have always brought smoke into the heart of the city. The late mayor, in spite of very powerful opposition, caused a law to be passed which prohibited the erection of factories within a radius of 10 kilometers (6 miles) from the center of Vienna; furthermore, an area of some 500 to 1,400 meters ($\frac{1}{3}$ to 1 mile) has to be kept free from buildings all around Vienna. This space has been converted into a garden ring and when completed, will encircle the capital like a continuous belt of parks, meadows and woods. An abundant supply of water for ponds and ornamental cascades has been provided. The population has been quick in learning the advantages offered them by the splendid air-reservoirs and already this ring is a favorite playground for the children.

A Medical Insurance Company

The repeated occurrences of conflicts between insurance companies and their medical men as well as the high premium demanded by the companies for the insurance of our professional brethren against accidents as well as invalidism, have had an unexpected result. A short time ago, the Medical Organization Committee began to agitate for a medical insurance company, to be run by medical men for medical men, with money coming from the profession. This was achieved very quietly, in spite of great opposition from the existing

companies, and now the "Kosmos," as the new society is termed, has taken up its work. Subscriptions came from physicians from all the empire, and the funds at disposal are much larger than originally expected. The premiums of Kosmos are much below those asked by other companies, so that the general public has already availed itself of this opportunity. The fact that medical enterprise was able to make the profession independent in this respect has caused much surprise, and will undoubtedly strengthen its position in other respects, too.

Austrian Cancer Society

After long preparation, the Austrian Cancer Society has held its first meeting recently. Its purpose is twofold: The scientific campaign against malignant growth will be conducted in special cancer-research institutions, and public instruction as to the nature and necessity of the early removal of cancer will be attempted on liberal lines. For the research the leading pathologists and surgeons of the Vienna University (Weichselbaum, Paltauf, Eiselsberg, Schauta) have become members of the committee which will manage the society. The other branch of the work will be carried on by the distribution of popularly worded leaflets dealing with cancer, the institution of lectures for the middle and lower classes both in towns and rural districts and last, not least, the admonition of practitioners to prevent undue loss of time and chance. The late Professor Chrobak caused to be distributed in his gynecologic clinic similar leaflets with a warning as to breast and uterine cancer.

Hungarian District Medical Officers

A law, passed in 1908, requires every community of more than 5,000 inhabitants to provide a district medical officer, who must hold a diploma as doctor of public health. For this purpose the whole country has been divided into sanitary districts. The number of men necessary to fill these posts is 350. But the budget of the Hungarian government provides for only eighty-three such posts. The payment is 1,600 kronen (\$320) and no old-age provision. Naturally the standard of sanitation in the rural districts is a very low one in this country. Even the recent outbreak of cholera did not convince the local magistrates of the necessity for unusual measures and proper medical supervision of the country.

Marriages

FRANK C. HAYES, M.D., to Miss Lucy Yarborough, both of Camden, Ill., November 9.

ROBERT C. HOGUE, M.D., to Miss Blanche Reebols, both of Norfolk, Va., November 17.

CHARLES ELLIOTTE HOWARD, M.D., to Miss Nettie Schmidt, both of Cincinnati, November 23.

LEO A. PARKER, M.D., Brooklyn, N. Y., to Miss Helen L. Phelan, at Brooklyn, November 16.

LEWIS D. REMINGTON, M.D., to Mrs. Cassie A. Matthews, both of Monrovia, Cal., November 16.

EDWARD J. TRAYER, M.D., to Miss Florence E. Reynolds, both of New York City, November 21.

WILLIAM H. SCHMIDT, M.D., Atlantic City, to Miss Mary Grace Clark of Philadelphia, November 23.

NOEL C. WOMACK, M.D., Jackson, Miss., to Miss Jean McLaurin, of Brandon, Miss., November 15.

JOHN SCOTT WILLOCK, M.D., Pittsburg, Pa., to Miss Anne Elizabeth Bowes, of Baltimore, November 15.

BONAPARTE P. NORVELL, M.D., Muskogee, Okla., to Miss Bessie Carter, of Palmyra, Mo., November 14.

CHARLES THOMAS PYLES, M.D., Hancock, Md., to Miss Mary Elizabeth Griffith, at Poolesville, Md., November 16.

ROBERT FRENCH COMPTON, M.D., Charlottesville, Va., to Miss Mary Barbour Rixey, at Charlottesville, November 8.

CHARLES VICTOR HAGEMAN, M.D., Concordia, Kan., to Miss Clementine Cragger, of Kansas City, Mo., November 12.

GEORGE SHELDON ADAMS, M.D., Yankton, S. Dak., to Miss Valborg S. Smith, of Dell Rapids, S. Dak., November 10.

GRANVILLE HAMPTON RICHARDS, M.D., Port Deposit, Md., to Miss Mary Emma Wright, at Baltimore, November 16.

JOHN STANLEY COULTER, M.R.C., U. S. Army, Washington, D. C., to Miss Helen Miller, of Mount Airy, Pa., November 21.

Deaths

James Ross Waggener, M.D. Jefferson Medical College, 1872; a member of the American Medical Association; medical director, U. S. Navy, retired; died in the Corry Hill Hospital, Brookline, Mass., November 17, aged 64. Dr. Waggener entered the United States Navy in 1872, and after thirteen years sea service and sixteen years and two months shore or other duty, was retired as medical director, May 6, 1907, on account of incapacity resulting from an incident of service. He served from 1875 to 1877 in the Naval Hospital, Norfolk, Va., was made passed assistant surgeon in 1875, surgeon in 1887, and attained the rank of captain in 1903. During the Spanish-American War he was attached to the Mare Island Navy Yard, and later was on duty at the Naval Hospital, Cavite, P. I.

Edmund W. Stevens, M.D. Jefferson Medical College, 1884; a member of the American Medical Association, American Ophthalmological Society and American Academy of Ophthalmology and Oto-Laryngology; president of the Denver County Medical Society in 1907; ophthalmologist to the Denver County, St. Anthony's and Mercy hospitals; formerly instructor in diseases of the eye in the Philadelphia Polyclinic; died at his home in Denver, October 30, from nephritis, aged 47.

James C. Nidelet, M.D. Missouri Medical College, St. Louis, 1860; surgeon in the Confederate service during the Civil War; one of the founders and for several years professor of anatomy and dean of the faculty of McDowell Medical College, St. Louis; for four years a member of the board of police commissioners, and for two years vice-president of the board; died at his home, November 15, from heart disease, aged 76.

George S. Stein, M.D. University of Pennsylvania, Philadelphia, 1864; a member of the American Medical Association and Mississippi Valley Medical Association; assistant surgeon, U. S. Army during the Civil War; professor and emeritus professor of genitourinary diseases in the Ohio Medical University; died at his home in Columbus, November 19, from heart disease, aged 68.

Robert Gildea O'Hara, M.D. College of Physicians and Surgeons, Baltimore, 1885; formerly an officer in the English service; a member of the Medical Society of Virginia; physician for the Elks' National Home; and chairman of the board of health of Bedford City; died in St. Andrew's Hospital, Lynchburg, November 13, from heart disease, aged 54.

Leslie James Meacham, M.D. Cornell University, New York City, 1902; formerly a member of the American Medical Association and of the New York Academy of Medicine; visiting physician and psychotherapist to the Cornell Dispensary, Department of Neurology; died in New York City, October 23, from paresis, aged 50.

John J. Smith, M.D. Long Island College Hospital, Brooklyn, 1891; a member of the Washington State Medical Association; a member of the state legislature in 1899, and of the state senate in 1901, and chosen president of the latter body in 1903; died at his home in Enumclaw, November 12, from typhoid fever, aged 41.

Henry Heidelberg, M.D. St. Louis College of Physicians and Surgeons, 1891; member of the American Medical Association; and president of the Monroe County Medical Society; died at his home in Hecker, Ill., July 2, from cirrhosis of the liver, aged 40.

John Danforth Woodworth, M.D. Rush Medical College, 1852; formerly president, supervisor and member of the school board of Leslie, Mich.; a member of the legislature in 1860; and surgeon of volunteers throughout the Civil War; died at his home in Leslie, November 7, from senile debility, aged 85.

Theodore Rudolph Burgdorf, M.D. Eclectic Medical College of the City of New York, 1891; Long Island College Hospital, Brooklyn, 1894; a member of the Medical Society of the State of New York; was shot and killed by his mentally-deranged wife at his home in New York, November 14, aged 55.

Fred W. Inman, M.D. University of Michigan, Ann Arbor, 1864; a pioneer manufacturer of cereals; one of the founders and president of the Florida Citrus Exchange; a surgeon in the army during the Civil War; died at his home in Winter Haven, Fla., November 6, from cerebral hemorrhage, aged 70.

Lutellus Lindley Porter, M.D. Medical College of Ohio, Cincinnati, 1869; a member of the American Medical Association; for many years mine physician and local surgeon of the Northern Pacific Railroad at Roslyn, Wash.; died at his home in North Yakima, Wash., November 15, from cancer, aged 63.

Thomas Robinson Little, M.D. University of Pennsylvania, Philadelphia, 1900; a member of the American Medical Association; medical director of the Southern Life and Trust Company; died at his home in Greensboro, N. C., November 15, from the effects of an overdose of morphin, aged 36.

William Forrest Gatchell, M.D. George Washington University, Washington, D. C., 1891; a member of the Medical Association of the District of Columbia; formerly chief clerk of the Steamboat Inspection Service; died at his home in Washington, November 16, from nervous prostration, aged 51.

Joseph Adams, M.D. Western Homeopathic College, Cleveland, 1859; M.C.P. & S., Ont., 1869; a member of the Council from 1869 to 1875; and a member of the Board of Examiners in 1880; Chicago Homeopathic Medical College, 1882; died at his home in Toronto, September 26, aged 85.

Joseph Francis Finn, M.D. College of Physicians and Surgeons, New York City, 1854; first county physician of Hudson County, N. J.; a member of the Board of Education of Jersey City from 1899 to 1901; died at his home in Jersey City, November 19, from acute gastritis, aged 77.

James E. Thompson, M.D. Baltimore University, School of Medicine, 1897; died at his home in Throop, near Scranton, Pa., September 18, from the effects of a bullet wound of the head, believed to have been self-inflicted with suicidal intent while suffering from melancholia.

Charles W. Rodgers, M.D. University of Virginia, Charlottesville, 1886; a member of the Medical Society of Virginia; for many years a member of the State Board of Medical Examiners; died at his home in Staunton, November 15, from tuberculosis, aged 48.

Albert M. Clinkscales, M.D. Jefferson Medical College, 1877; a member of the American Medical Association; formerly president of the Indian Territory Medical Association; died at his home in Vinita, Okla., November 17, from cerebral hemorrhage, aged 55.

Chester L. Stewart, M.D. Berkshire Medical College, Pittsfield, Mass., 1851; since 1893 president of the Board of Pension Examiners of Randolph, Vt., where he had practiced for fifty-six years; died at his home, November 16, from heart disease, aged 81.

George Sanford Post, M.D. Albany (N. Y.) Medical College, 1899; of Holley, N. Y.; a member of the Medical Society of the State of New York; died in the City Hospital, Rochester, October 25, from general septicemia following appendectomy, aged 38.

Alfred Alfonso Harper, M.D. Baltimore Medical College, 1902; a member of the American Medical Association; a member of the board of health of North Adams; died at his home in that city, November 14, from rheumatic arthritis, aged 34.

William F. Waite, M.D. University Medical College, Kansas City, Mo., 1893; a veteran of the Civil War; and a clergyman of the Christian Church; once city physician of Kansas City, Kan.; died at his home in that city, November 11, aged 62.

William Francis Shine, M.D. Tulane University, New Orleans, 1858; of St. Augustine, Fla.; surgeon in the Confederate army during the Civil War; assistant surgeon, U. S. Army; died in the Flagler Hospital, St. Augustine, October 21, aged 71.

Samuel M. Ried, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1878; a member of the Indiana State Medical Association; for ten years health officer of Muncie, Ind.; died at his home in Muncie, November 7, aged 68.

James Edgar Sawdon, M.D. Trinity Medical College, Toronto, 1902; M.R.C.S., Eng. and L.R.C.P., Eng., 1908; formerly of Blind River, Ont., but later of Listowel, Ont.; died at his home in that place, August 30, from small-pox.

Jesse B. McBride, M.D. University of Pennsylvania, Philadelphia, 1865; a surgeon during the Civil War; for many years a resident of Columbia, Pa.; died at his home in Washington, D. C., October 27, aged 68.

Joseph R. Whalen, M.D. Louisville Medical College, 1894; demonstrator in anatomy in his alma mater for a year thereafter; died at his home in Carlisle, Ind., November 10, from cerebral hemorrhage, aged 49.

Hanford Beadict (license, Ind., 1897); a member of the Michigan State Medical Association; for three terms post-

master of Springport; died at his home, November 6, from cancer of the liver, aged 73.

Harry W. Bradley, M.D. Detroit College of Medicine, 1909; a member of the Saginaw County Medical Society; died at the home of his parents in Saginaw, Mich., November 16, from typhoid fever, aged 25.

John Wesley Willis, M.D. Meharry Medical College, Nashville, 1902; a colored practitioner of Bowling Green, Ky.; died suddenly in a church in that city, October 30, from cerebral hemorrhage, aged 42.

Stiles R. Fox (license, Ind., years of practice, 1897); for thirty-five years a practitioner of Lafayette, Ind.; died at St. Elizabeth's Hospital in that city, November 16, from cerebral hemorrhage, aged 62.

Robert Dunlop, M.D. Hospital College of Medicine, Louisville, 1884; for many years physician to the Little Sisters of the Poor; died at his home in Louisville, November 9, from uremia, aged 57.

James Richard Sowers, M.D. George Washington University, Washington, D. C., 1859; a Confederate veteran; died at his home in Warrenton, Va., November 13, from cerebral hemorrhage, aged 73.

William G. Hart, M.D. Vanderbilt University, Nashville, 1877; a member of the State Medical Association of Texas; died at his home in Gordon, November 15, from cerebral hemorrhage.

Henry W. Boorn, M.D. Albany (N. Y.) Medical College, 1866; a member of the Medical Society of the State of New York; died suddenly at his home in Schenevus, November 8, aged 70.

Benjamin Franklin Lisk, M.D. (license, Fla., 1885); of Grahamville; drove into the Ocklawaha River, at the ferry near Grahamville, November 7, and was drowned, aged 73.

James Columbus Ozee (license, Ill.); for thirty-five years a practitioner of Illinois; died at the home of his brother in Mattoon, November 2, from cerebral hemorrhage, aged 69.

Herbert George Chislett, M.D. Hahnemann Medical College, Chicago, 1903; of Berwyn, Ill.; died in the Hahnemann Hospital, Chicago, November 22, from pneumonia, aged 44.

Daniel Wayland Jones, M.D. New York University, New York City, 1852; a member of the American Medical Association; died at his home in Boston, November 7, aged 81.

William H. Nichols, M.D. Albany (N. Y.) Medical College, 1867; for forty-three years a practitioner of West Sand Lake, N. Y.; died at his home in Troy, N. Y., October 31.

J. D. Orr, M.D. Atlanta (Ga.) Medical College, 1878; a member of the South Carolina Medical Association; died at his home in Spartanburg, November 6, aged 52.

Ulysses G. Talley, M.D. Meharry Medical College, Nashville, 1896; a well-known colored practitioner of New Orleans; died at his home in that city, November 3, aged 38.

Joseph L. Taylor, M.D. Eclectic Medical Institute, Cincinnati, 1873; died at his home in Logansport, Ind., November 13, from acute gastritis, aged 71.

Charles William Clough (license, years of practice, Mass.); a practitioner since 1888; died at his home in Conway, Mass., November 16, from nephritis, aged 73.

Henry Wheelock Browne, M.D. Harvard Medical School, Boston, 1856; died at his home in Hubbardston, Mich., November 8, from heart disease, aged 78.

Abraham Virgil Conklin, M.D. Eclectic Medical Institute, Cincinnati, 1869; died at his home in Delaware, Ohio, October 28, from pneumonia, aged 77.

John R. Chatham, M.D. Washington University, St. Louis, 1873; died at his home in Tamms, Ill., November 13, from cerebral hemorrhage, aged 68.

John R. McCauley, M.D. College of Physicians and Surgeons, St. Louis, 1891; died at his home in Sulphur Springs, Tex., October 31, aged 57.

Richard K. Gregory, M.D. New York University, New York City, 1860; died at his home in Greensboro, N. C., September 10, aged 74.

Charles J. Ramsey, M.D. Southern Medical College, Atlanta, Ga., 1891; died at his home in Roswell, Ga., November 2, aged 42.

William Henry Graham, M.D. Toronto School of Medicine, 1871; died at his home in Toronto, June 21, from pneumonia, aged 61.

Pharmacology

RADIO-SULPHO CANCER CURE

"A Bad Smell Capitalized for a Million Dollars"

Of "cancer cures" there seems no end. One of the latest humbugs in this line is known as "Radio-Sulpho" and is sold by the "Radio-Sulpho Company," of Denver. The company is incorporated for \$1,000,000 and has for its "consulting physician," E. H. Griffith, M.D., and for its president, one Philip Schuch, Jr., who modestly describes himself as a "chemist and cancer specialist."

Mr. Schuch, Jr., says that he has discovered that the vaccine used in vaccination is the cause of cancer and, further, that he is "able to culture the cancer germs direct from the vaccine." Schuch, Jr., "cures" cancer by means of a combination of "Radio-Sulpho," "Radio-Sulpho Brew" and Limburger cheese. This is not a joke but a "method" recommended by the Radio-Sulpho Company.

Incidentally, Schuch, Jr., has recently leaped into the limelight of newspaper publicity by proposing to introduce at the coming session of the Colorado legislature a bill making it a penal offense to perform an appendectomy on any but a diseased appendix. Mr. Schuch's love for the medical profession has waned, apparently, since the State Board of Health of Colorado condemned his odoriferous "cancer cure," saying that it is "misbranded, of no medicinal value and that it contains sewer gas."

The patient is instructed to wash the cancer with dilute Radio-Sulpho solution and then apply the "cheese poultice." The poultice is to be made by taking one pound of "real imported" Limburger cheese and kneading it thoroughly with five ounces of pure glycerin. The poultice and washing are to be renewed every twelve hours. Says Mr. Schuch, Jr.:

"A person that has a weak constitution . . . should never use the Limberger [*sic*] cheese for a poultice, as it is too powerful a magnet. A person must be robust and healthy, aside from the cancer, to stand the powerful drawing of Limberger [*sic*] cheese, prepared as described."

This statement is certainly the most—and possibly the only—conservative one in the booklet which is sent out by the concern. The mere thought of plastering a sick person with such an indescribably nauseating mess as Limburger cheese and glycerin is enough to sicken one. Nor is this all! The nostrum itself has as vile an odor as the cheese. In fact, it reeks with sulphuretted hydrogen (the gas which imparts the distinctive odor to rotten eggs) and the state chemist of Colorado has aptly characterized the nostrum as "a bad smell capitalized for \$1,000,000."

The Radio-Sulpho Brew is to be taken internally at the same time that Radio-Sulpho is used as a "wash." Both these products were analyzed by the Colorado State Board of Health, and the state chemist, Dr. E. C. Hill, reports as follows:

"Radio-Sulpho itself consists of a strongly alkaline solution of sodium sulphid, with a little sodium carbonate and a decided odor of hydrogen sulphid (made presumably by heating together sulphur and commercial caustic soda in water).

"Radio-Sulpho Brew is a weakly alcoholic solution of Epsom salts disguised with a bitter vegetable."

The cost of this evil-smelling treatment is \$25.00 a month "and upward." Victims are told that "cancer of the womb and breast are the simplest, easiest and quickest cures made." Schuch, Jr., who apparently has no medical education and no legal right to practice medicine, states in his booklet: "I treat personally the white race only." His charges are: "\$100.00 per day or part of a day and all railroad expenses going to points east of the Mississippi, or west of Salt Lake, Utah. . . ."

An absurd falsehood, even for a nostrum concern whose stock-in-trade is deceit, is found in the booklet:

"When you buy our remedies at the prices we herein quote you, you are not paying the FULL cost of the manufacturing and the marketing of the remedies. You are only paying your share, and I, as a philanthropist, bear the remainder and the greater burden."

The thought of a million dollar quack organization selling its products at a loss would be amusing, if the business it is in were not such a cruel and heartless one. Of course those who are desperately or incurably ill with cancer will grasp at any straw, however worthless or dangerous. But that the

physical suffering and mental anguish of these unfortunates should be increased by the barbarous malpractice of "cancer cure" fakers and by the blasting of hopes falsely raised, is an outrage that civilized communities should not tolerate.

CHINOSOL—A CORRECTION

One of the most valuable pieces of original pharmacologic work done recently was that reported by Post and Nicoll in THE JOURNAL, Nov. 5, 1910. In general the experiments showed that the efficiency of many germicides—proprietary and others—in common use, and for which broad claims are or have been made, is as a matter of fact practically *nil*. But in publishing the results of this work, THE JOURNAL unwittingly did the manufacturers of one of the products dealt with an injustice. Among the various preparations with which the investigators experimented was the proprietary antiseptic chinisol. This product was taken up with the others, because, at the time the experiments were made and the article was written, chinisol was advertised and sold as a germicide. In the interim between the acceptance of Drs. Post and Nicoll's article and its publication, however, the Council on Pharmacy and Chemistry proved to the satisfaction of its manufacturer that chinisol is but a very indifferent germicide, although it is an exceedingly powerful antiseptic. As chinisol has not for some time been advertised or sold as a germicide reference to that product should have been deleted from the article in question before publication, but by an oversight, the responsibility for which THE JOURNAL accepts, this was not done. With the present confused ideas on the subject of germicides and antiseptics and the very general misconception that there is little difference between these two classes of products, it is well to call attention to the fact that although a preparation may have little value as a germicide it can still be a powerful and useful antiseptic.

Correspondence

Opportunities for Physicians in Mission Lands

To the Editor:—Thirty vacant fields for medical men and twenty-two for medical women, with no competition and unlimited opportunities for original research, have been brought to my attention by various missionary societies. Some hospitals have had to be closed for lack of workers.

For men with pioneer instincts, there are great fields entirely unoccupied, while for expert surgeons there is work at hand which is already self-supporting. Several internships, from one to three years, are also open for recent graduates.

For women to whom the experience of Dr. Susie Rijnhart, of Thibet, appeals, there are great fields entirely unoccupied, while for experienced surgeons there are hospitals waiting.

All this work is under the missionary societies of the various Protestant churches of the United States and Canada.

The work requires men and women of good health and rugged constitution, not over 35 years of age, graduates of first-class medical schools (in some instances only those who have had both collegiate and professional training, together with either postgraduate or hospital experience), members of some Protestant church, and definitely interested in the religious motives and purpose of medical missions.

Comfortable support is provided by the missionary societies. This includes traveling expenses for physicians and their families, provision for outfit, living quarters, language teachers, etc., in addition to which a salary is paid which is based on what experience shows to be needed to maintain the worker in the highest state of efficiency. This varies in different countries. The net result is the same. It is not a work which will attract one who seeks large financial returns. The work demands those of heroic mold, who want to find the place where their medical skill is needed and where all their training will be utilized to the utmost. The work demands devotion, wide sympathy and earnest purpose. From a purely professional standpoint, these opportunities are unparalleled. A woman graduate of a Canadian university, who went to Arabia a few years ago, reported after a fort-

night in the only hospital along the coast of a thousand miles: "During my visit here we have had twenty operations on the eye, one amputation, the removal of a large tumor and numerous teeth extracted. In medicine we have had pleurisy, tuberculosis, tetanus, small-pox, leprosy, paraplegia, different varieties of heart-lesions and other interesting cases. In gynecology we have the usual run of inflammations and displacements, with atresia for a specialty. One of the peculiarities of the people here is that they never present themselves for treatment until the disease is far advanced, but of course there is an excuse for them in some cases, as they may have suffered for years before there was a hospital to come to. About 75 per cent. of the people seem to have eye trouble of some sort. Trachoma, trichiasis, ulceration and opacity are the commonest forms; yet inside a week one meets everything from simple ophthalmia to panophthalmitis. In fact, one would have to be a specialist in every branch of medicine and surgery to do justice to the amount and range of material."

Calls are now in my hands from great cities, as well as country districts of China, Africa, Persia, the Philippine Islands, Egyptian Sudan, Arabia, Mexico, Turkey and Korea.

I shall be glad to give further details to any physician to whom this opportunity for service appeals.

WILBERT B. SMITH.

Acting Candidate Secretary, Student Volunteer Movement,
125 East Twenty-Seventh Street, New York City.

Dr. Shepard and the Turkish Bath

To the Editor:—The death of Dr. Charles H. Shepard, of Brooklyn, Oct. 29, 1910, deserves more than a passing notice, from the fact that he was literally the founder and promoter of the Turkish bath movement in this country. He was born in Ogdensburg, N. Y., Sept. 25, 1825, and received a medical degree from the New York Medical College in 1848. In 1861 he opened, on a broad scientific basis, the first Turkish bath in America, at Columbia Heights, Brooklyn, and of this he continued in active charge up to the time of his death.

He was a member of the American Medical Association and was secretary in 1893 and 1894 and chairman in 1895 of the section now designated the Section on Preventive Medicine and Public Health. For many years he contributed articles to this Section, and was one of the earliest writers in this country on the medical use of water, particularly in the form of Turkish baths. Some of his papers were translated abroad and were widely circulated as graphic presentations of the value of baths in various diseases.

In 1876 he treated a case of hydrophobia with success at the Turkish bath; and this at the time attracted considerable attention, and was the subject of many theories and discussions. Dr. Shepard was one of the first men in this country to write with great positiveness on toxemias as active causes of disease, and he urged the elimination of toxic products through baths. Many of his early papers on this subject were practically forerunners of a literature that is growing constantly.

Dr. Shepard visited all the old and new baths of Europe, and made some studies of the Turkish and Roman baths, which were embodied in lectures and papers that were highly appreciated at the time. At one time he knew every bath in America as well as in Europe, and what was being done there, and was an adviser to the managers. His persistent efforts urging the use of the baths has brought them into popularity in all large sanatoriums and in some insane asylums.

It is understood that Dr. Shepard left a large mass of manuscript on the Turkish bath and on his experience of over fifty years, which will be published in the future. He died from heart failure, after a short period of invalidism, and his body was cremated, according to his wish.

T. D. CROTHERS, M.D., Hartford, Conn.

Electricity in Poliomyelitis

To the Editor:—Dr. Theodore Diller, commenting on Dr. B. Sach's paper of October 22, takes up the treatment of electricity (*THE JOURNAL*, Nov. 5, 1910, p. 1663), and condemns its use in poliomyelitis. If other medical colleges teach as much

about electricity and its medical uses as the one I attended their graduates had something to learn after leaving college. I wish to protest against the condemnation of this most useful agent, which at times gives almost magical results even when abused in its use. If one forgets the dose of a medication or takes up one with which he is unfamiliar, he looks in a "dose" book and prescribes accordingly. If the drug is a liquid it is usually dissolved in an alcoholic solution (and alcohol has been known to make people forget they ever had a pain).

When it comes to the use of electricity, either medicinally or commercially, there is more than one modality. In medicine the induced (faradic) current, the continuous (galvanic) current, given first direct and then make and break on the opposite pole, the static breeze and sparks, during the administration of which the little patient can be held in the nurse's arms; the motor wave current; then the high-frequency or step-up voltage from either the static or coil, give results that can be seen day to day.

Massage stimulates the nerves where they are kneaded; braces imprison already enervated muscles and thus diminish their size and use; transplantation of nerves or muscles helps in some instances. To use electricity requires time and patience; and if those who have neither of these condemn its use indiscriminately it shows lack of something. The fact that there are so many veiled references to it in literature is proof enough that there is virtue in the use of electricity.

The proper way to ascertain its value for definite presentation would be for the American Medical Association or the American Electrotherapeutic Association to appoint a committee to which scientists outside of medicine could furnish evidence and data not obtainable by the medical man and that would be authoritative.

ALMERIN W. BAER, PH.G., M.D., Chicago.

The Nasal Spatiometer: A Suggested Name for Dean's Septimeter

To the Editor:—I have just read with interest an article in *THE JOURNAL* (Nov. 26, 1910, p. 1858) by Dr. L. W. Dean, on "Changes in the Nose After Widening the Palatal Arch." It seems to me that Dr. Dean would attract more attention to his septimeter and to his particular line of investigation were he to give his instrument another name. There are septometers on the market. In fact, I described a nasal septometer in the *New York Medical Journal*, July 13, 1901. A nasal septometer is an instrument devised to measure the nasal septum, its thickness at any point. Dr. Dean's instrument was designed to measure, not the septum, but the distance between the septum and the turbinate bone; it might just as well be called a turbinometer. Now were he to name his instrument a "nasal spatiometer" he would more definitely describe the use of his device. The coined word is derived from the Latin words, *spatium*, "a space or distance," and *metrum*, "a measure." I think that Dr. Dean is entitled to differentiate his new device from an instrument that has been on the market for years.

HENRY WALLACE, Glen Ridge, N. J.

Phenol in Herpes

To the Editor:—For the past four years I have treated herpes with an application of a 95 per cent. solution of phenol. As soon as the skin begins to turn white I neutralize the phenol effect with alcohol. In many cases one application suffices; in no case is it necessary to make more than three applications. After one application of the 95 per cent. phenol I dress the lesions with a simple ointment like zinc oxid. It is surprising how quickly it will relieve the pain, itching and burning. The vesicles shrivel and dry up in a very short time leaving a dry crust. I first used it in herpes procutalis with such satisfactory results that I was led to try it for herpes zoster, in which it gave equally satisfactory results. Looking over the literature of herpes, I have not been able to find phenol mentioned in its treatment.

G. P. COOPERNAIL, Bedford, N. Y.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

USE OF THE WORD "NUTRIANT"

To the Editor:—In reading the recent edition of Wood's "Therapeutics," pp. 12 and 283, I came across the word "nutriant." I fail to find this word in any of the dictionaries at hand. Is it a recognized word, and if so, what does it mean? Or is it a mistake for "nutrient"?

MEDICUS, Baltimore.

ANSWER.—We do not find "nutriant" recognized by any authorities on the English language. The word "nutriant," of course, could not be derived directly from the verb *nutrire*, the present participle of which is *nutriens*, from which we get "nutrient." The only verb from the same root as *nutrire* given in Harper's Latin Dictionary is *nutricare*, "to suckle, nourish, support, sustain," present participle *nutricans*. The word "nutriant" appears to be applied by Wood, not to substances which nourish—nutrients—but to substances which increase nutrition. A word with this meaning would be a useful addition to the English language, but "nutriant," since it differs from "nutrient" by only the vowel of the last syllable, has the disadvantage that it would be taken for a misprint for the latter in nine cases out of ten.

Dr. Horatio C. Wood, Jr., in reply to our letter regarding the matter, writes: "This word was coined many years ago to signify drugs which affect the metabolic, or nutritive, processes. The ending 'ant' was chosen to be in harmony with such terms as 'cardiant,' 'expectorant,' 'eliminant,' 'digestant,' etc. I recognize the force of your statement, that the word is so nearly like 'nutrient' as to lead to possible confusion, but it has been employed for nearly twenty years and the present instance is the first which has come to my notice of any uncertainty as to its meaning."

The Public Service

Medical Corps, U. S. Navy

Changes for the week ended Nov. 26, 1910.

- Brister, J. M., surgeon, detached from the naval academy and ordered to duty at the naval hospital, Annapolis, Md.
 Fauntleroy, A. M., surgeon, detached from the naval hospital, Philadelphia, and ordered to the *Solace*.
 Iden, J. H., surgeon, detached from the naval hospital, Annapolis, Md., and ordered to the *Washington*.
 Field, J. G., surgeon, detached from the *Washington* and ordered to Washington, D. C., for examination for promotion and to await orders.
 Allen, A. H., P. A. surgeon, detached from the naval hospital, New York, and ordered to the *Washington*.
 Robnett, A. H., P. A. surgeon, detached from the naval recruiting station, Cedar Rapids, Iowa, and ordered to the marine corps rifle range, Winthrop, Md.
 Longabaugh, R. L., P. A. surgeon, detached from the *Washington* and ordered to the navy recruiting station, Cedar Rapids, Iowa.
 Heiner, H. G., P. A. surgeon, detached from the naval hospital, Norfolk, Va., and ordered to the naval academy.
 Strine, H. F., P. A. surgeon, ordered to duty at the naval hospital, Norfolk, Va.

Medical Department, U. S. Army

Changes for the week ended Nov. 26, 1910.

- Marshall, John S., examining and supervising dental surgeon, reported for duty at Columbus Barracks, Ohio, November 19, from leave of absence.
 Siler, Joseph F., captain, and Davis, William R., captain, Nov. 19, 1910, will proceed at the proper time to West Point, N. Y., and report on May 1, 1911, for duty until June 1, 1911, when each officer will return to his proper station.
 Fuster, George B., Jr., lieutenant, November 19, ordered to proceed to Philadelphia on official business pertaining to the medical department.
 Taylor, Blair D., colonel, November 19, on his own application is retired from active service April 30, 1911, after more than thirty-five years' service. Granted leave of absence from January 1 to and including April 30, 1911.
 Harris, Henry S. T., lieutenant-col., relieved from duty at headquarters, Department of California, and will assume charge of the medical supply depot in San Francisco, relieving Col. D. M. Appel.
 Appel, Daniel M., colonel, after being relieved will proceed to Atlanta, Ga., and report, not later than Dec. 31, 1910, to the commanding general, Department of the Gulf, for duty as chief surgeon of that department.
 Eber, Albert H., lieutenant, Medical Reserve Corps, ordered to Fort Daug, Fla., not later than December 1, for temporary duty

during absence of Lieut. J. R. Hereford, Medical Reserve Corps. On completion of this duty he will return to his station, Fort Moultrie, S. C.

Long, Charles J., dental surgeon, relieved from duty at Fort Adams, R. I., at expiration of his leave and ordered to Fort Andrews, Mass., for duty.

U. S. Public Health and Marine-Hospital Service

Changes for the seven days ended Nov. 23, 1910.

- Austin, H. W., surgeon, granted three days' leave of absence from Nov. 17, 1910, under paragraph 189, Service Regulations.
 Carter, H. R., surgeon, directed to rejoin station at Louisville, Ky., reporting at bureau en route.
 Banks, C. E., surgeon, granted four days' leave of absence from Nov. 19, 1910.
 Williams, L. L., surgeon, granted seven days' leave of absence from Nov. 14, 1910, under paragraph 189, Service Regulations. Granted one day's extension, Nov. 21, 1910.
 Stoner, J. B., surgeon, granted six days' leave of absence en route to station.
 Wertenbaker, C. P., surgeon, detailed to represent the service at the meeting of the Seaboard Medical Association, to be held in Kinston, N. C., Dec. 6-8, 1910.
 Brown, B. W., surgeon, granted one month's leave of absence on being relieved by Surgeon F. W. Mead.
 Lavinder, C. H., P. A. surgeon, directed to inspect the bacterio-therapeutic laboratory at Asheville, N. C., and to attend the meeting of the Seaboard Medical Association, to be held in Kinston, N. C., Dec. 6-8, 1910.
 Lumsden, L. L., P. A. surgeon, granted seven days' leave of absence from Nov. 16, 1910, under paragraph 191, Service Regulations.
 Burkhalter, J. T., P. A. surgeon, granted one month's leave of absence from Dec. 17, 1910.
 Boggess, J. S., P. A. surgeon, leave of absence for one month from Nov. 14, 1910, amended to read from November 21.
 Creel, R. H., P. A. surgeon, relieved from duty at Chicago and directed to report at bureau for temporary duty Nov. 21, 1910. Granted three days' leave of absence en route.
 Hotchkiss, S. C., A. A. surgeon, granted seven days' leave of absence en route to station.
 Lyons, R. H., A. A. surgeon, directed to proceed to the gulf quarantine station for temporary duty.
 Appleton, T. J., A. A. surgeon, granted seven days' leave of absence under paragraph 210, Service Regulations.
 Bailey, C. A., A. A. surgeon, directed to proceed to St. John, N. B., on or about Nov. 22, 1910, for medical examination of aliens.
 Duke, B. F., A. A. surgeon, granted twenty-five days' leave of absence from Nov. 11, 1910.
 Frary, T. C., A. A. surgeon, granted ten days' leave of absence from Nov. 22, 1910.
 Gill, S. C., A. A. surgeon, granted twenty-nine days' leave of absence from Dec. 3, 1910.
 Gregory, George A., A. A. surgeon, granted thirty days' leave of absence from Nov. 10, 1910.
 Moncure, J. A., A. A. surgeon, granted thirty days' leave of absence from Nov. 17, 1910.
 Nute, A. J., A. A. surgeon, granted thirty days' leave of absence from Nov. 7, 1910.
 Sexton, Leo L., A. A. surgeon, granted seven days' leave of absence from Oct. 5, 1910, under paragraph 210, Service Regulations.
 Sinclair, A. N., A. A. surgeon, granted twenty-six days' leave of absence from Dec. 6, 1910.
 Board of medical officers convened to meet at the marine hospital, Fort Townsend, Wash., Nov. 21, 1910, for the purpose of making a physical examination of an officer of the Revenue-Cutter service. Detail for the board: Surgeon P. M. Carrington, chairman; Surgeon J. H. Oakley, recorder.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

INFANT MORTALITY AND BIRTH REGISTRATION

One of the most important reports presented at the recent meeting of the American Association for the Study and Prevention of Infant Mortality was that of the Committee on Birth Registration, consisting of Dr. Cressy L. Wilbur, chairman; Dr. Wilmer R. Batt, Pennsylvania; Dr. Charles V. Chapin, Rhode Island; Dr. John S. Fulton, Maryland; Dr. John N. Hurty, Indiana; and Dr. William C. Woodward, District of Columbia. The committee stated that study and knowledge of infant mortality should precede efforts for the prevention of such mortality, since the nature and exact extent of the causes of infant mortality must be understood before the most effective means could be used for its prevention, or the efficiency of the various agencies employed be measured. While it is not necessary to consult a table of statistics to know that filthy, bacteria-teeming milk should

not be used for infants, and while no statistics are necessary for the prevention of mortality from intestinal diseases in infants, yet our knowledge of the prevalence of these diseases has resulted from thorough registration of births and deaths. If the American Association for the Study and Prevention of Infant Mortality is to lead in the saving of infant life, it must have vital records by which its success can be measured, and it is, therefore, one of the paramount duties of the organization to support all efforts for better vital statistic legislation. What is needed is a series of accurate figures regarding infant mortality for cities, rural districts, states, and the nation as a whole. They should be reliable, up to date, and presented in such form as to be comparable among themselves and with those of foreign countries. A thorough analysis of the returns should be made with regard to the cause of death, nativity, occupation of parents, sanitary condition of dwellings, etc. The first step is to secure complete and comparable data for the entire infant mortality, adding other details later. Accurate statistics regarding infant mortality require the registration of both births and deaths, since infantile mortality is the ratio of the number of deaths of infants under one year of age to 1,000 children born alive, and not to the estimated population of that age. True infantile mortality can not be computed from the registration of deaths alone unless the birth rate is also known. Consequently, under existing conditions, it is impossible to present reliable statistics of infantile mortality for the United States, for any single state, or even for a single large city in the entire United States. The present registration area includes only 55.3 per cent. of the total population, as many states, including practically the entire South, make no record of deaths of their citizens, while even those states that have fairly good death registrations, grossly neglect birth registration. As an illustration of the importance of birth registration, the committee report quotes from the graphic examples cited by Dr. J. N. Hurty, in his chairman's address before the Section on Preventive Medicine and Public Health.¹

The committee discusses the duties of physicians and midwives in registering births, holding that they are not charged with the enforcement of the registration laws, but that it is their duty to obey these laws and that if they do not obey them, it is the duty of the registration officials to compel them to obey, under penalty of the law. Not even in New York City are the birth records complete, according to the local department of health, "there being still many that are not recorded by reason of the neglect of medical attendants and midwives." Regarding other cities, the report continues: "It is a little difficult to decide in which of these great and prosperous cities of the United States—Baltimore, Chicago or New Orleans—the registration of births is most utterly worthless, but it is certain that it would not be possible to find their equals for worthlessness in any other country where vital records are maintained."

The remedy proposed by the committee is the enactment of adequate laws for the complete registration of births and deaths and the thorough enforcement of these laws. After discussing the model law endorsed by the American Medical Association, the American Public Health Association, the Bureau of the Census and other bodies, the experiences of Pennsylvania, Ohio, and Missouri under this law are reviewed. At present, while the registration area for deaths is being rapidly extended, the registration of births is confined to a very few states and even these have only an approximate registration of 90 per cent. The New England states, Michigan, and the District of Columbia have fairly satisfactory birth registration laws, but Pennsylvania is to-day the only state in which a determined effort has been made to secure complete registration of all births. In the great majority of states the law (where one exists) is practically a dead letter with the result that birth statistics and figures for infant mortality are both practically worthless.

The committee utters a warning against needless tampering with vital statistics laws or forms of registration and urges that no change be made in the model law or in the blank certificates, during the next ten years. Much of the imper-

fection of what vital statistics we have is due to the absence of a uniform blank for the initial data. This defect has been remedied by the adoption of standard certificates and any alteration should be discouraged until the defects assume sufficient importance so that the next general revision can include them, and all of the registration states can adopt them at the same time. In the words of the report: "We want no more tinkering with the forms in use until the time arrives for a general change." The vital statistics registration laws of England are reviewed and conditions there compared with those in this country. In the opinion of the committee, "It is unfortunate that the question of compensation to physicians and midwives should be urged by the medical profession in connection with the legislation for the registration or notification of vital statistics, because it at once places the profession in the position of asking a favor for interested motives, and may be denounced as 'medical graft' by many members of state legislatures. It retards the cause of registration, has no good effect whatever on the completeness of the returns, and interferes with the thorough enforcement of the law." The committee also emphasizes the necessity for greater precision in terminology and for the adoption of a uniform nomenclature.

The conclusions of the committee were embodied in a preamble and resolution, which were unanimously adopted by the Association:

WHEREAS, The registration of all births and of all deaths is most essential for the study of infantile mortality and the prevention of the deaths of infants and children from avoidable causes; therefore, be it

Resolved, That the American Association for the Study and Prevention of Infant Mortality cordially approves of the model law for the registration of births and deaths, as recommended by the American Medical Association, the American Public Health Association, and the United States Bureau of the Census, and urges the thorough enforcement of such laws by the officials charged with the responsibility of their execution, with prosecution of physicians and midwives who neglect their duties to their clients and to the public health by failing or neglecting to register births as required by law.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Fourth Month—Fourth Weekly Meeting

INJURIES OF THE SPINE

FRACTURES, FRACTURE-DISLOCATIONS AND SIMPLE DISLOCATIONS OF THE SPINE

Classification—Bryant and Buck: *Am. Practice of Surgery*, vi.

1. Isolated Fractures of Spinous and Transverse Processes, and Laminae: Frequency, location, diagnosis.
2. Fracture of Atlas and Axis: Pathology, symptoms, diagnosis.
3. Bilateral Isolated Dislocations: Location, pathology, diagnosis.
4. Unilateral Dislocations: Frequency, location, pathology, symptoms.
5. Isolated Fractures of Vertebrae: Pathology, diagnosis.
6. Complete Fracture-Dislocations: Pathology, symptoms.

SYMPTOMS OF FRACTURES OF THE SPINE IN GENERAL: Crepitus, deformity, unconsciousness, paralysis, anesthesia, pain, priapism, delirium, cystitis, bedsores, sphincters. Regional diagnosis, symptoms of injury to cord in cervical, dorsal and lumbar regions.

TREATMENT OF FRACTURES OF THE SPINE IN GENERAL: Expectant treatment. Reduction and fixation of bony points. Primary laminectomy. Secondary laminectomy. Indications for each; technic of laminectomy.

Monthly Meeting

SURGERY OF THE SPINE

Diagnosis and Treatment of Fracture-Dislocation of the Spine. Early Diagnosis and Treatment of Tuberculosis of the Spine. Etiology and Diagnosis of Scoliosis.

¹ J. Hurty, J. N.: The Bookkeeping of Humanity, *THE JOURNAL A. M. A.*, Oct. 1, 1910, p. 1157.

State Boards of Registration

COMING EXAMINATIONS

- CALIFORNIA:** Los Angeles, December 6-9. Sec., Dr. Charles L. Tisdale, 929 Butler Bldg., San Francisco.
- DELAWARE:** Regular, Dover, December 13-15; Homeopathic, Wilmington, December 13-15. Secretary of the Medical Council, Dr. H. W. Briggs, Wilmington.
- KENTUCKY:** Louisville, December 15-17. Sec., Dr. J. N. McCormack, Bowling Green.
- MARYLAND:** 1211 Cathedral St., Baltimore, December 13-16. Sec., Dr. J. McPherson Scott, Hagerstown.
- OHIO:** Cincinnati, December 6-8. Sec., Dr. George H. Mason, State House, Columbus.
- PENNSYLVANIA:** Regular and Homeopathic, Philadelphia, December 6-9; Eclectic, Harrisburg, December 6-9. Secretary of the Medical Council, Dr. Nathan C. Schaeffer, Harrisburg.
- VIRGINIA:** Lynchburg, Dec. 20-23. Sec., Dr. R. S. Martin, Stuart.

Reappointed on Vermont Board

Dr. W. Scott Nay, Underhill, and Dr. F. H. Godfrey, Chelsea, have been reappointed by Governor Mead as members of the Vermont State Board of Medical Registration for a term of six years. Dr. Nay is the secretary.

Rhode Island October Report

Dr. Gardner T. Swarts, secretary of the Rhode Island State Board of Health, reports the written examination held at Providence, October 6-7, 1910. The number of subjects examined in was 11; total number of questions asked, 70; percentage required to pass, 80. The total number of candidates examined was 12, of whom 9 passed and 3 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Yale Medical School.....	(1908)	89.1	90.7
Johns Hopkins University.....	(1908)	89.1	89.9
College of Phys. and Surg., Baltimore.....	(1909)	83	80
Harvard Medical School.....	(1902)	81.2	87.4
Tufts College Medical School.....	(1910)		86.2
Jefferson Medical College.....	(1910)		86.6
FAILED			
Baltimore Medical College.....	(1909)		72.2
University of Maryland.....	(1910)		78
University of Vermont.....	(1910)		69.5

Wyoming October Report

Dr. J. B. Tyrrell, Acting Secretary of the Wyoming State Board of Medical Examiners, reports the written examination held at Laramie, October 26-28, 1910. The number of subjects examined in was ten; total number of questions asked, 100; percentage required to pass, 75. Only one candidate, a graduate of the University of Louisville, 1910, was examined and he passed with a grade of 83 per cent. The following questions were asked:

PRACTICE OF MEDICINE

1. Define typhoid fever, rheumatism, appendicitis and cretinism.
2. Name the principal infantile contagious diseases and outline your treatment for one disease.
3. Mention diet for child 1½ years old as you would to mother or nurse that you were instructing.
4. What are the following skin diseases: eczema, prurigo, lentigo, herpes and urticaria?
5. Mention treatment for psoriasis, erysipelas and ringworm.
6. What are mania, melancholia and dementia?
7. Describe epilepsy and give treatment.
8. Give symptoms and treatment of bronchopneumonia.
9. Give diagnosis and treatment of gastric dyspepsia.
10. What is chlorosis? Give treatment.

ANATOMY

1. Give a careful description of the duodenum, stating length, caliber and openings into it.
2. If the femoral artery were obstructed at the apex of Scarpa's triangle, through what channels would the blood flow to reach the tibial arteries?
3. Describe the structure of the knee joint.
4. Name the twelve pairs of cranial nerves.
5. Describe a hair follicle.
6. Give the course and relations of the ureters in the male; also female.
7. Name the five muscles of the back of the leg.
8. What tissues of the abdominal wall are divided in the operation for appendicitis at (a) McBurney's point, (b) over the rectus muscle?
9. Describe the course and distribution of the nerves of the palm of the hand.
10. What is connective tissue and where is it found?

PHYSIOLOGY

1. Give the physiology of the ureter.
2. Describe the nervous mechanism of muscular contraction.
3. Describe the physiologic properties of bile.
4. Describe the physiologic differences between lymph and serum.
5. What is metabolism? How many kinds and what are the differences?
6. What is food? Classify and give

7. Describe briefly nervous control of heart.
8. What are the principal physiologic functions of the skin?
9. Describe the physiologic function of the testes.
10. Differentiate between serous mucus and synovial membranes. Tell where each is found.

PATHOLOGY AND BACTERIOLOGY

1. Define anemia, hyperemia, leukemia, leukopenia.
2. Name the intestinal lesions of typhoid fever and give pathology of each.
3. Differentiate between carcinoma and sarcoma and give the diagnostic pathology of each.
4. Describe method of making the Widal reaction.
5. How do bacteria multiply?
6. Name the principal characteristics that would be present in a suspected culture if it contained typhoid bacilli.
7. What is tuberculin?
8. What is the difference between an antitoxic serum and an anti-infectious serum?
9. Give pathology of scorbutus.
10. Give pathology of catarrhal appendicitis.

CHEMISTRY AND TOXICOLOGY

1. What is sp. gr.? What is a urinometer? Give specific directions for its use.
2. Describe physical and chemical changes of substances. Give examples of each.
3. Define chemical symbols. For what are the following symbols: (a) Au, (b) Ag, (c) Fe, (d) As, (e) K, (f) Sb, (g) Zn, (h) Hg?
4. Write formula for (a) common salt, (b) hydrogen dioxide, (c) carbonic anhydride, (e) calcium sulphate, (f) boric acid.
5. Write about iron: occurrence in nature atomic weight, properties, and name several of the preparations used in medicine.
6. Write about alcohol: its occurrence, formation, properties and name some of the preparations used in medicine.
7. How is iodoform made and what are its properties?
8. Give symptoms, fatal period, fatal dose and treatment of phosphorus poisoning.
9. Give symptoms, fatal period, fatal dose and treatment of acid poisoning.
10. Give test for albumin; for sugar in urine.

SURGERY

1. Name the luxations of the shoulder joints. What symptoms are common to all shoulder luxations?
2. Give etiology and symptoms of intestinal obstruction.
3. How are hernias clinically divided? Give palliative treatment of reducible hernia.
4. How are amputations classified? What general considerations are imperative to observe to insure successful amputation?
5. What are the general indications in the treatment of all wounds?
6. Describe the postoperative treatment of a case of gangrenous perforative appendicitis.
7. What are the general considerations as to the treatment of gun-shot wounds?
8. Describe case of cellulitis of hand and give treatment.
9. What is the cause of varicose veins? How should you treat them?
10. Differentiate between location of foreign body in trachea, larynx and bronchus.

MATERIA MEDICA AND THERAPEUTICS

1. Give antidotes for poisoning by belladonna, corrosive sublimate, carbolic acid.
2. What are the physiologic actions and therapeutic uses of arsenic?
3. Give physiologic action of strychnin. In poisonous doses, how does death ensue?
4. What are expectorants? How classified? Differentiate between the classifications.
5. Name the principal purposes for which diuretics are used.
6. What is ergotism? Give physiologic effects and therapeutic uses of ergot.
7. Name two principal counter-irritants. For what purposes are counter-irritants used and on what rests the basis for their employment?
8. Write briefly concerning the methods of giving enterocolysis. What are the principal medicinal substances used and for what diseased conditions is enterocolysis indicated?
9. Give the physiologic actions of ipecac and its therapeutic uses.
10. What are the principal causes for failure in the use of bacterial therapy?

GYNECOLOGY

1. What is a caruncle of the urethra? Treatment?
2. Why is gonorrhoea relatively a more grave disease in the female than in the male?
3. Is ventrofixation of the uterus ever justifiable? How is the operation performed?
4. Define plastic operations as applied to gynecology.
5. When would you use the curette? Give steps of the operation in detail.
6. Give physical signs of cancer of the uterus in the early stage. What laboratory aids to diagnosis, if any, would you resort to in confirming your physical signs?
7. Diagnosis, prognosis and treatment of uterine fibroids.
8. Give in detail the method to be used in making an examination of the pelvis.
9. State size, weight, measurements and location of normal virgin uterus.
10. Write about the menopause, and give significance of that period of a woman's life.

PHYSICAL DIAGNOSIS

1. Make drawing of the anterior osseous chest wall; show outline of the heart and thoracic aorta beneath. Indicate points covering the mitral, tricuspid, aortic and pulmonary valves.
2. State the significance of prolonged expiration. Auscultation in such a case would probably disclose what adventitious sounds?
3. Why are the apices of the lungs usually first affected in pulmonary tuberculosis?
4. Define cyanosis and give the various causes.
5. Define tachycardia; give significance.
6. What are hemic murmurs as applied to the heart, and what is the cause?
7. Name and describe the essentially different sounds given by the thorax on percussion.
8. (a) What is the cause of the second or diastolic sound of the heart? (b) What is the Corrigan pulse? Give significance.
- (c) Define pulsus paradoxus; intermittent pulse; dirotic pulse; digeminal and trigeminal pulse.
9. Differentiate ascites and tympanites.
10. Give physical signs and causes of general anasarca.

OBSTETRICS

1. Describe briefly the female pelvis.
2. Give the successive changes that take place in the ovum after fecundation and during its passage to the uterus.
3. What is the umbilical cord and what are its uses?
4. Describe the fetal heart sounds; give their rate and state when and where they are best heard.
5. Write about morning sickness as to when it occurs, how long it continues, cause and treatment.
6. What is eclampsia? Give treatment.
7. Name several causes of abortion.
8. Give treatment for inevitable abortion.
9. Give list of articles needed by the physician during labor.
10. What are the dangers of a breech presentation? Why? Give treatment.

Book Notices

EDEMA. A Study of the Physiology and the Pathology of Water Absorption by the Living Organism. By Martin H. Fischer, Professor of Pathology in the Oakland School of Medicine, Oakland, Cal. Cloth. Price, \$2 net. Pp. 209, with illustrations. New York: John Wiley & Sons, 1910.

This monograph, which was awarded the 1909 Nathan Lewis Hatfield prize of the College of Physicians of Philadelphia, is a consideration of the subject of edema and certain related topics, on the basis of the author's abundant and original investigations in certain principles of colloid chemistry. It is a well-known fact that certain colloids possess a great affinity for water, and take it up in large amounts until a condition of saturation is reached. The amount of water which will be taken up varies with the nature of the colloid, and also with the composition of the aqueous solution with which it is in contact; the latter is a very important consideration, as exhibited by such a phenomenon as the great swelling of fibrin when in slightly acidulated solutions. After a study of the influence of various substances dissolved in water on the amount of fluid which various colloids and also organized tissues will take up from such solutions, Fischer applies his results to the problem of edema. He concludes that the most important factor in the excessive accumulation of fluid in living and dead tissues is the development within these tissues of excessive quantities of acids, most commonly because of defective oxidation, the acid causing the colloids to have a much greater affinity for water than is normal. This hypothesis has the virtue of much originality and in many ways it is attractive—certainly it has not been adequately considered in the past, a defect which Fischer more than corrects. With great enthusiasm this principle is made to cover pretty much everything known concerning the presence of fluids in the tissues and secretions. Possibly Fischer is correct in this, but no physiologist or pathologist can read the work without finding many places where he meets with obstacles in applying the principle to the facts with which he is familiar. Undoubtedly the author also knows of these obstacles, and perhaps he can overcome them satisfactorily, but the critical reader would find the book much more convincing if he had done so while presenting his doctrine. There is no lack of originality and inspiration in this book, as exhibited especially in the discussion of the author's experiments on hemolysis and urinary secretion, and undoubtedly the monograph is well worthy of the prize it was awarded. Nevertheless, a more analytic discussion, and a more critical attitude toward his own arguments would, in our opinion, have been more creditable to the brilliant and enthusiastic investigator.

DIE SPINALE KINDERLÄHMUNG. Eine klinische und epidemiologische Studie. Von Dr. Eduard Müller, Direktor der Medizinischen Universitäts-Poliklinik in Marburg, mit Unterstützung von Dr. med. M. Windmüller, Assistenzärztin der Poliklinik. Paper. Price, 6 marks. Pp. 170, with 21 illustrations. Berlin: J. Springer, 1910.

This rather extensive monograph gives a complete description of the epidemiology, etiology, pathology and clinical features of acute anterior poliomyelitis as studied in an epidemic in the vicinity of Marburg. As a review of the entire subject it serves its purpose excellently, but as an original contribution it adds little to the advancement of this subject. By means of accurate reporting of all cases it was evident that the disease usually spreads by direct contact, but that in some instances it was carried by a third person, and in exceptional cases doubtful evidence seems to implicate the soil. The incubation period varied from five to ten days. The description of the clinical features of the disease is excellent. Depending on the epidemic the respiratory and gastro-intestinal types may be differentiated. The three cardinal symptoms of onset, the hyperesthesia, the hyperhidrosis and the leukopenia, form a triad that is practically never absent. Another symptom to which he calls special attention is the wakefulness at night and the sleep during the day. Müller emphasizes particularly the so-called abortive cases, which he thinks are not very uncommon. The onset is just as in a typical case, but paralyzes fail to develop. The reflexes are usually lost in one extremity or more. The importance of these cases lies in the fact that their true

nature may not be recognized and that they may become the means of spreading the disease.

THE TAXONOMIC VALUE OF THE MICROSCOPIC STRUCTURE OF THE STIGMAL PLATES IN THE TICK GENUS DERMACENTOR. By C. Wardell Stiles. Hyg. Lab. Bull. 62, August, 1910. Paper. Pp. 72, with 134 illustrations. Washington: Government Printing Office, 1910.

Recent discoveries showing the importance of ticks as carriers of disease, not only to animals but also to man, have rendered careful study of the structure and habits of these pests of great significance for preventive medicine. In this bulletin Stiles considers the North American species, and finds that the microscopic structure of the stigmatal plates is a taxonomic character of considerable importance, upon the basis of which the *Dermacentor* of this country can be divided into four groups. The Montana tick, which has been shown especially by the extensive studies of the late Dr. Ricketts, to be a means of transmission of Rocky Mountain spotted fever, is now found to be a distinct and new species (*Dermacentor andersoni*, according to Stiles), although it has been referred to in the literature of this disease as *D. occidentalis*, largely on the authority of Stiles himself. The tick which Salmon and Stiles considered identical with *D. reticulatus* of Europe is shown to represent a new species, *D. salmomi*.

In this connection some recent correspondence in THE JOURNAL (Oct. 29, 1910, p. 1574, and Nov. 26, 1910, p. 1910) from N. Banks and Dr. Stiles will be of interest.

DUST AND ITS DANGERS. By T. Mitchell Prudden, M.D., Author of "The Story of the Bacteria," etc. Second Edition. Cloth. Price, 75 cents. Pp. 113, with 6 illustrations. New York: G. P. Putnam's Sons, 1910.

This little volume of slightly over a hundred pages in its second edition still more forcibly emphasizes the important relation of dust to the transmission of bacterial diseases, and particularly tuberculosis. In its revised form it contains the latest knowledge concerning the bearing of dust on health, inculcates the duty of preventing or getting rid of dust in private homes, public places and the streets of our cities, and outlines methods of accomplishing this end. It also protests forcibly against the dangers of the spitting habit which is the prolific source, through dust, of the spread of tuberculosis. It is of value in the education of the laity in sanitary prophylaxis.

HANDBOOK OF REGIONAL ANATOMY. By Francis C. Ford, M.D., Professor of Anatomy, Head of Department of Anatomy and Senior Demonstrator of Anatomy in the Hahnemann Medical College and Hospital, Chicago. Cloth. Price, \$1.50 net. Pp. 193. Chicago: Francis C. Ford, 1910.

This book is an attempt to supply to students or others a guide in anatomy to fill a place between the purely descriptive text of the larger anatomies and the applied anatomy of the surgeon or the diagnostician, and would perhaps be of assistance to the student in the dissecting-room. The descriptive portion, however, is so meager that it really amounts to a mere enumeration of the anatomic structures to be found in each region of the body, from periphery centralward. Mechanically, the book is not up to the standard of modern book-making.

OBSTETRIC NURSING, FOR NURSES AND STUDENTS. By Henry E. Tuley, M.D., Professor of Obstetrics, Medical Department, University of Louisville. Cloth. Price, \$1.50. Pp. 246, with 72 illustrations. Louisville: John P. Morton & Co., 1910.

Revision makes this book more than ever a practical and serviceable guide for the obstetric nurse. Some of the pictures seem to be unnecessary; for example, that showing the use of the stethoscope in listening for the fetal heartbeat. The misspelling in Figure 7 is amusing; evidently the engraver, who did not know medical terms, did the best he could in reproducing the copy for the lettering. An index and a glossary aid in making the book valuable.

HISTORY OF CHEMISTRY. By Edward Thorpe, F.R.S., Author of "Essays in Historical Chemistry," etc. Two Volumes. Vol. II, from 1850 to 1910. Cloth. Price, 75 cents. Pp. 202, with 180 illustrations. New York: G. P. Putnam's Sons, 1910.

This is a continuation of Volume I of this work and discusses the more important discoveries in chemistry and the evolution of that science during the last half century. Considerable space is devoted to the most recent advances, especially in theoretical chemistry. The book contains several portraits of the more noted chemists of this period.

Medicolegal

Against Ordering X-Ray Examination—Admissibility of X-Ray Photographs in Evidence—Objective and Subjective Symptoms and Hypothetical Questions

The Supreme Court of Missouri, Division No. 1, says, in the personal injury case of *Dean vs. Wabash Railroad Co.* (129 S. W. R. 953), that the defendant company filed a motion asking the trial court to order that the plaintiff submit himself to an examination by a disinterested surgeon whom the court should select, and also that he submit to have x-ray photographs made of his alleged injured parts. The motion was sustained to the extent of the surgical examination, but overruled as to requiring the plaintiff to submit to the x-ray photograph process, because the court was advised that sometimes the subjecting of a person to that process resulted in danger to him. There was no error in that matter.

Two x-ray photographs offered in evidence by the plaintiff were taken by a physician who testified that he owned an x-ray machine and was familiar with its use and operation; that he examined the plaintiff with it, taking observations of both hips. After taking the negatives with his x-ray machine, he took them to a photographer and had the pictures developed; the operation of developing and printing the pictures was done by the photographer under the supervision of the witness who understood the art, and that the pictures were correct photographs. The witness further explained that it was the bone that caused the shadows in an x-ray photograph, and pointed out certain parts of one of the pictures which showed the enlargement of the upper part of the right thigh bone, testifying that that indicated a fracture near the base of the great trochanter of the femur.

It was not error to admit those photographs in evidence. Even on the theory of the defendant that such a picture is, in itself, not evidence, but only serves as a memorandum to assist the expert witness in his explanation, the pictures were properly admitted in evidence, and were used to illustrate the scientific explanation of the witness. The art of making photographs of the bones of a living man by use of the x-ray is yet still more in the keeping of science than the art of common photography, but that fact only requires more care in laying the foundation for the introduction of such photographs; it does not exclude them from evidence.

The defendant called some expert witnesses and propounded to them hypothetical questions based on certain objective symptoms which some of the witnesses testified they had found on physical examination of the plaintiff and on certain facts to which witnesses testified, and asked the expert witnesses their opinions as to the injury the plaintiff had received based on those symptoms and facts. On cross-examination the plaintiff's attorney supplemented those hypothetical questions by asking the witnesses to take into consideration, also, certain subjective symptoms to which the plaintiff had testified, and then give their opinions based on the whole case; that is, the symptoms and facts contained in the defendant's questions, together with those supplemented by the plaintiff's questions. The defendant objected to the questions on the ground that subjective symptoms should not be taken into account. There was no error in overruling the objection.

Objective symptoms are those which the surgeon discovers from a physical examination of his patient; subjective symptoms are those he learns from what his patient tells him. When a surgeon has no cause to suspect untruth or delusion, he takes what his patient says and weighs the subjective symptoms with those he has discovered and on them he bases his diagnosis and proceeds to his prescription.

Why should not a surgeon when he is called as an expert witness, and asked his opinion on a hypothetical case, take into account the same character of facts that he would when called to attend a suffering patient? Objective symptoms are no more realities than subjective symptoms if both are true.

Objective symptoms depend for their proof as much on the candor and capability of the witness testifying in regard to them as do subjective symptoms; a witness testifying to an objective symptom is as liable to be mistaken as one testifying to a subjective symptom and perhaps more so. An opinion given in answer to a hypothetical question is based on an assumption that the facts supposed are true, but at last it is for the jury to find from the evidence whether the supposed facts are proved; if the jury find that the facts are not proved they will disregard the opinion based on them.

If a physician is testifying as to the condition of a patient whom he has examined, then it is proper to draw a distinction between the objective and the subjective symptoms, but when he is asked for an opinion on a hypothetical case, he must assume the truth of the one as well as that of the other.

Cancer Hospital May be a Nuisance in Residence Neighborhood

The Supreme Court of Kansas approves the injunction which was granted in the case of *Stotler vs. Rochelle* (109 Pac. R. 788).

The suit was brought to enjoin the establishment, in a residence neighborhood, in a building formerly used as a dwelling house, of a hospital for the treatment of patients afflicted with cancer. The home of the plaintiff was 78 feet from the main building which it was proposed to use as a hospital. The two houses faced in the same direction, and each had a number of windows looking toward the other. Two other residences were situated about 90 feet from the hospital building, and three others at a distance of about 150 feet.

Witnesses for the plaintiff who were familiar with real estate values testified that in their judgment the establishment of the hospital would cause a material depreciation in the rental and market value of the surrounding property. Several physicians expressed the opinion that there would be some danger of the communication of the disease through transmission by means of insects, and perhaps in other ways. There was also evidence that offensive odors resulting from the disease itself and from disinfectants used on account of it might reach the occupants of neighboring dwellings. On the other hand, there was testimony on behalf of the defendants that none of the anticipated evils had resulted from a cancer hospital formerly maintained by them under somewhat similar conditions; that under proper management there need be no offensive odors about such a place, and that cancer is not contagious or infectious.

Perhaps the court may take notice of the prevailing view in the medical profession on the last proposition. From the current literature of the subject it appears that while it has not been proved to the satisfaction of the profession generally that cancer can be communicated from one individual to another except by the process of grafting or transplanting cancerous tissue, competent investigators are not lacking who believe that it is of parasitic origin and in some degree infectious. That theory is presented and argued at length in an address published in the *Lancet*, January 11, 1908, to which is appended a bibliographic note. Results of experiments tending to support the theory are recorded in the issues of June 5, 1909, and April 9, 1910. An article in the same publication (Dec. 4, 1909, pp. 1709-1711) describes observations made in Paris covering a period of two years and a half, which lend color to the popular belief in the existence of "cancer houses;" that is, houses the occupants of which are peculiarly subject to cancer. In the present state of the accurate knowledge on the subject, it is quite within bounds to say that, whether or not there is actual danger of the transmission of the disease under the conditions stated, the fear of it is not entirely unreasonable.

It is of course not necessary that the use to which property is put shall be unlawful in itself in order to constitute it a nuisance in the eye of the law. Whether in a given case the obligation so to use one's own property as not to injure another's has been or is about to be so far transgressed as to justify the interference of a court is a question to be deter-

mined as a matter of reason, fairness, and justice under all circumstances. The injury need not extend beyond annoyance, if in view of all the facts, it is unreasonable. For instance, offensive odors, although not injurious to health have often been held to constitute sufficient ground for injunction.

The question was not whether the establishment of the hospital would place the occupants of the adjacent dwellings in actual danger of infection, but whether they would have reasonable ground to fear such a result, and whether, in view of the general dread inspired by the disease, the reasonable enjoyment of their property would not be materially interfered with by the bringing together of a considerable number of cancer patients in this place. However carefully the hospital might be conducted, and however worthy the institution might be, its mere presence, which would necessarily be manifested in various ways, would make the neighborhood less desirable for residence purposes, not to the oversensitive alone, but to persons of normal sensibilities. The court concludes that on these considerations the injunction asked for was rightfully granted. The establishment of a cancer hospital in a residence neighborhood in near proximity to dwellings may be enjoined at the instance of one owning and occupying adjacent property.

Physicians Excepted from Missouri Medical Practice Acts

The St. Louis Court of Appeals says, in *State vs. Hellscher* (129 S. W. R. 1035), that the act of 1901, in so many words, was limited to those who should thereafter practice who had not theretofore registered. Those who had theretofore been duly registered were excluded from the law. In other words, this statute, as originally enacted in 1901, did not create a general offense on the part of all who should thereafter practice, but created an offense limited to a particular class of persons; that is, those who had not been theretofore registered, who should thereafter practice without first registering with the State Board of Health. The law related to acts committed by those particular persons only, to those thereafter practicing medicine or surgery who had not theretofore been licensed as provided by law.

This court does not think that the amendment made by the act of 1907 in any manner changed this phase of the law, nor made it any the less part of the enacting clause, notwithstanding the fact that what was before in the body of the enacting section or clause now appears as attached to that clause by way of a proviso. Changing the position of the words did not change the law. Looking at what the general assembly was attempting to do and considering the matter and phraseology of the amendment of 1907, it is obvious that this arrangement was more for the purpose of avoiding awkwardness of expression, than with any intent of change in the object of the law itself, and the mere fact that what had before been in another place in the enacting section (namely, the phrase "except physicians now registered") is transposed, and appears under the designation of a proviso, has not had the effect of eliminating the words from the enacting clause itself.

It is still the intention of the act regulating the practice of medicine and surgery that its operation shall apply only to those who had not been licensed or registered as physicians or surgeons prior to March 12, 1901. Obviously the legislature, by the amendment of 1907, did not intend to invalidate the registration and licenses of physicians and surgeons who had been regularly licensed and registered under the laws prior to March 12, 1901, the date of the approval of the act of 1901, any more than it had by the act of March 12, 1901, made its provisions applicable to those who had registered as physicians or surgeons prior to that date.

Another reason for the insertion of this limitation at the end of the section, instead of leaving the exception as in the original section, may have been that, as new prohibitions were inserted by the amendment, the lawmakers did not intend to leave any doubt that those new requirements were not to be made of the old physicians.

Society Proceedings

COMING MEETINGS

Southern Surg. and Gyn. Assn., Nashville, Dec. 13-15.
Western Surg. and Gyn. Assn., Chicago, Dec. 19-20.

SOUTHERN MEDICAL ASSOCIATION

Fourth Annual Meeting, held at Nashville, Nov. 8-10, 1910

(Continued from page 1920)

Inguinal Hernia

DR. JOHN SMYTH, New Orleans, reported three cases. The sac in the first case was probably a variety of the pantaloonsac. This kind of sac may account for some of the failures to cure hernia by operation. The condition in the second case was evidently the result of a failure securely to close the neck of the sac in a previous operation. The condition in the third case was the result of an effort at reduction of the hernia, in which the position of the testis was lost sight of or ignored. The truss applied at that time caused sufficient traumatism to produce adhesions which imprisoned the testicle in the upward reflection of the sac, and the enterocele, or hernia proper, recurred in the lower peritoneal pouch, possibly another case of pantaloonsac.

DISCUSSION

DR. DUNCAN EVE, Nashville: The success of all operations for the relief of hernia depends on obliteration or removal of the sac, and the transplantation of the cord to the new bed or canal.

DR. C. W. ALLEN, New Orleans: In a case of double inguinal hernia I completed the operation on the side where the sac was; I had transfixed the sac and proceeded to the other side; when I got to the sac there was a gush of blood. The blood came from the abdominal cavity. I knew I had not injured the deep epigastric artery on the other side, but something was wrong. I put the forceps on the side I was then operating on, went back, opened up the hernia on the other side, and found that the ligature had slipped, and the hemorrhage was coming from the small vessel in the sac. We closed the sac and evacuated the blood in the cavity. That is the only time this has happened to me.

DR. J. L. CROOK, Jackson, Tenn.: The reason we do not operate more frequently for hernia is that we are perhaps negligent in pointing out to our patients the necessity of it. Men wear trusses for years when a simple operation with a very low mortality would make them practically perfect men physically.

DR. ROBERT CALDWELL, Nashville: It is not so much the removal of the sac *in toto* as it is the treatment of the exudate about the neck of the sac. Ochsner, of Chicago, was the first to advise simple treatment of the neck of the sac of a femoral hernia and he got results that were almost perfect. We are going to have recurrences whether we use the Bassini, the Ferguson, or the Macewen method, because we have to deal with different conditions. I do not see why we should transplant the cord instead of allowing it to stay in place, treating the neck of the sac properly, and supporting the internal ring, if necessary constricting that so as not to invite subsequent hernia. I do not see why in routine work we should still do the Bassini.

DR. WILLIS C. CAMPBELL, Memphis: In all cases at the New York Hospital for Ruptured and Crippled, a plaster spica is applied after the operation which immobilizes the parts absolutely and gives opportunity for quicker healing and leaves practically no dead spaces.

DR. CHARLES A. ROBERTSON, Nashville: Why are we not more frequently called on to operate on hernia? The reason for it lies in the fact that fitting trusses is largely in the hands of instrument dealers and druggists, who make false claims in regard to the permanent or curative value of the truss. It is a sad commentary on our profession that we have allowed these cases to get out of our hands and go primarily for treatment to men of this class, and I suggest that it is our duty to discourage patients from going to these men, and to urge on them the necessity of operation.

DR. W. D. SUMPTER, Nashville: The operation can be performed under local anesthesia with comparatively little pain. If local anesthesia were resorted to more frequently more men would be operated on for the relief of this condition who fear a general anesthetic.

DR. PAUL DEWITT, Nashville: There is no doubt that the operation for the radical cure of hernia can be performed just as completely under local anesthesia as under general anesthesia. I have yet to find a patient who suffered any amount of pain during the operation.

Operative Treatment of Fractures

DR. C. W. ALLEN, New Orleans: The view of operating on all fractures will never become universally adopted. A more conservative middle ground seems the wiser, and to this group most conservative surgeons belong. We learn from the study of the after-condition of fractured limbs that a timely operation could have done much toward improving the functional usefulness of many of them. A general anesthetic is demanded for the proper reduction of all fractures, except the simplest. All fractures after reduction should be skiagraphed, and it is often found that what was thought to be a well-reduced fracture, proves to be far from satisfactory. In many cases reduction is possible, but cannot be maintained owing to the obliquity of the line of fracture. When reduction is impossible operation should unhesitatingly be performed and one frequently finds on operating on such cases that the interposition of soft material would have made reduction impossible by any other than operative means. The time for operation calls for some judgment. In cases seen early, within the first twenty-four hours, when there is not much injury to the soft parts, operation had best be done at once. When there is extensive injury to the soft parts, or when several days have elapsed before first seeing the patient, delay should be advised until the local inflammation subsides, sometimes about the second week, when there will be less danger of infection. I think far too many limbs are needlessly cut off. With a little hard work and some ingenuity on the part of the surgeon many badly mangled limbs can be saved. So long as the blood-supply is sufficient to keep alive the peripheral parts there is a chance. It is better that such patients spend six months in a hospital and walk out sound and able to make a living than to be discharged after three weeks with the loss of a limb, and spend the rest of their lives as hopeless cripples or helpless charges on the community.

DISCUSSION

DR. W. P. McADORY, Birmingham: A number of years ago I had a negro patient who was shot through the middle of the femur. I kept the limb in extension for five weeks, at the end of which time I found that I had an ununited fracture. I cut down on the seat of the fracture and found the bullet interposed between the ends of the bone. I resected both ends of the bone, wired the fragments, and succeeded in giving this man a useful limb.

DR. H. A. ELKOURIE, Birmingham: I would rather cut down on the bone and fix or wire the fragments together than trust to hypothesis and get bad results.

DR. A. G. PAYNE, Greenville, Miss.: In compound fractures it is best to operate, open up thoroughly, use phenol, tincture of iodine, peroxid of hydrogen, or bichlorid of mercury, but be sure the wound is thoroughly clean. Any mechanical device you may see fit to use to hold the fragments in position will work if you are clean about it.

DR. MICHAEL HOKE, Atlanta: As an orthopedic surgeon I am called on to correct many deformities the result of badly united fractures. There are many things in the books on fractures that are absolutely wrong. For instance, if the practitioner puts a fractured elbow joint in the position of flexion and does not incorporate the shoulder, he cannot control the upper fragment, the shaft of the humerus. Similarly, if he has a fracture of the forearm he cannot control the fragment unless he locks that up by putting it straight.

DR. JOHN SMYTH, New Orleans: I must differ with those who want to operate in every case. I think that would be a mistake. I have under treatment a young girl who sus-

tained a fracture of the humerus about an inch and a half above the elbow joint, supracondyloid, in which case the upper fragment goes backward and the lower fragment is tilted forward. These fractures were put up in flexion, with a weight on the elbow joint, after the suggestion of Lovett and Stimson. After repeated examinations with the Roentgen ray apposition was found very good, and after eleven days the splint was taken off, the arm massaged a little, and a light plaster splint reapplied. The girl will not only have a good functional result but a good cosmetic result.

DR. ROBERT CALDWELL, Nashville: I believe that operative treatment of compound fractures should be the rule and non-operative treatment the exception. Of course, much will depend on the character of the fracture. If we have a transverse fracture, we know that if we reduce it, it is comparatively easy to maintain it in position and we secure good results by non-operative treatment; but if we have an oblique fracture, or a spiral fracture, although we have secured reduction, it is difficult to maintain it; consequently knowing the comparative rarity of a true transverse fracture, we would say that operative treatment should be the rule and non-operative treatment the exception.

DR. DUNCAN EVE, Nashville: Until recently we were very well satisfied with firm union. We did not think much about the question of permanent results, but since our ideal has been raised by the Roentgen ray we not only insist on a good functional result, but also on a cosmetic one. While I am not opposed to the operative plan of treatment of fractures, I am not modern enough yet to suggest that all closed fractures should be treated by the open method. In compound fractures this method is all right because you have an open wound. Also for those fractures which cannot be reduced, or which when reduced, will not remain in coaptation; but the time has not arrived when surgeons will generally accept the open method as an every day plan for the treatment of closed fractures.

DR. E. DENEGRE MARTIN, New Orleans: The first and most important thing is to know the character of the fracture, and above all the anatomic structures involved. If you have a simple transverse fracture, you are a poor surgeon if you cannot reduce it and hold it in position. If you have an oblique fracture, due to torsion, you are dealing with contraction of certain muscles and you will have trouble in holding the fragments in apposition and you must overcome the action of the muscles if you would get good results.

End Results of Surgical Operations on Nervous Women

DR. S. T. RUCKER, Memphis: Nervous women, as a rule, do not make good subjects for surgical operations. An operation should not be undertaken unless there is a definite, unmistakable pathologic lesion, and it is the chief cause of the nervous symptoms. A correct estimate of the end-results of surgical procedures cannot be made, unless the surgeon keeps in touch with his patients for months after they return home. In clearing up diagnoses in obscure conditions, every surgeon should seek the aid of a competent internist, neurologist, and pathologist. When a patient presents herself, she seeks relief from suffering. She is not especially anxious to be cut, but to be cured, and the surgeon should always ask himself the question: If this were my wife, or my daughter, would I advise an operation?

DISCUSSION

DR. A. A. HEROLD, Shreveport: I recall distinctly the case of a woman who was operated on four times; first, for a retro-displacement of the uterus; second, for the removal of one or both ovaries; third, for the removal of the appendix; fourth, for the removal of a kidney. Finally, she was transferred to the neurologic department, and what became of her after that I do not know.

DR. GEORGE R. LIVERMORE, Memphis: A man came to me for diagnosis and possible operation for kidney-stone. He gave obscure nervous symptoms, with violent pain in the right side. The diagnosis of appendicitis had been previously made by another physician. He was operated on and his appendix removed; but the pain was just as severe as before. Then a diagnosis of gall-stones was made by a surgeon in Cincin-

nati, who operated for that condition. No gall-stones were found. The gall-bladder was drained, and the pain was just as severe after this operation as before. I thought his condition was more hysterical or neurasthenic than otherwise. Urinalysis was negative. He had never passed any calculi. Roentgen-ray examination showed no stone in the kidney, nor shadow anywhere, and so I refused to operate, and advised him to consult a neurologist.

DR. J. A. CRISLER, Memphis: I recall the case of a physician who had all the evidences of neurasthenia, including genuine hysteria, and who had the notion that he had a bad gall-bladder and a bad appendix. I refused to operate on him. He went to every surgeon in Memphis. He then went out of town to consult another surgeon, who removed his appendix and drained his gall-bladder, and he has since been perfectly well. We might cite these cases one after another and prove, on the other hand, that surgery was indicated.

Surgical Treatment of Hepatic Cirrhosis

DR. ARTHUR A. HEROLD, Shreveport: I believe that all well-marked cases of atrophic cirrhosis of the liver should be advised to submit to surgical procedure. I do not consider the results obtained, on the whole, brilliant; but I do not believe that a failure to benefit one of these cases by operation will injure the reputation of either the surgeon or of surgery.

Why Ligate the Sac in Hernia?

DR. H. A. ELKOURIE, Birmingham: I have done within the last six years twenty-two herniotomies without removing the sac. There has not been a single recurrence.

Coxa Vara

DR. WILLIS C. CAMPBELL, Memphis: The diagnosis is not difficult. As a rule, no medicinal measures are indicated, but thyroid extract deserves a trial. In patients of moderate size a simple stiling abduction brace should be used until the bone is firm, when an osteotomy can be done below the lesser trochanter by any of the various methods, and the extremity held in abduction and internal rotation by a plaster spica, including the foot below and extending to the nipple or axilla above. I do not believe that a brace would be satisfactory in a fat subject such as my patient is, but when further reduced we may be able to use any desirable method. At present the patient is in a plaster spica extending to the nipple line, and the extremity held in as much abduction as possible. The condition has probably been present for one year, and at the expiration of two more years a corrective osteotomy can be done with excellent functional result if there is no further change visible by the Roentgen-ray; otherwise we must wait until the process is stationary. In the meantime, I shall apply successive plaster spicas with forcible abduction and internal rotation, which may restore the angle sufficiently to give perfect function.

Purgatives with Pain in the Abdomen

DR. C. N. COWDEN, Nashville, Tenn.: There is no place for the administration of a purgative with pain in the abdomen unattended by a diarrhea.

The patient's danger lies not in the fact that the bowels do not move, but in the condition that produced the pain and obstruction, and the administration of purgatives of any kind under these circumstances is not only irrational, but is productive of the greatest harm to the patient. He does not get well because you force his bowels to move, but in spite of the effect of your drastic measure. Why not be rational in the treatment of these cases and meet the indications with remedies or measures that are indicated and not by the indiscriminate use of purgatives?

Human and Bovine Bacilli from Isolated Cases of Cervical Adenitis

DR. WILLIAM LITTERER, Nashville: Eleven consecutive cases of primary tuberculous cervical adenitis were studied, which resulted in the isolation of five cultures of *Bacillus tuberculosis*

of the *typus humanus*, and six cultures of the *typus bovinus*. The classification of the types was made on the basis of four tests: First, the morphologic characters of the cultures; second, the dysgenetic or eugenic characters of the cultures; third, the relative virulence toward rabbits, and, fourth, the reaction curve in 5 per cent. glycerin bouillon. This latter test serves admirably to distinguish between the two types, provided careful control tests be adhered to rigidly. I have found the differences in the growth of the two types, dysgenic and eugenic, on Dorcet's egg medium to be very valuable in differentiating one type from the other. Rabbit virulence has probably been more uniformly satisfactory than any other of the tests in determining the differences between the two types of bacilli. In gathering up the clinical data of the eleven cases, I was unable to discern a single feature of distinction between those persons who harbor the human type of bacillus, and of those who were infected with the bovine type. The only striking difference observed was the result procured from the administration of tuberculin. In order that uniformly satisfactory results be obtained from the therapeutic administration of this agent, it is imperative that the nature of the type of infection be determined, so that a corresponding strain of tuberculin be employed.

The Gamete Carriers

DR. GRAHAM E. HENSON, Crescent City, Fla.: Until such a time as a campaign of enforced screening of all homes and public meeting places has been generally effected, it is imperative that in addition to the proper treatment of patients showing acute clinical manifestations of malaria, some means be devised to corral all chronic gamete carriers that either have frequent recurrences or possibly only after long periods of time, and that they be kept under treatment long enough to destroy all parasites they may be harboring.

Carbonic Acid Baths in the Treatment of Heart Diseases

DR. J. H. HONAN, Bad-Nauheim, Germany: Carbonic acid baths have been used in cardiac diseases for over fifty years, and in all this time there has ever remained the question of their physiologic action. In all of my cases, with a pulse above normal, I have observed a slowing, and in but one case an increase. This was a very nervous man with a pulse of 60 and a subnormal temperature of 36.5 C., and blood-pressure of 140. In this patient I observed an increase of eight beats after an immersion of six minutes. In this action the baths resemble very much the digitalis group. If the high pressure is due to a poisonous irritation in the blood stream, the carbonic acid baths, by their action of increased elimination, soon rid the blood of the toxic elements. In the blood tests which I have made there has in a large percentage been found an increase in the hemoglobin, and a better developed red blood-corpuscle. The pulse is a good indicator to guide in the treatment and the duration of the baths. The results of my clinical studies convince me that carbonic acid baths in most cases reduce high blood pressure, raise low blood pressure, increase the pulse volume, increase elimination, increase pulse amplitude, increase heart energy, increase duration of temperature, reduce peripheral resistance, reduce dilatations, and relieve nervous irritability.

Infant Feeding

DR. MARGARET O. DAVIS, Nashville, brought out some points regarding the differences in human and cows' milk in infant feeding, the care of feeding utensils, etc. She emphasized the necessity of pure milk, and its preference to the use of drugs in some cases. The predisposition to disease of poorly-fed children was touched on. She emphasized the need of certified milk in cities.

Cardiorenal Treatment

DR. J. B. GUTHRIE, New Orleans, spoke of the use of digitalis in heart diseases. He withholds a salty diet in cases of dropsy, which assists the patient in enduring the thirst, and makes easier work for the heart. Measure of the urine is the gauge of treatment, and rest, dry salt-free diet and purgation give

as striking a change as we see with the addition of digitalis. He recommends purgatives of strong salines or jalap in dropsy cases. In acute dilatation he recommends venesection, as well as the use of opiates to insure rest. He emphasizes the necessity of treating the heart muscle, even when the kidney or vessels are first affected, that is, to lighten the labor of the heart muscle by depleting measures, purgatives, diuretics, if the kidney is sound, rest in bed, when possible, by use of opiates if there is distress, and by the reduction of drinking fluids. Digitalis may be given to prolong the rest period of the heart-beat.

Double Perforation in Typhoid Fever

DR. E. M. FOLKES, Biloxi, Miss., reported two cases of perforation following typhoid fever. One patient died eleven days after a successful operation for the closure of the perforation. The diagnosis in this case was made early, and operation performed promptly.

The names of the new officers elected were given in THE JOURNAL Nov. 19, 1910, p. 1819.

TRI-STATE MEDICAL ASSOCIATION OF MISSISSIPPI, ARKANSAS AND TENNESSEE

*Twenty-Seventh Annual Meeting, held at Memphis, Tenn.,
Nov. 15-17, 1910*

The President, Dr. J. S. RAWLINS, Dancyville, Tenn., in the Chair

Officers Elected

The following officers were elected for the ensuing year: President, Dr. J. W. Barksdale, Winona, Mississippi; vice-presidents, Dr. John Darrington, Yazoo City, Miss.; Dr. Robert P. Nall, Armorer, Ark.; Dr. Arthur G. Hudson, Rein, Tenn., secretary, Dr. Eugene Rosamond, Memphis (reelected); treasurer, Dr. J. A. Vaughan, Memphis (reelected).

Memphis was selected as the place for holding the meeting in 1911.

Injection Treatment of Infected Joints

DR. M. G. THOMPSON, Hot Springs, Ark.: A boy, 19 years of age, had had gonorrhoeal arthritis which resulted in ankylosis of the right knee of eleven months' duration. Under local anesthesia a needle was thrust deep enough to enter the capsule. No synovial fluid escaped, but an injection of liquor formaldehydi in glycerin was made. The next day the knee was more painful. The patient had some fever and was very much depressed mentally, but he was assured that in a day or two he would have a general anesthetic and the breaking up of the adhesions. On the fourth day this was done, and after breaking up the adhesions and flexing the knee, the needle was thrust into it at the same point and at the same depth as at first, and the synovial fluid ran out freely. The injection of the formaldehyd-glycerin fluid was then made, and the knee flexed several times. This flexion relieved the pain very much. In two weeks he could walk, and the knee had returned almost to its normal size.

DISCUSSION

DR. BERNARD ASMAN, Hot Springs, Ark.: I have treated twelve or fifteen cases by this method and satisfactory results have been obtained in all. In some the relief was more prompt and more complete than in others, but in none were there any untoward results observed. An important point in regard to the formaldehyd-in-glycerin solution is that it must always be made up at least twenty-four to forty-eight hours before the time of using.

DR. JOHN L. JELKS, Memphis: Ten years ago I maintained that infections by the staphylococcus and by the tubercle bacillus could be controlled with formaldehyd solution. I also pointed out that formaldehyd solution would destroy the gonococci infection of the urethra within two weeks.

The After-Care of Anterior Poliomyelitis

DR. WILLIS C. CAMPBELL, Memphis, reported four cases of the disease, and in recapitulation said: The spine should be

immobilized during the period of muscular excitability, as we would any acutely inflamed joint with muscular spasm. The anatomic relation of the joint surfaces should be maintained to prevent deformities from muscular contraction. Deformities, when present, should be corrected by surgical procedures. Massage and electricity are dangerous measures in inexperienced hands. Light braces, which should maintain the parts in correct position. Operative measures give brilliant results in well selected cases. Rarely can a perfect functional result be obtained, but all can be benefited materially.

DISCUSSION

DR. G. G. BUFORD, Memphis: Anterior poliomyelitis is not confined to infants alone. It has been my experience to find nearly as many cases of this disease in adults as in infants. The etiologic factor in the production of anterior poliomyelitis is an inflammatory condition in the anterior horns of the spinal cord. There are three classes of inflammatory conditions. An exudate is present in all. In one class the exudate is absorbed and those patients get well. In others it is not absorbed. In still other cases the cells are involved, and a parietic condition follows. In the adult cases an infection results from anything which will produce a toxin.

DR. W. T. PRIDE, Memphis: Anterior poliomyelitis is an infection, and as typhoid selects the intestinal glands, so the infective organism of anterior poliomyelitis selects the ganglion cells, especially the giant cells, of the anterior horns of the spinal cord. There are those who believe that heat has a great deal to do with the development of the disease. Operation in a great many cases is satisfactory. By transplantation of the tendons a useless arm or useless leg has been made partially useful. Various orthopedic apparatus are useful. When the case is diagnosed early and paralysis has occurred, the general practitioner should send the patient to an orthopedic surgeon.

DR. W. L. WADLINGTON, Memphis: I have had under my observation for the last two months a woman three months advanced in pregnancy. The trouble began with fever and an acute toxemia, resulting in complete paralysis of the body. There has been a partial recovery from the paralysis in the upper limbs, but not in the lower. I am waiting with much interest for delivery in this case to see what the outcome will be.

DR. W. C. CAMPBELL, Memphis: In New York they have done a great deal by immobilizing the spine in the acute stage and in keeping the patients quiet. The deformities which result from anterior poliomyelitis should be corrected as soon as possible. We see comparatively few deformities from this disease in the clinics of America as compared with those seen in London and Vienna.

Anxiety Neuroses

DR. S. T. RUCKER, Memphis: Anxiety and worry are distressing symptoms in many of the so-called neuroses, but are most common and constant in neurasthenia, hysteria, melancholia, and psychasthenia. In many cases of hysteria, anxiety and worry are annoying symptoms. The patient may constantly refer to some sensation which she interprets as an incurable malady. One patient, whose appetite and digestion were good, complained incessantly that she had an incurable stomach trouble. Another patient had a morbid fear of dying. In melancholia and psychasthenia, anxiety takes the form of a fixed obsession or hallucination, and its manifestation is often distressing to witness. One of my patients would walk the floor crying and displaying great agitation over the belief that she had brought financial ruin to her family. When anxiety and worry are symptoms in the illness of patients, there is no drug or remedy that will take the place of psychotherapy. The physician who has the ability to put his patient in a cheerful frame of mind and fix the belief that he will recover has at his command a most effective therapeutic procedure.

Bacterial Vaccines, a Factor in Therapeutics

DR. WILLIAM LITTERER, Nashville: In no instance have I failed to observe improvement in any mixed tuberculous affection. I would encourage the use of vaccines as an adjunct

to medical and surgical procedures in certain types of infections which up until now have stubbornly resisted all curative measures. In every instance a sinus or fistula of long standing, whether tuberculous or not, should be given the benefit of vaccine therapy. Autogenous bacterines should be used when possible. Stock vaccines are uncertain. In every case of mixed tuberculosis (pulmonary or otherwise) beneficial results have been obtained by employing the autogenous vaccines and tuberculin.

Surgical Treatment of Goiter

DR. W. T. BLACK, Memphis: Thyroidectomy is the usual procedure in hyperthyroidism, but in cases with symptoms of beginning hyperthyroidism, or where the symptoms are not severe enough to warrant a thyroidectomy, ligation will often cure the patient. It is also indicated in every acute case, and in chronic cases which have resisted other forms of treatment, and in which there are secondary changes in other organs. Ligation may be performed either under general or local anesthesia. The ligation of the upper poles has met with satisfactory results in a limited number of cases. I believe if we study the mental as well as the general condition of our patients, and operate oftener by ligation as a preliminary measure, we will reduce to a minimum the risk these patients run.

DISCUSSION

DR. B. F. TURNER, Memphis: Surgery of the thyroid gland involves one other branch of medicine which heretofore has been frequently overlooked. The effect of hyperthyroidism as a cause of dementia has not received the attention that it deserves. Alienists are beginning to recognize that here and there is a patient who is a proper subject for the surgical infirmary rather than for the detention house for the insane. The operations that have been performed on this class of cases have given satisfactory results. I wish to emphasize the necessity of consulting a surgeon with reference to the possible existence of hyperthyroidism and its correction by operation in those cases in which some form of mental derangement would seem to suggest the advisability of incarcerating a patient in an insane asylum.

(To be continued)

PHILADELPHIA COUNTY MEDICAL SOCIETY

Meeting Held Oct. 12, 1910

The President, DR. HENRY LEFFMANN, in the Chair

SYMPOSIUM ON FOOD IN HEALTH AND DISEASE

DR. JOHN MARSHALL spoke on the "Chemistry of Foodstuffs."

Food in Health

DR. W. E. ROBERTSON: Food in health is a subject that receives too little attention from the physician. Dietetic errors in the direction of quality and quantity are probably responsible directly for much of the minor ill health with which the doctor has to deal; and indirectly, by lowering the body resistance, inviting the development of acute infections, or that which is more serious, metabolic disease. Foods may be discussed very broadly as nitrogenous and non-nitrogenous, and according to their nutritive constituents as proteins, carbohydrates and fats. Proteins we regard as tissue-builders and repairers of waste tissue. Carbohydrates and fats produce energy, and both, but especially the carbohydrates, are regarded as protein spacers. I consider the total amount of food requisite to furnish about 3,500 calories per day, the amount generally agreed on as being essential for the average worker. I would commend especially a nut diet as being both economical and furnishing a high food value.

Food in Disease

DR. M. HOWARD FUSSELL, Philadelphia: I believe that in the vast majority of cases which a physician is called to attend, nursing, proper food, and fresh air are of much more importance than drugs. The food prescribed in disease must be of

such a character that it will not embarrass the already weakened powers of digestion. On the other hand it is just as important that the food contains sufficient calories for the maintenance of nourishment. The chief value of beef-tea or other broth without albuminous matter, is in the mental effect which such foods create and the water and salts which they contain. Water should be administered regularly to patients who are ill enough not to ask for it. When practicable the caloric value of the food we administer to our patients should equal that of a diet of health, an average of 2,500 calories daily being about the necessary amount. With patients suffering from typhoid I now add to the diet soft eggs, soft toast, cereals well cooked, very finely minced meats of various kinds.

DISCUSSION

DR. JAMES TYSON: The only condition under which food acids can be harmful to gouty patients is their excessive use so as to overwhelm the stomach contents with acidity. Regarding the use of red and white meats, it is much worse for the patient to take half a pound of chicken than a quarter of a pound of beef. In acute Bright's disease or in the complications due to uremic poisoning, there is nothing comparable to a milk diet. In typhoid fever I am in the habit of saying that a suitable diet is one of liquid of which milk is the principal portion. Farinaceous and soft foods are suitable for these cases. I do not permit eggs to be given until the patient is convalescing. Ice-cream is an admirable food in typhoid fever. Individual peculiarities demand changes in diet.

DR. M. B. HARTZELL: We know too little about the chemistry of digestion and the metabolism of food to formulate any definite rules as to the treatment of our patients by diet. We can advise our patients intelligently only by having them under observation over a considerable period of time. Generally speaking, I should favor a fairly liberal diet, with fruit included.

DR. H. B. ALLYN: What might be called the time habit is important in diet. For example, fruit in the morning is much less apt to disagree with digestion than when taken at night. Eating late at night is apt to cause difficulty because the whole digestive apparatus is less energetic than at an earlier hour. If we could manage to control constipation by dieting measures, it would be much better for the patient than the use of pills.

DR. RICHARD C. NORRIS: From the obstetric standpoint, I can say nothing that is not already known. I know of no one single factor that adds so much to the danger of the pregnant woman as the fault of over-eating. I think it a good practical working rule to suggest to such women the omission of the mid-day meal and the substitution of milk and crackers. Of primary importance from the standpoint of diet is the toxemia of pregnancy. I have been much impressed with the importance of a milk diet in these cases. By some it is regarded as the mainstay in the prophylactic treatment of eclampsia.

DR. KATE W. BALDWIN: I recall the case of a pregnant woman who passed the full term of her pregnancy on rectal feeding and was delivered of a well-developed 8-pound child.

CITY OF WASHINGTON BRANCH OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

Regular Meeting, held Nov. 11, 1910

The members of the Association of Official Agricultural Chemists were guests at this meeting and the subject under discussion was:

The Pharmacopeial Convention of 1910 and the Prospective Pharmacopeia of the United States

DR. H. W. WILEY, president of the United States Pharmacopeial Convention, presented a communication in the course of which he outlined his opinions regarding the Pharmacopeia and the methods to be followed in revising it. Among other things Dr. Wiley said:

"One of the most important points, it appears to me, is to see to it that the two great interests represented in the revision of the Pharmacopeia work is complete harmony in the revision which is now taking place. I refer on the one hand to the profession of pharmacy and on the other to the profession of medicine. Practically all of the members of the committee represented one or the other of these great professions. I may say further that the two great professions are equally interested in the matter, but from different points of view. Complete harmony will be secured if the members of the two professions on the committee seek to restrict themselves as nearly as possible to their own peculiar fields of investigation. * * * The pharmacist and the physician, therefore, must join hands and work side by side to secure what is best in this new revision. I may say broadly that the line of cleavage is distinct in respect of the attitude of these two professions. The physician is the one undoubtedly who should study the therapeutic effects of drugs. His training has fitted him for this function and he has been taught, usually by large experience, to note with scientific accuracy the effects which different drugs produce on the human organism, especially in a state of disease. While the physician is not a pharmacologist necessarily in that he is not called on to determine the effects of drugs on perfectly healthy animals, he must be a pharmacologist in that other sense of studying the effects of drugs on the diseased organism. In other words, he is more of a practical than a theoretical pharmacologist. The pharmacist, too, is interested in pharmacology and it is perfectly proper that he should also study, for his own benefit and for the benefit of his profession, the action of drugs, but not with a view of administering them to a patient.

ADMISSION OF USELESS DRUGS

"It may be said that the Pharmacopeia is no place to speak of the therapeutic effects of drugs, and this may be true. Let us grant that this is the case; nevertheless a drug only finds a place in the Pharmacopeia because of its therapeutic effects, which must be well understood, although they may not be set forth in the Pharmacopeia. In other words, it seems to me that the medical members of the Committee on Revision would have a right to object to the introduction into the Pharmacopeia of drugs the therapeutic effect of which is unknown or *nil*, and to require that the Pharmacopeia should include only those drugs which really have a therapeutic value. I know it is difficult to properly discuss so delicate a question when the interests of two professions are at stake, but I will ask if there could be any just reason for including in the Pharmacopeia a remedy the therapeutic value of which is zero, or at least of an uncertain quantity? I can see no just ground for admitting such a drug to standardization in the Pharmacopeia.

"It may be that the pharmacist would have a greater business if he sold large quantities of drugs which produce no therapeutic effect, and it may also be true that physicians would have better success at times if they gave more placebos, producing no effect, but it seems to me that is not the question here. Drugs are supposed to be useful even if their abuse may be dangerous, and unless they have some recognized utility they can not with any justice find a place in the Pharmacopeia. That it was the purpose of the Convention to exercise a wise discrimination in respect of the new matter which should go into the Pharmacopeia and the old matter that should go out is evident. In fact it will be remembered that the Convention took at first a somewhat radical stand in regard to this matter, which was afterwards modified on the distinct understanding that the Executive Committee on Revision should act as a strict censor in regard to these matters.

"The subject was also taken in consideration in the section on pharmacology of the American Medical Association, which reached very positive conclusions that the Pharmacopeia should be freed from all useless preparations, and even from those of doubtful efficacy. Equally severe scrutiny of new matter is also to be recommended. New remedies which have not been established by long experimental use are to be looked on with suspicion, such as buttermilk as a prophylactic against pre-

mature death, and many other substances which are fads and fashions rather than remedies founded on facts. At the same time it must be remembered that while one physician might deem a drug of no therapeutic effect, there might be a thousand who would think it valuable, and in such case the wish of the majority should be followed.

THERAPEUTIC NIHILISM

"There is a growing disposition, and I may say perhaps happily so, to discredit the therapeutic value of drugs. Advancing knowledge has convinced thinking people that drugs as a rule do not cure; in fact, under the Food and Drugs Act prosecutions have been instituted for false claims respecting the virtues of drugs because they are held up as a cure for certain diseases. It seems to me that there is a just prejudice forming, not only among the laity, but also in professional circles, against elaborately compounded articles consisting of a great many different substances. These articles seem to be prepared with an idea that there may be something in the compound which will hit the mark. It might be very properly called 'shot-gun' pharmacy and 'shot-gun' therapeutics. It is perhaps very natural for a physician who is uncertain about a case to fire such broadsides in the hope that some of the preparations may become effective. The pharmacist, of course, has nothing to do but to fill the prescription which is sent to him. This prejudice against drugs has doubtless been greatly augmented by the cure-all nostrums which have been so widely advertised, and I may say that in spite of all the work that has been done the cure-all fakir still has a firm hold on the American public. I have often been surprised, and even very recently, by the unqualified confidence reposed in a patent nostrum by intelligent people.

"There is a constant question of the efficacy of drugs and certain schools of therapy have sprung up offering to cure diseases by diet, by exercises, by contortions, by electricity or by all combined, preaching the dangers of the drug habit and its lack of efficiency. All of these things only accentuate what every physician knows, namely, that drugs are no certain cures, and even frequently no certain aids. This condition of disbelief and unrest should not be allowed to go too far because we know that drugs are efficient and useful. It is important, therefore, that in the Pharmacopeia such safeguards should be thrown around the remedies therein described and such conservatism practiced in speaking of their therapeutic effects as to inspire a greater degree of confidence in the minds of the public at large in the utility and efficiency of these remedies.

"This condition of scepticism in the public has been described by one author as 'therapeutic nihilism' and the growth of this distrust in connection with medicinal reagents is clearly pointed out. Much will be done to stem the tide of this destructive tendency by the wisdom and care with which the next United States Pharmacopeia is compiled. There is resting on the Pharmacopeial Convention and its general and executive committees of revision a task of great magnitude attended with obligations of the most serious character."

PROF. JOSEPH P. REMINGTON, chairman of the Committee of Revision, outlined the nature and amount of work that had been accomplished during the summer months. He expressed the belief that the real sentiment of both physicians and pharmacists was neither in favor of a skeleton pharmacopeia nor of a padded pharmacopeia, but of what he was pleased to designate as a sane pharmacopeia.

Prof. Remington also pointed out that for many years the Pharmacopeia was a closed book to the medical profession because its members had been led away from it by the detail man of the manufacturer and proprietary medicine maker. The resulting decay of therapeutics has brought about a state of confusion and a tendency to therapeutic nihilism that he considers to be most unfortunate. He holds that physicians do not know a sufficient number of U. S. P. preparations and do not appreciate the fact that their fellow practitioners in different parts of the country, and in different cities, use totally different medicines, for which the Pharmacopeia of the United States should furnish standards.

DISCUSSION

PROF. I. V. S. STANISLAUS, Philadelphia, asserted that the paper by Dr. Wiley had been to him a revelation. He had been particularly impressed by the reference to needless duplication of drugs having similar properties, and willingly endorsed the proposition to delete useless duplications from the Pharmacopeia. He pointed out that the content of previous pharmacopeias represented the selection and dictates of the few and not of the many and hoped that greater care would be exercised regarding admissions and deletions.

DR. MURRAY GALT MOTTER, secretary of the Pharmacopeial Convention, pointed out more particularly that the work and the function of the executive committee, as outlined by Dr. Wiley, was in accordance with the intent and purpose of the board of trustees of the former convention. He also pointed out that the professional representation on the General Committee of Revision was not alone interesting, but rather significant. Of the total number thirty-four (indeed thirty-five when a vacancy was filled) were nominees of the pharmaceutical caucus and but sixteen were nominees of the medical caucus. Of the latter it is also interesting to note that only two reached the executive committee.

In connection with the scope of the Pharmacopeia he pointed out that the Pharmacopeial Convention by a vote of ninety-five to forty-seven emphatically recorded its conviction that substances "whose value and use have not been established" should not be included. And then, on the plea that it was unnecessary to hamper the committee elected for the purpose of carefully selecting the list of substances, the convention was induced to strike out, by a vote of one hundred and twenty-three to forty, this "ambiguous and dangerous provision," thus leaving the final decision regarding scope with the members of the General Committee of Revision.

With reference to the business of the Pharmacopeial Convention he asserted that it had been pointed out by several observers that "the financial statement made to the Convention was in no wise satisfactory, explicit, or in justice to the intelligence of the body to which it was delivered." In commenting on "the enormous sales of the book amounting to nearly 40,000 copies the first year," he pointed out that as a matter of fact the sales of the Pharmacopeia did not reach 40,000 until the middle of 1908.

In concluding he expressed the belief that if those who are to effect the work of revision do not clearly realize their responsibility to the convention and to the several professions represented, and produce a book of standards, indeed, but of standards for substances of established value and use, the next Pharmacopeia, instead of being a force, will be a farce.

DR. REID HUNT, chairman of the American Medical Association Committee on the Pharmacopeia, pointed out that regarding the scope of the book there were two diametrically opposed views, both of which deserve consideration. The manufacturer and the pharmacist desire to have a book of standards that will include all of the substances that are, have been or may be used as medicine, while the medical practitioner desires to have a book of standards for the approved therapeutic agents only so that the book may be used as a basis for instruction in medical schools and as a guide to the physician who is willing to adopt and use recognized standard remedies. It must be evident that these two objects are so totally different that it would be practically impossible to agree on a compromise, and any attempt to do so would be considered a straddle that could be acceptable to but few.

He heartily endorsed the stand taken by Dr. Wiley regarding the scope of the book and expressed the belief that physicians and pharmacists should not be expected to furnish standards for Custom House officials and "patent-medicine" manufacturers. As chairman of the Committee on the Pharmacopeia of the American Medical Association he had been able to get into communication with thousands of medical practitioners in various parts of the United States, all of whom were willing to use the best medicines that were available and desirous of obtaining authentic information regarding the probable efficiency of drugs.

Dr. Hunt outlined the methods that had been employed by his committee to secure the cooperation of the several sections of the American Medical Association and referred more especially to the correspondence that had been had with medical men in active practice who were also teachers of materia medica and therapeutics in medical schools and colleges, and asserted that despite the fact that the evidence thus secured had been submitted through the Pharmacopeial Convention to the Committee on Revision, many of the members appeared to be willing to ignore the wishes of physicians and that the indications were that the scope of the forthcoming Pharmacopeia would again represent the views of but a limited number of individuals.

As an indication of the opinions held by the better informed medical men he quoted Dr. Abraham Jacobi, the Nestor of American physicians, who in discussing the content of the present Pharmacopeia deplored the fact that the makers of the Pharmacopeia were not willing to restrict the book to the best remedies only.

DR. W. M. BARTON seconded the remarks made by Dr. Hunt and asserted that he had also come to the conclusion that there are two diametrically opposed opinions regarding the scope of the Pharmacopeia and was satisfied that the book cannot, as it now stands, be accepted by medical men as a guide. He suggested the possibility of limiting the medical recognition of drugs by introducing a fair statement of the physiologic action of the substance with each description.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

New York Medical Journal

November 19

- 1 Nervous Affections and Adjustments of the Eyes. G. T. Stevens, New York.
- 2 Pathogenesis of the Toe Phenomenon. A. Gordon, Philadelphia.
- 3 *Extramedullary Spinal Cord Glioma. D. Inglis, Detroit; T. Klingman, Ann Arbor, and M. Ballin, Detroit.
- 4 Proper Method of Administering Ether. A. D. Young, Oklahoma City.
- 5 Anesthesia Dangers. I. D. Frescoln, Philadelphia.
- 6 Local Anesthesia in General Surgery. L. F. Watson, Oklahoma City.
- 7 Determination of the Dose of Stovain in Spinal Anesthesia by Blood-Pressure Observations. M. Sallom, Philadelphia.
- 8 Tonsil-Grasping Forceps. A. M. MacWhinnie, Seattle, Wash.
- 9 *What Is the Direct Cause of the Seizures of Epilepsy? N. P. Levin, Edgewater, Colo.
- 10 Reveries of a Young Practitioner. F. McK. Bell, Ottawa, Ont., Canada.

3. **Extramedullary Glioma.**—The course of the disease in this case was that of a slowly progressive segmental lesion, in the earlier stage of development unilateral, giving the clinical aspect of the Brown-Séquard symptom-complex. The characteristic pain, distinctly localized, due to nerve root irritation, was prominent from the beginning and at no time did the diagnosis of spinal tumor seem doubtful. The patient was seen very early by Dr. George Dock. At that time the only symptom was a pain sharply circumscribed in the one area supplied by the seventh thoracic nerve. There were no other symptoms, and Dr. Dock concluded that the cause was not due to any disturbance of the internal organs, and that it was a distinctly localized condition limited to the seventh thoracic nerve. It was clearly shown by the attachment of the tumor that there could not have been at the beginning of the neuroglia proliferation any involvement of the corresponding segment. Although originating very close to the spinal cord itself, the pain was referred from the nerve root. The tumor was removed and the patient made a complete recovery.

9. **Epilepsy.**—Levin holds that vascular phenomena precisely similar to those occurring in asthma, or angioneurotic edema, occur in the brain with each epileptic seizure. The violent symptoms occurring during an epileptic fit are explained by the sudden increase in the intracranial pressure entailed by this exudation within the rigid, unyielding walls

of the skull. As soon as the pressure within the cranium has readjusted itself the symptoms will pass off. To support his contention for the inclusion of epilepsy within the class of angioneurotic affections various facts are brought forth. In common with the other manifestations of the exudative diathesis, it has a constitutional irritability of the nervous system as its principal etiologic factor. Just as attacks of bronchial asthma have been sometimes associated with urticaria, or angioneurotic edema of the hands or feet; or have been known to alternate with attacks of hay-fever; so attacks of epilepsy have been known to alternate with attacks of bronchial asthma—as stated by Salter. Furthermore, the premonitory symptoms which usher in some attacks of asthma are essentially the same as the auræ of epilepsy. Since, according to this theory, each epileptic seizure is associated with an increase of intracranial tension it has occurred to Levin that possibly a decompression operation would be of service in this disease. By removing a portion of the unyielding skull and substituting instead an expansile diaphragm in the shape of the scalp it will allow of quicker adjustment of intracranial tension, and thus, perhaps, diminish the frequency or severity of epileptic seizures.

Medical Record, New York

November 19

- 11 Chemical Problems in Diabetes Mellitus. A. Magnus-Levy, Berlin.
- 12 Causes of Death from Shock by Commercial Electric Currents, and the Treatment. E. MacD. Stanton, Schenectady, N. Y., and A. Krifa, Albany, N. Y.
- 13 Use of Thiosinamin in Treatment of Cicatrices Following Burns. J. E. Mears Philadelphia.
- 14 Restoration of Inhibitory Qualities in Liver Extracts. D. M. Kaplan, New York.
- 15 A New Theory of Eclampsia. J. R. Mitchell, Fort Worth, Texas.

Boston Medical and Surgical Journal

November 17

- 16 Operative Treatment of Atresia of the Vagina. W. T. Graves, Boston.
- 17 Cancer of the Scrotum. R. M. Green, Boston.
- 18 Clinical and Bacteriologic Researches on Mikulicz's Method of Rendering the Peritoneum Resistant to Surgical Infections. E. De Paoli, Perugia, Italy.
- 19 *Technic of Arthrotomy. C. F. Painter and A. P. Cornwall, Boston.

19. **Technic of Arthrotomy.**—The authors made several attempts to preserve motion after arthrotomies by the injection of sterile oil, but were unable to satisfy themselves that the oil exerted any strikingly helpful influence on the preservation of motion.

Lancet-Clinic, Cincinnati

November 12

- 20 Functional Psychoses. C. F. Read, Hospital, Ill.
 - 21 *Etiology of the Functional Neuroses. E. S. Everhard and G. Felker, Dayton, Ohio.
 - 22 Conclusive Researches in Metabolism. H. R. Harrower, Chicago.
 - 23 More About Ehrlich's "606" from Foreign Letters. A. O. Zwick, Cincinnati.
21. Abstracted in THE JOURNAL, Oct. 1, 1910, p. 1221.

Kentucky State Medical Journal, Bowling Green

October 15

- 24 *Preventive Medicine. J. E. Wells, Cynthiana.
 - 25 Responsibility of the State in the Care of Its Dependents. F. Billings, Chicago.
 - 26 Abdominal Crises, Due to Pathologic Changes in Meckel's Diverticulum Other Than by Obstruction by Band. G. A. Hendon, Louisville.
 - 27 Something Old and Something New in Medicine. D. O. Hancock, Louisville.
 - 28 Pellagra. J. A. Van Arsdall, Nicholasville.
24. Abstracted in THE JOURNAL, Oct. 15, 1910, p. 1400.

Archives of Internal Medicine, Chicago

November

- 29 *Use of Pure Lipoids and Alcoholic Extracts With Active and Inactive Serum in the Serodiagnosis of Syphilis. T. MacRae, A. B. Eisenbrey and H. F. Swift, New York.
- 30 Wassermann Reaction in the Pathology, Diagnosis and Treatment of Syphilis. R. M. Pearce, New York.
- 31 *Peculiar Elongated and Sickle-Shaped Red-Blood Corpuscles in a Case of Severe Anemia. J. B. Herrick, Chicago.
- 32 *Elimination of Bacteria from the Blood Through the Wall of the Intestine. A. F. Hess, New York.

- 33 *Experimental Lung Anthracosis. L. S. Mace, San Francisco.
- 34 *Induction of Pancreatic Activity by Removal of the Adrenals. J. E. Sweet and R. Pemberton, Philadelphia.
- 35 Fatal Sodium Chlorid Poisoning. H. Brooks, New York.
- 36 *Experimental Study of the Resistance to Compression of the Arterial Wall. T. C. Janeway and E. A. Park, New York.
- 37 *Cutaneous Tests with Corn Extracts in Pellagrins. A. D. Hirschfelder, Baltimore.

29. **Complement-Fixation Tests for Syphilis.**—The authors have found that the "pure lipoid" antigen (ether extract) has proved the more satisfactory. It has given, with syphilis, the largest percentage of strongly positive reactions by all three methods. The alcoholic extract antigen, when used with active serum, has given the largest percentage of non-specific reactions. Inactivation apparently destroys the power of a non-specific serum to cause a positive reaction. The Noguchi method, using active serum, gives the most sensitive reaction in syphilis; the Wassermann and the Noguchi "inactive" methods stand in the order named. One of the most important factors in securing reliable results, when active serum is employed, is the performance of the reaction within twenty-four hours after the serum is obtained.

31. **Peculiar Red Corpuscles in Anemia.**—In the case cited by Herrick, the condition was evidently chronic as revealed by the history of the past three years, with yaws and suppurating otitis as predecessors, yet with acute exacerbations. The condition was not clearly explained on the basis of an organic lesion in any one organ. There was cardiac enlargement, albuminuria and cylindruria, general adenopathy, icterus, with a secondary anemia not remarkable for the great reduction in red corpuscles or hemoglobin, but strikingly atypical in the large number of nucleated red corpuscles of the normoblastic type and in the tendency of the erythrocytes to assume a slender sickle-like shape. The leukocytosis with a rather high eosinophil count was also to be noted. Syphilis was suggested by many of the facts, such as adenopathy and the conditions of the heart and kidneys; it might explain the anemia, the arthritis and perhaps also the temperature, cough and attacks of pain resembling hepatic or gall-bladder disease for, as is well known, visceral syphilis may furnish a most bizarre group of symptoms. The Wassermann test was not in use at this time. The scars said to have been due to yaws were like those left by syphilis. The patient coming from the tropics, one thought of intestinal parasites such as uncinaria as a possible explanation of the anemia and the eosinophilia. What were thought to be eggs were found on one occasion only, and after thymol there was temporary improvement. The odd blood-picture made one examine for possible toxic effects of the coal-tar preparations, but neither from the history nor from the examination of the urine was there any evidence that such drugs were habitually taken. The question of diagnosis, therefore, remains an open one unless reports of other similar cases with the same peculiar blood-picture shall clear up this feature.

32. **Elimination of Bacteria.**—As a result of his experiments, Hess states that bacteria, using the *Bacillus prodigiosus* for the test, are excreted from the blood, not only by way of the liver through the bile, and the kidneys through the urine, but also, to a less extent, directly through the intestinal wall. This was found to take place in one hour when one platinum loop of culture medium was inoculated. In these experiments all other paths of access from the blood to the lumen of the intestines were absolutely closed off, including the path from above by way of the pylorus, and the entry by way of the pancreatic and the bile-ducts. It may be argued, says Hess, that the severity of the operative procedure contributed to the result by rendering the intestinal wall less resistant, and by increasing its permeability. It may be answered that this argument may be brought forward in the case of all experimental data. In the experiments performed, the operations were carried out quickly, and with as little handling of the intestines as possible. Moreover, the question of complicating peritonitis or inflammatory reaction did not enter, as, apart from the careful asepsis observed, in almost all cases the animal was killed shortly after. Although it is a well-recognized fact that bacteria can pass with the lymph-stream through the intact intestinal mucosa, and then migrate from the lumen of the intestine to the blood, the reverse phenom-

non, namely that they pass from the blood through the mucosa into the intestine, has, as far as Hess is aware, not previously been demonstrated.

33. Experimental Lung Anthracosis.—Purified tale was injected by Mace into the peritoneal cavity and after a certain time the animal was killed and the organ under observation completely burned in a platinum crucible. The residue was treated on the water-bath with hydrochloric acid. In control experiments in which only a few milligrams of tale were added to the viscera, this substance was easily recovered and recognized. Experiments made show that tale is not carried from the peritoneal cavity and mesenteric lymph-nodes to the lungs during the maximum period of observation of these animals. They do not prove that charcoal is not thus carried, but they add largely to the probability that it is not. While it may be asserted, says Mace, that results obtained with tale cannot be applied to charcoal, on account of the great difference in density, size of particles, etc., it should be remembered that the silicates, under certain circumstances, form the basis of lung deposits, a natural lung silicosis being sometimes observed in potters and quarry workers. Although the analogy between lung silicosis and lung anthracosis is certainly as great as the analogy between lung anthracosis and lung tuberculosis, it cannot be held that these results apply conclusively to ingested tubercle bacilli. They do, however, add important evidence against the theory that the origin of lung deposits is by way of the mesenteric lymph channels.

34. Adrenals and Pancreatic Activity.—The authors found that the removal of the suprarenal glands induces in dogs a flow of pancreatic juice. This has been equaled in duration and activity only by the processes, natural or experimental, which depend on activation by duodenal secretin. Taken in connection with the inhibitory action of suprarenal and pituitary extracts on the pancreatic flow, this suggests a control over the pancreas, by the adrenals at least, in the absence of which the gland secretes more actively. This activation of the pancreas may occur with a high systemic blood-pressure, though it generally occurs when the systemic blood-pressure is relatively low. Hemorrhage may modify or prevent it. There is some evidence to indicate that on the death of a dog from removal of the adrenals, there is present in the duodenum more prosecretin than exists in dogs otherwise operated on which have their adrenals intact, and which die after a comparable long period of etherization. This preponderance may be a contributory factor in the production of a flow. One of the factors which seems to make detection of prosecretin in human beings difficult is probably the lingering death of most of those from whom the intestinal extracts are made. In clinical investigations of secretin comparisons should not be made between such preparations and those from freshly killed animals, unless this fact be borne in mind.

36. Resistance to Compression of Arterial Wall.—The object of this study was to determine whether the resistance to compression of the arterial wall introduces an error of any importance in the clinical measurement of systolic blood-pressure by methods employing circular compression of the arm. The material examined was as follows: 1. Twelve common carotids from infants removed post-mortem, of which ten gave results free from obvious error. 2. Twenty-three common carotids and four iliaes taken from adults, removed post-mortem, of which twenty gave results free from obvious error. 3. Six arteries taken from amputated limbs, of which four gave results free from obvious error. 4. Thirty-eight common carotids and four mesenterics from the ox, of which eleven gave results free from obvious experimental error. 5. Six samples of rubber tubing of different caliber and lumen; one boiled artery; one esophagus; one segment of a small intestine. Two other structures were examined. An infant's esophagus was tested and found to compress absolutely at an increment of external pressure of only 1 mm. Hg. The intestine was also tested, but fruitlessly, since its lax wall at once collapsed over the end of the outflow cannula. The authors conclude that the arterial wall offers definite resistance to compression. Other things being equal, small arteries with thin walls are more readily compressed than large arteries with thick walls. In infancy and childhood the resistance of the arterial wall

is a negligible factor in clinical blood-pressure measurements. Arteries as large as the brachial may require only the pressure of a few millimeters of mercury for the obliteration of their lumen. In adults with normal arteries and a normal range of blood-pressure, the arterial wall is a practically negligible factor. It probably never introduces an error greater than 10 mm. Hg in clinical blood-pressure measurements, a figure less than the spontaneous variations in pressure from minute to minute. Atheroma, even of considerable degree, is without appreciable effect on the compressibility. Calcification of the arterial wall, when segments longer than 6 cm. are examined, increases only moderately its resistance to compression. The overpressure dependent on this factor in their experiments did not exceed 17 mm. Hg. In clinical blood-pressure determinations, if a wide arm-piece be used, and the return of the first fully developed pulse-wave be taken as the index, as recommended by von Recklinghausen, even advanced arterial thickening and calcification probably do not introduce an error of any importance. The only factor determining the compressibility of an artery which seems capable of introducing an error of real importance in the clinical measurement of systolic blood-pressure, is the state of contraction of its walls. It is impossible from their experiments on surviving ox arteries to set definite numerical limits for this in man. From these experiments, however, combined with the study of human arteries, after amputation and post mortem, the authors feel that a degree of hypertonic contraction of the brachial artery sufficient to cause an error of more than 30 mm. Hg seems improbable, and of more than 60 mm. incredible, during life. The point of return of the pulse after obliteration, not of its disappearance during compression, should always be the criterion of systolic blood-pressure.

37. Skin Tests with Corn Extracts in Pellagra.—In these observations, cutaneous tests were made with substantially the same technic as that employed by v. Pirquet in tuberculosis except that corn extracts were substituted for tuberculin in making the test. The procedure was as follows: 20 gm. of corn was extracted with 50 c.c. of ether, alcohol, 10 per cent. sodium chlorid, or 0.2 per cent. sodium hydroxid. The extract was filtered and 1/10 vol. 5 per cent. phenol added to the clear filtrate so as to give it a content of 0.5 per cent. phenol. The ethereal extracts were allowed to evaporate at 46 degrees, until the odor of ether had disappeared. The site chosen for the test was on the patient's wrist in an area which was subject to pellagrous pigmentation, thickening or desquamation, and, in most cases, was bare so as to be exposed to the action of light. A drop of the extract to be tested was placed on the skin and a pin-head area of epidermis beneath the drop was excoriated by the torsion of a v. Pirquet stylet. Into this excoriated area the extract was rubbed with a glass rod. A series of epidermal punctures were made in this way in a line across the wrist, with another line of duplicate punctures above them. In each series there was a pair of controls in which only the pure sodium chlorid or sodium hydroxid solution or alcohol was placed on the skin. Within half an hour after the puncture a small red or sometimes blanched areola and occasionally a small papule formed about the site of inoculation, but in only one case did this exceed 5 mm. in size, and no differences could be noted between the areas about the punctures with corn extracts and the controls. The reactions in sites which were nearest the midline of the forearm were often slightly more marked (areola about 1 mm. larger than the rest), but these reactions were always quite as marked with the control fluids as with the extracts and hence were of little significance. The reactions, which were regarded as negative in all cases, consisted of simple traumatic reactions, were watched for about half an hour and the sites of inoculation were again inspected three hours, twenty-four hours, and forty-eight hours later, as well as at frequent intervals between and after the expiration of these periods. Extracts were made from samples of good corn, spoiled corn taken from the Arkansas Insane Asylum at the time of a pellagra outbreak, and a sample of spoiled corn containing *Aspergillus fumigatus*. These reactions were all negative. The results of

these tests, therefore, render it improbable that pellagra is due to or accompanied by a condition of hypersensitiveness of the individual to products derived from good or from spoiled corn.

New York State Journal of Medicine

November

- 38 Post-Operative Care of the Wound. R. S. Fowler, Brooklyn.
- 39 Public Health Education and Progress of Medicine. D. L. Kathan, Schenectady.
- 40 Mineral Waters of Saratoga Springs in the Rôle of Therapeutic Agents. G. H. Fish, Saratoga Springs.
- 41 A Case of Duodenal Perforation. J. J. Kane, Binghamton.
- 42 Laboratory Tests as an Aid in Diagnosis of Disturbed Liver Functions. L. Colegrove, Elmira.
- 43 Glaucoma. R. L. Crockett, Oneida.
- 44 The Outlook—An Appreciation. A. S. Chittenden, Binghamton.
- 45 The Physician's Place in Society. W. W. Skinner, Geneva.
- 46 Animal Experimentation. A. W. Armstrong, Canandaigua.
- 47 Pathologic Findings in the Right Iliac Fossa. J. P. Creveling, Auburn.
- 48 Blood Pressure—Its Significance and Treatment. J. K. King, Watkins.
- 49 Experiences with Eclampsia. M. P. Messinger, Oakfield.
- 50 Diagnosis and Treatment of Anterior Poliomyelitis. C. F. Clowe, Schenectady.
- 51 Tuberculosis in Children. H. S. Goodall, Lake Kushaqua.
- 52 Blood Pressure in Advanced Arteriosclerosis. H. Schoonmaker, Clifton Springs.
- 53 Toxic Amblyopia and the Optician. D. G. Yates, New York.

Journal of Biologic Chemistry, Baltimore

November

- 54 *Improvement of the Folin Method for the Determination of Urinary Ammonia Nitrogen. M. Steel, New York.
- 55 Presence of Arginin and Histidin in Soils. O. Schreiner and E. C. Shorey, Washington, D. C.
- 56 Pyrimidin Derivatives and Purin Bases in Soils. O. Schreiner and E. C. Shorey, Washington, D. C.
- 57 Preparation of Creatinin from Urine. O. Folin and F. C. Blank, Boston.
- 58 Preparation of Creatinin from Creatin. O. Folin and W. Denis, Boston.
- 59 *Determination of Total Sulphur in Urine. W. Denis, Boston.
- 60 *Estimation of Urea. S. R. Benedict, Syracuse, N. Y.
- 61 Benedict's Method for Determining Total Sulphur in Urine. C. L. A. Schmidt.
- 62 Determination of the Amid Nitrogen in Proteins. W. Denis, Boston.

54. **Determination of Urinary Ammonia.**—That sodium hydroxid may be advantageously substituted for sodium carbonate in determining the urinary ammonia-nitrogen in normal urines is shown by Steel. In order to ascertain whether sodium hydroxid, in the proportions employed in previous experiments and in the presence of a relatively large amount of sodium chlorid, would produce ammonia from amino radicals, weighed amounts (0.1 gram) of urea, uric acid, glycocoll, taurin, leucin, tyrosin, hippuric acid, guanin, allantoin, and mixed creatin and creatinin were added separately and collectively to 25 c.c. fractions of normal urines and, after aeration in the usual manner, the amounts of liberated ammonia nitrogen were compared with those from the original urines. In no case was any increase observed. These same substances were also added to 20 c.c. fractions of a standard solution of ammonium chlorid instead of urine and the ammonia content determined. Here again no increase was obtained. In Steel's opinion these results show conclusively that the ordinary organic constituents of urine are not decomposed by the stated proportions of sodium hydroxid, in the presence of a physical excess of sodium chlorid and under conditions favorable for the liberation of all the inorganic ammonia in normal urine. As a final test of the efficiency of the modified method, the ammonia in fractions of a given sample of normal urine was separated by the Folin method and also by the modified method. The results completely confirmed the conclusion already drawn, to the effect that, in the case of urines containing crystals of triple phosphate the Folin method fails to give perfectly accurate results for ammonia content. These results also still further emphasize the statement that sodium hydroxid in amounts varying from 0.5 to 1 gram plus about 15 grams of sodium chlorid may be substituted for the sodium carbonate as prescribed in the Folin method. The modified method has, therefore, a number of points in its favor, since many samples of pathologic urine contain crystalline triple phosphate.

59. **Determination of Sulphur in Urine.**—A modification of Benedict's method has been devised by Denis, so as to prevent the too rapid evolution of the oxids of nitrogen. The method

is as follows: To 25 c.c. urine contained in a porcelain evaporating dish of approximately $4\frac{1}{2}$ inches in diameter, add by means of a pipette or burette 5 c.c. of a solution containing 25 grams of copper nitrate (crystals), 25 grams of sodium chlorid and 10 grams of ammonium nitrate. Evaporate to dryness on the steam bath or with a very small flame, then heat gently with a small flame, gradually increasing the flow of gas until the dish is heated to redness, and continue to heat at the latter temperature for from ten to fifteen minutes. Allow to cool and add from 10 to 20 c.c. of 10 per cent. hydrochloric acid. On gently warming for a few moments a clear solution is obtained. Transfer to a 200 c.c. Erlenmeyer flask, make up to 100 or 150 c.c. with water, heat to boiling and add drop by drop 25 c.c. of a 10 per cent. solution of barium chlorid. Let stand one hour or more and filter on a Gooch crucible. A blank must be run on 10 c.c. of the oxidizing solution as copper nitrate generally contains traces of sulphate, and the amount of sulphate thus found deducted in the final calculations. By the use of the above described oxidizing mixture the spattering which is so prominent a feature in the Benedict method is entirely eliminated, the only precaution necessary being the avoidance of too rapid heating at the beginning of the fusions. If at this time the burner be turned up so rapidly that clouds of nitrous oxid gas are evolved the result will be low.

60. **Estimation of Urea.** In the use of Benedict's method a sulphuric acid bath is required which must be kept at a temperature of from 162 to 165 F. The technic recommended for the estimation of urea in urine is as follows: 5 c.c. of urine are introduced into a rather wide test-tube, and about 3 grams of potassium bisulphate, and from 1 to 2 grams of zinc sulphate are added. (The quantities of these salts may be measured roughly. An excess of the zinc salt is to be avoided, as too large a quantity tends to cause slight frothing during the final distillation.) A bit of paraffin, and a little powdered pumice are then introduced into the tube (to prevent frothing and spattering) and the mixture boiled practically to dryness, either over a free flame, or more conveniently, by floating the tube in a bath of sulphuric acid kept at about 130 F. The tube is then placed in a sulphuric acid bath which is maintained at from 162 to 165 F. (not lower), and left there for one hour. During this heating the tube must be weighted (a large-sized screw-clamp is convenient), so that it will be immersed in the acid for at least three-fourths of its length. At the end of the hour the tube is removed from the bath, the acid washed off under the tap, a little distilled water poured into the tube, and the contents washed (with the aid of heat) quantitatively into an 800 c.c. distillation flask. (A small amount of black pigment finally adhering to the sides of the tube may be disregarded, as the ammonium compounds are readily soluble.) The fluid in the distillation flask is diluted to about 400 c.c., rendered alkaline through the addition of 15 or 20 c.c. of 10 per cent. sodium hydroxid (or 25 c.c. of 15 per cent. sodium carbonate), and distilled for forty minutes into an excess of standard acid. The residual acid is then titrated, and the urea nitrogen calculated (after subtraction of the previously determined ammonia nitrogen). In dextrose-containing urines this method may be employed in combination with the Mörner-Sjöqvist method.

Medical Fortnightly, St. Louis

November 10

- 63 Pleural Effusions: Diagnosis and Treatment. E. B. Montgomery, Quincy, Ill.
- 64 Recurrent Insanity and the Stigmata of Degeneracy. M. R. Hughes, St. Louis.
- 65 Individual Treatment of Morphine Habitués. W. F. Waugh, Chicago.

American Journal of Physiology, Boston

November

- 66 *Influence of Alcohol on Nitrogenous Metabolism in Men and Animals. L. B. Mendel and W. W. Hilditch, New Haven, Conn.
- 67 *The Isolated Kidney—Influence of Pulse Pressure on Renal Function. D. R. Hooker, Baltimore.
- 68 Sensory Changes in the Skin Following Application of Local Anesthetics and Other Agents. S. I. Franz and W. C. Ruedger, Washington, D. C.
- 69 *Secretion of the Infundibular Lobe of the Pituitary Body and Its Presence in the Cerebrospinal Fluid. H. Cushing and E. Goetsch, Baltimore.

- 70 Auricular Strips of the Cat's Heart. J. Erlanger, Madison, Wis.
71 *Comparison of the Total Nitrogen Excretion of Either Kidney in Normal Individuals During Varying Periods of Time. T. B. Barringer and B. S. Barringer, New York.
72 Production of Light by the Firefly. J. H. Kastle and F. A. McDermott.
73 Acapnia and Shock: Failure of the Circulation. Y. Henderson, New Haven, Conn.
74 *Metabolism of Development. J. R. Murlin, New York.

66. **Influence of Alcohol on Nitrogenous Metabolism.**—A study of protein metabolism and utilization, and especially the partition of nitrogen in the urine, under the influence of alcohol, was carried out on man and dogs under fixed and comparable conditions of diet. In man the doses used were moderate, i. e., 500 calories daily in the form of alcohol distributed in six portions. With the animals a range of dosage leading to distinct intoxication was employed. The findings in general were as follows: There is no pronounced disturbance in the alimentary utilization of the foodstuffs. Moderate doses exert a protein-sparing action, which is succeeded by loss of nitrogen when larger quantities of alcohol are administered. The partition of urinary nitrogen remains remarkably unaltered with the exception of an increased elimination of ammonia nitrogen (accompanying other evidences of perverted metabolism as indicated by the appearance of optically active (levorotatory) compounds in the urine, following "toxic" doses, and a higher output of purins. The theoretical significance of the latter, which affects both the endogenous and exogenous fractions, is discussed at some length; and its bearing on the assumed nutrient properties of alcohol is indicated. The most significant impression, perhaps, which the analytical data afford, is the absence of pronounced alterations indicative of markedly disturbed protein metabolism, even when comparatively large doses are continued for days and weeks. This has been interpreted as another evidence of the "factor of safety" in metabolism.

67. **Isolated Kidney.**—A perfusion apparatus is described by Hooker which yields a pulsatile wave of pressure similar to the normal pulse wave and which allows of alteration in the magnitude of the pulse pressure. The use of the apparatus in the study of isolated (dog's) kidneys yielded the following results: With a constant mean perfusion pressure the amount of urinary filtrate varied directly as the magnitude of the pulse pressure. With a constant mean perfusion pressure the amount of protein in the urinary filtrate varied inversely as the magnitude of the pulse pressure. With a constant mean perfusion pressure, the rate of blood-flow through the organs varied directly as the magnitude of the pulse pressure.

69. **Secretion of the Infundibular Lobe.**—The object of this communication is to call attention to the presence of a substance in the cerebrospinal fluid which gives the same reactions as extracts of the pars nervosa itself, indicating in all probability that the active principle long recognized as being confined to this anatomic subdivision of the gland is actually secreted into the ventricular cavity. This would seem to establish the theory that the hyaline bodies of the pars nervosa, regarded by Herring as products of secretion of the posterior lobe—a view supported on experimental grounds by the authors—actually discharge, as their histologic appearance suggests, into the third ventricle and represent the source of the active substance resembling pituitin in the cerebrospinal fluid.

71. **Total Nitrogen Excretion of Kidney.**—The work done by the Barringers was carried out on eleven young men, all in good health. In collecting the urine the method of Albarán was employed. As regards the total nitrogen: in one case the quantities were equal. In seven cases they varied by less than 1 gm. to the liter. In two cases they varied by between 1 and 2 gm. to the liter. The nitrogen-urea plus ammonia-urea showed in three cases a variation of less than 1 gm. to the liter and in six cases a variation of between 1 and 2 gm.

74. **Metabolism of Development.**—The nitrogen balance was followed by Murlin through two complete periods of gestation beginning with copulation, through parts of two others beginning several weeks previous to menstruation and through one period of menstruation which was not followed

by copulation. In the first two experiments the diet contained 70 calories and from 0.65 to 0.75 gm. N. per kilogram daily. From the first pregnancy one puppy was born, and the result was a net gain of 8.69 gm. N. to the mother's body. From the second four puppies were born, and the result was a net loss of 55.6 gm. N. from the mother's body. Up to the fourth week in these two experiments (on different dogs) the amounts of nitrogen lost from the mother's body were proportional to the weights of puppies delivered. The effect of the menstruation was to cause a retention of nitrogen, which may be explained, in part at least, as a compensation for the amount of blood lost. The results of these experiments, Murlin believes, support the idea that nitrogen loss from the mother's body is characteristic of the first half of normal pregnancy in the dog, particularly of the third and fourth weeks. This is probably due to the action of proteolytic enzymes produced by the embryo and not yet limited by the placenta in their action to the maternal blood. Nitrogen retention has been found in these, as in all other experiments, in the last half of the pregnancy. The curve of nitrogen elimination in the urine shows that the retention in the last week of pregnancy is fairly even from hour to hour.

Journal of Nervous and Mental Diseases, Lancaster, Pa.

November

- 75 *Personal Experience with Freud's Psycho-Analytic Method. J. J. Putnam, Boston.
76 Multiple Sclerosis with Primary Degeneration of the Motor Columns and Hypoplasia. T. H. Weisenburg and S. D. Ingham, Philadelphia.
77 The Case of Robert Bachman—A Study in the Psychology of Religion. W. W. Richardson, Norristown, Pa.
75. Abstracted in THE JOURNAL, July 16, 1910, p. 247.

Chicago Medical Recorder

November

- 78 Art vs. the Science of Medicine. C. B. Reed, Chicago.
79 Evolution and Hopes of Civil Service in Illinois. J. C. Mason.
80 Reputable Stock Neisser Bacterin in Chronic Gonorrhoea. O. F. Scott, Argo, Ill.

Surgery, Gynecology and Obstetrics, Chicago

November

- 81 *Tuberculosis of the Body of the Uterus, Confined to the Myometrium. R. Alessandri, Rome, Italy.
82 Thrombosis of Pelvic Veins Following Septic Abortion. G. Seeligmann, New York.
83 *Tumors and Retention Cysts of the Appendix. H. Crouse, El Paso, Texas.
84 *Etiology of Cholecystitis. J. E. Else, Pullman, Wash.
85 Abscess of the Liver. A. B. Herrick, Ancon, Canal Zone.
86 End-Results of Operations for Relief of Neurasthenia Associated with Various Visceral Poses. W. M. Polk, New York.
87 *The Blood Supply of the Liver. E. Staehlin, Newark, N. J.
88 *Surgery of the Thorax. W. C. Quinby, Boston.
89 *A New Oil in the Treatment of Postoperative Abdominal Adhesions. W. G. Crump, New York.
90 Chronic Intestinal Stasis. W. A. Lane, London.
91 Injuries of the Venous Sinuses of the Brain. E. M. Brown, Chicago.
92 *Bone Transference. J. McKenty, Winnipeg, Canada.
93 Technic of "Pole Ligation" for Hyperthyroidism. J. H. Jacobson, Toledo, Ohio.
94 *A Modified Viscera Forceps. A. J. Schoenberg, Chicago.
95 *Peritoneal Director. W. F. Church, Greeley, Colo.
96 Simultaneous Use of Cotton and Rubber Gloves in Operations. J. J. Buchanan, Pittsburg.
97 Wire-Carrier for Bone Suture. J. J. Buchanan, Pittsburg.

81. **Tuberculosis of the Body of the Uterus.**—The author believes that his case is without any doubt one of tuberculosis of the uterus, originally of the myometrium. That there was no affection of the ovaries, the tubes, the serous membrane, or the endometrium on the surface, excludes the primary localization in them as is the usual case. On the other hand, the extension of tuberculous alteration in the muscle of the anterior wall toward the fundus in the form of a great caseous gumma surrounded on all sides by bands of muscles, and the diffuse caseous necrosis of the focus serve to demonstrate the original seat of the process, while the miliary tubercles scattered in the neighboring muscle and toward the mucous coat evidently indicate a more recent diffusion. The localization in the myometrium, he thinks, must certainly have come by way of the blood-vessels, and probably is secondary to another focus in the organism, of which, however, clinically there was no trace; but it may exist if only in one or a few peribronchial or mesenteric ganglia without any actual symptomatic manifestation.

83. Tumors of the Appendix.—A study of the primary malignant growths of the appendix has convinced Crouse that the appendix should always be investigated while doing other intra-abdominal work; that many so-called spheroidal cell primary carcinomas of the appendix may be simply remains of imperfect tissue repair. Why, he asks, should the simple removal of an organ, an integral portion of a continuous structure, seemingly malignantly involved, give nearly an absolutely good prognosis in 57 per cent. of all malignant cases and 100 per cent. of the spheroidal type?

84. Etiology of Cholecystitis.—This work was undertaken by Else for the purpose of throwing more light on infection through the blood-stream, and to determine, if possible, which is responsible for the most cases of cholecystitis, the portal system or the general circulation. All work was done on rabbits, with the exception of two experiments quoted from a previous communication, and under strict aseptic and anti-septic precautions. The *Bacillus pyocyaneus* was used, as this organism is not present normally in the gall-bladder of the rabbit, and it is an organism that is easily identified. A ligature was placed about the cystic duct, care being taken not to include the cystic artery. One cubic centimeter of a virulent culture was injected into a superficial vein. Later, a culture was made from the gall-bladder. The ligature prevented the ascension of infection from below so that the bacilli could reach the gall-bladder only through the cystic artery. Hence this series demonstrates that organisms in the general circulation reach the gall-bladder readily through the terminal arteries and capillaries the same as they reach other organs. One cubic centimeter of the culture was next injected into the portal vein. Later, a culture was made from the gall-bladder. This group of experiments showed that when organisms are injected into the portal vein they do not readily reach the gall-bladder, but it does not show that they did not reach the bile, for they may have been carried on down the common duct instead of ascending the cystic duct into the gall-bladder from whence the culture was made. In order to determine whether the organisms did reach the bile, the common duct was ligated and 1 cubic centimeter of the culture was injected into the portal vein. Later, cultures were made from the gall-bladder. This group proves that when infection is injected into the portal vein it will reach the bile. There are two possible routes through which the infection may have gone, first, by passing through the capillaries from the portal vein to the hepatic veins, then through the general circulation to the gall tract, through branches of the hepatic artery; and second by passing from the capillaries through the normal liver cells into the bile radicals. Now if the cystic duct were ligated and infection injected into the portal vein, it would determine the route, for if it were by the general circulation the gall-bladder would become infected, as the organisms would reach it through the cystic artery. On the other hand, if infection of the gall-bladder be through the portal route, the contents of the gall-bladder would be sterile, for with the cystic duct ligated there would be no way for the infection to reach it. Accordingly, the cystic duct was ligated, care being taken not to include the cystic artery. One cubic centimeter of the virulent culture was injected into the portal vein. Later, a culture was made from the gall-bladder. This group proves that infection passes from the portal vein to the hepatic veins through the capillaries and thus reaches the gall-bladder through the general circulation. And this series demonstrates, first, that infection of the gall-bladder from the blood is through the arteries, and second, should infection reach the portal vein it is transmitted to the gall-bladder through the general circulation.

87. Blood-Supply of the Liver.—The point Staehlin makes is that the commingling between the hepatic artery and portal vein is established through the medium of a tremendously ramified and interposed capillary system, and in consequence of which the circulation of the liver is very much retarded. In the case reported by him, the severance of the left hepatic artery shut off the blood-supply of the left lobe of the liver completely. The effect was two-fold: locally death to the entire lobe, since the hepatic artery is the nutrient vessel, and secondly, since the hemorrhage was tremendous, a lower-

ing of the blood-pressure sufficient to cause a voluntary arrest of the hemorrhage, yet was not sufficiently profuse to drain off enough blood to cause death. The hemorrhage from the parenchyma of the liver, though probably great, was arrested by the lowered blood-pressure due to the arterial hemorrhage from the left hepatic artery, facilitated, *a priori*, by the lower blood-pressure of the portal vein and hepatic vein. The anastomotic interchange of blood between the portal vein and hepatic vein would undoubtedly have led to a fatal termination, had both or either been severed, due to the close proximity of the vena cava; besides, the sparse supply of connective tissue and relatively poor supply of elastic fibers in the liver would have favored hemorrhage in spite of the lowered blood-pressure. Hence, since the anastomosis occurs from the hepatic artery to the portal vein, and never in the reverse, and since the hepatic artery is a small vessel, and since the circulation in the liver is normally very much retarded, and since the veins are devoid of contractile tissue, this is what happened. After rupture of the hepatic artery, the left lobe was drained and was no longer nourished. The blood-pressure was reduced, causing an arrest in hemorrhage and a stasis at the areas of commingling with the hepatic artery and portal vein. The stasis led to the formation of thrombi in the radicles of the portal vein and hepatic vein.

88. Surgery of the Thorax.—In so far as Quinby's experimental observations go they confirm the experience of Meltzer, Carrel and Elsberg, who find that the method of intratracheal insufflation is very safe, and rests on a firm physiologic basis. In some thirty observations, some of them as long as four hours, others during such severe operations as total right pneumectomy and esophageal sutures, Quinby states that he has never had a death due to the method of anesthesia.

89. Treatment of Postoperative Abdominal Adhesions.—During the past three and a half years, Crump has introduced sterile oil into over 200 abdomens. In the majority of these cases, olive oil was the one employed. Many grades and kinds have been used, owing to the fact that they had frequently to be obtained and prepared on the spur of the moment. After a careful study of the subsequent history of these oil cases, together with additional experience derived from its use in further cases, various points in which olive oil failed to fulfill all the requirements of a perfect menstruum gradually evolved. It was noted that normal surgical reaction was frequently more marked than in similar cases in which oil was not used. In a few cases, the oil seemed to fail in the prevention of postoperative adhesion (in two patients who subsequently had to be reoperated on, and in each of whom numerous adhesions were found); but, on the whole, it has been so gratifying in its minimization of the post-operative sequelae, especially adhesions, that Crump has come to believe that its use has marked a decided advance in surgery.

92. Bone Transference.—In McKenty's case, the diaphysis of the tibia was entirely absent except for a conical piece of bone at either end, one attached to the upper epiphysis with its point directly downward, and the other attached to the lower epiphysis with point directed upward, each piece being from 1½ to 2 inches long. So far as could be determined by palpation the intervening space of about 6 inches in length was devoid of osseous tissue. Just external to the original scar, an incision was made from the upper tibial epiphysis to the lower, the full length of the limb. Each conical stump was isolated and its point removed by saw, leaving a flat surface of a diameter about equal to that of the fibula. The fibula was then exposed and sawn through at points opposite to the ends of the stumps and the segment moved forcibly over into a sulcus prepared for it by a little blunt dissection. One silver wire suture held each end in apposition to the stump of the tibia. The wound was closed and the leg put up in a plaster cast. Healing occurred without complication. In September, 1906, three months after operation, the man was able to walk on the leg. The final result is all that could be expected. The upper end of the transferred segment has been displaced outward and has formed the bony union with both tibia and fibula. Motion at the ankle joint is considerably less than normal.

94. **Modified Viscera Forceps.**—The holding portion of Schoenberg's forceps consists of rubber-covered incomplete rings, which permit rubber tubing to be put on or removed, when replacing becomes necessary. The jaws of the forceps meet and lightly compress each other when closed at the first catch on the handle, and when closed to the third or fourth catch the hold is firm. Schoenberg says that these forceps may be made use of for catching and holding the tube, ovary, round ligament, bowel, uterus, or any of the abdominal viscera without injury to the delicate peritoneum. It may be used to advantage in picking up an appendix through a small incision, or holding a bound-down, gangrenous appendix after slightly liberating it from its bed of adhesions. Thus the appendix can be ligated and removed with greater ease through a smaller abdominal opening, and when dealing with an acutely inflamed appendix or tube with less disturbance to the protective adhesions. By the aid of these forceps, therefore, the intra-abdominal work can be done with greater ease, through a smaller opening, with less intra-abdominal handling, and with no injury to the delicately covered structures.

95. **Peritoneal Director.**—Chureh's peritoneal director consists of a flat-spoon director with a handle at right angles, so shaped that 3 inches of fat in the abdominal wall will not interfere with its being easily inserted and held in a proper position. Its use is readily acquired. After the initial incision is made in the peritoneum the director is inserted in the cut and pushed along the line of the proposed incision close to the under side of the peritoneum, which is cut rapidly with scissors or knife. In sewing the peritoneum this instrument can be used for the same purposes as the Beck spoon, and acts better in fat subjects for it can be held level, which is impossible with the latter instrument. The advantages of the peritoneal director may be stated briefly as follows: 1. It is safer than the usual method in enlarging the primary opening in the peritoneum. 2. It saves time. 3. It can be used to keep back intestines in closing the peritoneum.

Archives of Ophthalmology, New York

November

- 98 Lymphocytosis as a Diagnostic and Prognostic Sign in Cases of Iridocyclitis After Perforating Injury. H. S. Gradle, Prague.
99 Successful Removal of a Piece of Iron from the Vitreous. W. N. Sharp, Indianapolis.
100 Concentric Contraction of the Pupil. P. Fridenberg, New York.
101 A Rare Form of Teratoma Orbitæ (Fetus in the Orbit, Orbitopagus Parasiticus). G. Mizuo, Osaka, Japan.

Interstate Medical Journal, St. Louis

November

- 102 Spondylitis typhosa (Typhoid Spine). A. Frick, Chicago.
103 Ear Symptoms in General Diseases. J. J. Kyle, Indianapolis.
104 Pre-Hippocratic Medicine. J. D. Comrie, Edinburgh.
105 Present Day Physiology of the Stomach. C. Shattinger, St. Louis.
106 Anamnesia Syphilitica. F. R. Fry, St. Louis.

Journal of the Missouri State Medical Association, St. Louis

November

- 107 The Surgeon and His Work. F. Reder, St. Louis.
108 *Surgical Treatment of Uterine Myomata. W. J. Frick, Kansas City.
109 Psychotherapy vs. Eddyism. R. William, St. Joseph.
110 *Instruction of the Public in Antituberculosis Measures by a Travelling Car Exhibit. G. Homan, St. Louis.
111 Fallacies in the Understanding of Antiseptics and Germicides, Especially Bichlorid of Mercury. M. Pitzman, St. Louis.

108. **Uterine Myomata.**—The technic which Frick employs differs in no essential particular from that described by Dr. Howard Kelly. The abdominal cavity is walled off with gauze, the uteri delivered and protected with gauze wrung out of warm salt solution. Incision is made in a generally transverse direction over the most prominent part of the tumor. The myoma is shelled out and the incision closed by a figure-of-eight hemostatic suture of No. 1 iodized catgut. This effectively controls the oozing. The line of sutures is covered as well as possible with the uterine peritoneum or with a fold of the broad ligament if feasible, by Lembert suture of No. 0 iodized catgut, the knots being buried as well as possible. This second line of sutures is important in reducing the danger of adhesions.

110. This article appeared in THE JOURNAL, Sept. 24, 1910, p. 1072.

Providence Medical Journal

November

- 112 Treatment of Infantile Paralysis. F. E. Peckham, Providence.
113 Parent's Duty to Instruct His Son in Sexual Hygiene. W. H. Peters, Providence.
114 Drainage After Suprapubic Cystotomy. H. Terry, Providence.
115 Choice of Routine Method for Administering Ether. A. H. Miller, Providence.

Louisville Monthly Journal of Medicine and Surgery

November

- 116 Glanders. W. O. Roberts, Louisville.
117 The Owen Bill and Its Opponents. S. A. Knopf, New York.

Bulletin of the Johns Hopkins Hospital, Baltimore

November

- 118 The Special Field of Neurologic Surgery. H. Cushing, Baltimore.
119 *The Cammidge Test in Experimental Pancreatitis and Other Conditions. G. H. Whipple, B. S. Chaffee and R. F. Fisher, Baltimore.

119. **Cammidge Test in Experimental Pancreatitis.**—As a result of their experiments the authors conclude that the Cammidge test is of little value in establishing a diagnosis of acute pancreatitis in dogs. If the test is negative, it is pretty strong evidence against an acute pancreatitis. The Cammidge test is of even less value in the condition of chronic pancreatitis in dogs and may be consistently absent even in extreme grades of this disease. A positive Cammidge test is not infrequent in normal dogs and men. The Cammidge test is almost constantly present in chloroform poisoning in dogs—a condition in which there is extensive liver necrosis and cell autolysis. The test may be present in cases of pneumonia or in any condition in which there is active cell destruction and autolysis. The Cammidge test may be produced experimentally almost at will by intraperitoneal injections of hydrolytic cleavage products. These split products may be prepared by boiling pneumonic lung tissue (dog or man), or thymus for hours with dilute acid, neutralizing, filtering and concentrating to a clear fluid. The melting point of the crystals varies under different conditions indicating that the substance or substances are not constant. The method is open to various errors and too much depends on the personal equation particularly in the interpretation of the various crystals.

Maryland Medical Journal, Baltimore

November

- 120 Mercurials in Treatment of Tuberculosis. P. Kintzing, Baltimore.
121 Prophylaxis of Mental Disorders, and the After-Care of Convalescent Patients. A. P. Herring, Baltimore.
122 Plea for the Betterment of Health in Country Districts. C. W. G. Rohrer, Baltimore.
123 Care of the Demented and Untidy Insane. F. J. Flannery, Baltimore.

Buffalo Medical Journal

November

- 124 The Purins. H. R. Hopkins, Buffalo.
125 Astigmatism as a Cause of Gastric Diseases. G. M. Gould, Ithaca, N. Y.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

November 5

- 1 Clinical Measurement of Diastolic Blood-Pressure and Cardiac Strength. L. Branton.
2 Greek Medicine in Rome. C. T. Allbutt.
3 *Strangulated Omental Hernia with Very Few Symptoms. A. Z. Cressy.
4 Tetanus Treated by Chlorotone. R. A. Hobbs and E. W. Sheaf.
5 The Nervous System in Chronic Alcoholism. F. W. Mott.
6 *Therapeutic Use of Alcohol Vapor Mixed with Oxygen. W. H. Willcox and B. J. Collingwood.
7 Pulmonary Thrombosis. E. Glynn and R. E. Knowles.
8 *Method of Distinguishing Dead from Live Leukocytes. C. Archard.
9 Effects of Artificial Respiration on the Stillborn Infant. J. A. B. Hicks.
10 Variation in the Sizes of Red-Blood Cells. C. Price-Jones.
11 Polychromasia, and the Pathology of Hematomata. G. R. Ward.

- 12 *Action of Oleic Acid and Its Soaps on the Blood. A. E. Boycott.
- 13 *Pathogenesis of Hereditary Hemophilia. T. Addis.
- 14 *Absence of Altmann's Granules from Cells of Malignant Growths. H. Beckton.
- 15 Chloroform Necrosis of the Liver. G. W. Goodhart.
- 16 Diagnostic Use of the Complement-Fixation Method. A. Wassermann.
- 17 Practical Value of the Wassermann Reaction. H. W. Bayly.
- 18 Complement Fixation in General. R. Muir.
- 19 Structure of Complement in Relation to Deviation. J. H. Smith.
- 20 Diagnosis of Syphilis by Complement Deviation. T. W. B. Smith.
- 21 Individual Properties of Complement and Organ Extract. I. McKenzie.
- 22 Comparison of the Original Wassermann Reaction with Some of Its Modifications. H. R. Dean.
- 23 Guidance Afforded by Complement Fixation Methods. L. W. Harrison.
- 24 Lecithin and Cholesterol as Reagents for the Detection of Syphilitic Serums. C. H. Browning.
- 25 Complement Deviation and Carcinoma. J. O. W. Barratt.

3. **Strangulated Omental Hernia.**—A man, aged 60, complained of gripping pain all over the lower abdomen; the pain was general, not tender near the appendix. Cressy found a large swelling in the lower inguinal region the size of a fist, solid and hard, tender and without impulse. He cut down on the mass. It was indurated and showed no landmarks. Presently a black mass came into view, and slitting up the cavity in which it lay, he laid bare as much as three fingers of gangrenous omentum. Freeing the internal ring, and passing his finger into the abdomen, he felt a large hard mass extending as far as the middle line like a sausage. With difficulty freeing this he got it through the opening, and found that it was a mass of gangrenous omentum as big as two fists. Having freed it all around, he ligated it off close to the bowel; the left testicle and cord were also removed.

6. **Alcohol Vapor Mixed with Oxygen.**—Willeox and Collingwood call attention to the remarkable stimulant effect on the heart and circulatory system produced by the inhalation of oxygen containing alcohol vapor. When this combination is used, it can be readily demonstrated in cases of cardiac failure that the addition of alcohol vapor to the oxygen administered produces a stimulant effect on the circulatory system much greater than that produced by the breathing of oxygen alone. These are the good effects of the oxygen plus an additional marked stimulant effect on the circulation caused by the contained alcohol vapor. Oxygen which had been bubbled through absolute alcohol contained in an ordinary wash-bottle was administered in several cases of illness in which cardiac failure was a prominent symptom, and it was found that the mixture produced a marked stimulant effect on the heart and circulation, decidedly greater than that produced by oxygen alone. In some of these cases the administration appeared to have been the cause of the prolongation and saving of life. In cases of pneumonia with cardiac failure the mixture of oxygen and alcohol vapor was found to be a valuable remedy.

7. **Pulmonary Thrombosis.**—Glynn and Knowles have found that spontaneous thrombosis is much commoner than embolism, in the proportion of 8 to 1 in 1,200 post-mortem examinations from a single hospital. They believe that an unaccountable acceleration of the pulse or respiration rate, beginning in the second week after a major operation, especially abdominal, and associated with slight pyrexia, suggests the possibility of spontaneous thrombosis and of a sudden fatal termination about the third week. Cases of spontaneous thrombosis are overlooked from the assumption that only embolism can cause death in a few minutes, from neglect to remove and harden the heart and lungs together, and trace the distribution of the thrombi *in situ* in properly hardened specimens, and especially from neglect to make a thorough microscopic examination. Even the association of the pulmonary clots with others in the systemic veins does not necessarily prove that the former are embolic. Both may have arisen spontaneously and separately from similar causes.

8. **Distinguishing Dead from Live Leukocytes.**—Achard reports some researches on the distinction which may be drawn between dead and living leukocytes by using neutral red. Living leukocytes are uncolored, or contain red-stained or intraprotoplasmic vacuoles or granulations. Dead leukocytes

show their nuclei red-brown, and no intraprotoplasmic coloration. Two solutions are used; the one is physiologic salt solution with 6 per 1,000 of sodium citrate; the other is a physiologic salt solution with 1 per 1,000 of neutral red. Mix in a tube 10 drops of each solution and add 1 drop of blood, or from 1 to 4 drops of the sediment of a centrifugized exudate containing white cells; the tube is placed in the incubator and kept at the temperature of 37 C. for twenty minutes, then the liquid is examined in a glass cell, and the living and dead leukocytes are separately enumerated. Achard says that in the circulating blood there are no dead leukocytes, even in the gravest diseases. If occasionally a few dead leukocytes are seen, fresh preparations must be made again and examined within five minutes, in order to avoid accidental injuries of the white cells; then they generally yield no nuclear staining. In various exudates dead leukocytes are not scarce, especially in cases of suppuration. In abscesses, the number of dead leukocytes suddenly decreases after the incision. In acute meningitis, it appears that the variations in the leukocytes are valuable for prognosis; their disappearance is a good sign, and their increase an unfavorable indicator. The red staining of the nucleus is also observed in recently dead and not yet disintegrated cells. Therefore, a few stained nuclei are found in old suppurations; for instance, in tuberculous empyema, among a great deal of indistinct leukocytic remains.

12. **Action of Oleic Acid on Blood.**—Rabbits repeatedly inoculated with soaps of oleic acid subcutaneously became anemic. Blood regeneration was defective; there was no clear evidence that blood destruction was excessive. Rats fed with oleic acid showed no changes in the blood.

13. **Hereditary Hemophilia.**—Twelve cases were investigated. In all the coagulation of the blood was delayed. In those individuals in whom the symptoms were most marked the blood took an hour or more to coagulate; in one case in which the tendency to prolong hemorrhage was less marked the coagulation time was thirty-six minutes, and in the slight cases it was about fifteen minutes. This delay in coagulation was the only pathologic factor constantly present, and is in itself sufficient to explain all the symptoms. There are good grounds, therefore, for regarding it as the proximate cause. The cause was looked for in connection with the calcium, the thrombokinase, or the prothrombin. Various quantities of calcium were added to hemophilic plasma, but no amount reduced the coagulation time to normal. Calcium was, therefore, not the cause. With various amounts of thrombokinase the same result was obtained, except when very large quantities were added, when coagulation was almost instantaneous in both normal and hemophilic plasmas. But with lesser amounts, even such as were sufficient greatly to accelerate the coagulation of normal plasma, the coagulation of the hemophilic plasma still took much longer than the normal. Further, there was found to be as much thrombokinase in hemophilic serum as in normal serum, and as much could be extracted from hemophilic blood corpuscles as from normal corpuscles. Thrombokinase was, therefore, not the cause. There was no quantitative deficiency as regards the prothrombin in hemophilic plasma, but a qualitative difference was present, which showed itself in the unduly long time required by the hemophilic prothrombin to change into thrombin in the presence of calcium and thrombokinase. That this fault in the prothrombin was the sole cause of the delay in coagulation was shown by the fact that very small quantities of normal prothrombin when added to hemophilic plasma reduced the coagulation time to the normal. The cause of hemophilia is, therefore, says Addis, an inherited peculiarity in the constitution of the prothrombin whereby its activation into thrombin is retarded.

14. **Altmann's Granules and Malignant Growths.**—Excluding new growths originating in cells not normally containing Altmann's granules, Beckton says, absence of granules from all the essential cells of a new growth indicates malignancy. Presence of Altmann's granules in all or nearly all the essential cells of a new growth, is usually associated with non-malignancy or only with malignancy of a special kind or limited degree (thyroid, ovary). In a tumor, the diagnosis of

which lies between inflammation and sarcoma, presence of Altmann's granules indicates the former, absence the latter.

Lancet, London

November 5

- 26 Greek Medicine in Rome. T. C. Allbutt.
27 Traumatic Neuroses. T. R. Glynn.
28 *Desmoid Tumors. R. Morison and H. Drummond.
29 Cases Treated by Vaccine of Unknown Organisms. E. C. Bousfield.
30 Primary Acidosis; Recovery. S. Bontor.
31 *Use of the Faradic Current in the Treatment of Persistent Aphonia Following Laryngitis. F. Hernaman-Johnson.
32 *Phlegmasia Alba Dolens, Followed by Pulmonary Embolism and Infarction of the Lung; Recovery. J. C. Curtis.
33 *Influence of Quinin and Morphin on Phagocytosis. A. L. Smith.

28. **Desmoid Tumors.**—According to Morison and Drummond there are certain tumors—desmoids—originating in the abdominal wall, chiefly in the upper half of the rectum muscle, but also in connection with the other muscles, which are of considerable clinical importance. They are likely to be mistaken for growths in the abdomen, unless the possibility of their occurrence is remembered. Their association with pregnancy is so frequent as to constitute more than a coincidence. Possibly traumatism, by muscle stretching or tearing, is of etiologic significance. A firm, but not tender, sausage-shaped tumor, possessed of some mobility, across, but not in the direction of the fibers of the relaxed muscle with which it appears to be associated, becoming fixed when that muscle is made tense, and occurring in a woman recently pregnant, is a desmoid tumor. The treatment is to excise the growth at once, along with a free margin of the surrounding structure, including the peritoneum underlying it.

31. **Faradic Current in Aphonia.**—A study of two cases of aphonia has led Hernaman-Johnson to form conclusions regarding the pathology and treatment of persistent post-catarhal aphonia. The larynx is primarily a mechanical device for the production of vocal sounds, and depends for its proper functioning even more on the integrity of its muscles and nerves than on the healthiness of their covering. In chronic catarrh of this organ, the muscles become secondarily affected, and the delicate terminals of the motor nerves in all probability undergo an inflammatory degeneration. An acutely inflamed mucosa doubtless demands local sedative applications; and even when the trouble has become chronic, astringent sprays, paintings, etc., can often play an important part. But the tendency in many chronic cases is for the mucous engorgement to disappear to a great extent, whereas the damage to the neuromuscular apparatus remains. Under such circumstances it is unreasonable to expect a cure by the ordinary means. On the other hand, improvement may be looked for from such measures of "natural therapy" as produce benefit in similar pathologic conditions elsewhere, e. g., in the form of facial palsy which is the result of exposure to the cold. Hernaman-Johnson says that in treating paresis of laryngeal muscles by faradization, the secret of success lies in the regular and persistent use of mild currents, which are not calculated to produce violent contractions of opposing healthy muscles. If carefully applied for a prolonged period this form of electricity exercises a selective action on the affected structures and eventually restores their tone. Remarkable as are the results in suitable cases, however, it must not be regarded as a panacea for each and every form of catarrhal aphonia. When the laryngoscope shows marked swelling and congestion of the cords, the mucous membrane must be attacked vigorously on orthodox lines. Nevertheless, even when the mucosa is the part most at fault, the judicious use of the interrupted current, he declares, forms a valuable adjunct to routine treatment.

32. **Phlegmasia Alba Dolens.**—Five days after delivery, Curtis's patient developed phlegmasia alba dolens in the left leg. Under treatment she progressed favorably for seven days when she was seized with violent pains in the left chest and shortness of breath. The respirations were 72; pulse, 108, regular, but very feeble; the temperature, 100 F. The extremities were cold. She complained of intense pain over the epigastrium, precordia, and lower axilla. An impaired note was found over the lower part of the axilla, and the breath sounds

over this area were badly transmitted; no friction sound was heard. A soft systolic murmur could be heard over the pulmonary area and the second sound was accentuated. She suffered from retching and some vomiting, and the smallest amounts of liquid nourishment caused great pain over the precordia and lower axilla. As the stomach was dilated this was attributed to pressure on the diaphragm interfering with cardiac and respiratory movements. Hot water bottles were applied to the feet and hot applications to the chest. She was given iced milk and soda-water with brandy in small quantities at frequent intervals. She was also given the following mixture every four hours:

R	gm. or e.c.
Bismuth carbonate	gr. x
Aromatic spirits of ammonia.....	m. xv
Compound tincture of cardamoms.....	m. x
Mucilage, q. s., and water.....	ʒi ʒo

On the following day the vomiting had ceased. The respirations were 66; pulse, 102, and temperature, 101 F. She still had considerable pain over the lower axilla, and marked friction sound could be heard over this area. It was noted that the swelling in the left leg had diminished considerably, and was much softer and free from pain. The pulmonary systolic murmur could still be heard, although it was not so marked. Three days later there was a considerably impaired note over the lower half of the upper lobe, and the whole of the lower lobe and axilla, with marked tubular breathing, bronchophony and pectoriloquy. The temperature was 99 F., respiratory rate 60, and pulse 96, regular, and of medium tension. The pulmonary sounds were clear. There was good air entry at the base, but dulness persisted over the axilla, the lower half of the upper lobe, and the upper half of the lower lobe; and over these areas there were still tubular breathing, bronchophony and pectoriloquy. There was still an occasional dry cough but no expectoration. The temperature was normal. The left leg had resumed its normal size. The lung symptoms gradually cleared up.

33. **Influence of Quinin on Phagocytosis.**—Smith made a series of researches to ascertain, if possible, the truth of the statement that quinin, like alcohol in excess, inhibits phagocytosis, and is therefore contraindicated in septic conditions. The opsonic index was taken as a basis for the work, with the additional factor of a solution of quinin and morphia. The very soluble acid hydrochlorid of quinin was selected because it is much less irritating than the sulphate and contains 8 per cent. more quinin. Morphin hydrochlorid, $\frac{1}{4}$ grain, was added to each 10 grains of the quinin salt. It was roughly calculated that a 10-grain dose given to a person weighing 140 pounds, if entirely absorbed, would represent in the blood a proportion of 1 to 7,500. The influence of this solution (1 to 7,500, equivalent to a 10-grain dose) on the phagocytosis of different kinds of pathogenic organisms (e. g., streptococci, staphylococci, pneumococci, *B. coli*, *B. influenzae*, *B. pseudodiphtheriae*, and *B. tuberculosis*) was contrasted with stronger and weaker solutions to ascertain the effect of varying doses. In the majority of the eleven sets of experiments, there was an increased phagocytosis, always most marked with the 10-grain dose solution. Instead of inhibiting phagocytosis, the addition of quinin and morphia, in what may be considered the "ideal" dose, greatly increased it. Smaller doses in all the groups were less effective, and one important fact was clearly demonstrated—namely, that very large doses (30 and 40 grains), instead of increasing, actually diminished phagocytosis, sometimes to the extent of 50 per cent.

Clinical Journal, London

November 2

- 34 Complications of Gall-Stones. C. H. Fagge.
35 Late Results of Operations on the Stomach. H. J. Paterson.
36 The Appendix in Middle and Later Life. E. M. Corner.

Medical Press and Circular, London

November 2

- 37 Respiration in Health and Disease. J. F. H. Dally.
38 Specialists and Specialisms and Their Relationships to General Practice. I. S. Abraham.
39 Physical Aspects of Blood-Pressure. T. L. Brunton.
40 Uniformity of Method for Medical Inspection. J. Kerr.

Annales de Gynécologie et d'Obstétrique, Paris

October, XXXVII, No. 9, pp. 577-720

- 41 *Non-Cystic Ovarian Tumors. M. Mériel.
- 42 *Stenosis of the Pylorus from Muscular Hypertrophy. P. Fredet and L. Guillemot.
- 43 *Megacolon. M. Patel.

41. **Non-Cystic Ovarian Tumors.**—Mériel discusses all kinds of ovarian tumors outside of cysts. He has found only seventeen fatalities in the 289 operative cases on record since 1900, the mortality thus being from 4 to 4.5 per cent. The percentage of permanent cures has been 15 per cent. in the 372 cases compiled by Estor between 1881 and 1900 and the proportion is much higher in later series. The figures show that the operative mortality is no higher when both ovaries and the uterus are removed. The final outcome, he states, is much better for these non-cystic ovarian tumors, especially the malignant, than with cancer of other genital organs or organs elsewhere. This favorable prognosis includes both the operative and remote results, and it encourages early operation in case of a solid, movable tumor of the ovary. As there is no reliable sign to differentiate the benign from the malignant tumors, there should be no delay; the abdomen once opened the surgeon can then decide whether to continue or abandon the operation. Bilateral ovariectomy can be done without interrupting a pregnancy; after delivery the ovarian tumor should be removed without delaying for more than two or three days. The favorable figures shown by the latest statistics permit more initiative than in the past. Metzger has compiled 150 cases of ovarian cancer complicating gastric cancer, and Hartmann has reported a case in which he successfully removed a cancer in both ovaries and the primary cancer in the pylorus, the patient, a woman of 38, leaving the hospital in good condition; the operations were done in two sittings with a month's interval. In Boeckel's case two large cancers were removed from the ovaries; necropsy a few months later disclosed an unsuspected cancer in the stomach.

42. **Stenosis of the Pylorus in Infants from Muscular Hypertrophy.**—Fredet and Guillemot do not consider the anatomic lesion as necessarily entailing fatal impermeability; the supposed factors are the dangerous elements—the inflammatory swelling of the mucosa and spasm of the hypertrophied muscle which aggravate the stenosis. These latter factors may be influenced by medical treatment, resting the stomach by feeding a teaspoonful at a time, merely iced boiled water at first, and combating the spasm by lavage, hydrotherapy and local heat. The dietetic measures are the most important; the stomach will sometimes tolerate up to 5 gm. of breast milk at a time. These small amounts should be kept up for about two weeks and then the amount gradually increased. The food with which he has been most successful is a milk gruel or malt soup. Sedatives are given to reduce the tendency to spasm. In the severe forms lavage may be useful but it sometimes aggravates the weakness; in one case it seemed to be responsible for the collapse observed. In case operative treatment becomes necessary, partial pylorotomy by a straight longitudinal incision down to the mucosa, enables the muscular fibers to spread. The lips of the longitudinal incision are then drawn apart and sutured together again to form a transverse line. The two children on whom this technic has been applied recovered at once and are now healthy and well developed; Weber has reported two similar cases. In 185 operations for this form of stenosis the immediate mortality was 47 per cent., but the mortality was only 26.31 per cent. in the thirty-eight cases in the last three years in which the operation was this partial pylorotomy. Fredet and Guillemot warn especially against letting the child become chilled during the operation. The outcome is immediately favorable in the children without existing gastro-enteritis, but when this is present convalescence is a little retarded but not so much as might be expected. Only two of the fifty-three children operated on according to this preferred technic of posterior gastro-enterostomy succumbed later to progressive debility.

43. **Megacolon.**—Patel gives a historical sketch of idiopathic dilatation of the large intestine or Hirschsprung's disease, and reviews 223 cases with an operation or necropsy; all but seventy-three were in children. About 57 per cent. of the

seventy-four children operated on and 57 per cent. of the forty-one adults were cured by the operation. His review shows that the mortality grows less as the children increase in years; under the age of 2 there were thirteen deaths for thirteen operations, some merely an exploratory laparotomy; from 2 to 5, only four of the fourteen children survived, but between the ages of 5 and 15 there were twenty-seven recoveries to ten deaths and between 15 and 50 years of age there were twenty-two recoveries to eight deaths; after the age of 50 only one recovery is reported to ten deaths. He thinks that it is not enough to fasten or take up a fold in the colon, while resection is too serious; unilateral excision gives the best results from all points of view.

Bulletin de l'Académie de Médecine, Paris

October 18, LXXIV, No. 32, pp. 197-220

- 44 *Paralysis of the Recurrent Laryngeal Nerve and Mitral Stenosis. E. Boinet.

44. **Paralysis of the Recurrent Laryngeal Nerve and Mitral Stenosis.**—Boinet reports two cases and discusses what has been published on this subject by Osler and others, all proving that recurrent paralysis is liable to accompany mitral stenosis, either from direct compression of the left recurrent nerve by the left auricle or by traction downward from the dilated and hypertrophied right ventricle or from both these factors. This cause for the paralysis should be borne in mind after exclusion of the usual causes.

Lyon Chirurgical, Lyons

November, IV, No. 5, pp. 421-512

- 45 *Spinal Anesthesia in Gynecology. (Etude sur la rachistovainisation.) Violet and Fisher.
- 46 Operative Treatment in Cholelithiasis. (Du choix de l'intervention dans la lithiase biliaire.) G. Cotte.
- 47 Traumatic Dislocation of the Scaphoid Bone in the Foot. E. Destot.

45. **Spinal Anesthesia.**—Violet and Fisher have compiled 30,000 cases from the literature to which they add 270 cases from Pollosson's gynecologic clinic, and discuss the special indications, technic and results. They regard raising the pelvis as decidedly dangerous at first, while the drug is diffusing, and this phase may last for twenty or thirty minutes. The great danger of the spinal technic is the liability to stoppage of the respiration; this occurred twice in their 270 cases, but they were able to revive one of the patients. In the fatal case necropsy disclosed an unsuspected pleural effusion which should have contraindicated general anesthesia, especially by the spinal technic. Another fatality was evidently the direct result of lowering the patient's head too soon after the injection; some of the fluid had been lost in making the injection and the pelvis was raised at once. The skin was incised seven minutes after the injection and the patient, an obese woman with cancer of the cervix uteri, stopped breathing and could not be revived. They list further the details of thirty-six other fatalities in European literature following injection of stovain, tropeocain, or novocain for spinal anesthesia. In twenty cases the fatal syncope occurred within fifteen minutes and in others not until after several hours. In four of the cases suppurative meningitis was evidently due to lack of asepsis in the technic. In four other cases mechanical interference with the action of the lungs from an effusion was responsible for the fatality; in fourteen cases the cachexia or infection was already in a dangerously advanced stage. In seven of the total thirty-six fatalities the stovain must be directly incriminated, they think. Paralysis of legs or sphincters developed in sixteen cases, generally subsiding after a few days or months, but entailing fatal complications in bladder or kidney in two cases and fatal infection from an eschar in a third, while in three cases the paralysis or ataxia seems to be permanent. Study of these cases shows a pre-existing predisposition—syphilis or alcoholism—which should have contraindicated the method, or else the dosage was too large or asepsis violated. The spinal method, the authors state, is particularly adapted for gynecologic operations, as the field is all in one plane, innervated from the same segment of the spine; the relaxation of the muscles is complete; there is no vomiting; the operative shock is less than with other technics and there is no irritating action from the anesthetic on the lungs;

the patients can be fed earlier and convalescence is shortened. But the technic requires skill and the method has its indications and contraindications. Among the latter are strangulated hernia, dating from several days, septicemia and tuberculosis—in several cases the spinal injection seemed to localize the trouble in the meninges; dyspnea of mechanical origin, pregnancy, arteriosclerosis, syphilis, tabes or any history of a cerebrospinal affection.

Semaine Médicale, Paris

November 2, XXV, No. 44, pp. 517-528

48 *Herpes of Skin and Mucous Membranes. C. Fernet.

48. Herpes.—Fernet explains herpes as a specific trophoneurotic affection, differentiated by its causes, its mode of action and the objective findings. The direct immediate cause of herpes is microbial toxi-infection, generally due to the pneumococcus. Other causes sometimes incriminated are only predisposing. Besides zona, the herpes of the face, trunk and limbs, he accepts herpes of the throat, commonly called herpetic angina, and herpes of the lungs, commonly called fibrinous pneumonia. Pneumonia is thus, according to his conception, a pneumococcus toxi-infection of the pneumogastric nerve and the inner surface of the lung, and he reports and analyzes a number of examples to sustain this view.

Berliner klinische Wochenschrift

October 24, XLVII, No. 43, pp. 1957-2004

- 49 *Tuberculosis in Prussia During 1909. (Neuer Statistik zum Kampfe gegen die Tuberkulose.) B. Fränkel.
- 50 *Treatment of Diseased Ovaries and Fallopian Tubes. (Wandlungen und Fortschritte in der Behandlung der chronisch-entzündlichen und -eitrigen Erkrankungen der Gebärmutteranhänge.) L. Landau.
- 51 Semientennial of the Berlin Medical Society and Pathologic Anatomy. D. v. Hansemann.
- 52 Interstitial Pulmonary Emphysema. A. Fraenkel.
- 53 *Apparent and Actual Azoospermia. (Zur Würdigung der Spermabefunde für die Diagnose der männlichen Sterilität.) P. W. Fürbringer.
- 54 *Mishaps with Serotherapy. (Zufälle bei der Serumtherapie.) G. Jochmann.
- 55 Antistreptococcus Serum and Streptococcus Immunity. W. Zangemeister.
- 56 Experimental Research on Erect Gait. (Untersuchungen über den aufrechten Gang.) H. Gerhartz.
- 57 *Ehrlich's "606." (Organotrop—Spirillotrop.) F. Lesser.
- 58 Shape of the Stomach. (Die Grundformen des normalen und pathologischen Magens und ihre Entstehung.) E. Schlesinger.
- 59 The Röntgen Ray in Dermatology. (Indication and Methodik der Röntgenbestrahlung der Hautkrankheiten.) A. Alexander. Commenced in No. 42.
- 60 Introduction of New Drugs, Etc. (Fieber die Einführung neuer Arzneimittel und Verwandtes.) H. Kohn.

49. Progress in the Campaign Against Tuberculosis.—Fränkel states that the statistics for Prussia show that the total deaths from tuberculosis in 1909 were 9.11 per cent. of the total mortality, against 9.13 per cent. in 1908. There has been a constant decline since 1875, when the deaths from tuberculosis totaled 88,283, against 60,871 in 1909, while the population in this period has increased from 28,000,000 to 39,000,000. The number of tuberculous individuals receiving institutional treatment has increased during this period from less than 12,000 to over 102,000, but the institutions for the advanced cases are still shunned as of yore. Of the 42,232 tuberculous insured given a course of sanatorium treatment, 35,131, that is, 83 per cent., regained their earning capacity. This regaining of earning capacity persisting for five years and over is recorded for 27 per cent. in 1897, and this percentage has increased constantly up to 46 per cent. in 1905. Besides the three stages of the Turban classification, the statistics now embrace a stage 0; this represents "a more favorable condition than stage I."

50. Diseased Adnexa.—Landau reviews the changes and progress realized in the treatment of chronic inflammation or suppuration in the uterine adnexa, and cites his own experience. His figures seem to sustain his views in regard to the advantages of abdominal operating for uncomplicated affections of the adnexa, unilateral or bilateral, while the radical vaginal route is reserved for the cases with complications, preferably the abdominovaginal technic. The mortality in his 780 abdominal operations was 2 per cent.; by the vaginal route alone, the mortality was 4.2 per cent. in 543 cases of chronic sup-

puration or inflammation since 1893, while it was 7.6 per cent. in ninety-two cases with complicating pelvic abscess. Prophylaxis of adnexitis includes prevention or early cure of gonorrhoea and of sepsis after abortion and childbirth, and efforts to ensure asepsis in minor gynecologic measures, curetting, etc.

53. Apparent or Actual Azoospermia.—Fürbringer warns physicians not to be too hasty in concluding as to the existence of azoospermia; a second examination may give opposite findings from the first. He has encountered about a thousand cases of actual azoospermia and also numerous cases in which he had to reverse the first diagnosis. The lack of motility is the essential element for the diagnosis. The movements of the spermatozoa may be impeded by coagulation of the medium but they regain their motility, if normal, as the medium is liquefied by heat or otherwise. Hot weather and extreme cold may also affect the motility of normal spermatozoa, as may also the presence of an antiseptic or indifferent powder. In many cases of assumed sterility in the husband some gynecologic trouble in the wife was finally discovered, notwithstanding the assurance of the gynecologists to the contrary at first.

54. Mishaps and Hypersusceptibility with Serotherapy.—Jochmann has had only two cases of threatening collapse in his extensive experience with serotherapy in various diseases: these were both after intravenous injection of large amounts of antistreptococcus serum in scarlet fever. An existing heart disease in one case showed signs of aggravation after an intravenous injection of 50 c.c. of antistreptococcus serum, and he now regards heart disease as contra-indicating the intravenous route. He urges the production of more concentrated serums, as the untoward effects are observed with the larger doses, and further pleads that other animals besides horses should be utilized in making the serums—mules, goats, asses and cows—so that by interchanging the serums in cases requiring repetition of the doses it may be possible to avoid all danger of hypersusceptibility. Netter has reported that manifestations of serum-sickness have been reduced from 20 to 3 or 4 per cent. in his experience with 600 cases since he has made it a routine practice to inject or give by the mouth from 0.75 to 1 gm. (from 12 to 15 grains) of calcium chlorid for three days in succession.

57. Ehrlich's "606."—Lesser here states that this preparation exerts the same action as arsenic in other forms in other diseases as well as in syphilis, only in a much simpler, speedier and more energetic manner. The general condition improves, the patients regain appetite and their pallor yields to the tint of comparative health. This organotropic effect, as he calls it, is also the main factor, in his opinion, in its efficacy in syphilis, as it reinforces the natural defensive processes. He doubts whether the direct destructive action of the new remedy on the spirochetes in the body is the principal factor in the cure of syphilis. The dosage should be selected with the aim to influence the natural defensive processes and increase the vitality of the cells without reference to any direct destructive action on the spirochetes. It has been his impression from his observation that the symptoms and the transformation of the Wassermann reaction are not influenced any more by large than by moderate doses. If the reaction is still positive six or eight weeks after the first injection, it might be advisable to repeat the dose. A negative reaction seems to indicate, he thinks, at least a temporary inactivity on the part of the spirochetes.

Centralblatt für die Grenzgebiete der Med. und Chir., Jena

October 5, XLIII, No. 17, pp. 641-688

- 61 *Non-Operative Treatment of Cancer. (Bakterio- und Serotherapie des Carcinoms. Die Anästhesie- und Saugtherapie.) E. Venus. Commenced in No. 15.
- October 15, No. 18, pp. 689-720
- 62 The Sensibility of Internal Organs. A. Neumann. Commenced in No. 11.
- October 31, No. 19, pp. 721-768
- 63 *Typhoid Suppuration in the Kidneys. (Die suppurativen Nierenkomplikationen des Typhus abdominalis mit besonderer Berücksichtigung ihrer chirurgischen Bedeutung.) E. Mehlhor. Commenced in No. 18.

61. Non-Operative Treatment of Cancer.—Venus lists 367 articles on the treatment of cancer with serotherapy, anes-

thetics or suction. It is possible that a specific serum may yet be produced, but the results to date, he says, have been disappointing. The best results have been obtained with the epithelium serum, based on cytotoxic action, and further research is indicated in this line. Serotherapy with streptococcus or mixed cultures has proved ineffectual, although in inoperable sarcoma or after operation, Coley's fluid might be given a trial. No benefit seems to have been obtained with injection of local anesthetics, which Spiess and Schleich have tried. Ritter has applied suction hyperemia, but his silence since his last favorable announcement, three years ago, does not speak very favorably for the method.

63. **Typhoid Suppuration of the Kidney.**—Melchior has compiled fifty-six reports or discussions of suppurative complications on the part of the kidneys with typhoid, with special regard to their surgical treatment, discussing in turn abscesses, pyelonephritis, pyonephrosis and abscess formation in the tissues around the kidney, as well as typhoid infection of hydronephrosis and of a kidney containing concretions. Among the numerous cases described are some which show the possibility of long latency before serious local symptoms develop, ten years in Meyer's and six years in Greaves' case. In both, however, careful examination would probably have revealed the suppuration long before, while with typhoid bone abscess the interval may be absolutely free from symptoms. Post-typhoid pyuria should always be regarded as a serious symptom, and the source for the pus should be determined so that proper treatment can be applied at once. Typhoid suppuration seems to be rather benign in nature; in Greaves' case the typhoid pyonephrosis healed under mere drainage without a fistula. Nephrectomy should be considered with pyonephrosis destroying the organ, and also with destruction from suppuration with kidney stone. The patients with these post-typhoid complications are generally chronic bacilli-carriers.

Deutsche medizinische Wochenschrift, Berlin

October 27, XXXVI, No. 43, pp. 1985-2032

- 64 Treatment of Morphine Addiction. L. W. Weber.
- 65 Chloroform-Antiformin Technic for Staining Tubercle Bacilli. (Neues Anreicherungsverfahren zum färbereichen Nachweise spärlicher Tuberkelbazillen.) F. Loeffler.
- 66 Hay-Fever. (Zur Behandlung des Heufiebers.) W. Ebslein.
- 67 Influence of Ehrlich's "GOG" on the Wassermann Reaction. F. Munk.
- 68 *Functional Tests of the Pancreas. M. Hirschberg.
- 69 Meiotagmin Reaction in Foot-and-Mouth Disease. (Meiotagminreaktion bei der Maul- und Klauenseuche.) A. Ascoli.
- 70 Anatomic Reciprocity of Organs with an Internal Secretion. S. Wilderje.
- 71 *Influence of Creeping Exercises on Orthostatic Albuminuria. (Einfluss der Kriechübungen auf die lordotische Albuminurie.) G. Pechowitsch.
- 72 Corneal Lesions in Exophthalmic Goiter. (Erkrankungen der Hornhaut bei Morbus Basedowii mit Exophthalmus.) A. v. Poppen.
- 73 Treatment of Itching Dermatoses with Hot-Air Douche. (Behandlung juckender Dermatosen mit warmer bewegter Luft.) W. H. Drew.

68. **Functional Tests of the Pancreas.**—Hirschberg reports the details of six cases in which the combination of the various functional tests of the pancreas gave instructive findings. They are more reliable in the chronic cases. In acute pancreatitis, Wohlgenuth's method of determining the diastase in the urine, he states, is a valuable aid in diagnosis. It was described in THE JOURNAL, March 5, 1910, page 825.

71. **Creeping Exercises and Orthostatic Albuminuria.**—Pechowitsch says that the experiences at Bier's clinic with Klapp's creeping exercises have confirmed the fact that orthostatic albuminuria is the result of an exaggerated lordosis of the lumbar spine, mechanically obstructing the venous outflow from the kidneys. The creeping exercises improve conditions in the circulation by their favorable action on the general health as well as on the local condition.

Medizinische Klinik, Berlin

October 30, VI, No. 44, pp. 1727-1766 and Supplement

- 74 Pathology of Suppurative Kidney Disease. (Nierenkrankungen.) L. Jörns.
- 75 *Abdominal Contusions. (Ueber subkutane Bauchverletzungen.) O. Förderl. Commenced in No. 42.
- 76 *Physical Examination Before and After Sanatorium Treatment of Pulmonary Tuberculosis. E. Rumpf.
- 77 Requisites for Radical Roentgen-Ray Treatment. L. Freund.
- 78 *Connection Between Syphilis and Pernicious Anemia. O. Roth.

- 79 *Organotherapy of Postoperative Parathyreopriva Tetany. E. Bircher.
- 80 Epidemic of Poliomyelitis in Austria in 1909. G. Stiefler.
- 81 Radioactivity of Air and Soil. A. Gockel.
- 82 Disputed Cases in Regard to Workmen's Compensation, Etc. (Die wichtigeren Entscheidungen des Reichs-Versicherungs-Amts aus den Jahren, 1905-1909.) E. Franck.

75. **Abdominal Contusions.**—Förderl concludes his long study of this subject by warning that any contusion of the abdomen is liable to induce symptoms of shock. It is impossible to determine the extent of the internal injury from the presence or the intensity of the shock or the total absence of signs of shock. He has had patients with severe laceration of the liver or rupture of the bowel who were able to repair to the hospital on foot. Subnormal temperature may be due to the shock and anemia; fever soon after the trauma shows an inflammatory process. The pulse and heart action are not influenced by internal injury except in case of anemia or peritonitis. Nausea and vomiting do not necessarily accompany anatomic injury. With extensive hemorrhage or peritonitis, the decision to operate generally comes too late; the operation is designed to forestall these. Sedatives mask the clinical picture and obscure the diagnosis and indications for treatment. Lack of active initiative on the part of the general practitioner is particularly serious in cases of abdominal contusions. These patients require specialist oversight at the earliest possible moment.

76. **Physical Examination Before and After Sanatorium Treatment of Tuberculosis.**—Rumpf's article was read before the last annual meeting of German sanatorium physicians; he emphasizes the importance of the physical findings and the sources of error. The findings are more instructive, he says, if the patient breathes through the mouth. He discusses in detail the question as to whether the changes in the lungs are due to tuberculous infection or not. It is a great gain when the râles can be completely banished during the course of treatment and no crepitation is heard even after coughing. The infectious process is much more liable to spread from a focus with liquefaction. He found 79 per cent. of the patients with full earning capacity after several years of those patients who lost their râles entirely during treatment; 1.5 per cent. had died. Among those in whom the râles were not entirely abolished, only 31 per cent. were found with full earning capacity, and 42 per cent. had died. The importance of distinguishing between the various types of râles is shown by the late findings in his cases: full earning capacity in 74 per cent., and 4 per cent. had died of those patients with non-sonorous râles, while only 22 per cent. had full earning capacity, and 57 per cent. had died of those with tinkling râles. The latter always indicate destruction of tissue; it is not necessary to wait for the pronounced metallic tinkling râles to reveal tissue destruction. His experience has demonstrated that the length of time required to banish the râles varies widely in different patients. The aim should be to prolong the sanatorium treatment until this is realized for as large a proportion of patients as possible.

78. **Connection Between Syphilis and Pernicious Anemia.**—In Roth's case, the young woman made rapid progress under mercurial treatment and the blood findings returned to normal in the course of three or four months, although the Wassermann reaction was still positive.

79. **Organotherapy and Postoperative Tetany.**—Bircher writes from Aaran that he has operated in 1,400 cases of goiter during the last sixteen years without postoperative tetany in any instance, but lately two cases developed in the course of a month, one in a woman of 55 and the other in a girl of 18. In both cases the tetany was evidently due to loss of parathyroid substance, and the tendency to tetany was promptly cured by parathyroid treatment. This experience, he asserts, shows the possibility of curing tetany by this simple means. It also demonstrates that it is not always possible to refrain from removing the parathyroids in operating on the thyroid. Thyroid treatment has never given any results in this form of postoperative tetany; in the two cases reported it was given first and without effect. This rendered more striking in both the cases the prompt efficacy of the parathyroid treatment. It is possible that the remaining parathyroids might

have developed a compensating hypertrophy in time, but in the meanwhile there was danger of the patients succumbing to the severe manifestations.

Münchener medizinische Wochenschrift

October 25, LVII, No. 43, pp. 2217-2272

- 83 *Delivery with Contracted Pelvis. (Die kausale Behandlung einer Dystokie bei engen Becken.) O. v. Herff.
84 *Apparatus to Induce Artificial Respiration. (Zur praktische Anwendung der instrumentellen künstlichen Respiration am Menschen.) G. A. Löwen and R. T. Sievers.
85 Orthodiagraphy of the Apex of the Heart. W. Achelis.
86 The Hot-Air Douche in Gynecology. (Die Heissluftdouche.) E. Krösing.
87 Operative Treatment of Inflammation of the Ovaries and Fallopian Tubes. (Zur operative Behandlung entzündlicher Adnexeerkrankungen.) C. Weinbrenner.
88 Medicated Tampons in Gynecology. M. Schwab.
89 Ehrlich's "606" in Syphilis. H. Ritter.
90 Roentgen Rays in Dermatology. (Anwendung der Röntgenstrahlen in der Therapie der Hautkrankheiten.) M. Löwenberg.
91 Roentgen-Ray Treatment in Scleroma. K. Bohae.
92 Visual Anomaly in Left-Handed Individuals. (Augensymptom bei Linkshändern.) E. Enslin.
93 Infant Hygiene in Rural Districts. (Säuglingsfürsorge auf dem Lande.) Eidam.

83. **Contracted Pelvis.**—It has been v. Herff's experience at Basel that conservative measures give as good if not better ultimate results than have been reported from any clinic with the recently introduced operative techniques in management of delivery with contracted pelvis. In the 10,289 births in the last seven years contracted pelvis was encountered in 13.8 per cent.; the maternal mortality was 0.4 per cent. and the mortality of the children 7.3 per cent. The main reliance is on artificial premature delivery which was completed spontaneously in 86 per cent.; there was no mortality for which the management of the birth could be incriminated. Operative treatment exposes the mother to grave danger at the time and possibility of later impairment of her working capacity. He argues that the survival and health of the mother of the family far outweigh the consideration for the life of the infant in cases of contracted pelvis, as a rule. The aim should be to reduce infant mortality during the first year or two of life rather than to sacrifice the mothers to bring a few more infants into the world by Cesarean section or pubiotomy. Comparison of his figures with those of Döderlein's clinic, where operative measures are more frequently applied, shows that the final outcome is much better. No permanent injury resulted for the mother from high forceps in his experience, while with pubiotomy from 32 to 50 per cent. of the women have been left with permanent injury according to the reports published by four leading obstetricians (Schläpfe, Zweifel, Bumm and Leopold).

84. **Instrumental Artificial Respiration.**—Löwen and Sievers report a case in which the symptoms indicated a brain tumor and respiration suddenly ceased completely. The respiration was kept up by the usual maneuvers for an hour, the pulse being still full. The patient was entirely unconscious, the pupils were dilated and the reflexes were abolished. An opening was then made into the trachea, a cannula introduced and connected with an apparatus which pumped air regularly into the lungs for nine hours, keeping up the heart action while the blood-pressure ranged from 40 to 95 mm. mercury. Necropsy revealed internal hydrocephalus and hemorrhage into the ventricle shutting off all the cerebral functioning and flattening the medulla oblongata. Notwithstanding this serious condition, the instrumental artificial respiration kept the heart beating for nine hours. The great drawback to the method is the necessity for tracheotomy. An illustrated description is given of the apparatus used here for the first time on man, although it had long proved its usefulness for animals.

Gazzetta degli Ospedali e delle Cliniche, Milan

October 25, XXVI, No. 128, pp. 1353-1360

- 94 Conservative Cesarean Section for Severe Eclampsia. A. Mentini.
October 27, No. 129, pp. 1361-1368
95 Action of Extracts of Feces on Development of Certain Micro-Organisms. M. V. Carletti

Policlinico, Rome

October 30, LVII, No. 44, pp. 1379-1410

- 96 Melastagmin Reaction in Tuberculosis in Children. A. Filia-

Riforma Medica, Naples

October 24, XXV, No. 43, pp. 1177-1204

- 97 Influenzal Skin Lesions. G. Ghedini.
98 *The Blood Serum in Malignant Disease. A. Vecchi. Commenced in No. 42.
99. **The Blood Serum in Cancer.**—Vecchi has been studying the serum from patients with cancer, especially the refraction index, Rivalta's test and the antitryptic power of the serum, comparing the findings with the serum of thirty-six patients with various non-malignant surgical affections. None of the findings seems to have much differential value for the diagnosis of incipient cancer.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

THE MICROSCOPICAL EXAMINATION OF FOODS AND DRUGS. A Practical Introduction to the Methods Adopted in the Microscopical Examination of Foods and Drugs, in the Entire, Crushed and Powdered States. By Henry G. Greenish, F.I.C., Professor of Pharmaceutics to the Pharmaceutical Society of Great Britain. Second Edition. Cloth. Price, \$3 net. Pp. 386, with 209 illustrations. Philadelphia: P. Blakiston's Son & Co., 1910.

AN ANATOMICAL AND SURGICAL STUDY OF FRACTURES OF THE LOWER END OF THE HUMERUS. By Astley Paston Cooper Ashhurst, M.D., Professor of Applied Anatomy in the University of Pennsylvania. The Samuel D. Gross Prize Essay of the Philadelphia Academy of Surgery, 1910. Cloth. Price, \$2.75 net. Pp. 163, with 150 illustrations. Philadelphia: Lea & Febiger, 1910.

PROCEEDINGS OF THE TENNESSEE PHARMACEUTICAL ASSOCIATION. At Its Twenty-Fifth Annual Meeting held at Memphis (Gayoso Hotel), July 19-21, 1910. With Lists of Officers, Committees and Roll of Members. And Annual Report of the Tennessee Board of Pharmacy with Lists of Registered Pharmacists. Paper. Pp. 168. E. P. Trolinger, Secretary, Nashville, Tenn., 1910.

STATE BOARD EXAMINATION QUESTIONS AND ANSWERS OF FORTY-ONE STATES AND TWO CANADIAN PROVINCES. A Practical Work. Giving Authentic Questions and Authoritative Answers that Will Prove Helpful in Passing State Board Examinations. Third Edition. Cloth. Price, \$3 net. Pp. 819. New York: William Wood & Co., 1910.

A STUDY OF MELTING-POINT DETERMINATIONS. With Special Reference to the Melting-Point Requirements of the U. S. Pharmacopoeia. By George A. Menge, Hygienic Laboratory. Bull. No. 70. P. II. and M.-H. S. of the United States. Paper. Pp. 101, with 20 illustrations. Washington: Government Printing Office, 1910.

THE PHYSIOLOGY OF REPRODUCTION. By Francis H. A. Marshall, M.A., Fellow of Christ's College, Cambridge. With a Preface by Prof. E. A. Schäfer, F.R.S., and Contributions by William Cramer, Ph.D., and James Loehhead, M.D. Cloth. Price, \$6. Pp. 706, with illustrations. New York: Longmans, Green & Co., 1910.

TRANSACTIONS OF THE SIXTEENTH ANNUAL MEETING OF THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY. Held in Washington, D. C., April 28-30, 1910. Cloth. Pp. 444, with illustrations. [Thomas J. Harris, M.D., Secretary, 117 E. Fortieth Street, New York, 1910.]

FOOD AND FEEDING IN HEALTH AND DISEASE. A Manual of Practical Dietics. By Chalmers Watson, M.D., Assistant Physician, Royal Infirmary, Edinburgh. Cloth. Price, 10 shillings 6 pence. Pp. 638, with illustrations. Edinburgh: Oliver and Boyd, Tweeddale Court, 1910.

A MANUAL OF NURSING. By Margaret Frances Donahoe, Formerly Superintendent of Nurses and Principal of Training School, Philadelphia General Hospital. Cloth. Price, \$2 net. Pp. 489, with 52 illustrations. New York: D. Appleton & Co., 1910.

HEREDITARY CHARACTERS AND THEIR MODES OF TRANSMISSION. By Charles E. Walker, M.Sc., Director of Research in the Glasgow Cancer Hospital. Cloth. Price, \$2.40. Pp. 239, with 21 illustrations. New York: Longmans, Green & Co., 1910.

DIAGNOSIS AND TREATMENT OF DISEASES OF WOMEN. By Harry S. Crossen, M.D., Professor of Clinical Gynecology, Washington University, Second Edition. Cloth. Price, \$6. Pp. 1025, with 744 illustrations. St. Louis: C. V. Mosby Co., 1910.

WALSH'S PHYSICIANS' HANDY LEDGER. A Companion to Walsh's Physicians' Combined Call-Book and Tablet. Half Leather. Price, \$3.50. Pp. 600. Washington, D. C.: Ralph Walsh, M.D., 1807 H Street N. W.

PRAKTISCHE KINDERHEILKUNDE IN 36 VORLESUNGEN FÜR STUDIERENDE UND AERZTE. Von Dr. M. Kassowitz in Wien. Paper. Price, 18 marks. Pp. 653, with illustrations. Berlin: Julius Springer, 1910.

URINARY SURGERY. A Review. By Frank Kidd, F.R.C.S., Assistant Surgeon to the London Hospital. Cloth. Price, \$2.60. Pp. 429, with illustrations. New York: Longmans, Green & Co., 1910.

WALSH'S PHYSICIANS' COMBINED CALL-BOOK AND TABLET Flexible Leather, with Flap and Pocket. Price, \$1.50. Washington, D. C.: Ralph Walsh, M.D., 1807 H Street N. W.

TRANSACTIONS OF THE AMERICAN CLIMATOLOGICAL ASSOCIATION. For the Year 1910. Volume XXVI. Cloth. Pp. 235. G. Hinsdale, M.D., Secretary, Hot Springs, Va., 1910.

ANDREAS VESALIUS, THE REFORMER OF ANATOMY. By James Moore Bill, M.D. Paper. Price, \$5. Pp. 149, with illustrations. St. Louis: Medical Science Press, 1910.

The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOL. LV, No. 24

CHICAGO, ILLINOIS

DECEMBER 10, 1910

THE USE OF TYPHOID VACCINES IN TYPHOID FEVER*

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The vaccine treatment of typhoid fever has been tested in recent years by a number of clinicians with varying results. Fraenkel¹ was the first to call attention to the subject of the treatment of this disease by vaccine therapy. Since the commencement of the year 1909, a considerable number of other writers have reported individual experiences of the use of typhoid vaccines as a means of cure. While the medical profession is not, in any marked degree, enthusiastic in regard to the question, every new remedy or method of treatment that rests on a reasonably secure, scientific basis deserves an extended trial before it is rejected. Certain fundamental principles and facts, which are generally accepted by laboratory experts, should be understood also by the clinician who intends to use vaccines in the treatment of typhoid fever and other diseases. Among these are:

1. The object of vaccine therapy is to induce an active immunity by introducing an added amount of morbid material, so that "by manufacturing an increased amount of the protective bodies, it (the body of the vaccinated person) shall inhibit the growth of the invading organisms, and cut short the disease."²

2. When the *Bacillus typhosus* undergoes solution in the human organism, endotoxin, to which its pathogenic action is wholly attributable, is set free.

3. In the process of immunization, both bacteriolysis and phagocytosis play a part. Emery³ rightly holds that phagocytosis is of chief importance from the fact that typhoid bacilli liberate their endotoxin when dissolved by means of bacteriolytic serums.

4. In serious types in which the system is already overwhelmed with the typhoid bacillus and its toxins, it is unwise to employ the vaccine treatment, for it may be a source of fresh danger. Under these circumstances, there can be no response to attempts at stimulating the production of immunizing substances by the introduction into the system of more of the specific poison. On the contrary, there must occur an aggravation of the symptoms.

5. When typhoid fever is being treated with vaccines the determination of the opsonic index in routine private practice is too time-consuming a procedure to be

adopted, although desirable, when it can be carried out, in hospital work. Fortunately, it is generally conceded to be unnecessary to estimate the opsonic index, if the effect of the treatment on the general clinical symptoms be closely observed.

6. Typhoid fever is an acute bacteriemia plus toxemia, often fulminating in character, and not a localized infection; hence, brilliant results from the vaccine treatment for the cure of this disease are scarcely to be expected.

It may be questioned seriously whether, on account of the foregoing facts, it is not injudicious to practice vaccine therapy in the severer and so-called malignant types of typhoid fever. In this connection, it should be recollected that chronic infections in which the specific organism is, more or less, completely walled off from the general circulation, with slow absorption of toxins into the blood are those in which the vaccine therapy gives its best results. Here, the production of antibodies can be stimulated "by the introduction of dead bacilli into the general circulation, and these can effectually exercise their therapeutic properties on the bacteria in a chronic lesion" (Swan).

A considerable number of clinical observers have been impressed with the curative or controlling influence of proper inoculations with appropriate bacterial vaccines in typhoid fever. One of the earliest observers, Captain Smallman,⁴ employed the method in thirty-six cases with three deaths or a percentage of 8.3. He remarks especially on the absence of prolonged cases, of complications, of sequelae and of relapses; and, further, that a local infection during convalescence, for example, periostitis of the tibia, can be dissipated by the local injection of vaccines. From an observation of forty cases, Watters and Eaton⁵ suggest that the early administration of typhoid vaccine appears to shorten, in many cases, the duration of the disease and to cause the affection to run a mild course. Semple⁶ treated nine cases, six of which showed well-marked improvement after the inoculations, especially two cases treated with autogenous vaccines. In the remaining three, amelioration of the symptoms occurred.

On the other hand, certain writers, who have had much experience of the use of vaccines in the treatment of typhoid fever, declare that the results are not especially striking, while others have found them to be practically negative. For example, J. B. Nichols⁷ tried the inoculation method in the Freedmen's Hospital, but "no effect on the clinical conditions, in the way of either improvement or aggravation of the symptoms, was definitely demonstrable." Richardson² reported the results

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Fraenkel; *Deutsch. med. Wehnschr.*, Oct. 12, 1893.
2. Richardson, M. W.: *Vaccine Therapy; General Principles*, THE JOURNAL A. M. A., Jan. 22, 1910, p. 255.
3. Emery; *Immunity and Specific Therapy*, p. 389.

4. Smallman; *Jour. Roy. Army Med. Corps*, London, 1909, xii, 136.

5. Watters and Eaton; *Boston Med. and Surg. Jour.*, April 22, 1909.

6. Semple; *Lancet*, London, 1909, ii, 1668.

7. Nichols, J. B.; *Washington Med. Ann.*, November, 1909, p. 293.

of the method in twenty-five cases of typhoid fever without encouraging effects. He, however, asserts that the influence of inoculation is favorable in preventing, in large measure at least, typhoid relapses when its use is continued during the period of convalescence. Emery⁸ remarks that the curative treatment of typhoid fever by vaccine therapy is not satisfactory and is still on trial, although he admits that promising results have been obtained by some observers.

In eight cases, reported in this paper, small doses of vaccine were employed, namely, initial doses of 25 millions, and subsequent ones of 50 millions each.

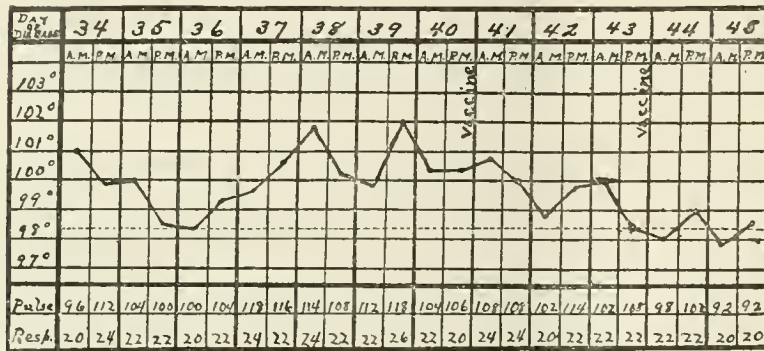


Fig. 1.—Temperature chart, case of B. M., illustrating effect of vaccine treatment in typhoid fever.

These were repeated at intervals of seventy-two hours, as a rule. According to some writers, a safe and useful initial dose is 300 to 350 millions of organisms; this sometimes produces a reactionary rise of temperature to 105 F. In my view, massive doses should not be employed in the milder forms of typhoid fever for the reasons previously adduced.

In my series of eight cases, in all save one of which the Widal reaction was present, a reactionary fever did not occur, but in two instances (Charts 1 and 2), the nocturnal remissions of temperature became distinctly greater immediately after the use of the vaccines, and in one instance of protracted subfebrile temperature due to typhoid fever, it would seem that they were sufficiently powerful to cause a gradual decline of temperature to the normal in the course of several days. In a case of prolonged and exhausting illness, the patient apparently making no progress toward recovery, Ramsburgh, on the advice of Nichols, used a vaccine with definitely favorable results. Rutlin⁹ has reported a case of typhoid fever with prolonged course, in which the injection of 800 million bacilli produced a sharp febrile reaction, followed by subsidence of the pyrexia. In one of my cases a relapse occurred.

A blood examination in my series of cases before injection of vaccines and another twenty-four hours thereafter, gave an average result, as shown in the accompanying table.

In view of the fact that phagocytosis most probably plays a principal rôle in Nature's method of curing typhoid fever, the question of the effect of vaccines on the leukocyte count should not be ignored. I am not aware that this aspect of the subject has been investigated hitherto, but it seems to me to be one quite worthy of

further consideration. It is clear, if the foregoing premises be correct, that an increased production of polynuclear leukocytes must stimulate, to a corresponding extent, the phagocytosis of the intruding organisms of this disease. But though my own observations, which are too few to warrant generalization, show that small doses of vaccines do not, to any appreciable degree, stimulate phagocytosis during typhoid fever, it is desirable also, to note effect of larger doses.

Finally, it must be conceded that in the complicated process of active immunization, other, although doubtless minor, factors enter. For example, Nuttal and other observers found that "bacteria underwent changes indicative of death and destruction before they were taken up by the phagocytes" (Emery). It will not be denied that serum is an aid to phagocytosis by its action on the bacteria; hence opsonins are believed to be specific antibodies.

Granted that active immunity in typhoid fever is brought about mainly by an increase in opsonins circulating in the blood, it must be recollected, as pointed out above, that bacteriolytic antibodies set free the endotoxin of the typhoid bacilli, and hence may be a source of added danger. Under these circumstances, bacteriolytic serums can scarcely be regarded as Nature's means of establishing immunity.

If, however, as before stated, the process of immunization is dependent chiefly on phagocytosis, and if it be shown that the vaccines stimulate the bone marrow to an increased production of leukocytes, and, through chemotaxis, also, cause an increased output of these cells, then vaccine therapy is to be advised and encouraged.

The mobilized defensive forces in a case of typhoid fever, however, would seem to center about phagocytosis. In this connection, the fact that leukopenia exists in

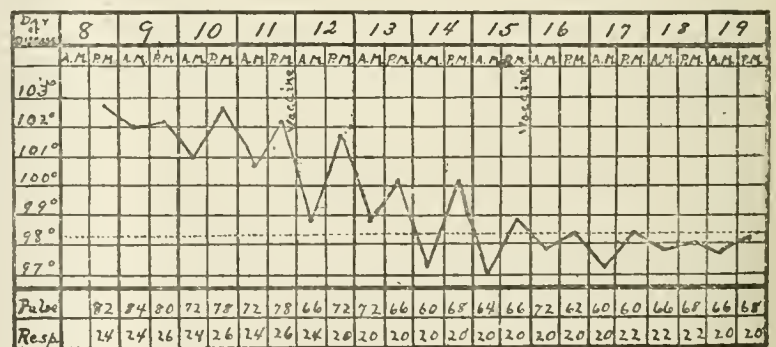


Fig. 2.—Temperature chart, case of L. W., illustrating effect of vaccine treatment in typhoid fever.

TABLE OF BLOOD EXAMINATION

	—Case 1—		—Case 2—		—Case 3—	
	Before.	After.	Before.	After.	Before.	After.
Leukocytes	6,400	7,200	9,600	7,000	6,800	6,800
Polynuclear	54.0	51.0	58.0	61.0	60.0	62.0
Small lymphocytes	26.0	28.0	28.0	34.0	24.0	18.0
Large lymphocytes	14.0	15.0	9.0	3.0	14.0	18.0
Transitional	3.5	3.0	4.0	2.0	2.0	....
Eosinophils	1.5	2.0	1.0	....	....	....

	—Case 4—		—Case 5—		—Case 6—	
	Before.	After.	Before.	After.	Before.	After.
Leukocytes	8,000	9,200	5,600	5,910	7,360	7,840
Polynuclear	69.5	70.1	71.5	64.2	72.0	68.1
Mononuclear	2.0	1.0	3.0	2.0	2.0	3.0
Transitional	2.0	2.0	1.0	3.1	1.0	3.0
Lymphocytes	26.5	26.9	24.5	30.7	27.0	25.6

8. Emery: Immunity and Specific Therapy, pp. 390-391.
9. Rutlin: Washington Med. Ann., 1909, viii, 77.

uncomplicated typhoid fever is to be recollected. At all events, in view of the foregoing facts, the use of vaccines in the treatment of this disease should be somewhat restricted according to conditions and indications presented by individual cases. Their routine use, however, is not to be encouraged, but it is obvious that an anti-endotoxin serum would, by neutralizing the soluble endotoxins, constitute the ideal method of treating typhoid fever. Such a serum has been prepared by MacFadyen, and favorable results have already been reported from its use, when administered early in typhoid cases. It is not improbable that the vaccine treatment of typhoid fever, except as indicated above, will give place to the method of establishing passive immunity by means of an anti-endotoxin. In view of the marked discrepancy among clinical observers as to the size and repetition of the doses, there would seem to be great necessity for an especial consideration of these aspects of the question of therapeutic inoculations in the future.

Vaccine therapy in the treatment of typhoid fever, however, should receive a more extended trial than hitherto, more particularly in the earlier stages of mild types of the disease, before being rejected. Finally, in the present state of our knowledge, the value of vaccines for the following purposes must be conceded: (1) as a means of prophylaxis; (2) in suitable cases when continued during convalescence, to prevent relapses; (3) to combat local infections with the typhoid bacillus, as for example, bone suppurations which arise in the period of convalescence, and (4) for the removal of the typhoid bacilli from the feces and urine in the case of typhoid-carriers.¹⁰

I desire to express my thanks to Dr. A. A. Stevens, who at my suggestion, treated three of the cases reported above with the results of blood examinations before and after the inoculations, in the wards of the Protestant Episcopal Hospital of Philadelphia, and to Dr. Robert B. Walker for furnishing one of the cases belonging to my series from the Philadelphia Hospital.

1605 Walnut Street.

THE FUNDAMENTAL PRINCIPLES UNDERLYING THE TREATMENT OF WOUNDS ON THE BODY SURFACE

CHAUNCEY E. TENNANT, M.D.
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Steadily through the maze of a multiplicity of methods, there has crystallized the present treatment of surface traumatic lesions. Based on the knowledge of definite pathologic and histologic processes and confirmed by the shorter periods of disability and lessened distortion of function, modern treatment of surface injuries may be reduced to two fundamental principles: *moist hyperemia* and *the open-air treatment*; in other words, the use of a dressing capable of giving sustained heat and moisture, or one so constructed that it will not displace the protective covering of coagulated serum, yet will protect the wound from further damage.

The wide latitude of pathologic possibilities in surface lesions, varying as they do from a microscopic skin puncture attended with violent constitutional toxemia and death, on the one hand, to extensive abrasions and lacerations with no constitutional manifestations on the

other, has, in a measure, justified any course which has had as its result a satisfactory functional termination.

Until recently, little thought was given to the individual factor of lowered bacterial resistance, or the influence of the general state of nutrition on cell-regeneration. But now, with the more careful and detailed consideration of the possibilities of lowered resistance and cell nutrition, there has been a stimulus for the introduction of methods calculated either to intensify locally, or to increase, the number of antibactericidal bodies at the various parts of the organism where needed, or to engorge the tissues with nutritive plasma for the revitalization of the traumatized cell.

Surface lesions of the body widely differ in character, as burns, incised or crushing wounds, etc., and they may also vary from the small pin-point puncture to the extensive loss of continuity which is limited only by the size and force of the destructive agent. But so far as



Fig. 1. Method of applying large and copious wet dressings.

the end-results are concerned, the only difference is their type and degree of infection. Therefore the plan of treatment must be early outlined, if the most successful results are to be obtained. It is well known that in burns, skin-grafts and other superficial traumas which remain sterile, the dry method of treatment gives the most satisfactory results both as to convalescence and function, while the moist hyperemia is the treatment especially adapted to infected wounds, where the organism has lodged itself in the subcutaneous tissues and lymphatics.

As a rule, the infection is either of the staphylococcal or streptococcal type; the former invariably localizes in a small area, while the latter is most likely to lodge in the subcutaneous tissues and extend rapidly along the lymphatics. Where resistance is fair and early excited, the chemotactic disturbance is quickly manifested with temperature and other clinical phenomena of inflammation. In either type of infection, it is extremely impor-

¹⁰ Irwin, S. T., and Houston, T.: *Lancet*, London, Jan. 30, 1909, p. 311.

tant, as soon as it becomes evident that a pathogenic organism has lodged in the subcutaneous tissues and that the resistance force is low, that these natural forces be augmented by either the active or passive hyperemic process, or both. Every effort must be immediately made to create an overwhelming quantity of polymorphonuclear neutrophils and leukocytes to inhibit and digest the invading organisms before they have time to extend into the surrounding structures.

In all injuries involving a break in the skin, the first question to be determined is the presence or absence of infection, and if there is infection, whether or not the individual has sufficient resistance to destroy the organisms quickly providing moist hyperemia is properly used.

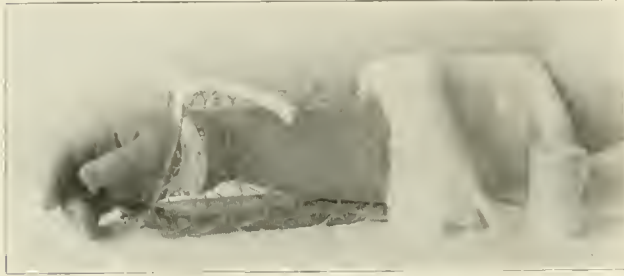


Fig. 2.



Fig. 3.

Figs. 2 and 3.—Sheet of light aluminum to which is fastened a strip of poultry wire.

The time is not long past when all these wounds were considered as primarily infected, and vigorous steps were immediately taken to rid the host of the unwelcome guest. Active antiseptics were freely used, most of which were destructive alike to tissue and invading organism, and, as a result, tissue necrosis with moist surfaces, sloughs, granulations and large cicatrices was the common sequence.

At the present time, the practice of putting every injury in wet dressings, or even the use of copious washings, is uncalled for; especially as the coagulated serum is extremely soluble in water, and such procedure means the removal of Nature's protective layer of coagulation from the surface, and a portal left open for infection.

The care of these cases, requires of course, considerable judgment, but why modern surgery should find any more reason for vigorous and persistent cleansing of these surface lesions than in the case of gunshot wounds of the extremity seems a question worthy of consideration.

If it is good practice to put gunshot wounds up in sterile dressings and wait for further evidence of infection, why should not the same principle apply to other reasonably sterile and easily accessible traumas of the surface? Where the history of the case shows a strong probability of there having been infectious material introduced into the wound, then great care should be used and proper application of the wet dressings made, with full knowledge of the fact that Nature's protective barrier must be sacrificed in the use of moisture.

We know that wherever infections occur, the use of moist dressings properly applied, quickly raises the polymorphonuclear neutrophilic blood content, which

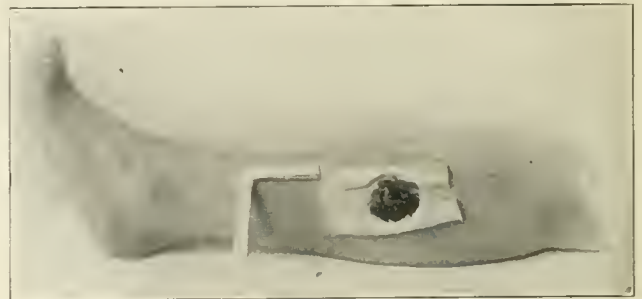


Fig. 4.—Copper or aluminum coated fly-screen bound with adhesive tape.



Fig. 5.—Adhesive straps are then passed over the screen, holding it firmly to the adhesive sheeting.

soon overwhelms the invading organism. Where no infection exists, the dry dressing, properly applied permits of surface coagulation of the exudates, which forms both a splint and an impervious barrier to further infection. Repair is very prompt in these latter cases if destructive antiseptics have not been used. Here the moderate application of sterile warm water and a bland soap, followed by open-air dressings, is usually all that is necessary to accomplish rapid and uncomplicated repair. Even in the greasy dirt-begrimed hands of the machinist, where it is not possible to wash the wound, the application of either turpentine or the tincture of iodine is very practical and effective, and may be safely followed by the dry dressing.

The day of the local applications of salves and dressing powders in emergency surgery, fortunately, has passed. If the indications for the treatment of these cases are properly interpreted, and the principle underlying the use of moist hyperemia or open air is fully

comprehended and applied, the profession at large will greatly reduce the number of general septicemias. Where infection is definitely present, free incision must of course be made, and followed by the application of very large and copious wet dressings, consisting of, first, the gauze covering the site of the lesion and near-by tissues, then several layers of cotton, and finally the oiled silk, moisture and bandage (Fig. 1).

If a finger only is involved, the entire hand should be included in the dressing, so that the full benefit of the hyperemia may be secured. When the oiled silk has been well fastened down, a last small opening should be left, through which the hot fluid is poured until the dressings are supersaturated. After this, the oiled silk should be completely closed, to retain both moisture and heat. A splint should then be applied to keep the part at rest. Extreme care must be exercised that the solutions poured into the dressings are not too hot, for extensive burns may easily be produced, which are often more serious to care for than the original lesion.



Fig. 6.—A very satisfactory dressing in skin grafting and varicose ulcers.

Several solutions may be used to moisten these dressings, the simplest and safest of which is the hot sterile physiologic salt solution. Equal parts of alcohol and saturated solution of boric acid make a solution which is ideal for use in early dressings, because of its local stimulating effect on the tissues, which produces an active local hyperemia. Thiersch's solution (salicylic acid, one-half dram, boric acid, 2 drams and a quart of sterile water), so well recommended by the late Nicholas Senn, is another safe and effective solution for use in the wet dressings.

Unless the dressings are large enough to retain both moisture and heat for long periods of time, they are worse than useless.

Dressings should be changed once in twelve to twenty-four hours, depending on the amount of discharge, but the solution should be repeated as often as necessary. A change of the solution is often of great advantage, especially if the alcohol has first been used, since the other named solutions are less stimulating yet almost as satisfactory as hyperemic agents. After a certain period tissues often refuse to respond to further stimulation.

Where infection has not occurred, and is not likely to occur, it is much better that no dressings should come directly in contact with the wound, especially if it is extensive and moist. It has long been recognized that burns and traumas of the face, where dressings are not applied, soon heal with but little inconvenience to the patient, and a minimum of cicatrix. The same principle applied to other parts of the body works equally well. However, to devise successful methods for the application of treatment to these parts has been a difficult task, and the means at present used are almost as many as the surgeons applying them.

Two methods which I have been using for the last four years may be of interest, since they have been extremely satisfactory in my work (Figs. 2 and 3).

One is the use of a sheet of light aluminum as a base on which is fastened a cage made of poultry wire of any desired mesh for enclosing an extremity. The aluminum is light, clean, and easily punctured, yet firm enough to hold the poultry-wire top to the desired position. This frame is extremely light and comfortable, and easily applied. It is especially useful in extensive burns of the extremities.

The other is the use of aluminum-coated metal fly-screen, cut to the desired size, bound with adhesive tape, and set on strips of adhesive felt sheeting, which have first been cut, fashioned and attached to the skin about the outer margin of the wound (Figs. 4 and 5).

Adhesive straps are then passed over the screen, holding everything firmly to the part, yet nothing touches the wound (Fig. 6).

It is then covered with gauze dressings and snugly bandaged.

This last method has, in my experience, been very satisfactory in skin grafting, and in varicose ulcers of the leg. In the latter lesion, one may apply any form of medicament first, then cover with wire netting as described.

612 Empire Building.

SOME EFFECTS OF BRIGHT LIGHT ON THE EYES*

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LONDON, ENGLAND

It is my first and most pleasing duty to express to you my high appreciation of the very great honor you have done me in inviting me to deliver this address to so distinguished an audience. It has been my good fortune to have met many of you on the occasions of your pilgrimages to the Old World. Moorfields and Vienna have long been the Mecca and Medina of ophthalmologists, and we at Moorfields are proud of the sacred fire which has been handed down to us by our predecessors. No branch of science, however, can flourish on the records of the past, and we in our turn must make pilgrimages to newer shrines, there to gather fuel to keep the sacred flame alight. I would fain believe that you in the past have learnt much from us; we too have learnt much from you. Thus in the brotherhood of science may we cement the brotherhood of race which is our inalienable heritage.

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixty-First Annual Session, held at St. Louis, June, 1910.

I propose to speak to you to-day on some effects of bright light on the eyes. I cannot adequately traverse so large a subject in the short time available. I shall, therefore, confine my remarks chiefly to those details which have specially occupied my attention recently. We as ophthalmic surgeons are fully cognizant of many pathological conditions in which the harmful effects of bright light, natural or artificial, are manifest or may be reasonably conjectured. I need only enumerate eclipse-blindness, snow-blindness, ophthalmia electrica, lightning cataract, glass-worker's cataract, erythropsia. In all these exposure to bright light plays an important if not a prepotent part. There are many other conditions in which this factor has to be taken into consideration, and we as yet know little of the prolonged effect of various sources of artificial illumination on the eyes. Engineers and others who devote their attention to

the inception, development and consummation of the response we must obtain accurate information of the forces which initiate it. What is generally understood by the term bright light is a composite congeries of allied manifestations of energy, comprising such apparently various forces as heat, light in the narrower sense of the word, and chemical action. Various as these forces are, they are physically identical in character, all consisting of waves of identical character, differing only in length and rapidity of vibration. Those of longer wave length cause the sensation of heat, those of shorter wave length give rise to chemical action, whilst those of intermediate wave length cause the sensation of light: but while the physical series is perfectly and mathematically uniform, the physiologic manifestations overlap and vary according to the nature and condition of the recipient organs. I may seem to you

to be laboring over elementary details, but it appears to me to be of the greatest importance to bear them well in mind, as I hope now to prove. If we take ordinary sun light as the basis of our investigations it is possible to split it up by appropriate means into its component "rays," differing from each other in wave length. Of these, certain are visible and constitute light in the narrower sense of the word, but instead of giving rise to the sensation of white

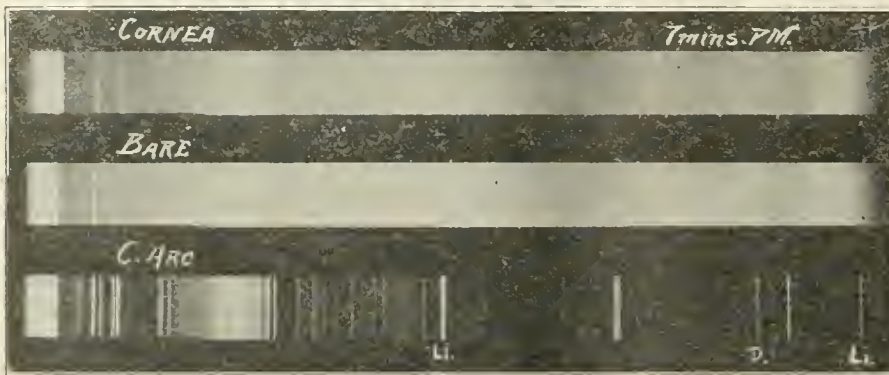


Figure 1.

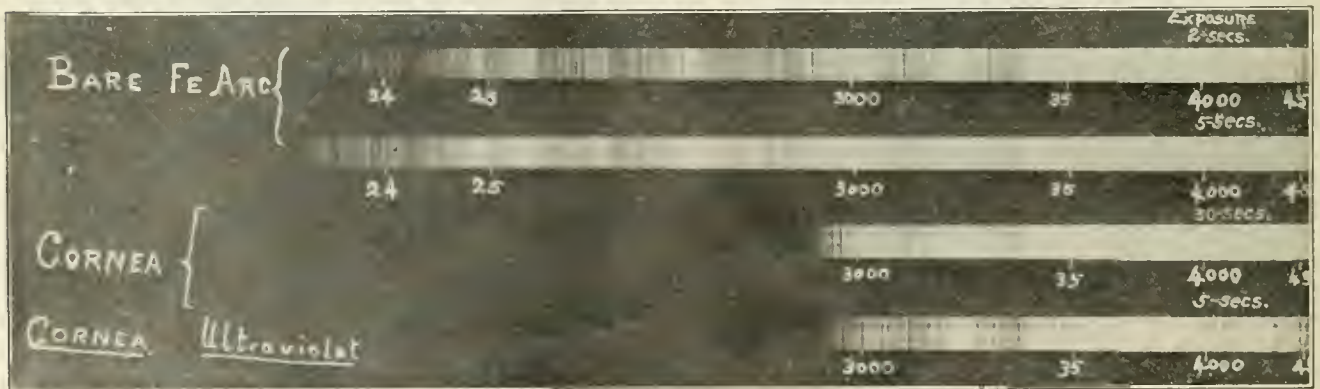


Figure 2.

Figs. 1 and 2. Photographs showing spectra of cornea with carbon and bare iron with different lengths of exposure. The cornea was found to offer no resistance to wave lengths greater than 295 microns, but all those beyond this limit were completely cut off.

artificial lighting have until recently paid little or no attention to the physiological and pathological aspects of the question. Efficiency—maximum illumination at minimum cost—has been their watchword. We ophthalmologists, if we are honest with ourselves, must confess to a lamentable ignorance of the conditions which render bright light deleterious to the eyes and of the methods whereby these conditions may be ameliorated. We must set our house in order and this dusty corner must be swept and garnished.

THE PHYSICS OF BRIGHT LIGHT

The first problem which confronts us is a physical one. What is bright light? Physiology is the knowledge of the response of the living organism to physical stimuli, and ere we can attain to certain knowledge of

light they, to the majority of people, show certain pure colors, viz.: red, orange, yellow, green, blue and violet in order, the red having the longest, and the violet the shortest wave length. The visible spectrum extends from about 723 microns at the red end to 397 microns at the violet end. Beyond the red end are rays of greater wave length which cause a rise of temperature; beyond the violet end are rays of smaller wave length which are capable of causing chemical action. So striking is the physiologic phenomenon of the visibility of the intermediate series that the heat rays are commonly spoken of as "infra-red" and the actinic or chemical rays as "ultra-violet." For this reason I think that the importance of the physical uniformity of the series is obscured and is liable to be lost sight of. For example, every average normal individual

is not able to see all the rays from 723 microns to 397 microns; most people see fewer, roughly from 600 microns to 400 microns. Again, though the ultra-violet rays are particularly potent in inducing chemical action, the visible rays are also actinic, though in less degree, and the same is true of the infra-red rays in still less degree. Further, the longer visible rays also cause a rise of temperature. The most convenient and most striking method of demonstrating actinic is by the photographic film, so that we have come to regard a photograph of the spectrum as a complete analysis of the light under observation, too often forgetting that the photograph

duce the same changes in the normal eye—they may be absorbed by the lens; and so on. From what I have already said it should be obvious that the next point in logical sequence in our investigation should be the determination of the absorptive capacity of the various dioptric media of the eye for particular rays of the solar spectrum. There is an additional reason in favor of this procedure in that the absorption of energy means simply the transformation of energy, and it may be that the transformed energy is exerted deleteriously on the organ under investigation. Thus the absorption of particular rays by the lens may be the cause of pathologic changes in that structure.



Figure 3.

varies with the specific sensitiveness of the film to particular groups of waves. Thus, it is only by specially sensitized films, invented by Sir William Abney, F.R.S., that it is possible to demonstrate infra-red rays photographically.

It is further essential that the mode of analysis of the light under observation be unexceptionable. An ordinary spectroscope with glass prisms and lenses suffices to demonstrate the visible spectrum, and indeed with minute accuracy, but it is almost useless for showing the shorter ultra-violet rays, since these are absorbed by the glass. In order to demonstrate the full extent of the spectrum it is necessary to use a train of lenses and prisms made of quartz, which allows a maximum number of rays to pass unimpeded.

PRACTICAL CONSIDERATIONS

To come now to the practical application of these considerations to the problem before us, we must guard against presuming that the retina will act exactly like a particular photographic film; that because a light very rich in ultra-violet rays produces a particular effect on the retina or lens, that effect is produced solely by ultra-violet rays and that the visible rays play no part in the causation; that because certain rays produce pathologic changes in the retina of the aphakic eye they will pro-

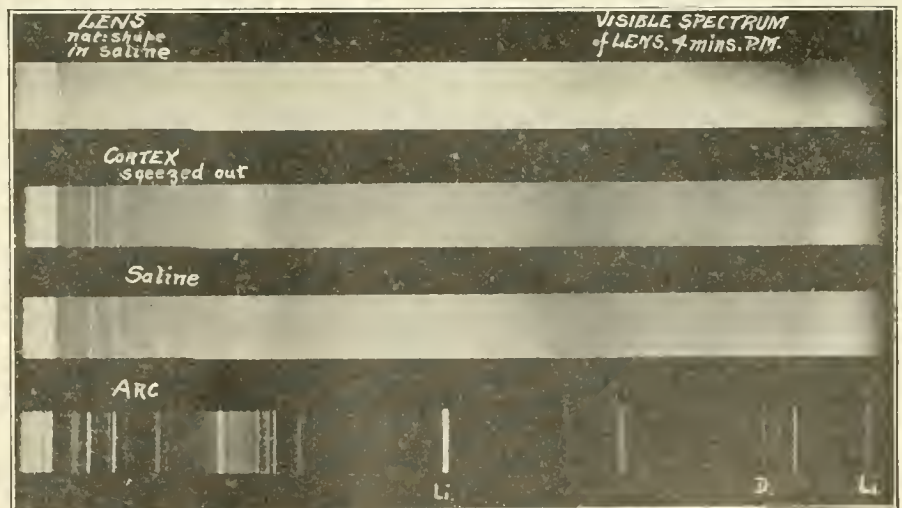


Figure 4.

Figs. 3 and 4. Photographs showing spectra of lens suspended in normal saline, in thin films and squeezed to different thicknesses, with different periods of exposure. Rays of wave lengths less than 350 microns are absorbed completely, absorption commencing at about 400 microns. Absorption varies *pari passu* with the thickness of the layer of lens substance.

But before passing on to this question it will be well to describe the nature of the rays emitted by various sources of artificial illumination, partly because it is more convenient to use some of these in experimental investigations than sunlight, and partly because we wish to find out if these have any deleterious effects, and if so, their nature and cause.

THE SPECTRA OF ARTIFICIAL LIGHTS

The spectra of artificial lights show a remarkable variety in the range of rays emitted. They have been

investigated by many observers, notably recently by Schanz and Stockhausen and Hallauer. Schanz and Stockhausen's observations unfortunately do not give accurate limits of the spectra in wave-lengths. It will suffice to state roughly the limits of a few of the commoner lamps used for ordinary illumination or for experimental purposes. A petroleum lamp with an ordinary white glass cylinder gives a spectrum from 600 microns to 350 microns; osmium and tantalum lamps from 630 microns to 300 microns; an Auer incandescent gas lamp with glass cylinder from 600 microns to 329 microns; an arc lamp with clear globe from 600 microns to 300 microns; the same lamp without any globe from 600 microns to 230 microns; with an opal globe down to about 330 microns. The Schott uviole mercury vapor lamp, in which incandescent mercury vapor is

reaches the lens. More experiments, however, are needed on this point and it is unjustifiable to be dogmatic in the present state of our knowledge.

EXPERIMENTS

I made some experiments two years ago on the absorption spectra of the cornea, lens and vitreous of the rabbit with Messrs. E. C. C. Baly, F.R.S., and E. E. Henderson. These have since been extended and confirmed by my assistant, Dr. E. K. Martin.

In this research experiments were made to determine the precise limits within which rays are absorbed by the refractive media of the eye, and the effect on these limits of keeping the media some hours after the death of the animal. Young rabbits were used in all cases.



Figure 5.

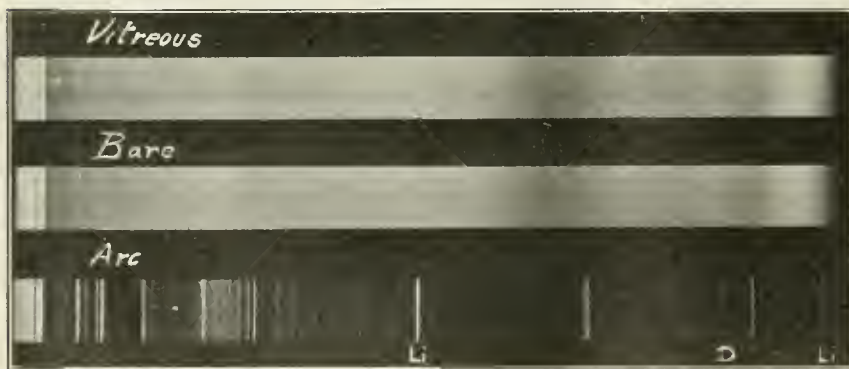


Figure 6.

Figs. 5 and 6.—Photographs showing spectra of vitreous. The vitreous in a layer 3/16 inch thick shows a broad absorption band extending from 280-250 microns, with a maximum at 270. The margins of the band are ill-defined. Exposures for different periods as shown.

contained in a long tube made of a special quartz-glass gives forth ultra-violet rays down to 253 microns, but is poor in red and yellow rays.

ABSORPTION BY THE DIOPTRIC MEDIA

Passing now to the absorption of light by the dioptric media of the eye we have to investigate the cornea, lens, and vitreous. The aqueous acts like water and causes very little absorption of visible or ultra-violet rays. Like water, too, it absorbs heat strongly, so that it is improbable that even with exposure to extreme heat such as is met with in iron works and glass works much heat

due to the shape of the lens.

A preliminary series of spectro-photographs was taken to eliminate absorption within the limits of the visible spectrum. In this the source of light was the crater of a carbon arc and a 2-prism spectroscope was used, the prisms and lenses of the instrument being of glass.

The plates used were "orthochromatic," and it was found that they regularly showed three faint absorption bands in the green, yellow and red. These represent the absorption of the dye used to sensitize the plates to red light.

The spectrophotographic method of recording the results was used and the media were mounted in cells with parallel sides. In the case of the cornea and vitreous the cell was placed close to the slit of the spectroscope. The lens was dealt with in two ways:

1. Suspended in normal saline and placed at a distance from the slit greater than its focal length, so that a blurred image of the source of light was thrown on the slit. This was necessary to avoid horizontal lines on the resulting photograph; the precautions taken quite excluded the possibility of stray light entering between the cell and the slit.

2. A thin layer of lens substance was squeezed out flat between the parallel sides of the cell; this was done to eliminate any possible apparent absorption

All the media were found to be uniformly permeable to rays between the wave lengths 660-390 microns. (The visible spectrum extended from approximately 760-380 microns.)

For the ultra-violet rays the iron arc was the source, and quartz was used throughout. Ordinary plates were used, i. e., plates containing no dye and hence giving no absorption bands. The range of wave lengths covered in this series was 450-230 microns.

Cornea. The cornea was found to offer no resistance to rays of wave-lengths longer than 295 microns, but all those beyond this limit were completely cut off.

Lens. (a) Suspended in normal saline. Rays of wave-lengths less than 350 microns are absorbed completely. The line is not a sharp one, the absorption commencing at about 400 microns.

(b) Squeezed to different thicknesses. The absorption varies *pari passu* with the thickness of the layer of lens substance.

Vitreous. The vitreous in a layer 3/16 inch thick shows a broad absorption band extending from 280 to 250 microns, with a maximum at 270 microns. The margins of the band are ill-defined.

These results agree closely with those recently obtained of Schanz and Stockhausen and Birch-Hirschfeld.

The shortest interval between the death of the animal and the taking of the observation was three minutes, the longest eleven minutes.

Observations were also made on the vitreous 1 hour, lens 5 hours, and cornea several hours after the death of the animal. The results obtained were identical with those from fresh specimens.

The photographs were taken at the Imperial College of Science and Technology, South Kensington, those of the visible spectrum in Sir William Abney's laboratory, the ultra-violet series in the astrophysical laboratory by kind permission of Professor Fowler, F.R.S., to whom I am indebted for valuable suggestions.

OTHER EXPERIMENTAL OBSERVATIONS

It would be unsafe to apply these results, obtained with rabbits' eyes, directly to the human eye. As regards the cornea and vitreous observations of a similar nature made by Schanz and Stockhausen on the calf's eye are confirmatory. Birch-Hirschfeld has similarly investigated the eyes of calves, pigs and oxen. He found little difference in the absorption of ultra-violet rays by the cornea, giving the limit as 306 microns, somewhat higher than for the rabbit, and rather more than that of ordinary glass, the limit of which may be taken as 300 microns. In all cases too Birch-Hirschfeld found the limit of absorption to be 300 microns for a layer of vitreous 1 cm. thick. Greater differences which cannot be neglected were found with various lenses. Those of the rabbit's lens varied between 330 microns and 390 microns. For the pig's lens the average limit was 330 microns with variations of about 15 microns; for the calf's 328 microns, with variations of 12 microns; for the ox lens from 270 microns to 400 microns.

Schanz and Stockhausen examined the cornea and lens of a child who had glioma. They do not give accurate wave-lengths, but the cornea absorbed up to nearly 300 microns, and the lens about the same; whereas in a case of injury, whilst the corneal absorption was about the same, that of the lens was much greater, up to about 350 microns.

Hallauer has recently found that the corneal and vitreous absorption in the eye of a man of forty extended to 295 microns. He has examined a large series of human lenses from individuals of different ages and has arrived at some valuable conclusions. He finds the

limits of absorption on the whole dependent on age, with some individual variations due to thickness, color and consistence, general disease also introducing a disturbing factor, which must be taken into account in Schanz and Stockhausen's case of glioma. In babies and children absorption extends to 400 microns, often combined, however, with an inability to absorb rays from 300 to 310 microns. This transparent band persists up to about the twentieth year and may be more extensive in debilitated conditions. *Pari passu* with the loss of this band after twenty the limit of absorption retracts to about 377 microns, but extends with advancing age to 400-420 microns; extreme debility from disease diminishes absorption to a minimum of 375 microns.

From these investigations it will be seen that the lens has a very powerful capacity for absorbing ultra-violet rays. This fact is indeed easily and strikingly demonstrated by the strong fluorescence which occurs when these rays fall on it. Schanz and Stockhausen attribute the fluorescence to rays between 400 microns to 350 microns, but as Helmholtz pointed out, a fluorescent body always absorbs strongly those rays which induce the fluorescence. Hence the chief rôle must be allotted to rays between 350 microns and 300 microns, for those from 400 microns to 350 microns are absorbed to a relatively slight extent by the lens. Another fact pointed out by Helmholtz, that the light emitted by fluorescing bodies is of longer wave length than that which causes the fluorescence, confirms this view. Fluorescence is indeed a degradation of invisible ultra-violet rays to rays of the visible spectrum. The investigation of this question is not unattended with complicating features, especially those due to fluorescence of the observer's own lenses.

PATHOLOGIC CHANGES PRODUCED

Whatever be the exact limits of the ultra-violet rays which are capable of causing the crystalline lens to fluoresce, there is no doubt about the fact, nor that such rays are absorbed by the lens. It is not, therefore, illogical to conjecture that these rays may produce pathological changes in the structure. For this reason, in conjunction with Mr. E. E. Henderson, I have exposed rabbits' eyes for prolonged periods to the light from Schott's uvioi mercury vapor lamps. Similar experiments have been made independently by Hess, Birch-Hirschfeld, and others. As already stated, these lamps emit ultra-violet rays down to 253 microns. Four tubes were used and the rabbit's eyes were situated about 20 cm. from them, exposures of one to four hours being made repeatedly two or three times a week for several weeks. At the distance used the rise of temperature is negligible. It should be noted that the eyes were exposed not only to the ultra-violet, but also to the visible rays. Even with the longest exposures no definite opacification of the lens was observed ophthalmoscopically, nor even on examining the lens macroscopically after killing the animal. After hardening in Zenker and examining the anterior capsules microscopically, however, changes could be seen in the anterior capsular cells. These changes have been well described and illustrated by Hess, and our conclusions as to their appearances are in agreement with his.

When the capsule, stained with hematoxylin and eosin is spread out and examined the most noticeable feature is the marked difference between the capsule cells in the pupillary area and those immediately surrounding this area. The nuclei of those exposed are swollen and their chromatin stains badly; the cytoplasm may be vacuolated. In the surrounding zone, behind the pupillary

margin of the cornea, the cells are very closely packed together. The nuclei are small and the chromatin stains deeply. There may be mitoses in this area as well as still more peripherally. It is probable, as Hess conjectures, that the crowding together of the anterior capsule cells behind the iris is purely mechanical due to the swelling of those in the pupillary area, and is not caused by any compensatory regeneration. In some of his specimens it led to actual multiplication in the layers and heaping up of the anterior capsule cells.

Changes similar to those described were observed by Widmark after exposure to light from the arc lamp. Hess found that the changes did not occur if a glass plate which absorbed the rays of smaller wave length than 300 microns, was interposed between the lamp and the eye. I am not convinced of the accuracy of this observation. Examination of control capsules shows that the changes are rather those of degree than absolutely abnormal phenomena. More work on the dark-adapted eye is needed to settle this point conclusively. Hess considered that the experiments prove that the changes are due to rays of smaller wave length than 300 microns. But, as already stated, there is ample evidence to show that such rays do not reach the lens, being absorbed by the cornea. No similar experiments in which the visible rays, i. e., those of greater wave length than 400 microns are cut off, (only those between 400 microns and 300 microns being allowed to fall on the lens), have been carried out. It is most probable that the changes are due partly to ultra-violet rays of greater wave length than 300 microns and partly to rays of the visible spectrum. We have here a further example of the necessity for bearing well in mind the fundamental fact of the physical continuity and similarity of the rays of the visible and of the ultra-violet spectra.

CHANGES IN THE LENS—BOTTLE-MAKER'S CATARACT

Many pathologic changes in the lens in which bright light may be, or at least has not been disproved to be, an important etiological factor will occur to you. I do not propose to discuss this factor in the causation of senile cataract. Schanz and Stockhausen attribute to it a preponderant rôle. In this I think they go far beyond the bounds which the scanty evidence at present available warrants. I will confine my remarks to glass-workers' cataract, which occurs under conditions of exposure to intense glare and in which the influence of bright light has at any rate to be eliminated before we can arrive at a just conclusion as to its causation. Attention was first directed to the prevalence of cataract in glass-blowers by Meyhöfer of Görlitz in 1886. Much additional information was brought forward in 1888 in an inaugural dissertation by Röhliger of Munich. Since that date papers have been published by Cramer of Kottbus, Robinson of Sunderland, Snell of Sheffield, and others. In 1907 the British Home Office published a valuable report by Dr. Morison Legge, H. M., Medical Inspector of Factories, who confirmed the prevalence of the disease in this class of workmen, doubt having been expressed on the point by Snell. The matter came under the consideration of the Departmental Committee appointed in 1906 to schedule industrial diseases for the purpose of the Workmen's Compensation Act (1906). As a result the Home Office approached the Royal Society in 1908 with a view to their appointing a committee to investigate the physical and physiologic problems involved. A committee, consisting of physicists, physiologists and ophthalmologists,

the latter including Mr. E. Nettleship, the late Mr. Marcus Gunn, whose recent loss we all deplore, and myself was appointed. In the autumn of 1908 a subcommittee, including Mr. Marcus Gunn and myself, visited some of the most important glass-works in Sunderland, Gateshead, and St. Helens. Such clinical investigation as we were able in the short time at our disposal to carry out seemed to prove conclusively that bottle-makers are subject to a form of cataract which appears to be characteristic and is unlike other forms of cataract commonly observed. In its typical form there is a dense, well-defined disc of opacity in the center of the posterior cortex. Not infrequently slighter hazy opacities are seen around the posterior cortical disc. Makers of pressed glass articles may also show cataractous changes in the lens. The typical condition, however, was seen in only one case, out of five of the selected cases examined, the remainder having forms of cataract differing in no respect from those not infrequently seen in elderly persons. Some of the patients examined showed deficiency in the power of distinguishing violet. It is not improbable that prolonged exposure to the conditions of work causes changes in the excitability of the retina. (The observations of Birch-Hirschfeld on defects of color sensation and in the color fields in cases exposed to the action of mercury-vapor lamps are interesting in this connection.) We were unable to examine any patients who worked in plate-glass manufactories. There is reason to believe that they also suffer from the disease.

Investigation of the physical conditions in glass bottle manufacture has been carried out by Sir William Crookes, F.R.S., for the Royal Society Committee, and by Schanz and Stockhausen. The materials are melted in a large fire-brick tank, heated by incandescent gas and air playing over the surface. The area of the tank is about 82 square yards and it contains some 300 tons of "metal." The tank is divided into two unequal parts by a fire-clay partition, having at the lower part an opening through which the melted glass can flow. The "working end" has an area of about 19 square yards. The temperature at the "melting end" is probably about 2,000 C., that at the working end 670 C. Schanz and Stockhausen found that the temperature at the place where the worker takes the molten metal from the tank is about 110 C.; the intensity of the light falling on his eyes is about 540 Lux.

Spectro-photographic investigation shows extension of the spectrum at each end with increased length of exposure. A photograph with twenty minutes' exposure includes wave lengths 452 microns to 690 microns; with one hour exposure, 364 microns to 760 microns; with three hours exposure, 334 microns to 780 microns. The ultra-violet area is, therefore, limited to rays of comparatively long wave length, but it is probable that this varies with the exact composition of the "metal" used. The heat rays at the red end are extremely powerful.

Exposure of sensitive films wrapped in black paper and lead foil in which designs had been cut showed complete absence of x-rays even after prolonged exposure.

Schanz and Stockhausen conclude from their observations that glass-workers' cataract is due to ultra-violet rays. In my opinion the experiments are by no means conclusive in either direction. It is certain that most of the ultra-violet rays emitted by the molten glass will be absorbed by the cornea, only relatively few of those of shorter wave length reaching the lens at all. The problem is an extremely difficult one, for it is cer-

tain that the disease occurs only in men who have been engaged at the work for many years. It is most commonly found in "finishers," experienced men who have been through all the stages of bottle-making ("taker in," "wetter off," "gatherer," "blower") and who are engaged in putting the rings on the mouths of the bottles. These men work close to the furnace, taking the metal from the tank, applying it to the mouth of the bottle, and fashioning it to the required form with a mould. They are continually looking into the furnace or at the mass of glowing, viscid glass. A finisher can do from 50 to 120 dozen bottles a day. Only the best workmen are promoted from blower to finisher. The cataract occurs also among the gatherers who collect the requisite amount of metal from the tank on the blowpipe, and the blowers, but only if they have been long engaged in the trade. Blowers have always previously been gatherers, so that both classes have usually been long engaged in an operation which requires looking repeatedly into the furnace and at the gradually cooling mass of glass.

It is extremely difficult to devise conclusive experiments for the elucidation of a problem in which the causal agent acts slowly over a very prolonged period, and until further experiments have been made to eliminate the heat factor it would be unwise to make any dogmatic statement as to the true cause of glass-workers' cataract.

EFFECTS ON CONJUNCTIVA

The diseases which I have already touched on by no means exhaust the list of those attributable to bright light and ultra-violet rays. One of the chief difficulties which we have to contend with in experimental exposure of the eyes of animals to light rich in ultra-violet rays, is the intense congestion and inflammation of the conjunctiva which is soon brought about. The irritation does not manifest itself until a latent period of some hours has elapsed, but is much aggravated by repeated exposures, so that finally the cornea is almost covered by the chemosed conjunctiva and swollen lids. The experimenter himself is not immune from this intense conjunctivitis, which is encountered also among photographers using mercury-vapor lamps, men engaged in testing photometrically naked arc lights, and so on. Complete protection is afforded by wearing plane clear glass spectacles, or, in the case of experiments on animals, by interposing a plate of glass between the animal's eye and the source of light. Since ordinary glass cuts off all the ultra-violet rays of shorter wave length than 300 microns, whilst permitting the visible rays to pass almost unimpeded, it must be concluded that the irritation is caused by ultra-violet rays of lower wave length than 300 microns. Exactly the same clinical manifestations have long been known after exposure of the unprotected eyes to light reflected from vast surfaces of snow. There is every reason to believe that "snow blindness" is due to the same cause, since at high altitudes fewer ultra-violet rays are absorbed by the atmosphere and more are reflected from the brilliant white surfaces. The same rays are responsible for "sun burn," and a striking demonstration of the absorptive capacity of the crystalline lens for these rays is shown by placing a crystalline lens on the skin and then exposing it to intense sunlight. When the "sun-burn" develops, a white spot of unaffected skin marks the place where the lens lay. "Ophthalmia electrica" is of exactly the same nature as "snow blindness" and is due to the same cause.

OTHER EFFECTS

Birch-Hirschfeld has reported cases which tend to prove that exposure to light rich in ultra-violet rays is not without effect on the normal retina, so that minor defects in the color fields are produced. He found in experiments on animals that such light produced definite changes in the ganglion cells and the cells of the nuclear layers, resulting in chromatolysis, vacuolation of the cells, etc. changes which were much increased in eyes rendered artificially aphakic.

The red vision which is often so troublesome a symptom after exposure to bright light in persons who have been operated on for cataract has also been attributed to the action of ultra-violet rays. Erythroptosis occurs, however, or may be induced in normal eyes, in which the absorptive capacity of the lens has to be taken into account, and is further said by some not to be prevented by wearing glasses, though this is denied by others. It cannot, therefore, yet be concluded with certainty that ultra-violet rays are solely responsible for this phenomenon.

PROTECTIVE MEASURES

Enough has been said to show that ultra-violet rays are without doubt deleterious to some parts of the eye and are probably so to other parts under certain conditions. Protection of the eyes from these rays is therefore indicated if means can be adopted which are not too inconvenient and which do not seriously interfere with the visible rays. Many observations have been made on the penetrability of various types of glass in common use, and attempts have been made to make a glass which will absorb all the ultra-violet rays without materially reducing the transparency to light. For experimental purposes maximum penetrability to ultra-violet rays is sometimes desirable. Messrs. Schott, of Jena, have manufactured a quartz glass for this purpose called "uviol." Schott's uviol crown glass (U V 3199) transmits rays down to 280 microns. It is therefore rather more transparent to ultra-violet rays than ordinary glass, though it falls very far below quartz in this respect. A few examples of the absorption of ordinary glasses may be given.

Borosilicate Crown Glass absorbs rays below 295 microns; flint glass (0.103) below 315 microns, partially 315-320 microns; ordinary blue glass below 320 microns; ordinary smoked glass below 345 microns; heavy flint glass (0.198) absorbs all rays below 375 microns, and many from 375-400 microns. Heavy flint glass therefore so far as impenetrability to ultra-violet rays is concerned meets most requirements; it is, however, quite unsuited for spectacle lenses on account of its weight.

Special glasses have been devised and placed on the market, said to absorb all the ultra-violet rays, i. e., below 400 microns. Of these the chief are "Enixanthos" glass, Fieuzal glass and "Euphos" glass (Schanz and Stockhausen). All have a greenish yellow tint, varying in intensity.

Schanz and Stockhausen assert that "Euphos" glass absorbs only 5 per cent. of visible light, but Vogt puts the figure at 25 per cent. The latter author points out that the manufacture of experimental glasses which absorb all the ultra-violet rays was accomplished long before Schanz and Stockhausen introduced their widely advertised "Euphos" glass. Eder and Valentin in 1894 made several glasses of this kind, notably a red glass containing copper oxid and others containing iron oxid. They showed that the absorption was much increased

by the addition of lead to the metal. Analysis of "Euphos" glass by Dr. Werder in Aarau showed that it was an iron glass containing lead.

Sir William Crookes has recently made some valuable experiments on the diathermancy and permeability of glasses to visible and ultra-violet rays for the Royal Society Committee. Various green glasses long used in the Palm House at Kew Gardens, specially adopted because of their impermeability to infra-red rays, were examined. One of these, a very dark green glass, originally used in the ferneries, is remarkable for the short length of spectrum it transmits. It is opaque at the red end to rays longer than 579 microns and at the ultra-violet end to all rays shorter than 468 microns. On account of its color and the amount of light which it absorbs it is unsuitable as a protective glass. An almost colorless glass, tinged with didymium, is remarkable. It is opaque at the red end to rays longer than 656 microns just transmitting the hydrogen red. At the ultra-violet end it is opaque to rays shorter than 398 microns. Sir William Crookes suggests that further experiments should be carried out to include glasses tinted with other colored rare earths, as well as such metals as nickel, cobalt, chromium, uranium, etc., and also containing colorless oxids. It is noteworthy in this connection that Eder and Valentin found that ordinary cobalt glass is scarcely more absorptive of ultra-violet rays than ordinary flint or crown glass. It would appear that the almost colorless didymium glass best meets the requirements for protecting the eyes against the action of ultra-violet rays.

CONCLUSION

In any case there can be no doubt that the problem will be solved with relative ease. Much remains, however, to be accomplished in the direction of determining with greater accuracy the physiologic and pathologic potency of these rays. If I have succeeded in arousing some interest in the subject and directing the attention of others able and qualified to extend the researches, my remarks, scattered and disjointed as they are, will not have been wholly vain.

THE PHYSIOLOGIC ACTION, USES AND ABUSES OF ALCOHOL IN THE CIRCULATORY DISTURBANCE OF THE ACUTE INFECTIONS *

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The reputation of alcohol as a cardiac stimulant is as old as our knowledge of medicine. It has been a household remedy for generations and even radical prohibitionists have permitted its use for medicinal purposes. The medical profession in this country have prescribed it freely, and especially in that group of cases under consideration—the acute infections. It has been so securely entrenched in our therapeutic armamentarium that in this country, until very recent years, those who opposed its use in certain acute infections, as pneumonia, were looked on as temperance fanatics. As a preface to the present discussions the therapeutic history of alcohol in Europe during the last century is of interest.

Alcohol was so little used in Germany in the treatment of the acute infections during the middle of the nineteenth century that a physician in Coblenz was held responsible for the death of a typhoid patient for whom alcohol had been prescribed. Shortly after this, Todd, in Dublin, advocated its use in pneumonia and his teachings were quite extensively followed in the British Isles. Somewhat later Binz and his pupils, having demonstrated that alcohol was a food and reduced rather than elevated body temperature, the German clinicians, headed by Von Jurgensen, began using it extensively in febrile conditions. This wave reached its height at the Wiesbaden Congress in 1880, when alcohol was generally lauded as a valuable therapeutic agent in the acute infections. Immediately after this the experimental work of Schmiedeberg and Von Noorden and the clinical experience of Strümpell cast a shadow of doubt over its desirability, and since that time the pendulum has been swinging the other way. This is shown by the lessened consumption of alcohol in some of the large general hospitals in Europe, as, for instance, in the Vienna General Hospital, in which in 1897 \$10,000 was spent for alcohol, and in 1905 this had been reduced one-half; and Cabot has shown that there is the same tendency in some of the large general hospitals in this country.

That the amount of alcohol used for medicinal purposes is on the wane does not necessarily prove that it has little value as a therapeutic agent, especially as the change in sentiment has been directly associated with a general prohibition movement.

For our purpose we must approach the subject from a different standpoint, viz.: first, the character and cause of the cardiovascular disturbances in the acute infections; second, the physiologic action of alcohol on the normal mammalian heart; third, the action of alcohol on the cardiovascular apparatus of man and animals suffering from acute infections, and finally, evidence collected from clinical experience.

It is perhaps unnecessary to mention that alcohol has some value as an antipyretic, owing to its inhibitory action in the process of oxidation (von Wendt).¹ Of more importance, and perhaps meriting a word, is its effect in combating the toxemias of the acute infections. There is still considerable difference of opinion on this point, but the recent careful experimental work of Laitinen² lends support to the earlier views of Koch and Doyen, that even in small doses it diminishes the bactericidal powers of the blood and lessens the animal's resistance to infection.

NATURE OF CARDIOVASCULAR DISTURBANCES

Regarding the nature of the cardiovascular disturbances in the acute infections, the early clinicians recognized the frequency of weak heart, ascribing it to the fever and parenchymatous changes in the heart muscle, first detected and described by Virchow. Somewhat later Hayem called attention to the interstitial changes and the endarteritis and thrombosis of the coronary arteries, this latter accounting for the sudden deaths met with, especially in diphtheria. Romberg was able to demonstrate a progressive acute myocarditis developing some time after the onset of the infection and continuing for some time after its subsidence. Demich attacked

1. Von Wendt, G.: Ueber die Einwirkung des Alcohol auf die Körper-Temperatur des Menschen, Skand. Arch. f. Physiol., 1907, xix, 171.

2. Laitinen, T.: Ueber die Einwirkung der kleinsten Alkoholmenge auf die Widerstandsfähigkeit Thierischen Organismus, etc., Ztschr. f. Hyg. u. Infectiouskrankh., 1907-08, lxiii, 139.

* Read in the joint session of the Sections on Practice of Medicine and Pharmacology and Therapeutics, of the American Medical Association, at the Sixty-First Annual Session, held at St. Louis, June, 1910.

the problem from the physiologist's standpoint and discovered that cardiovascular changes analogous to those present in the acute infections could be produced by section of the cord or by vasomotor poisons, such as chloral or chloroform. This led Naunyn³ to investigate more carefully the clinical signs and symptoms of the cardiovascular apparatus in the acute infections; his results supported Quincke's theoretical views, inasmuch as the ordinary signs of weak heart-muscle, such as faint heart-tone, feeble pulse, arrhythmia and bradycardia were exceedingly infrequent, the clinical findings pointing more to disturbances in the vascular mechanism. Riegel, with the assistance of the sphygmograph and Maragliano⁴ with the plethysmograph, confirmed in the main Naunyn's surmise that vasomotor factors were responsible for the disturbance. That functional disturbance of the vasomotor control plays an important rôle is further supported by the pathologists, who were often unable to find adequate anatomic changes to account for the collapse and sudden death. Furthermore, in many of these cases the conditions of the pulmonary and systemic vessels could best be explained by vasomotor paresis. To this evidence was added the effect of the acute infections in animals. Heidenhain, Charrin and Gley, Raczynski,⁵ and especially Romberg and Pässler,⁶ studied the effect of a number of the more common micro-organisms on the cardiovascular system. These results are so in accord that it is only necessary to refer to a few of the experiments.

Cultures of a streptococcus obtained from a case of scarlatina, when injected into rabbits, produced cardiovascular disturbance, which can best be considered in two stages. Shortly after the injection, a slight and inconstant vasodilatation could be demonstrated, leading to a slight fall in the pressure; later with approaching death the blood-pressure falls, apparently the result of vasomotor disturbances, as the heart's strength is still good, as shown by the prompt rise in blood-pressure following compression of the aorta.

Cultures of the colon bacillus behaved somewhat differently, impairment of the heart being most pronounced. The pneumococcus and diphtheria bacillus behaved in the same manner as the streptococcus, paralyzing the vasomotor center, leading to engorgement of the splanchnic circulation and underfilling of the vessels of the brain, muscles and skin. Involvement of the heart only occurred late, and then apparently secondary to nutritional disturbances caused by the vasomotor paresis. Especially in pneumococcus infections the heart remained intact to the last, this being in accord with the absence of anatomic changes in this organ after death from pneumonia.

It would appear, therefore, from clinical, anatomic and experimental evidence that the circulatory disturbances in the acute infections are chiefly vascular in origin, the heart being affected to a much less marked degree.

ACTION OF ALCOHOL IN MAMMALS

Regarding the physiologic action of alcohol in mammals, the published results would appear to be quite at variance; these apparent differences can, however, be largely explained by the method of administration and especially the dosage. Considering these points and selecting only those experiments in which methods of

precision have been used, we find that the results are really in accord.

A weak solution of alcohol 0.13 to 0.3 per cent. transfused through the mammalian heart has a stimulating effect. The strength of the solution necessary to bring about a certain effect cannot be fixed absolutely. Generally speaking, however, dilutions below 0.13 per cent. are inactive and above 0.3 per cent. act as a depressant. Computing the amount of blood in man as 7 per cent. of the body weight, in order to have the above minimum in the circulating blood, would require about 7 c.c. of absolute alcohol, and for the maximum amount about 15 c.c. of absolute alcohol, or 15 to 30 c.c. of whisky. We must bear in mind that when it is administered by mouth, the delay in absorption would prevent the entire amount ingested from appearing at one time in the circulating blood. When alcohol is administered intravenously to animals, it has been shown that an amount equivalent to 0.1 to 0.3 per cent. in the circulating blood raises blood-pressure and increases the systolic output without necessarily increasing the pulse frequency (Dixon,⁷ Rosenfeld,⁸ Hasovec,⁹ Kochmann,¹⁰ Wood and Hoyt¹¹ and Bachem¹²). This rise in pressure is rather transitory, ranging from two to twenty minutes. When larger doses are given, all agree that alcohol acts as a depressant. One point of considerable significance is that it is impossible to determine beforehand in any given animal either the minimum or maximum amount required for a stimulating action.

There is still considerable difference of opinion in regard to the cause of the rise in pressure after moderate doses. Whether due to direct stimulation of the heart, the direct effect on the vessel walls, or the effect on the vasomotor center has not been definitely determined. It is certain, however, that large doses of alcohol paralyze the vasomotor center.

CLINICAL EVIDENCE

The clinical evidence relating to the value of alcohol in the acute infections may be divided into two classes, one statistical and of personal impressions, the other careful bedside study, with measured amounts of alcohol, and determination of changes in systolic and diastolic pressure, pulse-rate, etc.

Regarding the value of statistical evidence, it is only necessary to glance back over the therapy in pneumonia during the past fifty years. Laennec believed that he had a specific in tartar emetic; the advocates of venesection had their day and it was only after Skoda demonstrated that the mortality was just as low or lower when bleeding was not used, that the profession discontinued it as a general measure. The supporters of both of these measures furnished statistics that possessed the appearance of evidence. Petrescu treated 2,215 patients with pneumonia with large doses of digitalis, with a mortality of only 1.7 per cent. Aufrecht reported a mortality of 2.6 per cent. in a series of 379 cases, treated with quinin hypodermically. Results equally favorable have been reported after aspirin, creosote and iodids in large doses.

It would appear that, if purely statistical evidence were all that was required to establish a therapeutic fact, there is here sufficient proof. The error lies in the manner in which the statistics have been collected. The mor-

7. Dixon: *Jour. Physiol.*, 1906-07, xxv, 346.

8. Rosenfeld (referred to by Bachem): *Centralbl. f. inner Med.*, 1907, xxviii, 849.

9. Hasovec: *Wien. med. Wehnschr.*, 1901, lix, 457.

10. Kochmann (referred to by Heinz): *Handbuch der experimentellen Pathologie u. Pharmakologie*, 1905, I, 985.

11. Wood and Hoyt: *Univ. Penn. Med. Bull.*, 1905-6, xviii, 70.

12. Bachem: *Centralbl. f. inn. Med.*, 1907, xxviii, 849.

3. Von Dubczanski and Naunyn: *Arch. f. exper. Path. u. Pharmakol.*, 1872, I, 181; 1882, xviii, 49.

4. Maragliano: *Ztschr. f. klin. Med.*, 1888, xiv, 309.

5. Raczynski: *Deutsch. Arch. f. klin. Med.*, 1897, lxiii, 27.

6. Romberg and Pässler: *Deutsch. Arch. f. klin. Med.*, 1899, lxiv, 652.

tality of pneumonia is largely dependent on the age of the individual, his previous habits, the severity of the epidemic and the stage of the disease in which he comes under observation. Petrescu used his digitalis treatment on recruits—all young and healthy men—in whom the mortality would naturally be low, as Risell by pure symptomatic treatment reported a mortality of only 1.8 per cent. in 127 patients between the ages of 20 and 30 years. Statistics bearing on the value of alcohol in the treatment of acute infections are too few to permit drawing conclusions, even if free from the objections referred to. Dr. John Hay divided a series of pneumonia patients into two lots by assigning every other patient to one group. Those treated without alcohol showed a mortality of 29.5 per cent.; those receiving alcohol 45.5 per cent. We have heard a great deal of the low mortality from pneumonia in the London Temperance Hospital, but the total number treated is too small to provide evidence.

A more accurate method of approaching the problem is to determine carefully the effect of alcohol on normal individuals and those suffering from the acute infections, and if possible the effect on infected animals. With our present means of taking blood-pressure and estimating the systolic output, we are in a position to determine with a fair degree of accuracy the action of alcohol on the cardiovascular apparatus of man.

A limited number of observations of this character have already been made, and although the results are somewhat at variance, as are the results of these same studies on the hearts of the lower animals, these differences can be explained largely by the dosage and the peculiarity of alcohol, that in the same amounts it does not always affect the cardiovascular apparatus in the same manner.

Studies on normal man show that he reacts to alcohol in the same manner as the lower animals. When given in such quantities that the amount in the circulating blood is not greater approximately than 0.15 per cent., or about 6 c.c. of absolute alcohol, little if any effect on the cardiovascular apparatus can be observed. When the quantity given is equivalent to from 0.15 to 0.3 per cent. in the circulating blood, equal to 6 to 12 c.c. of absolute alcohol, there is as a rule evidence of cardiovascular stimulation, as there appears, after a lapse of fifteen to twenty minutes, a moderate rise in blood-pressure, varying from 10 to 20 mm. (Kochmann, Binz, Wiesenfeld). A larger amount, equivalent to 40 c.c. of absolute alcohol, invariably acts as a cardiovascular depressant. Some investigators have been unable to detect a rise in blood-pressure, even with moderate doses (Cabot, Crile). The great difficulty in both animal and man is to determine in any single individual either the minimum or maximum amount required for a stimulating action.

In this respect it differs from other cardiac tonics, as with digitalis, for instance, we may be certain that a given amount will affect the mammalian heart in a characteristic manner. For this reason alcohol must always be an unsatisfactory therapeutic agent, as a remedy which in moderate doses may or may not have the desired effect, and which in somewhat larger doses develops an unfavorable action, is not to be relied on in an emergency.

Regarding the cause of the rise in blood-pressure following moderate doses, Dixon and Kochmann consider it due to constriction of the splanchnic vessels, the associated dilatation of the peripheral vessels failing to compensate for the splanchnic constriction. Wood and Hoyt confirmed this view, as they have shown by means of the

plethysmograph that the peripheral vessels were dilated during the rise in blood-pressure, and inasmuch as the pulse-rate was not materially changed it could best be explained by constrictions of the splanchnics. This constriction of the splanchnic vessels, according to Dixon and Kochmann, is due to stimulation of the vasomotor center.

Some work has already been done on the effect of alcohol on the heart of animals suffering from acute infections. Pässler in the course of his extensive experiments on the nature of the cardiovascular disturbance in the acute infections used alcohol, caffeine, camphor and digitalis in order to determine their action under these conditions. The effects of alcohol in a few instances were favorable, but in the majority of trials simply increased the vasomotor paresis, which Pässler determined was the most important circulatory disturbance in the acute infections.

The effects of caffeine and camphor were uniformly favorable. Dennig,¹³ Hindelang and Grünbaum gave infected dogs alcohol by mouth in a dosage equivalent to 6 c.c. of absolute alcohol in man, and noted after five minutes a very transitory rise in pressure, followed by a fall which persisted for forty-five minutes. When larger doses were given equivalent to 20 c.c. of absolute alcohol in man, the primary rise in pressure did not develop, but from the beginning the effect was a depressing one.

Carefully conducted studies on the effect of alcohol in the acute infections in man have recently been made by Dennig, Hindelang and Grünbaum.¹³ The care with which these observations have been made render them more convincing than the entire mass of conflicting, inaccurate clinical reports.

Patients were selected who were not addicted to the use of alcohol, and the systolic and diastolic blood-pressure and pulse-rate were observed for a period of one or more hours after the administration of the alcohol. This series of studies included sixty-two febrile patients, the majority acute infections. The test was applied to successive groups of patients, each receiving larger amounts of alcohol. The first group of ten, including three pneumonia patients, received, well diluted, an equivalent of 6 to 10 c.c. of absolute alcohol. In all but three cases there was a fall in both systolic and diastolic pressure, and the systolic output, as determined by the product of pulse-pressure by pulse-rate, was reduced. This period of cardiovascular depression continued for one and one-half to two hours.

The second group, consisting of nine patients, including five suffering from pneumonia, received from 11 to 20 c.c. Two pneumonia patients reacted by a slight rise in pressure and increased systolic output; in the remaining seven patients the blood-pressure fell and the systolic output was decreased. The third group, including 25 patients, received, well diluted, an equivalent of 20 to 30 c.c. of absolute alcohol. All but five of these patients gave evidence of the depressing action of the alcohol. Included in the five cases that gave a slight rise in pressure were one pneumonia and one erysipelas. Still larger doses, equivalent to 30 to 40 c.c. of absolute alcohol, were administered to a group of seven febrile patients and all reacted by a fall in pressure and lessened systolic output.

Summarizing this experiment, those patients receiving 6 to 10 c.c., 70 per cent., 10 to 20 c.c., 77 per cent., 20 to 30 c.c., 80 per cent., 30 to 40 c.c., 100 per cent., reacted by a fall in pressure and lessened systolic output. These

13. Dennig, Hindelang and Grünbaum: *Deutsch. Arch. f. klin. Med.*, 1909, *xcvi*, 153.

results on the whole are in accord with those of Cabot, who was unable with varying doses of alcohol to demonstrate in febrile patients a rise in blood-pressure.

The above results, like the animal experiments, impress us with the uncertainty of the reaction of the individual to alcohol; as even in small doses it may, and in large doses invariably does, depress the circulation. It is fair to assume that in these conditions drugs like camphor, caffeine and digitalis are of much more value, as they are more constant in their action and much less liable to affect the patient unfavorably.

SUMMARY

In the circulatory disturbances of the acute infections, impairment of the vascular regulating mechanism is more apparent than active disturbance of the heart, and therapeutic measures should be directed toward the prevention or correction of these vasomotor disturbances. Alcohol in man and the lower animals, when taken in small amounts, frequently acts as a cardiovascular stimulant. The exact method of action is still disputed. Larger amounts of alcohol in individuals not addicted to its use, invariably act as a cardiovascular depressant by paralyzing the vasomotor center. The border-line between the amount acting as a stimulant and the amount having a depressing action is variable, and this variability in action renders alcohol an undesirable therapeutic agent.

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ABSTRACT OF DISCUSSION

DR. RICHARD CABOT, Boston: In the use of alcohol in these circulatory disorders there is the difficulty of knowing whether one is dealing with alcohol or with a variety of other substances combined with alcohol in the substance known as whisky. When I began to work with alcohol experimentally I tried to use absolute alcohol and it has been said that the use of absolute alcohol in connection with acute disease is advantageous. So far, I have been unable to get any considerable number of patients to take absolute alcohol, either diluted, flavored or in any other way. They objected so strongly that, in my hands, its use has been impractical. Therefore I have had to use that very uncertain mixture known as whisky and all my results in blood-pressure work with whisky have been, therefore, not properly attributable to the action of alcohol. If anyone has found any way in which he can so flavor absolute alcohol to make patients take it without objection I would like very much to hear of it.

DR. A. JACOBI, New York: Alcohol is indicated in cases in which sepsis is imminent. There is no better antiseptic than alcohol, no purer antiseptic. I am satisfied with American whisky; it does my work. There are cases of sepsis from diphtheria, for instance, in which the patients may be saved by whisky. I speak of those cases of diphtheria so malignant from the beginning as not to be touched by antitoxin. In such cases no dose is too large; it is impossible to cause alcoholic intoxication until sepsis has disappeared. Alcohol is not indicated while active hyperemia prevails.

Differential Diagnosis of Chilblains and Lupus Erythematosus.—Chilblains may be confused with lupus erythematosus, which frequently attacks the hands but is seldom confined to that situation; true lupus erythematosus is also very liable to supervene in patients with chilblain circulation, a fact which has originated Hutchinson's term of "chilblain lupus." There is no vesication with lupus erythematosus; it is uncommon in young people who are the chief victims of chilblains; there is no retrogression of the eruption in warm weather, such as takes place in chilblains, and finally there will almost certainly be other patches of lupus erythematosus elsewhere.—E. G. Little, in the *Practitioner*.

MAGNESIUM POISONING

A STUDY OF TEN CASES *

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INTRODUCTION

The salts of the Glauber salt group are characterized by the difficulty with which their solutions are absorbed from the gastro-intestinal tract. The most important members of the group are the sulphates of sodium and magnesium.

Both Glauber salt and Epsom salt are easily soluble in water. When these salts are taken into the system in dilute form their solutions pass through both the small and large intestines practically unchanged, because the tendency to absorption is so slight that under these conditions the solutions are virtually non-absorbable and because the salts prevent the absorption of any water which was used to dissolve them. Such solutions passing unchanged through the entire bowel produce their effect in part by simply washing out its contents and partly by their local irritant action on the intestinal wall.

In 1884 Hay¹ showed that the tendency to absorption of Glauber salt is increased by raising the concentration of the solution, and when, in the course of his experiments on animals (the intestinal tract of which was free from fluid) he gave the salt by mouth, he found that large quantities of the dry salt produced no catharsis whatever, while the same doses given in dilute solution invariably produced copious movements. The dry salt was gradually absorbed from the gastro-intestinal tract into the blood and was excreted by the kidneys.

Beginning with concentrated solutions of Glauber salt, Gummilewski² found that the addition of water steadily diminished the tendency to absorption. Continuing the dilution, he reached a point below which absorption was reduced to a minimum; from this point on there was practically no absorption down to solutions of 1 per cent. and less. With its slight tendency to absorption the dilute salt solution does not normally remain in the intestine long enough to allow an appreciable amount of the salt to be taken up; if, however, a Glauber salt solution cannot readily leave the bowel on account of mechanical obstruction, or because peristalsis is much diminished or absent, then even a dilute solution will undergo gradual absorption, and there will be no catharsis. In the normal bowel the degree of dilution of an active Glauber salt solution has no bearing on the efficiency of the catharsis produced, a 2 per cent. solution being as effective as a solution containing 5 per cent. of the salt, provided, of course, a sufficient quantity of the solution is given in each case.³

The question whether or not these salts by their presence in the intestine are capable of abstracting water from the system is still undecided, the experimental evidence on this subject being contradictory. According to Schmiedeberg⁴ it is very unlikely that such abstraction

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Hay: An Experimental Investigation of the Physiological Action of Saline Cathartics, Edinburgh, 1884, Jour. Anat. and Physiol., 1883, xvi, 391 and 1884, xvii, 222.

2. Gummilewski: Arch. f. d. ges. Physiol. (Pflüger's), 1886, xxxix, 544.

3. Aubert: Ztschr. f. rat. Med., 1852, part 2, p. 225. Buchheim and Wagner: Arch. f. physiol. Heilk., 1854, xiii, 93.

4. Schmiedeberg: Grundriss der Pharmakologie, 1906, p. 413.

should take place under normal conditions. If it ever occurs, Schmiedeberg⁵ thinks, it will be most likely to happen when the system contains an excessive amount of water, as in cases of general edema, ascites, hydrothorax, pleurisy with effusion, etc. Certain experimental work which I have done on this subject is corroborative of Schmiedeberg's theory. The results of these experiments are to be published in a later paper, together with the results obtained from a quantitative experimental study of the absorption of Epsom salt given in varying concentrations.

The medical literature gives no information concerning the conditions governing the absorption of magnesium sulphate from the gastro-intestinal tract, but the histories in the cases of poisoning by the internal administration of Epsom salt and the results I obtained in my experiments both give evidence to the effect that magnesium sulphate closely resembles sodium sulphate in every particular relating to its behavior after ingestion. Theoretically, therefore, we should expect to find that concentrated solutions of magnesium sulphate are absorbed in part from the stomach and intestines into the circulation, and that when a sufficient amount of magnesium is present in the circulating blood at any one time magnesium poisoning will result.

When magnesium salts are injected into the blood of animals a very characteristic intoxication is produced.^{6, 7} The pulse, at first somewhat accelerated, soon becomes slower and slower, until the heart stops in diastole shortly after paralysis of the respiration. The respiration is affected from the start. The reflex irritability is lost twenty minutes after the beginning of the injection and it may still be absent for an hour and a half after respiration has returned to normal. The peripheral motor nerve endings are paralyzed, but where recovery occurs voluntary movements return long before reflex irritability is restored: 0.3 to 0.5 gm. per kilo body weight, given intravenously, produces death in dogs. Subcutaneous application produces qualitatively the same symptoms, but much larger doses are necessary to cause death. On section of the animals Recke⁷ found subpleural ecchymoses and extravasation of blood into the pleural cavities.

The work of Meltzer⁸ seems to indicate that magnesium salts may produce intoxication through cumulation. I, too, have found the excretion of magnesium sulphate through the kidneys to take place so slowly that if small doses of Epsom salt in concentrated solution are given at short intervals cumulative poisoning may result.

If magnesium absorbed into the blood in sufficient quantity was the cause of intoxication in the cases I shall describe we may expect these cases to show symptoms and autopsy findings resembling those obtained in animals by the intravenous application of magnesium salts.

Of the ten cases which I shall discuss, reports of seven are to be found in the literature; two of the other three cases I have observed personally; the report of the third case I obtained from the records of the Massachusetts General Hospital.

REPORT OF CASES

CASE 1.—J. A., 31, Italian, married, second pregnancy, was brought to the hospital on January 22 with a history of having had no movement of the bowels for three days. The patient looked very sick, her respirations were slow and labored, but both the temperature and pulse were only 100. From time to time she vomited yellow watery matter. The uterus, at full term, lay in the right side of the abdomen; it contracted regularly every ten minutes. The left side of the abdomen was puffed up by a distended intestine; there was no visible peristalsis. The examination of a catheter specimen of urine showed the following: Quantity 125 c.c., specific gravity 1.080, no albumin, no sugar. Two glycerin enemas low were given without result. An oil enema gave result from lower bowel. A high turpentine enema gave a good result, relieving the distention. Operation was done for removal of an ovarian cyst. In the urine, which was submitted to me for examination, I found a total of 0.6620 gm. of magnesium, calculated as oxid. and corresponding to 1.95 gm. of magnesium sulphate.

It was impossible in this case to obtain a history of the patient before entrance. Undoubtedly she had been given Epsom salt by her physician, but on account of obstruction of the bowel by the ovarian cyst the salt solution was not permitted to pass out of the intestine; consequently absorption of magnesium sulphate took place. After absorption into the blood the Epsom salt tended to increase the obstipation by paralyzing the bowel.

CASE 2.¹⁰—H. M., 60, chore-man. Diagnosis, chronic bronchitis and emphysema with acute exacerbation; chronic myocarditis.

Patient on entrance passed 30 to 35 ounces of urine, the examination of which gave the following: Odor and color normal, acid, specific gravity, 1.022, albumin, slightest possible trace, sugar absent, no casts. April 14 to 15, the urine rose to 2.940 c.c.; on April 17, it fell to 1.860 c.c., and on April 18 to 480 c.c. On April 14 magnesium sulphate, 1 ounce in concentrated solution every morning was ordered.

April 16, the patient was much more comfortable as a result of rest in bed. He ran an irregular temperature, normal in the morning and up to 101 F., in the afternoon. There were many moist râles and squeaks in the lungs.

April 18 the following information was obtained from Dr. Marks, the junior house officer, and from the nurse in charge of the patient: The patient felt poorly the morning previous. He vomited his salts; his pulse was weak and irregular; he became progressively weaker. His respiration, affected from the start, became more and more labored, and finally resembled Cheyne-Stokes respiration without the periods of apnea. The patient was very cyanotic. His condition seemed so serious that he was placed on the dangerous list.

My attention was called to this case by Dr. Duke, one of the house physicians, who brought me a specimen of urine with a specific gravity of 1.070, and it was in answer to my inquiry regarding the case that I received the above history. I immediately advised the discontinuance of magnesium sulphate for this patient because I was led, from my experience with Case 1, to suspect magnesium sulphate as being the cause of the high specific gravity of the urine. Fortunately the patient had received no salts that morning on account of his weak condition.

April 24 the heart action was less irregular; lungs still showed many coarse râles; temperature still slightly elevated; patient up without ill effects.

The chemical analysis of the 120 c.c. specimen of urine obtained, yielded 0.4813 gm. of magnesium calculated as oxid. and corresponding to 1.42 gm. magnesium sulphate.

In my opinion this case is one of cumulative poisoning produced by a partial absorption of the doses given on

5. Schmiedeberg: Grundriss der Pharmakologie, 1906, p. 416.
6. Glessin: Ueber die giftige Wirkung der Magnesium Salze
Diss., Würzburg, 1881.
7. Recke: Experimentelle Beiträge zur Kenntniss der Wirkung
der Magnesia sulphurica, Diss., Göttingen, 1881.
8. Meltzer and Auer: Physiological and Pharmacological Stu-
dies of Magnesium Salts, Am. Jour. Physiol., 1905-1906, xiv, 366.

9. Boston Lying-In Hosp. Rec., 1909, cxlvii, 198.
10. Mass. Gen. Hosp. Rec., 1909, dccxvii, 71.

April 14, 15 and 16. The salt given on April 17 served to hasten the onset of the attack.

CASE 3.¹¹—E. I. B., aged 26, milliner, diagnosis, tapeworm.

May 23, on entrance to the hospital patient's urine showed a specific gravity of 1,008, albumin, slightest possible trace, no sugar. Patient was put on liquids without milk, and was given 5 grains of calomel that evening.

May 24, the patient was given 7 ounces of Epsom salt, 1 ounce every hour and a half during the morning, with excellent result. No vomiting.

May 25, patient vomited two doses of the salt. There was nausea the rest of the day. Urine, specific gravity 1,029, albumin slightest possible trace. Stool, normal in color, formed, eggs and segments of tenia present.

May 26, patient vomited two doses of salt. She was allowed to rest as quietly as possible, with the hope of beginning treatment.

May 27, patient vomited her medicines; she refused all food and drugs, except teaspoonful doses of albumin water and was beginning to look worn and haggard. She was fed by rectum and given enemas of salt solution. These enemas she retained well.

May 28, all idea of treatment for worm was given up; patient vomited even water. Physical examination was negative except for acne, which appeared two days previously.

May 30, condition of pernicious vomiting continued. Patient was able to retain only teaspoonful doses of milk and lime water or albumin water, and she often vomited these. The vomitus was green and slimy. The patient looked pale and drawn. The pulse was good, the temperature normal. The patient was sleepy most of the time; she lay with eyes closed and hardly seemed to notice what was going on. The nausea was unrelieved. Patient said she could not move her limbs; she thought she was paralyzed. The patient's face was puffy. She was restless and querulous during the night.

The urine was pale, slightly cloudy, specific gravity 1,013, slightest possible trace of albumin casts present. The urine seemed much diminished; patient thought she had not passed any urine for several days, but the nurses thought that she had passed some urine with her stools and when she discharged nutrient enemas.

May 31, at 5 a. m. the pulse suddenly became weak; a few minutes later the house physician found patient pulseless and of a dirty ashen color. The patient was conscious when the heart was merely fluttering. Death occurred at 6 a. m.

Autopsy (M. G. H., Pathological Records, 1906, p. 273; autopsy 1,694).—Pleural cavity contains a slight amount of pale fluid. Peritoneal cavity contains a moderate amount of pale fluid and several pale yellow fibrin clots. Stomach and small intestinal mucosa shows patches of reddening. Kidneys weigh together 320 gm. The epithelium of the cortical tubules is generally flattened, the lumen of the tubules is rather larger than normal. The interstitial tissue is edematous in places. The epithelium of the glomerular capsule is thicker than usual, but there is no evidence of a glomerulo-nephritis, and there is no increase in interstitial tissue. The appearance of the kidney suggests the action of some toxic substance.

This case is undoubtedly one of magnesium poisoning. Unfortunately the urine was not examined for the presence of the salt, but the specific gravity of the urine of May 25 tells the story. At entrance the urine showed a specific gravity of 1,008; on May 25 the specific gravity was 1,029, although the patient had been taking practically no food. On May 31, when nearly all of the salt had been excreted, the specific gravity was 1,013. I have no doubt that specimens with a much higher specific gravity were passed in the twenty-four hours following the voiding of the specimen which was obtained on May 25. This specimen was passed at a time when the excre-

tion of the salt was just beginning. This is another case of cumulative poisoning.

CASE 4.—Under the title, "Epsom Salt as a Poison." C. Fraser¹² reports a most interesting case of magnesium poisoning. A boy, aged 3½ years, took 1½ ounces of magnesium sulphate, mistaking the salt for sugar. On account of the bitter taste he drank a little milk to wash it down. The child's mother found him soon after this, retching and suffering much pain. He complained of great thirst; his bowels had not moved. The nausea and retching continued all day. At 7 p. m. the pain was very severe and vomiting began. The patient suffered great pain all through the night and vomited at frequent intervals. When Dr. Fraser first saw the child at 2:30 p. m. it was twenty-five hours after he had taken the salts. He found the boy in bed with his face pinched, his eyes sunken and the skin very pale. His mind was clear. Every 2 minutes he had a colicky attack which made him draw up his legs. Temperature 100 F., pulse small, 160. Respiration labored. His tongue was very dry, the papillae standing out prominently. His thirst was intense. There had been no movement of the bowels in twenty-four hours. The patient had passed only a half ounce of urine in twenty-four hours. Physical examination showed the abdomen to be distended and rigid, and the skin hyperesthetic. Catheterization yielded ½ ounce of bloody urine, no albumin and no sugar, very acid. The patient was weak and was constantly growing weaker. He vomited every few minutes small amounts of greenish-yellow material without any characteristic odor. The bowels were constipated, temperature and pulse the same.

Next day, vomiting was incessant as before, no movement, no urine, pulse uncountable. The abdomen was so distended and tender that it was feared the boy had peritonitis. He was therefore admitted to the hospital for laparotomy. The child was now in complete collapse, his temperature was subnormal, his pulse 160, the abdomen rigid and retracted. Laparotomy was done and two pints of sterile blood-stained serum obtained from the peritoneal cavity. No cause for intestinal obstruction to be found.

The first twenty-four hours in the hospital the temperature was 100.6 F., pulse 170; child was very ill and restless; he vomited frequently; no flatus or feces were passed in spite of frequent enemas. The child complained of intense thirst. Considerable quantities of blood-stained serum continued to drain from the peritoneal cavity. The dressing was changed every four hours. The child became moribund, and albumin water, brandy and rectal salines were not retained.

The second twenty-four hours the child still seemed moribund; pulse uncountable. Normal saline solution was infused into the subcutaneous tissue of the axilla, after which the child improved, obtaining some sleep. There was still some vomiting, which, however, soon stopped. Half grain of calomel was given every hour. Temperature 101.5 F. In the afternoon flatus and feces passed and again after an enema. Catheterization at 4 p. m. yielded 1 ounce of urine. Recovery now followed quickly.

In this case the action of the salt after absorption into the blood had caused paralysis of the intestine. The slow excretion of the salt was also responsible for the almost complete suppression of the urine, the salt, by its great affinity for water, preventing the excretion of water by the kidneys.

CASE 5.—Neale¹³ reports the case of a boy, aged 15, who took 1 ounce of magnesium sulphate in concentrated solution on an empty stomach. The physician arrived after twenty-four hours. In the meantime the boy had had three small movements. A few hours after the dose he felt sick and vomited; this condition continued through the night. The next day he tried to work, but had to give up. The vomiting continued at intervals. When the physician came the patient was lying in an attitude of flexion; he was much cyanosed; from time to time he had severe attacks of tetanic spasms,

affecting the right side of the face and the right arm. The urine was dribbling. The pulse was imperceptible. He frequently vomited greenish fluid material. His temperature was 105 F. The next day he was better; 40 ounces of urine were withdrawn by catheter. He was well in a week.

In this case there was evidently a paralysis of the sphincter of the bladder. The tetanic convulsions are an interesting symptom. Two of the ten cases showed convulsions.

CASE 6.¹⁴—A woman in Dundee, Scotland, took 4 ounces of Epsom salt in concentrated solution at one draught. Half an hour later she felt so ill that she sent for a physician. An hour later she died. There was no purging. These are all the facts obtainable in this case, except that death was certified to as due to paralysis from an overdose of salts. There was no inquest.

The cause of death as given in the physician's certificate suggests that there was motor paralysis in this case.

CASE 7.—Luff¹⁵ reports the following case: A woman servant aged 20 was found on her bed in the morning. The bed had not been slept in. Death had occurred some hours before. The autopsy was negative except for the presence of a light-colored semifluid mixture of water and magnesium sulphate in the stomach. Death was stated to have been caused by syncope. There was no purging. The salts had been taken on an empty stomach. It was learned later that the young woman had purchased 1 ounce of Epsom salt the day before from a neighboring apothecary.

CASE 8.—Sang¹⁶ reports the case of a woman of 35 who took 4 ounces of Epsom salt in warm water to bring on the monthly period. Immediately after taking the salts she felt a burning pain in the stomach and bowels. Her breathing became difficult, she had a choking feeling, also a sensation as if the power were leaving her legs. There was no vomiting and no purging. Her pulse was 98 F.; the pupils were dilated; at times there was slight twitching of the face, but complete paralysis rapidly ensued, the patient became comatose and died seventy-five minutes after taking the salt. The radial pulse was felt for two to three minutes after respiration had ceased. There was no autopsy.

This case is one of the most typical of the ten. It shows the paralysis of respiration in a truly classical manner; also the final complete motor paralysis. Like the third of my cases, the victim in this case spoke of a sensation as if the power were leaving her legs. If Patient 3 had lived longer motor paralysis would probably have developed in her case also. In connection with this case it is interesting to note that Lewin,¹⁷ reporting Case 8 in his text-book on toxicology, expresses his doubt of its being a case of magnesium poisoning because the victim was not purged.

CASE 9.¹⁸—A boy aged 10 was given 2 ounces of Epsom salt for worms. The salt was partly dissolved and partly mixed in a cupful of water. Immediately after swallowing the mixture he staggered and fell. Half an hour later the physician found him breathing slowly and with difficulty. The pulse was imperceptible and the boy was in a condition of collapse. He died in forty minutes. There was no vomiting or purging. The autopsy was negative.

This case is remarkable for the suddenness of the onset, which is strongly suggestive of rapid absorption from the stomach.

CASE 10.¹⁹—An old man who was rather a heavy drinker was the victim of a practical joke. A number of his companions put a large quantity of Epsom salt into his beer. After he

had drunk several pints he was suddenly seized with violent purging. He died forty-eight hours later. The autopsy showed the mucous membrane of the gastro-intestinal tract to be inflamed.

The victim in this case may have died in consequence of the violent purging alone.

CONCLUSIONS

In one of these cases only, that reported by Taylor, active purging took place. The victim in this case was given Epsom salt in several pints of beer; the beer served to produce a dilute solution which escaped absorption, and therefore caused powerful catharsis. In Case 3 there is said to have been a good result after the seven doses of Epsom salt, but probably the patient drank with some of her doses of salt an amount of water sufficient to so dilute the salt that it was not absorbed. The patient in Case 4 is reported to have had three small movements. In all the other cases there was no catharsis; the salt, which was taken in concentrated solution, caused paralysis of the bowel after its absorption into the blood. This paralysis was so marked in Cases 1 and 4 that laparotomies were performed.

In all cases there was also a diminution of the urine, which in some cases amounted almost to anuria. The effect on the urinary secretion is due to the presence of the salt in the blood and tissues. On account of its great affinity for water the salt converts a large part of the body fluids into an Epsom salt solution, which, being itself excreted only very slowly, holds the water back and reduces or prevents the secretion of urine.

Among the symptoms observed the paralyzing effect of the salt on the respiration was very prominent; it was spoken of in six cases. Convulsions, described as tonic in character in Neale's case, were seen in Cases 5 and 8. Dilatation of the pupils was observed in Cases 4 and 8. Motor paralysis was seen in Cases 6 and 8, and paralysis of the reflexes seems to have been present in Cases 3 and 8. Vomiting occurred in about one-half the cases.

The most characteristic findings disclosed by operation or autopsy are patches of reddening on the mucosæ of the stomach and intestines and free fluid in the abdominal and pleural cavities (Cases 3, 4, 10).-

Fraser's case (4) suggests one very efficient remedial measure, namely, infusion with normal saline solution. The saline infusion given the child undoubtedly saved his life. I think, however, that intravenous application is preferable to intramuscular or subcutaneous infusion, because the relief of the patient will be more prompt and the chances of saving life will be better. The fluid introduced probably acts by diluting the Epsom salt so as to render it less toxic; the more dilute solution is also excreted more rapidly by the kidneys. Meltzer's²⁰ experiments on animals suggests a specific antagonistic action to magnesium on the part of calcium salts. The intravenous or subcutaneous application of lime salts may therefore be of great value in the treatment of magnesium poisoning.

On account of its paralyzing action on the reflex centers of the cord Meltzer²¹ has advised the subcutaneous use of magnesium sulphate in cases of tetanus. Such application should be made with the greatest care only. I can conceive of the remedy being quite as bad as the disease.

14. Brit. Med. Jour., 1891, II, p. 490.

15. Luff: Brit. Med. Jour., 1891, II, 490.

16. Sang: Lancet, London, Nov., 7, 1891, p. 1037.

17. Lewin, Lehrbuch der Toxicologie, 1897, p. 99.

18. Christison: On Poisons, p. 574.

19. Taylor: Poisons, p. 4.

20. Meltzer, and Auer: Am. Med., 1905, x, 916.

21. Meltzer: Inhibitory and Anesthetic Properties of Magnesium Salts, Med. Rec., New York, 1905, lxxviii, 965.

SUMMARY

1. Magnesium sulphate in bulk or in concentrated solution is absorbed, in part at least, from the gastrointestinal tract into the blood.

2. If a sufficient amount of the salt is absorbed at a given time poisoning will result; of the ten cases reported six resulted fatally. The symptoms and autopsy findings in these cases agree very well with those obtained in animals after the intravenous application of magnesium sulphate.

3. On account of the slowness of its excretion from the system, magnesium sulphate, given repeatedly in concentrated solution, may produce poisoning by cumulation.

4. In normal conditions of the bowel magnesium sulphate, in proper dilution, is a valuable cathartic; Hunyadi water, for example, is practically a 3 per cent. solution of Epsom salt (magnesium sulphate 1.5 per cent., sodium sulphate 1.5 per cent.)

5. It is not wise to give magnesium sulphate indiscriminately in cases of so-called acute intestinal obstruction, because when peristalsis is much diminished or absent, and in cases of mechanical obstruction of the bowel, even dilute solutions will be absorbed, with consequent danger of poisoning.

6. In cases of suspected magnesium poisoning large quantities of normal salt solution should be given intravenously. Dilute solutions of lime salts given hypodermically may also be of benefit.

7. The subcutaneous use of magnesium salts to produce catharsis, as proposed by Wade,²² is not only absolutely irrational, but dangerous.

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ABSTRACT OF DISCUSSION

DR. PHILIP S. ROY, Washington, D. C.: Wolfgang Pauli of Vienna, about 1905, in discussing sulphate of magnesia and some of the other powerful purgatives called attention to their danger. Pauli says that the purgative action of sulphate of magnesia is due to its irritating and caustic action on the tissues, also to a rise in blood pressure. The ion relations of the sulphate of magnesia to protein are similar although not so powerful as those of the bichlorid of mercury. Pauli's article impressed on me forcibly the idea that care should be used in giving the sulphate of magnesia.

DR. NATHAN ROSEWATER, Cleveland, Ohio: Magnesium citrate is the form of magnesium salt which I give when I wish to produce catharsis. I prescribe it in concentration equivalent to one and one-third ounces of the salt in from four to six ounces of water. In my experience of many years, I have never seen such effects as described by Dr. Boos. It seems to me that one of the cases he reported should be ruled out because the effect was so immediate; absorption can hardly take place so fast as is indicated in his description of the case. In the other cases too I think that the results must have been due to something else than the magnesium, perhaps to the condition for which the drug was given. In only one or two cases do I believe that the Epsom salts seem to have had anything to do with the poisonous results. I have had a large experience with the use of the salts of magnesium and I have never encountered any untoward effects whatever, and have preferred a concentrated solution. It would require more than the report of two cases to make me believe that this agent is a poison, instead of having merely been used in cases with a toxic or fatal ending.

DR. H. E. DUNLOP, Canton, Mo.: It has been my experience, as I am sure it has been of the majority of physicians present, that magnesium sulphate is not at all toxic, at least in the dose usually administered. Does not Dr. Boos believe

that idiosyncrasy had much to do with the results reported in his paper?

DR. D. C. WALT, Little Rock, Ark.: Magnesium sulphate is a valuable agent because of its affinity for carbon which exists in all ptomain bodies. It seems to have the power of neutralizing the toxic value by drawing to its embrace the carbon which is the basic element in poisonous compounds, whether it is the CHNO or ClHO group. Nature handles the animal economy on a general plan and that plan is modified or influenced by certain conditions. I dislike to hear anything said against magnesium sulphate because it is one of the most commonly used and cheapest drugs and also one of the most valuable in medicine to-day. With regard to the toxic condition, we must remember that in the snake and in the wasp the toxic effects are based on natural laws, and the toxic effects are regulated by a relation to carbon. I have had a personal experience with this agent as well as in my practice. I have a chronic affection which has been diagnosed as epithelioma, and I have used magnesium sulphate every day for over five years.

DR. LOUIS LEROY, Memphis, Tenn.: The report of these cases is extremely interesting and I think they are sufficiently numerous to warrant consideration. What has been stated does not strike me as being a plea to discredit the giving of magnesium sulphate by any means; we must remember, though, that there are certain cases which result unfavorably after the administration of this agent. There seems to be no question but that a solution of magnesium sulphate cannot produce any toxic effects unless the metal in some way unites itself with some other substance. Idiosyncrasy is not usually a question of concentration, but of substance. It seems that it is only when in great concentration that magnesium sulphate is injurious, so that this would seem to argue against idiosyncrasy as being responsible for the unsatisfactory results. On the other hand, I believe that there is very little general toxic action resulting from the administration of magnesium sulphate. The question then arises: Is there not some other toxic material linked with the magnesium and which is absorbed at the same time through the intestines? That would be my interpretation of the cases reported by Dr. Boos. I should say that his cases were the unusual ones; possibly there was an incompletely digested material, or possibly the production of some ptomain substance, which was absorbed and thus caused the poisonous effect. These possibilities must be borne in mind and the report of but one or two instances of supposed poisoning from the administration of sulphate of magnesium should not be accepted as a statement that this is the sole poisonous agent.

DR. JOHN D. REID, Pilger, Neb.: I should like to report a case which came to my attention last month, but which was not in my practice. The wife of a blacksmith had not been feeling well for several hours. Thinking that it would do her good, the husband gave her a dose of Epsom salts. Within one hour the woman was dead, whether from magnesium poisoning or not I do not know. Her husband was arrested for murder and the preliminary trial is to be held soon.

DR. W. H. PHILL, St. Francis, Ark.: These reports of deaths from the administration of common, everyday salts are interesting, and recall to my mind the case of a woman who was operated on for a minor gynecologic condition. Two or three days afterward she was given a small dose of salts, not more than 4 drams, and she was dead in one and a half hours, after having just such a set of symptoms as Dr. Boos has described. The case was then recognized as one of magnesium poisoning, but this is the first time it has ever been reported.

DR. GEORGE R. NEFF, Farmington, Iowa: I have been using magnesium salts for years, and have never been so successful with them as I have during the last five or six years. I use magnesium internally and externally and expect to use it eternally. I think the sulphate of magnesium is one of the best agents we can use externally for the relief of pain, especially when used with phenol in the proportion of water 16 ounces, salts 1 ounce, phenol 10 drops. In the pleuritic pains in pneumonia, for instance, if this mixture is applied over the chest there are good results. In a knee joint affected with rheumatism, its action is like magic. Think of giving 7 ounces

22. Wade: Med. and Surg. Reporter, 1894, No. 4.

of sulphate of magnesia at one dose! Why should we not get toxic effects from such dosage? It should be remembered that we get toxic effects from medicines, just in proportion as carbon is contained in them. The more carbon the more toxic they are. Epsom salts are eliminative, given in proper doses. Take a case of bronchitis with a continuous hacking cough, and distress: using the following prescription: Epsom salts 3 drams, saccharin 3 grains, tincture of peppermint 10 drops, water 3 ounces, one teaspoonful every hour, the finest results are obtained. It will loosen the dry hacking cough and make a free discharge of mucus and all the symptoms will be relieved. If I had to make a choice of one medicine alone in the whole materia medica to-day, I would choose Epsom salts.

DR. WILLIAM F. BOOS, Boston: I wish it to be distinctly understood that I would not have physicians discontinue the use of magnesium sulphate; I think it is one of the best drugs for the hospital, because it is cheap and efficient in action. But the salt should be given in proper form. Whenever magnesium sulphate is given in greater concentration than 6 or 7 per cent, it is absorbed in part and may produce intoxication. In one case in which the 24-hour urine was examined after the patient had received 1 ounce of magnesium sulphate dissolved in 3 ounces of water (a 33.3 per cent. solution), the urine was found to contain 164 per cent. more magnesium, calculated as oxid, than was normally present. In another instance in which Epsom salt was given in 13.3 per cent. solution, that is, 1 ounce magnesium sulphate in 6 ounces of water, the urine contained 60 per cent. more magnesium than normally. When, however, magnesium sulphate is given in 5 or 6 per cent. solution, that is, $\frac{1}{2}$ ounce magnesium sulphate to 9 ounces of water, there is catharsis and none of the salt appears in the urine.

The last case I reported is probably not one of uremia, because the convulsions in uremia are clonic and not tonic in character. In one case the specific gravity of the 3-ounce specimen was 1.070, it was free from sugar and it contained the equivalent of 1.4 grams of magnesium sulphate. There is no doubt that this was a case of magnesium poisoning and that the high specific gravity was due to the Epsom salt. It is only when we find an excess of magnesium in the urine that we can be certain that the salt was absorbed into the blood and that it was the cause of the intoxication. When the specific gravity of the urine is 1.070 or 1.080, as in the cases reported, or when it is above 1.030 in sugar-free urines generally, this form of intoxication should be thought of. It was only by accident that I found there was such a thing as magnesium poisoning. Magnesium sulphate was injected into the spinal canal by a man in Boston; the patient recovered consciousness about twenty-four hours later. I think it has not been given since. To produce intoxication this agent must circulate in sufficient quantity in the blood. In the cases enumerated, it was absorbed into the blood from the gastrointestinal tract, and the effect is the same as when it is injected intravenously; in both cases we get symptoms typical of magnesium poisoning. Magnesium sulphate should be given well diluted; 1 to 18 is the proper dilution; that is, $\frac{1}{2}$ ounce of the salt dissolved in 3 ounces of water, followed immediately by a glass of water. Such administration will produce prompt catharsis without absorption. In certain hydremic conditions with edema or with fluid in the peritoneal or pleural cavities, even a concentrated solution is not absorbed. I have the records of one autopsy at the Massachusetts General Hospital. The peritoneal and pleural cavities of this patient contained a small amount of fluid and some fibrin clots, the epithelium in the tubules of the kidney was flattened and the interstitial tissue was edematous; there was no evidence of a glomerulo-nephritis, however. The condition of the kidneys suggested action by some toxic material. We do not know how quickly the salt may be absorbed from the stomach, very little being necessary to cause severe symptoms. Idiosyncrasy must always be considered as a possible factor. I do not believe it wise to give magnesium sulphate in cases of intestinal obstruction; in such cases there is a greater tendency to absorption and the longer the salt remains in the bowel the more will be absorbed.

THE DIFFERENT FORMS OF MEDIASTINAL PLEURISY WITH REPORT OF THREE CASES *

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DEFINITION

By mediastinal pleurisy, anatomically speaking, we understand, of course, an inflammation of the part of the parietal pleura which covers the mediastinum, the anterior as well as the posterior. But when we speak of mediastinal pleurisy as a clinical entity we differentiate it as a particular form of pleurisy, not merely because the mediastinal pleura happens to be inflamed, but because in certain clinical aspects it differs radically from ordinary pleurisy. This difference is, however, present only in those cases in which the inflammation of the mediastinal pleura leads to the formation of an encysted gathering of exudate between the mediastinum and the internal surface of the lung. In the following description I shall therefore confine myself to cases of this kind, with exclusion, for instance, of cases in which the inflammation of the mediastinal pleura is a pleuritis sicca, or, if exudative, occurs in conjunction with inflammatory changes in the rest of the pleura with free communication between the different parts of the pleural cavity.

It is owing to the proximity of the mediastinum and its organs that mediastinal pleurisy differs in symptomatology, in diagnosis, and in prognosis from ordinary pleurisy. The characteristic symptoms of mediastinal pleurisy vary, however, according to what part of the mediastinal pleura is involved. A gathering of fluid in front of the right pulmonary peduncle does not give the same symptoms as one in front of the left, and both these forms of mediastinal pleurisy differ in their clinical manifestations from those produced by a gathering of fluid behind the pulmonary peduncle, which, on the other hand, is liable to give the same symptoms, no matter whether it is located on the left or the right side of the posterior mediastinum. We may therefore distinguish between three forms of mediastinal pleurisy: (1) pleuritis mediastinalis anterior sinistra, (2) pleuritis mediastinalis anterior dextra and (3) pleuritis mediastinalis posterior.

It will be my endeavor in this paper to show the justification and the importance of such a distinction.

PLEURITIS MEDIASTINALIS ANTERIOR SINISTRA

Out of the eleven cases reported of left anterior mediastinal pleurisy, seven are described with sufficient detail to give us a comprehensive picture of this form of pleurisy.

ANDRÉ'S CASE 1.st—A man of 29, infected with tuberculosis, suddenly had an acute pain between the left breast and sternum with intense anxiety; the countenance was pale, the breathing short and hurried, the pulse hard and frequent. Six days later, a dulness was found between the left breast and the sternum, where respiratory murmur was absent and heart-sounds were weak. The dulness spread over almost the

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

* Owing to lack of space, this article is abbreviated in THE JOURNAL by omission of the historical review and the references to literature. The article appears in full, however, in the Transactions of the Section and in the author's reprints.

entire precordial region and Andral made the diagnosis of effusion in the pericardium. The patient died on the twenty-first day. At the autopsy, the pericardium was found normal, but immediately behind the sternum and the anterior ends of eight or nine left ribs was found a vast cavity formed entirely at the expense of the pleura; it was filled with thick pus and lined with thick false membranes which were studded with numerous tubercles. In discussing this case, Andral points out that there was not much dyspnea, except at the commencement, due to the intense pain, and that death was occasioned not by embarrassment of the respiration, but by the infection, tubercles having been found in most of the internal organs.

RICHARDIÈRE'S CASE.⁹—A woman had been sick for two months, complaining of constant oppression and attacks of dyspnea. On admission to the hospital, flat percussion-tone was found over the entire left anterior side of the chest with absence of breath-sounds and vocal fremitus and with distant heart-sounds. The oppression grew more intense and she died a month later suddenly. Autopsy revealed a pleuritic abscess containing 700 or 800 gm. of pus, reaching from the middle of the sternum to the left axillary line and completely surrounding the anterior and left side of the pericardium, which was the seat of an intense inflammation.

Pel¹⁰ gives an excellent report of a case:

PEL'S CASE.—A man of 32 had never been sick until he contracted left-sided pneumonia four weeks before admission to the hospital, Jan. 1, 1884. He complained of pains in the chest and dyspnea. Physical findings were: slight cyanosis, left side of chest bulging and its respiratory excursions diminished, apex-beat not perceivable, a flat tone anteriorly from the clavicle almost down to the costal margin, with absence of breath-sounds and of vocal fremitus; absolute cardiac dulness reaching 1 cm. beyond the right sternal line, heart-sounds distant, clear, and heard best at the right sternal line; posteriorly over almost the entire left side of the chest, flatness and absence of breath-sounds and of vocal fremitus. An incision was made between the eighth and ninth ribs in the left scapular line and a large amount of pus escaped. The patient improved but slightly, the temperature remained high, he had a chill, the pulse was rapid, irregular, weak, fairly full. A week later, there was a distinct bulging of the precordial region, the apex-beat was not perceptible, the anterior area of flatness extended from the upper margin of the third left rib to 2 cm. beyond the right sternal line and 3 cm. beyond the left mammillary line. The outline of the flat area was triangular; no pericardial rub was heard; and heart-sounds were barely audible. A diagnosis of pericarditis exsudativa purulenta was made. After an incision had been made in the third interspace outside of the parasternal line, about one and a half or two liters of yellow pus came out in a stream which was synchronous with the heart-action. The introduced finger felt the heart beating. The patient improved immediately, but nevertheless, he died three days later of pyemia. The autopsy showed that there was no pericardial effusion, but there were two separate encysted empyemas, one posteriorly which had been opened at the first operation and was in process of healing and the other on the inner side of the left lung, between the lung and the heart, surrounding the left heart and reaching from the second rib to the diaphragm.

GRANCHER'S CASE 1.¹¹—An 11-year-old boy, when brought to the hospital, had the classical signs of a large effusion in the left pleura; posteriorly a flatness reaching to the spine of the scapula, with greatly diminished vocal fremitus and with very distant respiration below and bronchial respiration over the middle third of the left lung; anteriorly an area of tympanism below the left clavicle and, below this zone, a flatness which reached downward to the space of Traube, which was only slightly encroached on, and outward to the side of the chest, with diminished vocal fremitus and with bronchial respiration; the heart was displaced toward the right and the maximum of its pulsations was perceived at the right edge of the sternum. Although these symptoms would indicate a pleurisy with free fluid, Grancher made the diagnosis of left anterior mediastinal pleurisy for several reasons.

There was no deformity of the thorax, *i. e.*, no enlargement of the left side of the chest, no dilatation of the left costal interspaces, no deviation of the lower end of the sternum toward the left. The maximum dulness was noticed, not behind, but in front and extended 1 cm. beyond the right sternal line, and even on the manubrium sterni the percussion-tone was flat. Furthermore, the displacement of the heart was very exaggerated; there was also a deep cyanosis of the lips and a marked collateral circulation on the chest. Nevertheless, the dyspnea was but slight. As it thus was evident that it was the anterior mediastinum that had yielded to the pressure of the fluid and not the thoracic wall, Grancher concluded that the fluid was not free but encapsulated between the mediastinum and the lung. A puncture was made (Grancher does not mention where it was done) and 850 gm. of serous fluid were withdrawn. The patient recovered.

GRANCHER'S CASE 2.¹¹—This also concerned a child. The diagnosis of pericarditis with effusion had been made because of an enormous bulging of the precordial region with dulness extending from the sternum to the left side of the chest; the child was almost blue and was in imminent danger of syncope as soon as it was moved in the bed. Grancher considered the dulness too extensive for a pericarditis and found that the heart-sounds were not so obtuse and distant as is usual in pericarditis; they were heard quite well, but with their maximum intensity at the right edge of the sternum. Therefore, without asserting the integrity of the pericardium, Grancher concluded that probably mediastinal pleurisy was present. Puncture was made in the left axillary line and 950 gm. of serous fluid were withdrawn. The heart came back to its normal position, the dyspnea disappeared in a few hours, and the child recovered.

THOINOT AND GRIFFON'S CASE.¹²—These authors have given an incomplete report of the case of a 45-year-old woman who was brought to the hospital on the fifth day of her disease, with the typical history of a pleuropneumonia of the left side. She suffered intensely from pain and dyspnea. Her countenance was pale and she was evidently deeply infected. There was distant bronchial respiration, Traube's space was sonorous, and the heart was hardly displaced. She died on the seventh day of her illness. At the autopsy a small collection of pus was found between the left lung and the anterior mediastinum; there were thick fibrinous membranes; the lower left lobe was consolidated. Pneumococci were found in the pus.

DODD'S CASE.¹³—This was one of a 57-year-old man who about a month before had had pneumonia of the left lower lobe and thereafter had developed the usual symptoms of empyema. Percussion in the front gave dulness from the third left rib downward and from the edge of the sternum to the mammillary line, with absence of respiratory sounds; the apex-beat was closer to the sternum than normally; there was a place of tenderness as large as the end of a finger at the junction of the fifth rib and the sternum. Behind, there were dulness and absence of respiration-sounds from the seventh rib downward. Resection of the eighth rib was made in the midaxillary line and 250 c.c. of pus was evacuated. The patient improved only temporarily, the left lung gradually expanded, and vesicular breathing was heard to the base of the lung. But anteriorly, the only change to be found was that the apex-beat had returned to within half an inch of its normal position. He died twelve days after the operation from embolism in the left side of the brain. At the autopsy, an abscess with 300 c.c. of pus was found between the pericardium and the left lung and was in relation with the anterior wall of the chest only in the fourth intercostal space from the mammillary line for about 3 cm. toward the sternum. A needle in the fourth interspace, 1 cm. inside the mammillary line, would probably have found the abscess without entering the pericardium.

From the reports of these cases we find that the left anterior mediastinal pleurisy corresponds closely to ordinary exudative pleurisy in regard to etiology and pathology and to general symptoms, *i. e.*, those due to the infection. It is usually caused by the tubercle bacillus or the

pneumococcus; the exudate is either serous or purulent, the latter being accompanied with formation of pseudo-membranes. It is rare to find cases of left anterior mediastinal pleurisy without complications. Tuberculosis of other organs, a pericarditis, an empyema of another part of the left pleura, a pneumonia of the left lower lobe, an embolus of the brain are the complications which have been recorded in the reports of these cases.

The left anterior mediastinal pleurisy owes its distinctive features, of course, to the localization of the pathologic process. In some cases the entire height of the left anterior mediastinal pleura is affected; in other cases the pathologic changes are confined to the lower part of it. There is no case on record in which the inflammation has spread above or below the pulmonary peduncle to the posterior mediastinal pleura, but in some cases the anterior median parts of the left diaphragmatic and parietal pleurae have also been involved. At times the larger part of the exudate is covered by the anterior edge of the left lung, leaving only a small part of it in relation to the thoracic wall, underneath and close to the sternum, but usually, if the effusion is somewhat large, and particularly in case of a serous exudate, the edge of the lung is displaced more or less outward, exposing a larger part of the exudate.

Of the subjective symptoms the pain is the most characteristic one, being localized behind the sternum or between the sternum and the left breast; it varies greatly in intensity and is not always present. The degree of dyspnea, of oppression, of anxiety, seems to be more proportionate to the severity of the pain than to the amount of exudate. Thoinot and Griffon's patient suffered intensely from pain and dyspnea, although the amount of pus was small, while in Grancher's first case the dyspnea was very moderate, although the effusion measured nearly 1,000 c.c.

The objective phenomena vary, of course, according to the size of the effusion. A small effusion will cause an area of flatness extending only from the left sternal line to the left nipple-line, with diminished or absent vocal fremitus and respiration-sounds over the flat area, with only slight or no displacement of the heart, and with no cyanosis. If the effusion is large, it may cause a bulging of the precordial region and the flat area may reach from several centimeters beyond the right sternal line to the left axillary line and upward to the second rib, and we may find a flat percussion-tone even over the manubrium sterni. In these cases the anterior mediastinum is more or less displaced to the right; the apex-beat may be seen close to the sternum, but is usually not perceivable; in several cases the heart-beat has been noticed at the right sternal line. As a consequence of the displacement of the heart, more or less deep cyanosis may appear, but it seems to be of rare occurrence; only in one case was an engorgement of the thoracic veins noticed, the disturbance of the circulation being due probably to interference in the right auricle and the superior vena cava. To explain the cyanosis in cases of left-sided pleuritic effusion, as some authors do (Moxon²⁷), as a result of pressure on the left auricle with subsequent stasis backward and dilatation of the right heart, seems scarcely to be accurate, as only the auricular appendage is covered by the left mediastinal pleura, and consequently liable to be exposed to pressure, while the rest of the left auricle is in relation to the organs contained in the posterior mediastinum. The respiration-sounds and vocal fremitus over the dull area are, as usually in pleurisy with effu-

sion, diminished or absent. The heart-sounds are obtuse and distant and more clearly heard at right sternal line than to the left of the sternum.

The prognosis in left anterior mediastinal pleurisy is more serious than in pleurisy with free exudate because of the greater pressure to which the heart is exposed, and perhaps also because of greater danger of a complicating pericarditis or cerebral embolus.

In regard to the diagnosis of left anterior pleurisy, the main difficulty is to differentiate it from an exudative pericarditis, from a pleurisy with free exudate, and from an anterior suppurative mediastinitis.

The differential diagnosis between exudative pericarditis and left anterior mediastinal pleurisy is no doubt difficult. "Handelt es sich doch hier," as Pel says, "um die Unterscheidung einer Pericarditis suppurativa interna von einer Pericarditis suppurativa externa." We find in both a precordial dullness or even bulging, an apex-beat located inside the left border of the dull area, or entirely absent, distant heart-sounds; the triangular shape of the dull area usual in pericarditis has been observed also in a case of left anterior mediastinal pleurisy; cyanosis occurs in both; the character of the pulse is of no assistance in making a diagnosis. There is, however, one sign which if present is characteristic for left anterior mediastinal pleurisy, as Grancher has already pointed out, namely, that the heart-beat is perceived with its maximum intensity and the heart-sounds are heard most distinctly near the right sternal edge. It indicates that the heart has been pushed toward the right by a pleuritic effusion and not removed from the proximity of the anterior chest wall by the interposition of a pericarditic exudate. Other signs may be of help for the diagnosis. A well-marked border-line between the flat area and the resonant area over the left lung speaks in favor of a pericarditis. The presence of Skoda's sign below the left clavicle, or of signs of congestion or of inflammation of the left lower lobe, or of signs of another encysted pleuritic effusion speak in favor of a mediastinal pleurisy.

Left anterior mediastinal pleurisy might be mistaken for a pleurisy with free exudate under two conditions. One of them is that, in addition to the left anterior mediastinal pleurisy, another encysted gathering of fluid exists in the lower posterior part of the left pleura; a puncture will then be made posteriorly and the fluid withdrawn, but the symptoms from the anterior part of the chest will remain unchanged and a correct diagnosis will be possible. The other condition is that, in a case of left anterior mediastinal pleurisy, the left lower lobe is congested and surrounded by a thin layer of fluid, as occurred in one of Grancher's cases; a correct diagnosis was here made, when by careful observation, admirable for its accuracy, it was demonstrated that it was the mediastinum and not the thoracic wall that had yielded to pressure from the fluid.

The differentiation of left anterior mediastinal pleurisy from anterior suppurative mediastinitis (Hare,²⁸ Christian²⁸) also offers some difficulties, at least under certain conditions. When a mediastinitis is due to a trauma or to a sternal osteomyelitis or to a mediastinal lymphadenitis, the diagnosis might be quite clear; but, when, as occurs in rare cases, it is caused, through extension of the inflammatory process, by a pulmonary affection or by a pleurisy or a pericarditis, it seems hardly possible to arrive at a definite diagnosis.

A skiagram might be of service for diagnosing this kind of cases, but no mention is made of its use in any of the reports which have been published hitherto.

PLEURITIS MEDIASTINALIS ANTERIOR DEXTRA

While no reports of right anterior mediastinal pleurisy could be found in the literature, two cases of this kind have come under my notice.

CASE 1 (personal).—Adolph N., a tuberculous subject, aged 37, on June 12, 1906, suddenly became very sick, had a severe chill and a very acute pain which he located in the right side of the chest, especially between the sternum and the right nipple, and which made it extremely difficult for him to breathe. He was admitted to the Augustana Hospital June 18, 1906. Temperature 102, pulse 86 and respiration 24. His lips were dark blue; both head, neck, thorax and upper extremities were deeply cyanotic, and the veins in these regions were engorged. Amphoric breathing and large crackling râles were heard below the right clavicle. The percussion-tone was dull over the lower anterior part of the right lung, with distant breath-sounds of vesicular character and only faintly perceptible vocal fremitus. Over the posterior part of the right lung, there was normal resonance and vesicular breathing. A dullness over the corpus sterni I ascribed to a dilatation of the right heart. Over the lower anterior and lateral part of the left lung, there were signs of a small effusion, probably remaining from an attack of pleurisy he had had a year previously. The apex-beat could not be located.

During the following three weeks, I tried in vain to determine the locality of the effusion, of the presence of which I had no doubt. I made numerous punctures over the lower anterior part of the right lung, all with negative results. A consulting physician was called, but could find no evidence of a gathering of fluid. In the meantime the patient suffered agonies, was deeply cyanotic, was practically gasping for breath both night and day, had an extremely severe pain in his chest, which made frequent hypodermic injections of morphin necessary. He could not eat on account of the dyspnea. The temperature usually remained at about 98 or 99, but occasionally rose to 101 F.; the pulse was not very rapid, varying between 73 and 100 a minute; the respiration varied between 16 and 28 a minute.

Finally on July 13, finding a very narrow margin of flatness and total absence of breath-sounds and vibrations along the right edge of the sternum, I introduced the exploratory needle in the fourth right interspace about 1 cm. from the sternum and aspirated a syringe-ful of serous fluid. Dr. A. J. Ochsner was asked to operate, partly because I did not like to introduce a large aspirating needle where I had made the exploratory puncture, on account of the proximity of the heart, and partly because I considered a continuous drainage necessary to relieve the condition permanently. The operation was performed the same day. After the sternal end of the fifth rib had been resected and the pleura had been incised, the lower anterior corner of the lung was seen in the wound and was seemingly normal. A finger was introduced around the anterior edge of the lung and as soon as it was pushed down between the lung and the mediastinum, there was a gush of serous fluid, the amount of which was estimated at about 500 c.c.

After the operation the cyanosis rapidly disappeared and the dyspnea was greatly relieved. Unfortunately, however, the patient was so exhausted that he failed to pick up and died July 20, 1906, a week after the operation. Autopsy was not permitted.

CASE 2 (personal).—George G., aged 30, a laborer, was admitted to the Augustana Hospital March 18, 1908. He had been well up to March 15, when he suddenly became sick. On admission he complained of a moderate pain in the right side of the chest, coughed, but expectorated only some frothy mucus; at no time did he raise any typically pneumonic sputum. He had to sit up in bed to get air, and evidently suffered greatly from dyspnea. Temperature 103.3, pulse 156 and respiration 48. His lips were dark blue; both head, neck and

upper extremities were deeply cyanotic, and the veins in the cyanosed parts were engorged. The apex-beat was seen two finger's breadth outside the left nipple-line: a dullness over the corpus sterni I ascribed to a dilated right heart; the heart-tones were clear. The left lung was normal except that the respiration-sounds were increased. Over the entire front part of the right lung there was marked dullness, increasing downward, and also over the lower half posteriorly; the upper posterior half was resonant. The vocal fremitus was increased over the upper part anteriorly, slightly diminished below. Bronchial breathing was heard over the entire front part of the right lung, close to the ear over the upper part, and more distant over the lower.

On March 19 venesection on right arm was made, as it was thought possible that the cyanosis was due to dilatation and insufficiency of the right heart. A quantity of dark blood (300 c.c.) was removed; no improvement. March 20 an exploratory puncture was made in the fifth interspace, just outside the right mammillary line, also with negative result. The next day I made a second puncture in the same interspace, but inside the mammillary line, also with negative result.

March 23, his condition was practically unchanged, the dyspnea was very severe, the cyanosis deep and the pulse was at times irregular. On examination I found a small area close to the right sternal edge where the dullness was particularly marked, the breath-sounds were barely audible, and the vocal fremitus was totally absent. I had observed the same phenomena on the day of his admission, but explained it as being due to a dilatation of the right heart. As, however, no other signs of such a dilatation were observed, I became convinced that an effusion between the right lung and the mediastinum was causing both the displacement of the apex-beat and the cyanosis as well as flatness and absence of both fremitus and breath-sounds. The exploratory needle was therefore introduced for the third time, but now in the fourth interspace, between the parasternal line and the sternal edge. A turbid, yellowish fluid was obtained. The same day the patient was operated on by Dr. E. H. Ochsner. The sternal end of the fifth rib was resected and about 500 c.c. of fluid removed. The cyanosis soon disappeared after the operation and the dyspnea was gradually relieved. The draining fluid gradually turned into thick yellow pus, the wound granulated and healed, and on June 8, 1908, the patient was discharged after having made an uninterrupted recovery. I regret to say that no effort was made to ascertain what micro-organism was the cause of the pleurisy. I believe, however, that I am justified in saying that it probably was a case of primary pneumococcus-infection of the pleura with secondary or simultaneous congestion of the lung.

From the reports of these two cases of right anterior mediastinal pleurisy, it will be seen that they, in many respects, showed a similarity with cases of left anterior mediastinal pleurisy. They were caused, one by tuberculosis, one by pneumococcus infection. In one of them the exudate was serous, in the other purulent. Most of the symptoms were like those caused by left-sided pleurisy: pain, most severe between sternum and right breast, dyspnea and oppression in proportion to the pain, a flatness along the right sternal edge and over the corpus sterni, a dullness over a smaller or larger part of the right lung, due to simultaneous congestion, absence of breath-sounds and vocal fremitus over a narrow flat area close to the sternum, and displacement of the heart.

In but one respect, I believe, the two cases of right anterior mediastinal pleurisy differed materially from those on the left side, namely, in regard to cyanosis, and this difference is sufficiently great, in my opinion, to form one of the reasons why the right and the left anterior mediastinal pleurisy should be distinguished as two different forms. In the two cases observed by me, the most striking feature was the cyanosis, which was

extremely deep. Furthermore, the cyanosis was limited to head, neck, thorax and upper extremities and the veins in these regions were engorged. In Andral's and Thoinot's cases of left anterior mediastinal pleurisy, the countenance was pale; in Pel's case there was slight cyanosis; in Richardière's and in Dodd's cases no mention was made of the complexion and consequently one is justified in assuming that, if cyanosis was present, it was not marked. Only in Grancher's two cases was the cyanosis deep, and only in one of these were the thoracic veins dilated. Both patients were children with very large effusions.

It is only natural that cyanosis should be an early symptom in right anterior mediastinal pleurisy, when one considers that it is the right auricle and particularly its upper extension, the superior vena cava with its easily depressible walls, that are directly covered by the right mediastinal pleura, and are the very first organs that will be exposed to pressure from an effusion gathering between the right lung and the anterior mediastinum. The intrathoracic part of the inferior vena cava seems to be too short and located too far backward to suffer from pressure from the exudate; at least in my two cases there were no signs of passive congestion below the thorax. On the left side conditions are somewhat different. An effusion gathering between the left lung and the anterior mediastinum will cause pressure on the right and left ventricles; but as their walls are rigid, no disturbance of the circulation will arise until the effusion becomes large enough to displace the heart considerably toward the right and thus cause, secondarily as it were, a pressure on the right auricle and the superior vena cava.

Another reason, however, for differentiating the right and the left anterior mediastinal pleurisy as two distinct forms, is the difference in their differential diagnosis. While either of them could be mistaken for a pleurisy with free exudate or a suppurative anterior mediastinitis, it is only a left anterior mediastinal pleurisy that could be confounded with pericarditis and only a right anterior mediastinal pleurisy that could be confounded with a dilated right heart and with any disease causing a direct pressure on the commencement of the superior vena cava.

Right anterior mediastinal pleurisy and dilatation of the right heart both produce dulness over the sternum extending beyond the right sternal edge, displacement of the apex-beat toward the left, and cyanosis. It should not, however, be difficult to differentiate these two conditions because, when these three symptoms, dulness, displacement of apex-beat, and cyanosis are as pronounced as they were in the two reported cases and if they are due to dilatation of the right heart, other symptoms of dilatation must necessarily also be present, namely, epigastric pulsations, tricuspid murmur, and venous pulse, symptoms which are not found in right anterior mediastinal pleurisy.

Any pathologic formation causing pressure on the superior vena cava may give symptoms similar to those of the right anterior mediastinal pleurisy; but particularly mediastinal sarcoma and carcinoma, aneurism of the aorta, and anterior suppurative mediastinitis should be differentiated from this form of pleurisy. The history of the disease, its mode of onset, as well as its course, the presence or absence of signs of infection, among which a high leukocytosis of special importance, the presence of coordinate symptoms, are factors

which, when carefully considered, should be sufficient to insure a correct diagnosis. The possibility of other mediastinal tumors or inflammatory products being present (Haro³⁰) should be kept in mind, as a lymphadenitis, a mediastinal dermoid cyst, a syphilitic mediastinal gumma (Buttino⁴⁰), a lipoma, a metastatic cancer, an endothelioma, a bronchioma (Duret⁴¹), a chondroma, a fibroma, hematoma, a fibrous infiltration, enlargement of mediastinal glands or of thymus, etc.

PLEURITIS MEDIASTINALIS POSTERIOR

Eleven cases of posterior mediastinal pleurisy have been previously reported.

ANDRAL'S CASE 2 (Cited from Dieulafoy¹⁶).—A 37-year-old man entered the hospital June 14, 1822, showing signs of pulmonary phthisis in the last stage. June 17 he had a vomica, expectorating a large amount of pus. He died July 8, 1822. At the autopsy, numerous tuberculous cavities were found in both lungs. There was a perforation the size of a pea of the posterior part of the right main bronchus, leading into a cavity which was large enough to admit an orange. This cavity was bounded exteriorly by the right lung, posteriorly by the ribs, interiorly by the spinal column and the posterior mediastinum, anteriorly by the right pulmonary vessels.

DIEULAFOY'S CASE 1.¹⁷—A 44-year-old woman caught a cold and had chills; next day she began to have a cough, which soon became paroxysmal and she was considered to have whooping-cough. After two months she became hoarse, a few days later stridor appeared, and she had violent attacks of suffocative cough, which was accompanied, if coming on shortly after a meal, by vomiting, and followed by the expectoration of a whitish, frothy sputum. Finally it became difficult for her to swallow. She entered the hospital three months after the beginning of her illness. On examination, no abnormal signs from the chest were found, the temperature was normal, but the larynx and the trachea deviated toward the right, the false vocal cords were edematous, there was no paralysis of the recurrent nerve. She gradually grew worse, the stridor became still more pronounced, the dyspnea was continuous. A week after her admission, she had a chill, followed by fever, and a few days later she had a vomica and expelled, during twelve hours, 200 gm. of yellow pus, which contained pneumococci. The diagnosis of posterior left mediastinal pleurisy was made. The symptoms gradually disappeared and the patient recovered.

DIEULAFOY'S CASE 2.¹⁷—A young, healthy man suddenly became sick with chills, oppression and dyspnea, which at first came on only on exertion, but soon became permanent and was aggravated by the slightest effort. A few days later he began to have fits of paroxysmal, dry cough, resembling whooping-cough, and at the same time his voice became husky. Four weeks later, deglutition became difficult and only liquids could be swallowed. Five weeks after the beginning of his illness, he was admitted to the hospital. A loud inspiratory stridor was heard, there was depression of jugulum and epigastrium at each inspiration, the veins of the upper part of the chest were dilated. At the level of the third and fourth vertebrae a small area of dulness was found between the scapula and the spine on the left side, over which area bronchial respiration and a few râles were heard. On the day after his admission he had a vomica and expectorated about 80 gm. of thick greenish pus. No bacteria were found, but the patient's blood-serum agglutinated pneumococci. He gradually recovered completely.

BRETON'S CASE.¹⁹—A 47-year-old laborer, an alcoholic, in May, 1904, began to complain of palpitations and dyspnea on exertion, and shortly afterward of severe retrosternal pains and precordial angina with sensation of faintness and with vertigo. On his admission to the hospital in June, 1904, he was intensely anemic, had no fever, remained in dorsal position, in which his respiration was free, while any other position caused oppression and dyspnea. Physical examination of the lungs revealed only a slight dulness close to the spine on the left side. The apex-beat was seen 1.5 cm. outside the

nipple-line: palpation gave the impression of violent cardiac contractions; the closure of the aortic valves was accentuated and was heard also to the right of the spinal column; the pulsations in the crural arteries were asynchronous. Gradually a dulness in the aortic region appeared, slowly increasing and spreading along the right sternal edge, and, at about the same time, a murmur could be heard in the third right interspace which at first was single, systolic, soft, and afterward became double. Radioscopy showed a dark zone close to the left lateral aspect of the spinal column at the level of the mediastinum. The patient began to have a slight cough, but still no fever. The diagnosis of aneurism of the thoracic aorta was made. The patient gradually grew worse and in July, 1904, new symptoms appeared: cachectic discoloration of the skin, dilatation of the thoracic veins, hoarseness and dysphagia. The diagnosis of aneurism was abandoned for one of neoplasm of the posterior mediastinum. The patient died August 1, 1904, in extreme dyspnea. Three days previous to death the temperature was febrile.

At the autopsy a pleural abscess containing 300 or 400 gm. of yellow pus was found between the posterior mediastinum and the left lung, closely adherent to the descending aorta. The adjacent pulmonary parenchyma showed traces of sub-acute inflammation. The pericardium contained 200 gm. of serous fluid, the myocardium was hypertrophic, no valvular lesions were found and the aorta was normal, excepting a thickening of its membranes where it adhered to the abscess. Amyloid degeneration was found in the liver and kidneys.

AUTHOR'S CASE.—One case of posterior mediastinal pleurisy has come under my personal observation: Nils L., aged 35, a teamster, contracted pneumonia in April, 1897. After five days he began to improve, but after another week or two he gradually became worse again, had severe chills at irregular intervals, expectorated yellow pus, usually only small amounts, but a few times by the mouthful; in fact, so much that it came out both by nose and by mouth; he was losing in weight and the feet began to swell. When this condition had lasted about two months, I was called to see him. He was then emaciated, temperature 102, pulse 92, respiration 22 to the minute; he complained of slight dyspnea, but could breathe comfortably when in bed. There was dulness over the entire left lower lobe posteriorly; bronchial respiration was heard over the lower part of the scapula and the breath-sounds were faint and distant over the inner and lower parts of the left lung posteriorly. The urine contained a small amount of albumin and there was a considerable swelling of the feet (beginning amyloid degeneration of the kidneys). A few days later, on closer examination, I found a narrow vertical zone parallel with and close to the spine, where the percussion-tone was flat and where breath-sounds and vocal fremitus were absent. An exploratory puncture was made in the seventh costal interspace, fairly close to the spinal column; yellow pus was obtained, which contained numerous pneumococci. The next day, after the patient had been anesthetized, two more exploratory punctures were made, more laterally and lower down than the first one, as it was thought advantageous, in order to insure free drainage, to have the opening laid as low as possible: but when the result was negative in both instances, a resection of the eighth rib was made, close to the spine and about 250 c.c. of pus emptied out of the encapsuled cavity. The wound gradually closed, the patient recovered and gained 50 pounds in weight in less than half a year. No symptoms of pressure on the mediastinum and its organs were present in this case.

OTHER CASES.—Chauffard¹⁸ reported four cases of posterior mediastinal pleurisy with serous effusion. In none of them were there any pressure-symptoms. The diagnosis was based on the presence of a narrow, vertical dulness along the spine, with the usual symptoms of effusion. Exploratory puncture was made in three of them with positive results. All of the patients recovered spontaneously.

Fernet²⁰ reported two cases of posterior mediastinal pleurisy, both on the left side, one following after pneumonia and one after lung-gangrene. Both cases showed the general symptoms indicating the presence of a collection of pus, and this was located when an area of flat percussion-tone and

absence of vocal fremitus was found between the inner edge of the scapula and the spine: in both cases the third and fourth ribs were resected close to the spinal column and a large amount of pus removed. In one of the cases the patient had a vomica of about 50 gm. of pus a few days after the operation. No symptoms of pressure on the posterior mediastinum were present in either of these two cases and it seems that, although it was chiefly the mediastinal pleura that was affected, the inflammation also involved the pleural covering of the interlobar fissure and of the diaphragm.

Lafforgue's case,²¹ of which only an incomplete report is given, concerned a 22-year-old man who, when admitted, had high fever, did not cough and had no dyspnea. A week later the apex-beat was found two fingers' breadth outside the mammillary line, and another week later, signs of effusion (dulness, egophony, bronchial expiration) were noticed over a longitudinal area to the right of the spinal column. A skiagraph confirmed the diagnosis, but exploratory puncture gave a negative result. The patient gradually recovered, the dulness, etc., disappeared spontaneously and the apex-beat receded to its normal position. The author considered that both the anterior and posterior mediastinal pleura were affected in this case. In view of the fact, however, that exploratory puncture between the spine and the scapula was negative, one may be justified in doubting the correctness of the diagnosis.

Out of these twelve cases nine are of only moderate interest, as they give no symptoms of pressure on the posterior mediastinum. They were ordinary cases of partial, encysted pleurisy with a somewhat unusual localization between the lung and the posterior mediastinum. In their symptomatology and diagnosis they differed in no respect from an ordinary encysted pleurisy and their distinction as a special form would hardly be warranted if an encysted pleuritic exudate of the same localization were not liable, under other circumstances, by pressure on the posterior mediastinum and its organs, to produce symptoms which are radically different from the usual ones of pleurisy as exemplified by Breton's one and Dieulafoy's two cases. The reason why an encysted exudate between the lung and the posterior mediastinum does not, in all cases, produce pressure-symptoms is not quite clear. The amount of the exudate is evidently of only partial importance, as in one of Fernet's cases two liters of pus gave no pressure-symptoms, while in Breton's case only three or four hundred grams of pus produced very serious ones. Probably the occurrence of pressure-symptoms is dependent on how early the adhesions are formed and how deeply the exudate is situated. In both Dieulafoy's and Breton's cases the abscess was evidently remote from the surface, as the only superficial finding was a slight dulness between the scapula and the spine.

The posterior mediastinal pleurisy corresponds, just as does the anterior mediastinal form, to ordinary exudative pleurisy in regard to etiology, pathology, and general symptoms and gives a distinctive clinical picture only when it produces pressure-symptoms on the organs contained in the posterior mediastinum.

In Dieulafoy's Case 1 the exudate caused paroxysmal cough by pressure on the left pneumogastric nerve, stridulous inspiratory dyspnea, edema of larynx and hoarseness by pressure on the trachea, which deviated toward the right, and, perhaps on the recurrent laryngeal nerve, and, finally, dysphagia by pressure on the esophagus.

In Dieulafoy's Case 2 the exudate caused paroxysmal cough by pressure on the left pneumogastric nerve, stridulous inspiratory dyspnea with depression of jugulum and epigastrum by pressure on the trachea, dys-

phagia by pressure on the esophagus, and engorgement of the thoracic veins by pressure on the left azygos veins.

In Breton's case the exudate seems to have exerted pressure almost exclusively on the thoracic aorta, resulting in retrosternal pain and precordial angina, palpitations, dyspnea on exertion, accentuated closure of the aortic valves, and hypertrophy of the left ventricle with the apex-beat displaced toward the left.

Posterior mediastinal pleurisy is always unilateral. In six of the twelve reported cases, the left posterior mediastinal pleura was affected, and in five of these the exudate was purulent, in one putrid; the right posterior mediastinal pleura was affected in six cases, and in all of these cases but one was the exudate serous.

The prognosis of posterior mediastinal pleurisy seems to be very much less serious than of the anterior, as, out of the twelve cases, only two ended fatally. In this connection it may be worthy of note that, out of the seven cases with purulent or putrid exudate, vomica occurred in not less than five, and that in two of these five cases thoracotomy was not found necessary, as the abscess gradually emptied itself completely through the air passages.

The diagnosis of posterior mediastinal pleurisy, in cases in which no symptoms of pressure on the posterior mediastinum are present, is based on the same principles as the one of any encysted pleuritic effusion. When symptoms of pressure arise, a differential diagnosis must be made between posterior mediastinal pleurisy and any disease which is liable to produce pressure.

I shall confine myself to the enumeration of such diseases: (1) abscess of the posterior mediastinum, whether due to trauma, foreign body, suppuration of glands, perforation of esophagus or trachea, or to an inflammation spreading from an adjacent organ as, a retropharyngeal abscess, a pulmonary abscess, a suppurative pericarditis, a vertebral osteitis, or to metastasis; furthermore, (2) hypertrophic glands, (3) aneurism, (4) gumma, (5) neoplasm.

In case stridor is present, a differentiation should be made, as Dieulafoy points out, from any tracheal lesion, whether intrinsic or extrinsic, which is liable to produce stridulous dyspnea, as intratracheal gumma, polyp, stenosis, pressure from cervical glands or from struma.

TREATMENT

The treatment of mediastinal pleurisy, whether anterior or posterior, differs in no way from the usual one of any encysted pleurisy except that the indication for surgical interference comes earlier than in any other form. In order to be able to make a thoracocentesis or a thoracotomy at the proper moment, we should not hesitate to make not only one, but if necessary, several exploratory punctures to locate the exudate. No rule can be given as to where to introduce the exploratory needle. By minute physical examination we should try to determine where the maximum flatness is located, where the vocal fremitus is least perceptible, where the breath-sounds are most distant, where egophony is most pronounced, and introduce the needle in the outer edge of the area thus determined.

CONCLUSIONS

1. The clinical manifestations of mediastinal exudative pleurisy differ according to the part of the mediastinal pleura involved, and consequently according to the part of the mediastinum exposed to pressure.

2. For this reason three different forms of mediastinal pleurisy are to be distinguished: (1) pleuritis mediastinalis anterior sinistra, (2) pleuritis mediastinalis anterior dextra, (3) pleuritis mediastinalis posterior.

3. This distinction is justified, not merely from an anatomic point of view, but because it corresponds closely to clinical facts. Pleuritis mediastinalis anterior sinistra resembles very much exudative pericarditis. The most striking symptom of a pleuritis mediastinalis anterior dextra is a very deep cyanosis of head, neck, thorax and upper extremities. A posterior mediastinal pleurisy will, provided the exudate is deeply situated and is sufficiently large, cause inspiratory stridor and sometimes a deviation of the trachea by pressure on the trachea, dysphagia by pressure on the esophagus, engorgement of the intercostal veins by pressure on the azygos veins, and paroxysmal cough by pressure on the pneumogastric nerve.

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ABSTRACT OF DISCUSSION

DR. DELANCEY ROCHESTER, Buffalo, N. Y.: Although I have nothing to offer in the way of cases to report in support of Dr. Frick's position, I do not believe that such additions to the literature should go without some discussion. We owe him a great deal for his careful analysis of his cases and for the careful examination and the knowledge displayed in making the diagnosis and his confirmation of it by exploration and, whenever possible, by autopsy. The literature on this subject will be greatly added to; we shall all be required to look more carefully into these cases hereafter. When there is cyanosis and difficult breathing, cases that have heretofore been looked on as cardiac, can now be proved to be mediastinal pleurisy, a condition which can be relieved by operative procedures.

DR. FRANK SMITHIES, Ann Arbor, Mich.: Were any photographic findings registered in these cases?

DR. ANDERS FRICK, Chicago: No photographs were taken of the anterior mediastinal pleurisies. In a few cases of left posterior mediastinal pleurisy, however, skiagraphs were taken and they indicated a shadow or dark zone to the left of the posterior mediastinum. In these cases, also, there was dulness between the spine and the left scapula.

TRAUMATIC RUPTURE OF THE FIXED PORTION OF THE MALE URETHRA *

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Traumatic rupture of the fixed portion of the male urethra is a most serious injury, both in its immediate aspect and remote consequences; immediately serious, because of leakage of urine following the several classical paths of extravasation, with subsequent decomposition, or on account of complicating lesions of osseous or soft tissues; remotely so, owing to formation of traumatic stricture, with its attendant urinary stagnation and infection of the entire urinary tract.

The force causing a rupture of the urethra acts in one of two ways—in a direct manner, the patient falling astride an object, or indirectly, the pelvic bones being crushed together, the force usually acting in the coronal plane of the body.

* Read in the Section on Surgery of the American Medical Association, at the Sixty-First Annual Session, at St. Louis, June, 1910.

Produced in a direct manner, the urethral tear may be in a part anterior, within, or posterior to the layers of the triangular ligament, usually without complicating factors. Indirectly produced by crushing force, the tear in the urethra is often associated with an injury to the pelvic bones or soft tissues; these latter may be so dis-jointed or broken, the pelvic fascia so lacerated and torn from its attachments as to allow the bladder and prostate gland to hang loosely in the pelvis. The tear of the puboprostatic ligaments opens a communication between the space of Retzius and the perineum.

A tear of the membranous urethra, accompanied by laceration of one or both layers of the triangular fascial septum, or a transverse rupture of the urethra at the apex of the prostate gland, are the types of injury found as a result of force acting in an indirect manner.

The signs of a ruptured urethra are patent in the great majority of cases. With a history of an injury as described, coupled with a varying amount of free blood issuing from the urethra, inability to pass urine (when the urethra is completely torn) or difficulty experienced in voiding a small quantity of urine, always preceded by pure blood from the canal (when the tear in the urethra is partial) are extremely suggestive. Attempts made to pass a catheter are futile and usually serve to increase the bleeding.

Depending on the part of the fixed urethra injured, local inspection reveals a fulness and perhaps discoloration of the upper part of the perineum, noticeable at the perineoscrotal junction when the bulbous part of the tube is injured; or the swelling may be confined to the middle of the perineum or about the anal region when the tear is located between the layers of the triangular ligament or posterior to them. The tumefaction is caused by an effusion of blood perhaps mixed with urine. If, for any reason, the lesion is not immediately repaired, infection occurs extending along paths previously mentioned—underneath Colles' fascia through the abdominoscrotal passageway to the anterior and lateral abdominal walls following injury to the bulbous urethra; confined, at first, between the layers of the triangular ligament, subsequently ulcerating either through the anterior leaflet, gaining access to the space bounded by Colles' fascia, or through the posterior leaflet, invading the cellular tissue about the rectum.

The lesion is an anatomic one and requires an anatomic operation for its repair. It is a self-evident proposition that a procedure which restores the parts as nearly as possible to normal, brought about with a minimum of injury to surrounding structures, carrying with it a minimum mortality and shorter period of disability, both immediate and remote, is the procedure of choice. These factors are conserved by performing a circular urethrorrhaphy through a perineal opening, which incision gives access to all parts of the fixed portion of the male urethra.

The operation is greatly facilitated by placing the patient in the exaggerated dorsal position. For this purpose, the old Clover's crutch is used, supplemented by a sand-bag placed under the sacrum, which flexes the pelvis on the vertebral column so as to bring the perineum in the horizontal plane. This position renders the structures taut and makes possible an anatomic dissection. The object of this dissection resolves itself into an effort to find the proximal end of the torn urethra, the distal end being readily located by means of a sound introduced through the external meatus.

When the tear is situated anterior to the superficial triangular ligament, the proximal end of the urethra may be found through the original tear in the accelerator urinae muscle; or this structure may be split along its median raphe, affording further working room and the end readily found.

When the tear is located at the apex of the prostate gland, the incision through the skin of the perineum may at once open an area filled with clotted blood, or it may be necessary to cut the central tendon of the perineum to reach the site of injury.

It is in those patients suffering from a rupture at the bulbomembranous juncture or situated in the membranous urethra, between the layers of the triangular ligament, that the procedure of retrograde urethral catheterization becomes necessary, rather than a suprapubic cystotomy as an aid in finding the proximal end of the torn urethra. The anatomic landmark sought is the apex of the prostate gland. The technic is similar to that carried out by Young in the performance of perineal prostatectomy, but without a guide. This step is not difficult of accomplishment, by reason of the excellent position of the patient. The urethra, immediately in front of the apex of the prostate, is opened by a linear incision, through which a small sound or guide is introduced from behind forward, facilitating the discovery of the proximal torn end of the urethra.

With both the distal and proximal ends of the ruptured urethra secured, the exaggerated dorsal position of the patient is modified, relaxing the perineal structures, thus aiding the suturing of the anterior wall of the torn canal; then the introduction of a rubber catheter from the external meatus to the bladder, completion of the circular urethrorrhaphy and closing the linear incision in the urethra at the apex of the prostate.

If the general condition of the patient does not warrant the completion of the technic of suturing the ends of the torn canal the catheter will act as a splint favoring the reparative process.

It is observed that following a rupture of any part of the fixed urethra, complicated or not by injury to surrounding structures, a catheter introduced into the bladder through the proximal torn end will evacuate a large quantity of clear urine. This retention is probably due to interference with the nerve-supply of the internal vesical sphincter, increasing its tonicity, a fact of importance, in that primary shock may be combated without the fear of continuous leakage of urine demanding immediate drainage of the bladder.

Perhaps the vulnerating force may be of sufficient degree so to distort and dislocate the perineal structures as to make it impossible to discover the proximal end of the torn urethra. In this case the only resource is to open the bladder suprapubically and carry out a retrograde catheterization. The condition of the patient may contraindicate a complete operation as a primary procedure. This matter of time, type and choice must be determined by the individual operator.

The force necessary to produce an injury of so grave a nature as rupture of the urethra undoubtedly devitalizes tissues, predisposing to infection. This imminent danger may be anticipated by appropriate drainage. If the character of the injury is such as will lead to infection underneath Colles' fascia, a rubber tissue drain of this space emerging through the perineal incision is indicated, or a through-and-through perforated tubular drain from the perineal incision, following the abdominoscrotal passageway on one or both sides, making its exit

at the pubes, may prevent a serious and annoying infection.

The wound in the perineum associated with an uncomplicated rupture of the urethra at the apex of the prostate will be cared for with a rubber tissue drain from the site of the rupture to the perineal surface.

When the ligamentous attachments of the prostate are torn, affording a communication between the prevesical space and the perineum, a perforated rubber tube, introduced through a small incision in the median line immediately above the symphysis pubis, passing to one or the other side of the prostate and emerging from the perineal incision, will prove a wise precaution.

REPORT OF CASES

The following cases typify the subject-matter:

CASE 1.—Patient.—(Admission 40,078).—J. L. M., electrician, aged 30, was admitted to the Allegheny General Hospital, Aug. 2, 1909. The patient was on a ladder removing electric lamps, when it slipped and he fell astride an iron pipe.

Examination.—This showed on the inner aspect of right thigh a bruise, and also a slight bruise on right side of scrotum. In the median line of the perineum a small tumefaction was observed. The patient suffered very little pain. Blood escaped from the external meatus. Attempts at urination were unsuccessful, producing great distress and increasing, apparently, the swelling in the perineum and area about the anal region. The bladder on palpation was found moderately distended. Attempts at catheterization were unsuccessful.

Operation.—The patient was placed in the exaggerated dorsal position; a sound was introduced and felt at a point posterior to the base of the triangular ligament; a median incision was made from the perineo-scrotal junction to within half an inch of the anal fold; the area was opened containing clotted blood, mixed with urine. The entire prostate gland, presenting a minute portion of urethra at its apex, was found hanging loosely in the injured area. The structures about the gland were torn and lacerated, allowing the examining finger to be readily inserted into the space of Retzius and palpated through the anterior abdominal wall, immediately above the symphysis pubis. Suture of the anterior wall of the urethra with interrupted catgut sutures, the introduction of a catheter into the bladder and also through the anterior portion of the urethra, evacuation of clear urine, completion of circular urethrorrhaphy, the introduction of a perforated rubber drainage tube through a small median incision immediately above pubes and brought out through the perineal wound, along left side of gland, with closure of skin wound completed the operation.

Convalescence was uninterrupted and the patient was discharged Aug. 21, 1909, nineteen days after the operation. Occasionally there was a slight discharge of urine through the perineal opening, which ceased entirely within the next ten days.

CASE 2.—Patient.—(Admission 41,820).—C. B., laborer, aged 30, was admitted to the Allegheny General Hospital Jan. 1, 1910. The patient was walking in the street when he stepped on the edge of the cover of a man-hole, which turned on end, the patient falling astride it. He was helped home, suffering severe pain in the perineal region and bleeding from the meatus. He went to bed, but was unable to sleep. Next morning he had several chills and suffered severe pain in lower abdomen. A physician was sent for who found the bladder distended to within one inch of the umbilicus. An attempt to catheterize the patient was unsuccessful and bleeding from the canal commenced. The patient was sent to the hospital.

Examination.—Distended bladder was present on inspection and palpation; the area over the bulbous urethra was swollen and discolored; there was bleeding from the external meatus. Temperature was 100.4; pulse 118.

Operation.—The patient was placed in the exaggerated dorsal position and a median incision over the bulbous urethra made. Clotted blood was found underneath Colles' fascia.

There was laceration of the fibers of the accelerator urine-muscle. A sound introduced through the external meatus demonstrated the distal torn end of the urethral canal, but was unable to find the proximal end of the torn tube. The incision was carried back to within one-half inch of anal folds. Blunt dissection was made of the area on either side of the central tendon of the perineum, which structure was cut. Further dissection disclosed the apex of the prostate gland. The urethral canal was opened at the apex of the gland, being careful to grasp the mucous membrane on either side of incision. The introduction of a small sound made it possible to find the proximal torn end of the urethra, which had been severed at the bulbomembranous junction. Introduction of the catheter into the bladder evacuated a large quantity of clear urine. Suture of the anterior wall of the urethral canal, the introduction of a catheter from the external meatus to the bladder, completion of circular urethrorrhaphy, closing of the linear urethrotomy wound, the insertion of a rubber tissue drain from site of tear to perineal surface and closure of the skin incision were the further steps in the operation.

Subsequently it was necessary to pass a drainage-tube through the abdomino-scrotal passageway on both sides, owing to infection. On this account convalescence was protracted. The catheter was removed on the fifth day. Leakage of urine through perineal wound persisted for four weeks. The patient was discharged from the hospital March 12, 1910. Examination was made June 4, 1910, with the introduction of a 27 French sound without difficulty, revealing a slight roughening at site of tear. The urine was negative.

CASE 3.—Patient.—(Admission 41,992).—T. S. S., bridge inspector, aged 53, was admitted to the hospital Jan. 14, 1910. The patient was at work on a bridge when he fell astride a log. He rested about one half hour; then he resumed work, continuing until time to quit, about an hour later. He paid no attention to his hurt. While on the train bearing him to his home he coughed several times and felt as if something gave way at the site of injury. After a short time he noticed that his clothing was blood-stained and on examination found that he had bled freely from the external meatus. On his arrival home Dr. Ray (Glenshaw), who was called to see him, attempted to pass a catheter, but did not succeed, after which the patient was sent to the hospital.

Examination.—Patient walked into the hospital about nine hours after the injury. The bladder was found distended, and the external meatus closed by clotted blood; the perineum, scrotum, penis, pubic area and flanks were greatly discolored, almost black, and much swollen. The patient's general condition was good.

Operation.—Patient was placed in the exaggerated dorsal position; a sound introduced into the urethra stopped in the bulbous portion. Median incision over the bulbous urethra revealed a laceration of the accelerator urine muscle on left side. The distal end of the torn urethra was readily found, but it was impossible to find the proximal torn end. The incision was enlarged and a technic similar to that in Case 2 carried out; the tear was found at bulbomembranous junction. Rubber tissue drain from site of rupture to perineal surface was introduced; also from prostatic area.

The catheter was removed on the sixth day. Convalescence was uninterrupted. Patient was discharged Feb. 5, 1910, twenty-two days after operation. There was a slight leakage of urine at the time of discharge. This ceased within a week; the wound remained closed for ten days and then opened again for a few days, since which time there has been no leakage. On examination June 4, 1910, a 27 French sound was readily introduced. There was slight roughening at point of tear in urethral canal; urine negative.

CONCLUSIONS

1. Rupture at any point of the fixed portion of the male urethra is an injury of grave import.
2. The condition of the patient permitting, immediate operation to restore the integrity of the urethral canal is imperative.

3. Repair of the torn urethra at any point may be done through a median perineal incision.

4. Shock is to be overcome as a primary measure; leakage of urine in the early hours following traumatism is not to be feared.

5. Appropriate drainage is to be instituted as a prophylactic measure against infection.

6. Of great importance in the technic is the proper position of the patient.

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ABSTRACT OF DISCUSSION

DR. HARRY M. SHERMAN, San Francisco: The mechanism by which the urethra may be wounded through a pelvic wound might be explained a little more explicitly. The two ossa innominata may be pressed together, as when force is applied on either side of the body, or they may be forced apart, as when the force is applied antero-posteriorly. If a force presses the two bones together, the urethra may be pinched off between the two descending rami of the pubic bone, or one bone may slide past the other, like the blades of a pair of scissors, thus cutting off the urethra. When this occurs, the urethral injury outranks the injury to the skeleton, and the possible extravasation of urine outranks the injury to the urethra. That is, when this accident occurs the extravasation of urine is the matter of major moment, and the one which requires most attention. The plans which have been detailed for the drainage of the different layers of areolar tissue are ample. Especially would I emphasize that which drains from the space of Retzius down behind the pubic bone, and so out through the perineum. Drainage is the keynote to the situation, so far as my experience goes with these cases.

DR. GEORGE F. CORRIGAN, Newark, N. J.: Three or four months ago I had a case similar to the one described by Dr. Gaub. This man was going down in an elevator when the car slipped and he fell on a wheelbarrow, rupturing the perineum. He was brought to the hospital and several attempts were made to repair the damaged urethra. The openings in the urethra and neck of the bladder were closed; both operations failed, however. I propose in the next few weeks to operate on this man, and I am glad to have heard this paper. I fear that in doing an operation of this kind we must divert the urinary flow, in order to be successful. After the necessary preparation I will make an inverted Y-incision in the perineum, and dissect the rectum freely from the surrounding structures as well as the urethra, and endeavor to find the opening. I will pass a catheter or grooved staff after denuding the cicatricial tissue around the opening in the urethra, and then attempt to close the latter with chromicized catgut. If I do not go further, the operation will not be a success. I think that the proper procedure is to drain the bladder from above.

DR. PARKER SYMS, New York City: Immediate drainage in these cases is the important factor in saving life. Immediate repair of the injury to the urethra is most important, when it can be done with safety. I desire to report what I consider to have been a surgical curiosity—an instance of this kind which came under my observation several years ago. A mining engineer fell astride a rock and sustained rupture of the urethra, with complete retention of urine. He had to travel nine days on mule-back before he could get any surgical aid. In the meantime, he had to rely on his own ingenuity. He constructed a catheter, by putting a quill on the end of a reed and after much trouble and pain, he succeeded in relieving himself. The extreme lithotomy position is a great aid in exposing the deep portions of the perineum.

DR. J. HARTLEY ANDERSON, Pittsburg: Rupture of the urethra back of the triangular ligament is one degree of a rupture which we see in fracture of the pelvis in which the prostate is also injured, and in which there is also an extra-peritoneal rupture of the bladder. The operation which Dr. Gaub performed with considerable success is probably the most convenient for the lower part of the bladder, the pros-

tate and the prostatic urethra. When there is a rupture of the bladder involving the anterior surface, the result of crushing force, it is necessary to make a suprapubic incision, and any attempt to suture the bladder in any other way will be found to be a difficult procedure. At the same time the suprapubic opening gives us the advantage of draining the prevesical space, and combined with the Proust incision drainage of the deep perineum.

The one thing that we find in these cases of ruptured urethra is the enormous displacement of the bladder where the true ligaments of the bladder are ruptured. We may find that the prostate is shoved up two or three inches, and it is almost impossible to reach it, but by making use of Young's retractors we are able to pull the bladder down and suture it into position. Drainage, especially if there has been extravasation of the urine, or an external perineal wound, is very important. The frequency of pelvic cellulitis is great, and if the fractured pubic bones are exposed, pelvic deformity and pyemia are after the results. Stricture and tortuous urethra are nearly always the final results of complete tears of the deep urethra.

DR. HUGH CANOR, Boston: The care of these patients is twofold: (1) that required immediately after the injury, and (2) that of the stricture which is a necessary consequence. The most important element in the immediate care, is the provision for proper drainage of the bladder. The most difficult cases are those due to fracture of the pelvis which are not infrequently complicated by rupture of the bladder. Satisfactory drainage may be obtained either by combined suprapubic and perineal operation, or, in the less serious cases by simple perineal section. It has not seemed to me wise to attempt primary suture of the urethra, because of the unfavorable condition of the tissues. If the sutures are placed in the bruised tissue they will not hold and infiltration occurs and the patient is worse off than if a simple perineal section had been done and the stricture dealt with later, if necessary. It is, however, important at the time of the primary operation to restore the continuity of the roof of the canal, if this has been torn across. Unless this is attended to retraction of the cut ends will result in excessive scar and a stricture difficult to deal with. The restoration of the floor should be left to a subsequent time. The essential part of this stage in the operation is the free mobilization of the anterior urethra. The extent to which the urethra can be mobilized without damage to the circulation is surprising. In one case a gap of one and a half inches was closed by mobilizing the anterior urethra up to and somewhat forward of the peno-scrotal angle, the anterior segment being then sutured to the apex of the prostate. A perineal incision in the form of an inverted V gives good access to the prostate and membranous urethra and if the anterior portion of the urethra has been thoroughly mobilized the ends can be brought together without tension. The failures that I have seen after these operations have been due to fear of sufficiently mobilizing the anterior segment; it being believed that the blood supply which comes through the triangular ligament would be interfered with. This does not seem to me to be serious. The placing of an indwelling catheter at the time of operation seems to me objectionable on account of the urethritis which it produces, with resulting infiltration, scar tissue formation and increase of stricture. Drainage by a perineal tube is, I think, to be preferred.

DR. HUGH H. YOUNG, Baltimore: I have had two somewhat similar cases. One was that of a fresh rupture of the urethra which occurred in a young man who was caught between two freight cars and sustained a fracture of the pelvis, and was unable to void urine. I found that there was complete rupture of the urethra just behind the triangular ligament. The space had filled up with blood clots; the bladder and prostate were pushed upward and an immense blood clot lay between them and the triangular ligament. The interesting thing in that case was the fact that the prostate was cut off from the external sphincter, but the bladder still retained a quart of fluid. The prostatic sphincter was sufficient to prevent the escape of urine from the bladder. I brought down the prostate and made an end-to-end anastomosis with the membranous urethra.

In order to avoid urethritis I brought the catheter out through a hole in the perineum, which gave excellent drainage. The catheter was left *in situ* for a week, and primary union was obtained. No sounds were passed. The man came back to me a year later; a sound passed easily showing the absence of stricture. He was in good condition, except that he had lost erectile powers. It is interesting to note that although no sounds were passed in this case a stricture did not form, probably because the suturing was done in the membranous urethra, where there is no surrounding cavernous tissue.

In cases of carcinoma of the prostate in which I have performed an anastomosis of the bladder with the membranous urethra, no stricture has resulted. Recently I saw a young man with a similar injury, who had been treated simply by suprapubic drainage. I found a mass of scar tissue and had to dissect it out before it was possible to make an anastomosis between the prostate and membranous urethra. The operation was much more difficult than in fresh cases, and I cannot recommend too highly immediate operation and suture of the divided urethra in all these cases of complete or almost complete rupture of the urethra.

DR. OTTO C. GAUB, Pittsburg: I searched for a new type of operation, as it had been the custom in Pittsburg to open bladders suprapubically and drain perineally—a retrograde catheterization. These patients remained in the hospital for a long while. There was infection of the cellular tissue in the space of Retzius, and the patients were incapacitated for months. Stricture followed, so that the idea of treating the ruptured urethra in the manner described occurred to me after having gone over the work done by Dr. Young. I followed the description of the operation which he performed for stricture of the urethra, in which he was obliged to do a retrograde urethral catheterization.

The point is well taken, that it may not be desirable to attempt complete suture of the urethra at the primary operation, but I would go so far as to say that we should restore the anterior wall of the canal. The advantage of the operation through the perineum is that we may stop at almost any stage. If the anterior wall of the urethra is reconstructed, the catheter acts as a splint, allowing the reparative processes to go on with very little scar formation.

Another point made by Dr. Young and emphasized in the paper, is the question of retention of urine. It is curious how these bladders will fill up and no leakage occur. In the third case reported in which the bladder was distended as high up as the umbilicus, at the time of operation, nine hours after injury, by putting a catheter into the bladder clear urine was found, showing that in cases of injury accompanied by severe shock, we need pay no attention to the bladder during the first two hours. The patient can be put into better shape and the severe urethral injury then attended to, restoring the canal entirely or in part, as may be indicated.

THE NEW TREATMENT OF SYPHILIS (EHRlich-HATA)

OBSERVATIONS AND RESULTS

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If Ehrlich had ceased his labors after giving to the profession his original work on blood, which was an enormous factor in giving stability to the new-born art of hematology, and his studies on immunity, he would have continued to live as one of the masters of medicine. To-day Paul Ehrlich stands before the profession as the greatest living exponent of chemotherapy. His ceaseless labors have been rewarded by the discovery of a remedy, a chemical compound more specific in its effect against syphilis than any other yet introduced.

I am privileged to be able to preface what I have to offer with the positive statement that the bixidiamido-

arsenobenzoldichlorid, or the remedy labeled "606" (being the laboratory brand), is destructive to the *Treponema pallidum* (erroneously named *Spirochæta pallida*, which latter term, because of usage, I shall retain in this paper) and has a prompt and specific effect on syphilitic tissue.

Prompted by the favorable reports which during July and August of 1910 accumulated in the German medical press, I visited Ehrlich at his laboratory in Frankfurt July-12. My visit was most satisfactory. One is deeply impressed by the sincerity and scientific spirit of this man and his uniform courtesy. He is of a decidedly nervous temperament, systematic, continually on the *qui vive*. While engaged in conversation he becomes fascinating. His earnestness is striking at once. The subject which he is investigating has taken full possession of him. The conversation which I had with him led me to the conclusion that he had unbounded faith in the new remedy, but that he recognized the fact that before we are justified in reaching the conclusion that the late effects of syphilis would be entirely prevented by the remedy, we must pass through a long period of probation. As he expressed it "Es muss erst grundlich ausprobiert werden."

Ehrlich understands fully the object of chemotherapy—i. e., the production of such remedies as by powerfully affecting parasitic life cause a minimum of danger to the body which harbors them. To this splendid work he is devoting his life.

There are those who contend that Ehrlich's experiments are made only on mice and rats; but he has made clear that in order to reach safe conclusions all of these chemical products must first be tried on a variety of animals and that the remedy which after animal experimentation produces the most telling results is in all likelihood, after cautious dosage and thorough observation, the remedy which when given to man for therapeutic purposes will be likely to produce similar results. This conclusion was fully justified after animal experimentation at the Ehrlich laboratory with the various arsenic preparations, more particularly the arsenophenylglycin against trypanosomiasis, and the arsenobenzol against spirillum disease. The latter is the "606" of to-day, originally elaborated by Bertheim and used to destroy the spirillum of recurring fever by Hata and finally introduced by Ehrlich, Hata and Bertheim against the *Spirochæta pallida*.

Ehrlich has further convinced the profession that it is not possible in man to begin the use of poisons in the largest corresponding dose which is well tolerated in the animal (*dosis maxima bene tolerata*). In man we have idiosyncrasies to consider. The primary susceptibility and the acquired susceptibility offer the greatest obstruction to the use of poisonous drugs, and it is an uncontrovertible fact that all remedies which destroy living organisms in the blood or in the tissues of the body are poisonous. It has long been known that there are a number of poisons which nullify or completely destroy specific germs but the dose required, it has been found, is so large as to make it destructive to the host or to the individual organs; hence it is useless. It has been pointed out that poisons, to be of use in the economy against parasitic life, whether vegetable or animal, must leave vital organs undamaged just as do the antibodies. The further fact has become clear that remedies which destroy the living parasite must attract these offenders, "anchor" them; in other words, they must be parasitotropic. These same remedies are also organotropic; they are destructive to organic tissue; hence

poisons to be of value chemotherapeutically must of necessity continue parasitotropic while the organotropic action must remain negative. The opinion is erroneously held by many that the spirochete is a blood-parasite. Leading syphilographers now hold that there is in all probability but one grand procession of the invading army of spirochetes through the blood-stream. Recent repeated examinations of the blood by Wechselsmann, Loewenthal and Canon, seem to corroborate this conclusion. There are but few authoritative reports in medical literature which prove the continuous presence of the spirochetes in the blood. These parasites settle in the tissues of the body, causing in some cases and at some time, as a rule, a local reaction; in other cases no reaction follows, hence no late lesions.

Experience shows that the spirochete, or possibly its product, often resists specific treatment and this is unquestionably the case of tertiary lesions.

THE EHRLICH-HATA REMEDY—DOSE—PREPARATION FOR INJECTION

The drug "606" is a yellow, sulphur-colored powder. Its chemical formula is $C_{12}H_{12}O_2N_2As_2$. Bertheim elaborated the remedy. The average dose for men is 0.5 gm.; for women 0.45 gm. There is a tendency to increase this dose to 0.6 gm. in women and 0.8 in men. In all probability it will be found that the larger dose will be well borne and relapses will be reduced to a minimum. The dose for children ought not to be higher than 0.02. Wechselsmann injects nursing babies with doses varying from 0.01 to 0.015 and even higher, and says that he has had no bad results. Certainly the clinical material which he presented abundantly proved the truth of his statement.

One would naturally suppose that it is easy to prepare the remedy for either intramuscular or intravenous injection. I myself shared this opinion with others who had never seen it used. Before Ehrlich sent me the remedy, after I wrote him that I was soon to leave Germany, he wisely suggested that because of the great difficulties of preparation those who were to use it might with profit visit some one of the leading centers of Germany where there was a large clinical material for the purpose of learning the method of its mixture, and the injection technic. In a letter received on August 10, Ehrlich suggested either Vienna, Berlin, Breslau or Magdeburg. I selected Berlin, where I visited at the Rudolph Virchow Spital, the clinic of Wechselsmann, who has unquestionably had more experience with the use of "606" than any other man in Germany, and the Kraus clinic at the Charité, in which Citron had full charge of the material. The name of Citron is familiar to Americans who have visited medical Berlin. He is a genial, earnest worker and a delightful gentleman, thoroughly interested in his work, an excellent teacher and in all probability one of the best laboratory men on the Continent.

Wechselsmann had injected over 600 patients before I left Berlin. The material at the Charité was not so large as that at the Rudolph Virchow Spital. Intravenous injection was not the favorite method of introducing the remedy in Berlin. At the Wechselsmann and Kraus-Citron clinics the intramuscular method as originally recommended by Ehrlich was used. Ehrlich has recently reversed the first directions given and now recommends the intravenous method as more likely to prevent relapses and the late manifestations of syphilis, and agrees with those who claim prompter results than follows the intramuscular treatment.

METHOD OF PREPARING "606" FOR INTRA-MUSCULAR INJECTION

The entire method must include strictest asepsis; all glassware, everything used, must be thoroughly sterilized. The powder is emptied into an agate mortar, about 2 c.c. of a normal solution of sodium hydroxid is added and thoroughly mixed with the powder; a yellow thick alkaline fluid results. The alkalinity must be overcome by acetic acid. I have found it best to use the 1 per cent. solution of acetic acid instead of the glacial acid, using a little less than 0.5 c.c. of the former. If too much acetic acid is added it is necessary to overcome the acidity by a further addition of the sodium hydrate solution. In Berlin glacial acetic acid is used. If too much alkali is added to overcome the acidity after the addition of the acetic acid, then the 1 per cent. solution of acetic acid is again slowly added. The object, to reach a point at which the reaction will be absolutely neutral, must be kept constantly in mind. Litmus paper is used to test the reaction. It is wise, when it is neutral, to empty the preparation into centrifuge tubes. In preparing the remedy for injection, in order to save loss I have found it convenient to use the normal salt solution for holding in suspension the remnant left in the mortar and on the pestle. All of this is thoroughly centrifuged. A light yellow colored powder is precipitated, after thorough sedimentation the supernatant fluid is removed by means of a pipette, and normal saline solution is added to hold the "606," which is withdrawn into a Record syringe. It is wise to suspend the remedy in at least 10 c.c. of saline fluid. The use of the normal saline for cleansing the mortar, spatula and pestle to prevent the loss of "606" which would otherwise remain and thus reduce the dose needed, has not been mentioned by others. I am thoroughly satisfied with this method of preparation because by its use I find less pain and less local irritation than I saw in Berlin.

THE PREPARATION FOR INTRAVENOUS INJECTION

Ehrlich has recently sent a circular letter to those to whom he has given "606," recommending the intravenous injection after the method fully described by Schreiber.¹ The method is as follows:

Into a graduate holding 250 c.c. drop 10-20 c.c. of sterilized water. Add the required dose of "606" and mix thoroughly until there is a clear solution; add sterile water, or better, normal salt solution to the 100 c.c. mark; then add *pro* 0.1 of "606," 0.7 of normal sodium hydroxid solution and mix thoroughly until the precipitate is thoroughly redissolved. If after thorough mixture the solution is not clear add a few drops of the sodium hydroxid solution to produce this and then add sufficient normal salt solution to make 200-250 c.c. The fluids used are all to be warm. The alkaline mixture is then ready for injection. The Cassell syringe and apparatus (or the Weintraub) supplied for this purpose are preferable, for by their use the dangers of introducing air are reduced, if the operator continues cautious and follows the directions given in the original paper of Schreiber.

It must be understood that all of the chemicals used in the preparation of the injection are to be kept thoroughly sterile.

I must repeat the warning of Ehrlich; unless the method of preparation of the remedy is to be materially simplified in the future no one should undertake its introduction into the body without first seeing the experienced mix and use it. I have seen Wechselsmann's assistant work almost an hour before his mixture was neutral; Citron averaged between fifteen and twenty minutes in reaching that point. We succeeded in neu-

tralizing the mixture in twenty minutes at our clinic when using the glacial acetic acid; with the 1 per cent. solution originally used by me we have prepared the mixture for the centrifuge in four minutes. It is as easy to prepare the mixture for a number of injections as it is for one.

I consider the use of the centrifuge in connection with the preparation of the remedy for intramuscular injection of great importance. This, I believe, was first suggested by Wechselmann.

I found that the patients in Berlin were given their choice of the seat of injection, choosing between the inframammary, the interscapular and the gluteal regions.

The patient's skin is to be as aseptic as if he were to undergo an operation. We have insisted on hospital care of all patients injected because of our limited experience with the remedy, and because Ehrlich in his final instructions insisted that we do not use the remedy on ambulatory material. This precaution I believe wise and necessary as my experience grows. The surface, after having been treated in the usual way, is painted with tincture of iodine. We have used no local anesthesia, but use a well-made and sharp needle of large caliber.

I saw several hundred of these patients while in Berlin; some had been injected, some were injected in my presence, and the best place for injection seems to be in the interscapular region. Immediately following the injection there is likely to be some pain. As the method of preparation is improved, the liquid made neutral and the remedy sufficiently diluted, we find pain reduced to a minimum. In the patients whom we have injected we have had no marked local reaction; there has been no redness, but little swelling, and only two patients required a small dose of morphin hypodermatically for the relief of the pain. These patients were hyperesthetic.

At the Wechselmann clinic were found a number of local reactions in which the skin was red—had an erysipelatous hue. From seven to fourteen, sometimes twenty-one, days after injection there was a distinct tender, fluctuating tumor, which might easily be mistaken for an abscess. It has been found, however, that no pus is present in these cases; that the injection does not lead to suppuration. In the patients thus far treated in Syracuse we have not found these persistent swellings; neither has the slight thickening which continues for several weeks proved annoying.

It is hardly necessary to repeat the histories of the patients injected at our clinic and in private practice. The improvement in all of those in which there were evident and palpable lesions has been surprisingly rapid. There are a few points of interest, however, in connection with some of these cases which I should like to mention.

In one of our patients on the eighth day after injection, without previous temperature above 100.2 F., and this only on the second day after injection, there was presented a temperature of 102 F., pulse 110, without return of syphilitic lesions. All specific lesions had disappeared. For three days he vomited at short intervals. There was no abdominal pain; no diarrhea; there were no physical signs. On the fourth day of these symptoms his temperature was 102 F., pulse 80, respirations 20. At 10 a. m. on the fifth day his temperature was 101 F., pulse 110, respirations 21. He had no diarrhea. His bowels were thoroughly emptied by a saline injection. At 1 p. m. his temperature was 102 F., pulse 82, respirations 20. On the sixth day his

temperature was 101 F., pulse 80 and respirations 20 at 10 a. m. At 1:15 p. m. the temperature was 99 F., pulse 78, respirations 20; no recurrence of specific lesions. The highest temperature on the seventh day was 100 F.; on the eighth his entire body was covered with a rash which resembled the eruption of measles. There were no catarrhal symptoms referable to the bronchial tubes or nasal passages. The rash faded in three days. The patient on the twelfth day seemed perfectly well and was hungry. There were no evidences in the mouth, glands or on the skin of syphilitic lesions. The urine during this entire period was normal.

The symptoms might easily be explained on the theory that the death of the spirochetes produced endotoxins sufficient to poison the patient. The condition was not alarming at any time but gave us cause for reflection.

This experience has not been paralleled in my practice. In looking over the literature of the subject, however, I find that a number of injected patients have passed through afebrile periods which have been followed by a train of symptoms similar to those in the case reported.

It is surprising to note how promptly the enlarged glands in all recently infected patients disappear after the injection of the remedy and how deep and painful cracks are healed, promptly becoming painless.

In another case of tabes with continuous crises which we were prevailed on to inject we found before injection a negative Wassermann reaction which became positive within three days after the treatment. Similar experiences have been noted by others.

It is surprising to note how promptly the lesions of malignant congenital syphilis yield to the remedy. We found a boy aged 14 in our service, who had been thoroughly treated for deep and characteristic ulcers of the posterior pharyngeal wall with the older remedies for months, who yielded to arsenobenzol in less than seven days. The change in the appearance of the ulcers was striking before the end of thirty-six hours.

In a number of puzzling cases, particularly of skin lesions, we have used arsenobenzol for differential diagnosis with telling and satisfactory results. *Lesions which are syphilitic, palpable and visible, yield to the remedy. Lesions which do not so yield are not syphilitic.*

In all cases the general condition of the patients shows marked improvement; all are more buoyant; are taking on flesh, and look with hope to the future.

All of our cases emphasize the truth of Wechselmann's statement that the changes are so prompt that the lesions twenty-four hours after injection in the majority of cases are no longer satisfactorily demonstrable.

CONTRA-INDICATIONS TO THE USE OF "606"

Personally with my present limited experience I would refuse absolutely to inject any patient outside the walls of a well-appointed hospital, sanitarium or a home where thorough asepsis can be observed.

Sickness of any kind, particularly acute infections, however slight, including ordinary colds, bronchial disturbances and acute indigestions positively contra-indicate the use of "606." Ehrlich writes that patients with metasymphilitic diseases at the present time ought not to be injected because of the fact that a large number of these have already been injected and he wishes to gather the reports of the end results of the treatment before recommending the remedy for these conditions.

Degenerative diseases of the nervous system far advanced not only contra-indicate the treatment, accord-

ing to Ehrlich, but offer direct danger. These include cases of paresis and locomotor ataxia, with associated optic neuritis. Under no circumstances are patients to be injected who have optic neuritis or other pathologic changes in the background of the eye. In these cases there is danger of sudden increase of ocular lesions or arsenical blindness. Aged and decrepit patients with advanced organic disease of vital organs, particularly affecting the cardiovascular system, arteriosclerosis, aneurism or cerebral apoplexy should never be injected. All organic diseases of non-syphilitic origin offer contra-indications.

In spite of these contra-indications which have received the sanction of Ehrlich, which in fact are insisted on by him, I saw in Berlin at the Wechselmann clinic one case of locomotor ataxia with optic neuritis in which the eye symptoms were not increased by the injection and in which the patient was thoroughly satisfied with the result. One case of tabes in which I gave an injection without bad results should in all probability be included among those which offer decided contra-indications. I believe that as our experience grows and we find that no direct harm comes to the patient from the injection in cases of incipient degenerative disease with continuous pain, we shall be justified in yielding to the strong temptation of using the remedy.

At no time should we forget that we are dealing with a poison; and I must again insist on emphasizing with all my force the very important fact that no patient is to be injected unless he continues to remain under the observation of the physician at least seven to fourteen days, preferably the latter time, and that no physician has a moral right to use the remedy unless he has acquainted himself thoroughly with the method of its mixture for injection.

THE WASSERMANN REACTION

At his original work with arsenophenylglycin proved that the Wassermann reaction in syphilitics ultimately became negative. Wechselmann, Lange, Iversen and most observers who have used "606" are agreed that all patients with syphilis treated with arsenobenzol who are observed a sufficient time ultimately present a negative reaction. The only exception which was reported by these observers was in a nursing babe injected on March 17 with 0.02 gm. of "606" who died of intercurrent disease on the eleventh of June without change from positive Wassermann. The symptoms were all relieved. The necropsy showed no syphilitic remnant. In children, particularly young children, the negative Wassermann shows itself later than in adults. In a number of cases in adults and children a negative Wassermann has been followed after treatment by a positive reaction. In some this positive phase continues during a number of weeks, finally yields, becomes negative and remains so.

Statistics of collected cases prove that in patients who have been observed fifty days or longer 84.6 per cent. give a continuously negative Wassermann (Schreiber and Hoppe).

Of 268 patients who presented with a positive Wassermann, treated with the Ehrlich-Hata remedy, 153 became negative in from four to five weeks; eighteen cases, including one of malignant syphilis and one of locomotor ataxia, negative at the time of the injection continued so. It must be remembered that the majority of these patients had been treated with mercury or the iodid or by both, hence the negative Wassermann. In a number of cases in which the Wassermann became negative and then became positive, a second injection was

followed by a continuous negative phase. As a rule the cases which become positive after the injection, if there are no evidences of active syphilis, finally merge into the negative state.

A positive Wassermann in any case is to be interpreted as evidence of constitutional syphilis, either hereditary or acquired. A negative Wassermann does not exclude the possibility of syphilitic infection.

It is surprising to note how many positive Wassermanns we are unearthing in conditions positive in which we have never before been able to demonstrate the true pathogenesis, though often strongly suspected. In Germany, particularly in Berlin, Citron and others are finding a surprisingly large number of positive Wassermann reactions in cases of cardiovascular disease. A large proportion of non-inflammatory aortic valvular and degenerative lesions have thus been shown to be due to syphilis.

The Germans have not departed from the original Wassermann technic and Lange makes the positive statement that the principles included have not yet been successfully replaced by other methods and must be rigorously followed.

VARIETIES OF LESIONS

The material which has justified this publication included a large number of malignant cases observed at the hospitals already mentioned which had been rigorously treated during long periods with our usual remedies, and under favorable conditions, without yielding. Among these were found deep-seated ulcers, cracks and thickenings about the genitals, syphilitis affecting the scalp, faucial syphilis, syphilitic leukoderma, malignant types of congenital syphilis and serpiginous syphilitis. None of these failed to show a favorable response to treatment. Not all of these, however, presented after treatment with entire disappearance of the lesions; occasionally a small nodule or ulcer remained. This was more likely to be true of the cases which were treated during the early days of "606," when smaller doses of the remedy were used than were finally found necessary. Wechselmann believes that in some of these cases in which the full dose was given and in which remnants remained, there is a syphilitic endarteritis which blocks the entrance of the remedy to the diseased area. In a number of these cases he administers the iodids during a limited period, believing that it opens the avenue through which the remedy reaches the distant lesion. I saw a number of these cases in which a second injection was followed by the prompt disappearance of the lesions. In a number of cases treated by Wechselmann there were positive evidences of relapse and a reappearance, more particularly of cutaneous lesions. He believes that this was due to either an insufficient dose or to the malignant nature of the infection, and in these cases he recommends a second injection after a reasonable period of observation, usually from six to eight weeks. Rupia yields to the treatment, as a rule, in from seven to fourteen days. At the Magdeburg clinic syphilitic epilepsy has been favorably influenced.

My observations justify the administration of arsenobenzol for the removal of gummata wherever located. Cases of brain, liver, and cutaneous deposits yield, in fact, melt away, after the injection. For brain gummata, when the diagnosis is made early, the treatment promises the prevention of the ultimate destruction of invaded tissue. Large liver gummata which threatened life have been cured in a few days. Kakeles reports a case in which exploratory operation disclosed the presence of an enormous non-operable mass, which proved

to be a gumma of the liver, which was successfully treated with "606." The reporter says, "I have never seen a pathologic mass melt away so rapidly." No visible or palpable syphilitic lesion which I have seen has failed to be promptly influenced by the remedy.

It is safe to inject pregnant women who are syphilitic; the fetus is favorably influenced by the treatment as has been proved by several observers.

HEREDITARY SYPHILIS

Ehrlich reported at a recent meeting of the Aertzlicher Verein in Frankfort that hereditary syphilis can be cured by injecting the mother of the nursing without direct treatment of the babe.

Taege reports brilliant results in a case in which a syphilitic mother aged 19 gave birth to a babe which promptly developed pemphigus syphiliticus, nasal syphilis, paronychia syphilitica and other positive symptoms of syphilis. The mother was injected ten days after confinement and nursed the babe. For two days the symptoms in the babe increased; after five days the history showed that the lesions were all yielding and in fifteen days after the injection of the mother the babe had gained 1,400 gm. and was free of all signs of syphilis. The examination of the mother's milk failed to show the presence of organic arsenic and on the addition of hydrochloric acid and potassium chlorate only a faint trace of inorganic arsenic was discoverable.

Ehrlich believes that the sudden death of the spirochetes releases a large quantity of endotoxins which in turn are responsible for the formation of an antitoxin which is present in the mother's milk. Whether due to arsenic or to the antitoxin finally liberated, the results are positive and surprising.

Ehrlich is less disturbed by the direct effect of the arsenobenzol in the new-born babe than by the poisonous effect of the endotoxins resulting from the death of the millions of spirochetes which flood the body.

The rational treatment of congenital syphilis makes it necessary for the mother to nurse her babe, and that she be injected with "606" without delay. When this is impossible "however paradoxical this may be," Taege says, "the syphilitic nursing must have a syphilitic wet-nurse who has been treated with '606.'"

Meirowsky and Hartmann prompted by Taege's, Dohot's and Ehrlich's observations have used the blood-serum of injected mothers in the treatment of congenital syphilis with decided benefit, and they feel justified in concluding that the results would have been entirely satisfactory if they had had a sufficient supply of the serum. Examination of the serum injected showed traces of arsenic. They believe that the antitoxin in the serum and the small quantity of arsenic are in all likelihood responsible for the results obtained. This opens a new field of study which promises to lead to the early and prompt control of the ravages of congenital syphilis.

THE DESTRUCTION OF THE CONTAGIUM VIVUM

Unquestionably the most important, most far-reaching effect of "606" to mankind is its power of destroying the living contagion or the *Spirochata pallida*. This at once places syphilis among the diseases which will ultimately be effaced, and that with more ease than any of the other infections. Syphilis becomes a controllable and preventable disease.

The injection of the subject is followed in from seven to ten days by the complete disappearance of the parasite. Süsskind places the time of its death at from six to seven days.

Iversen has experimented with chancre-juice removed by the Bier method to find that without exception the *Spirochata pallida*, which were originally demonstrated, had disappeared in two or three days after the injection. Better proof of the disappearance of the spirochetes was found by the same observer in his examination of the inguinal glands of ten patients, in all of whom spirochetes were present before the injection of "606." In three to four days after the treatment there were no demonstrable spirochetes in the same glands. Iversen concludes that if after five or six days in injected patients spirochetes are found in the inguinal glands complete sterilization has failed to follow and the patient must be subjected to a second injection.

INTRAMUSCULAR AND INTRAVENOUS METHODS

The relative advantages of the intramuscular and intravenous methods of introducing the Ehrlich-Hata remedy are being considered. As already mentioned, Ehrlich recommended the intramuscular injections until recently, when he became convinced that the intravenous is decidedly better. The experiences of Iversen and others are convincing. It is certain that the intravenous method is followed by the more prompt elimination of the arsenic, requiring four days, while with the intramuscular method this may continue for fourteen days. The pain, which by the newer method of mixture is materially reduced, is hardly to be considered a serious objection to the intramuscular method. The intravenous injection is almost always followed in two to three hours by chills, which continue at least thirty minutes, accompanied by elevation of temperature, aching, malaise, vomiting and diarrhea. Complications are not likely to follow in well-selected cases with either method if the necessary precautions are observed.

In malignant cases it has been suggested that the two methods be used together. It is best to give intravenously the largest possible safe dose in malignant cases at the present time. Unquestionably our methods will be materially simplified in the near future. I have heard of but one death attributable directly to the remedy in all of the thousands injected. It must be remembered, however, that the material has been carefully selected and the remedy has been in the hands of but few, and all under the instruction and guidance of Ehrlich, to whom we are morally responsible for every patient injected.

The reports which are presented may appear to those who have not seen the results of treatment to be unduly rose-colored. It is true that one can scarcely believe his eyes while watching the wonderful change which takes place in these lesions. Iversen of St. Petersburg says that it is naturally difficult to describe the effect of arsenobenzol on the lesions of syphilis. "These," he says, "must be seen and palpated that the result of the treatment may be thoroughly appreciated."

CONCLUSIONS

My experience with the remedy as I saw it used abroad and in my own private and hospital practice justifies the following conclusions:

1. The treponema, otherwise known as the *Spirochata pallida*, is positively destroyed and the living contagion of syphilis is promptly removed by the Ehrlich-Hata remedy.

2. The preparation "606" promptly and favorably affects visible and palpable syphilitic lesions. It also removes deep-seated gummata.

3. The remedy stays the destructive and onward march of syphilitic ulcerations and causes their healing in a surprisingly short time.

4. It is more rapid in its effect on specific disease than any other known remedy.

5. It is likely to prove more valuable than any other remedy in the treatment of the specific diseases of most internal organs.

6. It cannot replace cicatricial tissue, the result of Nature's reparative processes; neither does it affect favorably chronic degenerative diseases of the nervous system, such as paresis, system-diseases of the cord, in which there is a break in the continuity of nerve structure, though in some cases it seems to influence favorably the continuous crises of locomotor ataxia.

7. In all cases it causes a leukocytosis and the formation of antibodies.

8. It materially modifies, and in most cases ultimately negatives, the Wassermann reaction.

9. It unquestionably floods the circulation with endotoxins resulting from the death of millions of spirochetes, and in all probability an antitoxin is developed in the blood-serum. These facts must be thoroughly considered in connection with the treatment.

10. In acute and threatening deposits in vital organs the effect of "606" will often prove life-saving because of its prompt action, and for that reason it is preferable to the iodids or mercury.

11. It ought not to be given to ambulatory patients; neither is it safe in the hands of the careless or those who have not seen it used and learned the difficult method of its preparation for injection.

12. The hospital, where all things required in the preparation of the mixture of "606" can be sterilized, and where the centrifuge can be used, is preferable to any other place for its injection.

13. Patients injected should be kept quiet and in bed during seven days under close observation, and for a longer period if indications demand.

14. Second injections, if indicated, should not be given in less than eight weeks after the first.

15. Contra-indications should be carefully considered before using the remedy. Patients with any other infection than that of syphilis should not be injected, however mild the former may be, until a safe period has lapsed after their recovery; neither should the feeble or old or those with other than syphilitic organic disease be injected.

16. Congenital syphilis demands the treatment, either directly or indirectly, as suggested in the paper.

17. The living contagion is destroyed by "606"; hence its early use can prevent the spread of syphilis. This subject demands the immediate attention of sanitarians and those directly interested in public health.

18. In occasional well-selected cases the use of the iodids after the method of Wechselmann will increase the efficacy of "606" when second injections are necessary. From two to three weeks should lapse after thorough mercurial treatment, when this has been used, before the injection of arsenobenzol.

19. In spite of the fact that nearly all agree that the effect of arsenobenzol is magical, sufficient time has not lapsed to justify the conclusion that a single injection of "606" will prevent what we now recognize as the secondary and tertiary stages of syphilis. Only after long years of careful observation shall we be able to reach a positive conclusion. It will be necessary therefore to keep injected patients under close observation.

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THE CULTIVATION OF TISSUES OF THE CHICK-EMBRYO OUTSIDE THE BODY *

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In 1907 Harrison described briefly before the Society of Experimental Biology and Medicine¹ a method which he had found successful for the growing of certain tissues of the frog embryo outside the body. Essentially the method consisted in dissecting the central nervous system, myotomes and skin of frog embryos free from the surrounding tissues and transplanting them to a drop of lymph taken from the lymph-sac of an adult frog and contained within a hollow slide. The lymph immediately elots about the tissue elements into a loose fibrin network. Harrison watched the growth of the axis-cylinder processes of nerves and the proliferation and wandering of epithelial and connective-tissue cells within this matrix. He further observed striated embryonic muscle cells to become differentiated from the preexisting cells of the myotomes. In other words, he was able to observe a certain amount of differentiation of the tissues over a short period of time.

Other fluids were employed, however, without success, viz., physiologic salt solution, Locke's solution, and gelatin; and the transplantation of the embryonic tissues to the ventricles of the brain of the frog was not followed by proliferation and development. It appears as though the fibrin network was essential in order to afford a supporting framework on which the cells can attach themselves and thus retain their tension. The fluid within the meshes of the network corresponds to the fluid bathing the cells in the living animal and provides the nutriment. The full details of Harrison's work are now in press and will appear in the *Journal of Experimental Zoology*, 1910. In the spring of 1910 Professor Harrison kindly permitted me to spend a few months in his laboratory in order that I might acquire under his own supervision the method of growing tissues outside the body. He had already concluded that lymph was not a wholly satisfactory medium for growth. Some of the reasons were the following: The elots produced from it were neither firm nor uniform. Small quantities of lymph could be obtained from a single animal that sufficed only for one or two preparations. Hence, large series of control preparations could not be secured. It became necessary, therefore, to obtain a more uniform and abundant medium in order that the conditions underlying the growth and differentiation of tissues might be subjected to close analysis. Such an abundant medium of constant composition would, theoretically, be supplied by the blood-plasma provided it could be obtained in suitable condition.

The particular object of my study with Professor Harrison was to adapt, if possible, his method to the investigation of the growth of the tissues of warm-blooded adult animals in order to continue and extend the study of the laws of the healing of wounds and regeneration of nerves, which subjects were at that time being actively studied by Dr. Carrel, with whom I was associated at the Rockefeller Institute.

In repeating the original experiments of Harrison I succeeded in substituting the blood-plasma of the adult frog for the lymph, and thus in overcoming some of the

* From the Sheffield Biological Laboratory, Yale University.

1. Harrison, R. G.: Observations on Living Developing Nerve Fibers, *Proc. Soc. Exper. Biol. and Med.*, 1905-1907, iii, 140; the Outgrowth of the Nerve Fiber as a Mode of Protoplasmic Movement, *Jour. Exper. Zool.*, 1910, ix.

chief drawbacks which Harrison had encountered in his earlier work. The attempt was then made to cultivate tissues of chick embryos. The embryo of the chick offered the especial advantage of being procurable at any time throughout the year, and provided the opportunity for making observations on a warm-blooded species. Moreover, the tissues of the chick embryos are nourished at an early period from an extra-cellular yolk through the means of a well-established vascular system. Hence the removal of pieces of tissue from the embryo interrupts the vascular connections and eliminates all the nutriment derived from the yolk, so that opportunity is afforded not only for the study of growth of tissue, but also of problems of self-nutrition.

TECHNIC

The technic employed consists in placing a carefully isolated fragment of tissue of the chick-embryo in a drop of uncoagulated plasma derived from a chicken on a cover-glass. The cover-glass is inverted and sealed to a hollow slide and the preparation incubated at 39° C. The plasma immediately coagulates about the tissue and holds the fragment firmly fixed in a fibrin network. Preparations made in this way can be readily observed at all time under the microscope.

The success of the method depends on maintaining absolute asepsis and preventing undue chilling of the embryos or the completed specimens either during preparation or the later observation. In excising the fragment of tissue from the embryos they were floated in Ringer's solution and the operation carried out under a binocular microscope covered with an oven heated to 39° C.

The blood for the preparation of the plasma was obtained from young healthy adult chickens under ether anesthesia. The carotid artery is exposed and a cannula previously sterilized in olive-oil is inserted. The blood is collected in sterilized, paraffin-coated tubes which are cooled immediately by being plunged into an ice salt-bath. The blood is next centrifugalized by placing the tubes in larger centrifuge tubes which contain a mixture of salt and ice. The supernatant plasma is removed by means of paraffin-coated pipettes and transferred to paraffin-coated receptacles which are kept in a refrigerator until used. The plasma so obtained is highly stable and can be preserved in a fluid state for many days or even weeks. It should be stated, however, that in making control experiments plasma over four days old should never be used.

RESULTS

The method as described was employed especially during the past summer in the study of the growth of tissues of sixty-hour-old chick embryos. For this purpose isolated neural tubes, heart myotomes, and skin were employed. The results which we obtained can be stated briefly as follows:

The most actively growing elements in the preparations is the interstitial connective-tissue cells. These cells begin to spread into the plasma either as single cells or a layer of cells between the second and twelfth hours of incubation, as a rule, and the growth continues for from six to fourteen days. It often happens that a large part of the drop of fluid is filled with these cells. On being fixed and stained the preparations show mitotic figures to be very common in the proliferating cells. The muscular elements grow much less frequently and cellular outgrowths from them were observed in only about 3 per cent. of the experiments. The outgrowths take place from the myotomes and the heart and appear

in the form of short chains of striated cells. The striated cells which are outgrowths from the heart contract rhythmically along with the portion of the heart from which they arise. The outgrowth from the nerve cells consists of long axis-cylinder processes which present the same morphologic appearances and react in the same way to specific nerve stains as those of the chick-embryo. The full account of these studies will appear in a forthcoming number of the *Journal of Experimental Zoology*.

The technic as here described for the frog and chick embryos has now been applied by Dr. Carrel and myself to the cultivation of tissues derived from embryonic and adult mammalian species, as has already been described in *THE JOURNAL*.²

I wish to express my great obligation to Professor Harrison, first for extending to me the privileges of his laboratory for the purpose of studying the method which he had developed for growing animal cells outside the body, and next, for the ready personal assistance which he gave me at all times. I wish also to thank Professor Mendel and Professor Rettger for permitting me to use the chemical and bacteriologic apparatus needed for this work.

THE RENAL ACTIVITY IN PREGNANT AND PUERPERAL WOMEN AS REVEALED BY THE PHENOLSULPHONEPHTHALEIN TEST *

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Rountree and Geraghty¹ have recently recommended the use of phenolsulphonophthalein as a means of determining the functional activity of the kidneys, and consider it greatly superior to methylene blue, rosanilin, indigocarmin and various other substances which have heretofore been used for that purpose.

The results which they obtained by its means were so satisfactory that we were led to hope that similar determinations might throw further light on the prognosis and treatment of certain cases of toxemia of pregnancy by showing some characteristic change in the functional activity of the kidneys. As it is known that marked alterations in the metabolism normally occur in the maternal organism under the influence of pregnancy and the puerperium, we subjected a number of normal pregnant and puerperal women to the test in order to determine to what extent their kidneys reacted to it, before applying it under diseased conditions. We employed the technic recommended by Rountree and Geraghty, which is as follows:

Twenty to thirty minutes before administering the test the patient is given 300 or 400 c.c. of water by mouth in order to insure free urinary flow, as otherwise a delay in the appearance of the drug in the urine might be simply due to lack of secretion. The bladder is then completely emptied by means of a catheter introduced under aseptic precautions, and 1 c.c. of a carefully prepared solution containing 6 mg. of phenolsulphonophthalein to the cubic centimeter is administered subcutaneously either in the arm or the buttocks by means of an accurately graduated syringe. The time is

2. Carrel, Alexis, and Burrows, Montrose T.: Cultivation of Adult Tissues and Organs Outside the Body, *THE JOURNAL A. M. A.*, Oct. 15, 1910, p. 1379; Cultivation of Sarcoma Outside of the Body, *THE JOURNAL A. M. A.*, Oct. 29, 1910, iv, 1554.

* From the Obstetrical Department of the Johns Hopkins Hospital and University.

1. Geraghty, J. T., and Rountree, L. G.: An Experimental and Clinical Study of the Functional Activity of the Kidneys by means of Phenolsulphonophthalein, *Jour. Pharmacol. and Exper. Therap.*, July, 1910, p. 579.

accurately noted, and the urine as it is secreted is allowed to drain through the catheter into a test-tube containing one drop of a 25 per cent. sodium hydroxid solution, and a note made of the time elapsing until the appearance of the first faint pinkish tinge. Each sample of urine is measured and the specific gravity taken. A sufficient quantity of 25 per cent. sodium hydroxid solution is then added to make the urine decidedly alkaline so as to elicit the maximum color, as acid urine only becomes yellowish or orange, which immediately gives place to a brilliant purple red when it becomes alkaline. The sample is now placed in a liter measuring flask, mixed thoroughly with distilled water and accurately filled. A small filtered portion is then taken and compared with the standard used in all these determinations. This consists of 3 mg. of phenolsulphonphthalein diluted up to 1 liter and made alkaline by the addition of 1 or 2 drops of 25 per cent. sodium hydroxid solution, and forms a beautiful purplish red fluid, which retains its intensity of color for an indefinite period, so that a single preparation serves for an immense number of tests. On comparison of the diluted alkaline solution with the standard by means of a Duboseq colorimeter, the percentage of the drug eliminated is readily estimated.

Rountree and Geraghty obtained the following results in normal non-pregnant individuals:

In normal cases the drug appears in the urine in from five to ten minutes, and 40 to 60 per cent. of the 6 mg. dose (the average being about 50 per cent.) is recovered in the first hour. From 15 to 25 per cent. of the drug administered is recovered in the second hour, making the total recovery for the two hours 61 to 85 per cent. We do not consider the time of the total elimination as of as much value as the amount of elimination for a definite period.

We have applied the test to ten women in the last month of pregnancy and to eleven women in the first two weeks of the puerperium, who were under observation in the obstetrical department of the Johns Hopkins Hospital. As far as could be shown by routine physical examination, urinary analysis and the course of pregnancy and the puerperium, all of them were normal. Twelve observations were made on the ten pregnant women, and one on each of the eleven puerperal patients; while the only variation from the technic of Rountree and Geraghty consisted in making the injections deeply into the muscles of the buttocks instead of into the arm; and we might add that the standard solution employed was kindly furnished us by Dr. Rountree.

Table 1 shows the results obtained in the pregnant women, from which it will be noted that it takes considerably longer for the drug to appear in the urine during normal pregnancy than in ordinary non-pregnant individuals; the average time elapsing being 11.6 minutes in the former as compared to five to ten minutes in the latter. We also observed decided variations in the different individuals, the shortest time of appearance being nine and the longest twenty-four minutes, but in no case did this appear to be dependent on a diminution in the amount of urine passed.

Moreover, in no instance was the total elimination during the first hour as great as that noted by Rountree and Geraghty as the lower limit of normal. In our series of cases the average percentage was 21.39 instead of 50, as in Rountree and Geraghty's normal non-pregnant subjects. We also noted a very marked variation in the different individuals, the extreme limits being 2.4 and 39 per cent. In the second hour the average percentage eliminated was slightly higher than the lower limit set by Rountree and Geraghty, being 26.54 per cent., with variations from 11.4 to 59.1 per cent. It would therefore appear that in normal pregnant women the rate of elimination is more rapid in the second than

in the first hour, which is in marked contrast with the findings of Rountree and Geraghty, who demonstrated that normal non-pregnant individuals eliminated only one-half as much of the drug in the second as in the first hour. Some idea of the discrepancy between our results and theirs may be gained when we state that in seven of our twelve determinations the elimination was higher, in three approximately the same, and in only two lower in the second than in the first hour. Adding together the amount eliminated during the first and second hours, we find that the average was 47.93 per cent. with extremes of 13.8 and 65.7 per cent., while in only two instances did the total elimination fall within the limits established by Rountree and Geraghty in normal non-pregnant individuals.

TABLE 1.—RENAL ACTIVITY IN PREGNANT WOMEN AS INDICATED BY THE PHENOLSULPHONPHTHALEIN TEST

Obst. No.	Date of injection.	Time of appearance—minutes.	FIRST HOUR		SECOND HOUR		Percentage drug eliminated in 2 hrs.	Time before delivery—days.
			Amt. urine excreted, cc.	Percentage drug eliminated.	Amt. urine excreted, cc.	Percentage drug eliminated.		
4515	8 8 10	11	60	19.3	60	29.8	49.1	24
4522	8 11 10	24	35	3.5	120	59.1	62.6	2
4449	8 12 10	10	470	38.8	155	26.9	65.7	23
4489	8 12 10	13	95	12.9	70	16.7	29.6	17
4473	8 8 10	17	50	2.4	50	11.4	13.8	16
4473	8 16 10	23	115	23.8	90	23.3	47.1	8
4525	8 11 10	20	240	22.2	165	26	48.2	4
4437	8 12 10	15	100	24.3	140	32.2	56.5	3
4441	8 12 10	12	110	25.2	90	24.3	49.5	12
4485	8 12 10	11	125	39.0	50	18.5	57.5	1
4498	8 12 10	10	450	32.6	325	27.0	59.6	1
4489	8 8 10	9	230	12.7	120	23.3	36.0	1
Average		11.6	173.3	21.39	119.5	26.54	47.93	
Highest		24	470	38.8	325	59.1	65.7	
Lowest		9	35	2.4	50	11.4	13.8	

TABLE 2.—RESULTS OF TEST IN PUERPERAL WOMEN

Obst. No.	Date of injection.	Time of appearance—minutes.	FIRST HOUR		SECOND HOUR		Percentage drug eliminated in 2 hrs.	Day of puerperium.
			Amt. urine excreted, cc.	Percentage drug eliminated.	Amt. urine excreted, cc.	Percentage drug eliminated.		
4511	8 9 10	10	370	34.2	340	50.5	64.7	6
4483	8 6 10	13	240	20	110	28.2	48.2	7
4489	8 16 10	10	300	51.7	85	11.1	62.8	8
4485	8 12 10	10	145	49.6	240	27.3	76.9	9
4441	8 12 10	13	140	27.1	95	30.3	57.4	9
4498	8 6 10	9	440	29.5	120	25.0	54.5	9
4487	8 12 10	15	125	41.8	300	20.3	62.1	10
4486	8 12 10	9	100	22.4	240	32.4	54.8	10
4497	8 9 10	8	475	20.2	540	35.2	55.4	10
4501	8 13 10	8	460	34.5	115	29.1	63.6	11
4500	8 5 10	6	290	58	125	12.6	70.6	11
Average		10.0	280.46	35.36	210	25.63	61.0	
Highest		15	475	58.0	540	35.2	76.9	
Lowest		6	100	20.0	85	11.1	48.2	

Table 2 shows the results obtained in the eleven puerperal patients. In this series the time elapsing before the appearance of the drug in the urine was approximately the same as that observed by Rountree and Geraghty in normal non-obstetric subjects. Moreover, the amount eliminated during the first hour approaches that observed by them, although the average elimination of 35.36 per cent. is considerably below their lower limit. In our series the high and low limits were 58 and 20 per cent. respectively, and in only four instances did the readings approximate Rountree and Geraghty's normal limits. In the second hour the average elimination was 25.63 per cent., which is slightly higher than the maximum noted by the above authors. In seven of our cases the elimination was greater, in two less, and in only two

equal to their normal average. Although in our puerperal series the average percentage eliminated is greater in the first than in the second hour, the relative difference is not so great as is observed in non-obstetrical patients, and in several instances the figures for the second hour are higher than for the first. At the same time the total amount eliminated corresponds fairly well with Rountree and Geraghty's normal low limit, as the average was 61.0 per cent, with extremes of 48.2 and 76.9 per cent., while in six instances the readings fell within their normal limits.

Comparison of the results obtained in these two series of cases seems to indicate that several important points of difference exist in the renal activity of pregnant and puerperal women, which may be summarized as follows:

1. The average time elapsing before the appearance of the drug is shorter in the puerperium than in pregnancy, thus indicating diminished renal activity in the latter state.
2. In puerperal women the average amount of drug eliminated in the first hour is greater than in pregnant women, while in the second hour it is approximately identical in both groups.
3. The average total elimination is greater in the puerperium than in pregnancy. This is well exemplified in Table 3, which shows the results obtained in five women whose urine was examined both before and after delivery, and forcibly accentuates these points.

TABLE 3.—RESULTS OF TEST BOTH BEFORE AND AFTER DELIVERY

Obst. No.	—PREGNANCY—			—PUERPERIUM—		
	First Hour Percent-age.	Second Hour Percent-age.	Total Percent-age.	First Hour Percent-age.	Second Hour Percent-age.	Total Percent-age.
4485	39.0	18.5	57.5	49.6	27.3	76.9
4497	24.3	32.2	56.5	20.2	35.2	55.4
4441	25.2	24.3	49.5	27.1	30.3	57.4
4489	12.7	23.3	36.0	51.7	11.1	62.8
4498	32.6	27.0	59.6	29.5	25.0	54.5
Average...	26.76	25.06	51.82	35.62	25.78	61.4

Notwithstanding the small number of cases studied, we consider that our findings show that pregnant and puerperal women react so differently to the phenolsulphonephthalein test, as compared with other non-pregnant individuals, as to indicate the existence of some radical change in the functional activity of the kidneys in the former. This being the case, great caution should be exercised in drawing conclusions from this test in toxic conditions. We regret that we are unable to make definite statements in this regard. Unfortunately, neither of us, for the present at least, will be able to continue the work; but at the same time we feel that the results already obtained are sufficiently interesting to justify publication.

CONCLUSIONS

As the result of our investigations we feel that the following conclusions may be tentatively drawn:

1. Normal obstetrical patients eliminate phenolsulphonephthalein more slowly than normal non-pregnant individuals. Whether this is connected with the ordinary changes in metabolism observed at that time or is due to some other factor, we are at present unable to state.
2. In the last month of normal pregnancy the power to eliminate this drug may be very low, and falls far below the limits set for non-pregnant individuals.
3. Until more extensive observations are at hand we feel that this test should be applied with great caution in toxic cases, although it is possible that further study will show that it may afford valuable diagnostic and prognostic information.

OBSTRUCTION OF BOWEL—DIETL'S CRISIS

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SANTA BARBARA, CALIF.

Patient.—Early Dec. 14, 1909, I was called to see Mrs. H. W. B. During the previous evening she had been stricken with intense abdominal pain, of sudden onset, the pain continuing with increasingly severe crampy exacerbations at intervals until I saw her. She had vomited twice within six hours.

Examination.—This revealed an extremely tender lump to the right of umbilicus. It was hard and seemed about the size of a tangerine orange. The patient said that the lump had appeared within the last two hours, and she was positive such condition had never existed before. The right rectus was very rigid and the right lumbar region was also on guard and sensitive. Bowels had moved previous to onset of pain, but not since. Pulse was 106, and weak volume; temperature 98.8 F. There were no urinary symptoms. The patient was frail, and had been a partial invalid for many years, suffering from a chronic phthisis pulmonalis. She had been under care of various physicians for abdominal and pelvic ailments, which at operation was found to be a general enteroptosis. The patient was hurried to Cottage Hospital and operation performed at once.

Operation.—Incision was made through the right rectus muscle. On entering the abdominal cavity the right kidney, much enlarged and highly congested, presented through the opening. The kidney was displaced downward, rotated on a longitudinal axis through the mesonephron—the upper pole lay not far from the umbilicus—and was firmly bound along its whole length by old organic adhesions to the ascending colon and hepatic flexure. The ascending colon, proximal to the hepatic flexure, was greatly distended and bluish black in color; the circulation was poor. The hepatic flexure was dragged on, stretched, compressed, rotated and angulated, producing a mechanical obstruction of the bowel. The adhesions between the kidney and the hepatic flexure were severed, the obstruction was relieved and the kidney forced back as high as possible toward its normal bed. The patient's condition on the table was not good, and no attempt was made to anchor the kidney.

Postoperative History.—Convalescence was stormy; an immediate bronchopneumonia developed, and within two or three days appeared the phenomena of general septic invasion, chills, rapid pulse, and alternating high and subnormal temperature. Life was in the balance for two weeks and then convalescence ensued. Patient died five months later from the phthisis, there being no abdominal symptoms in the interval.

Strangulation ileus due to bands of adhesions is not a rare condition; however, in a short search of the available literature I am unable to find a case in which the twisting of a kidney pedicle—Dietyl's crisis—has been a factor in causing adhesions to close bowel lumen and blood-current.

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AN EXTRACEREBELLAR TUMOR

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CHICAGO

Extracerebellar tumors lie in the cerebello-pontine recess. They apparently arise from the acoustic nerve; usually grow slowly and it may be years before symptoms, produced by pressure on the lateral lobe of cerebellum and pons, to which they are adherent, appear.

This case was referred to me May 23, 1910:

History.—Mr. R. W., aged 58, married, a car-repairer, born in Switzerland, had lived in America thirty years. His health had always been good. There was no specific history. Two years ago he had a discharge from the right ear which continued for about two weeks. He began to complain of deafness in the left ear about three years ago. Two years ago, he was

struck under the right eye by a jack-handle, causing some swelling and discoloration. In February, 1910, he began to complain of being dizzy when he would stoop over. There was headache and a sense of fullness across the frontal region. The dizziness increased and late in April, 1910, he noticed that he began to stagger, the tendency being toward the left side.

Examination.—This revealed marked ataxia of cerebellar type, with tendency to fall to the left, left nerve deafness, partial right deafness (middle ear), slight weakness of left facial nerve, including upper branch; taste not involved; left corneal reflex absent, but no other evidence of fifth nerve involvement; no ocular paralysis. Tendon reflexes were slightly increased on both sides; there was no clonus; no Babinski sign; no sign of paresis of opposite side of body; no optic neuritis, but veins of disks rather full. In the examination of patient 1 was assisted by Dr. T. Faith, oculist; Dr. H. Kahn, aurist, and Dr. P. Bassoe, neurologist.

Diagnosis.—Tumor at left cerebello-pontine angle, probably a fibroma of the auditory nerve (left-sided deafness preceded vertigo by two or three years), but primary growth in cerebellum or pons, with pressure on auditory and facial nerves possible. At any rate, the growth was subtentorial and on the left side.

Treatment.—While there was nothing in the patient's history, or found on examination, to point to a syphilitic origin of the disease, yet it was thought advisable to put him on specific treatment for a time. He remained in the hospital for two weeks and then returned to his home. The treatment was pushed vigorously until July 4, a period of six weeks, without any effect, the patient growing worse, being now unable to walk without falling, unless assisted.

The patient and his family requested that I operate on him in the hope of obtaining some relief. He was readmitted to the hospital July 4 and prepared for operation.

Operation.—July 6 under ether anesthesia, the usual horse-shoe-shaped incision was made through the soft parts. The skull was opened with Hudson trephine and the opening enlarged by Dahlgren forceps. No growth was found in the cerebellum, but high up, above the root of the cerebellum a dense mass was felt. As it was firmly attached to the pons, it could not be removed or brought into view. The wound was closed without drainage. During operation the anesthetic caused some trouble, the patient taking it badly.

The patient reacted from operation, but on the third day developed pneumonia, resulting in death the fourth day.

Necropsy Findings.—The specimen removed at the autopsy shows a fibroma about 3 cm. in its longest diameter and 2.5 cm. in its transverse diameter. It was firmly adherent to the side of the pons, its origin apparently being from the auditory nerve.

103 State Street.

Therapeutics

THE THYROID

(Continued from page 1983)

PATHOLOGY OF THE THYROID GLAND

1. The thyroid normally varies in size and in the amount of its secretion with age, sex, locality, and condition: the variations being greater in women than in men.

2. It may be inflamed, or there may be actual abscess formation.

3. It may be enlarged: (*a*) by an increase of the glandular tissue (hypertrophy); (*b*) by an increase of the colloid deposit; (*c*) by the formation of cysts; (*d*) by a dilatation of the blood-vessels, even to aneurysmal sacs; (*e*) by connective tissue development; (*f*) by tumor growth (sarcoma, cancer).

4. It may be decreased in size: (*a*) by connective tissue displacement of the glandular tissue—a sclerosis; (*b*) by general atrophy.

5. The gland may be large, and yet under-secrete.

6. The gland may be apparently small, and yet secrete sufficiently, and even hypersecrete.

Thyroid Congestion.—The thyroid probably becomes congested and stimulated with every infection, and Lorand, of Vienna (*Lancet*, London, Nov. 9, 1907) states his belief that the thyroid is an active agent in antagonizing all infections, and that when it is so stimulated, it is one cause of fever and the symptoms of fever, such as thirst, high temperature, sweating, nitrogenous loss, and wasting of the body. He believes that the thyroid is an active agent in fighting tuberculosis, and thinks that after a patient has gone through serious illnesses, or when some chronic depressing disease is present, the thyroid becomes worn out, and that is the time when tuberculosis readily attacks or develops in the patient. Whether or not we accept his conclusions as to the cause, the sequence is certainly a fact, that tuberculosis readily develops after typhoid fever, prolonged infection, prolonged alcoholism, after parturition, after prolonged lactation, and during diabetes. If his conclusions are correct, thyroid in small doses would be indicated in tuberculosis. But if the heart is rapid, as it generally is in this disease, thyroid should be given with care. Whether the iodine of thyroid extract would be a stimulant to the tuberculous process, as is an iodid, is a question that has not yet been decided. An iodid in active tuberculosis or in quiescent tuberculosis is more or less vicious in its action, sometimes stimulating the tuberculous process to activity, much as would tuberculin. In other words, an iodid should probably never be used in tuberculosis, especially of the lungs.

It seems to be a fact that after cured tuberculosis and after typhoid fever, diphtheria, and other serious infections, the thyroid tends to develop a greater amount of connective tissue, even if the glandular tissue does not actually atrophy. This may be one of the reasons that after severe infections arteriosclerosis is likely to occur earlier than in patients who have not suffered these illnesses, insufficient thyroid secretion tending to cause arteriosclerosis. Although congestion of the thyroid frequently occurs with infection or illness, active inflammation is rare, but it is more frequent than once thought. Actual suppuration is exceedingly rare.

Thyroid Hypertrophy.—Ordinarily, when the glandular tissue is hypertrophied, it is hyper-secreting; and this may be on account of some necessary function of the body, as menstruation or pregnancy. If there is no such necessity for its hypertrophy and hypersecretion, abnormal symptoms occur, and if the condition progresses, exophthalmic goiter is the result. With this hypertrophy the blood-vessels are always enlarged and may become dilated to a condition of aneurysm. Aneurysm of a thyroid artery may be present without an increased glandular activity of the gland, but the two conditions are generally concomitant.

Increased colloid deposits and the formation of cysts produce an ordinary goiter; *i. e.*, an enlarged thyroid gland is present, but with no signs of its hypersecretion. An enlargement of the thyroid from connective tissue deposit sooner or later means under-secretion of the gland and symptoms indicative of hyposecretion.

If a tumor growth, like sarcoma or cancer, begins in some portion of the thyroid, the part of the gland not affected often becomes irritated to hypersecretion, so that symptoms from such increased secretion may be present as the tumor continues to grow. This is not always the case.

Thyroid Atrophy.—The thyroid normally atrophies after 45, and gradually developing symptoms of insuffi-

cient secretion occur. Premature shrinking of the gland may occur from connective tissue displacement of glandular tissue, a sclerosis, as above stated, from prolonged serious infections. If it is atrophied or its secretion is insufficient at or soon after birth, the child is a cretin. If it only partially secretes, with a probable disturbance of the pituitary gland (hypophysis cerebri), the child may grow large, but shows infantile obesity. If the gland ceases its secretion during adult life, or if the gland is removed by operation, myxedema is the result.

Thyroid Secretion.—The fact that a gland is palpable and large is no positive assurance that it is properly secreting. The symptoms which the patient gives and the signs which are found will determine whether its secretion is sufficient.

Occasionally a small thyroid gland is found and yet symptoms of hypersecretion are present. This, however, is a rarer condition than that of an enlargement and under-secretion.

STIMULANTS OF THE THYROID GLAND

Nervous tension, great sorrow, great joy, sexual excitement, genital disturbances (especially uterine), pregnancy, meat, coffee, tea, alcohol, arsenic, iodids, phosphorus, salicylic acid, pilocarpin, and, greatest of all stimulants, thyroid extract.

The hypersusceptibility of some patients to iodids, the so-called idiosyncrasy to these drugs, probably means that their thyroids are hypersusceptible to such stimulation. This susceptibility is most likely to occur in neurotic families.

DEPRESSANTS OF THE THYROID GLAND

Quiet, seclusion, rest, absence of all sexual excitation and all genital irritation, milk and cereal diet, glycerophosphates of lime and soda and perhaps all forms of calcium, opium in any form, ergot, bromids, chloral, and perhaps most hypnotics.

HYPERSECRETION

When the chemical analysis of the thyroid gland has reached perfection it will doubtless be found that although the histologic structure of the gland may seem normal, the secretions which it furnishes will be proved to vary greatly, both as to the amounts of the various elements and perhaps in their chemical structure. In other words, it will doubtless be found chemically, as we know clinically, that there are wide variations from the excessive secretion of all elements, as occurs in Graves' disease, to the diminished secretion of all elements, as occurs in myxedema, and that all of these variations from normal to the upper limit or Graves' disease, or from normal to the lower limit or myxedema, produce symptoms, the former from hypersecretion of some elements and the latter from hyposecretion of some elements.

The frequency with which the normal thyroid increases its activity in women, and the tendency in them for the gland to recede not rapidly to normal activity, is the cause of their excitable, nervous, and hysterical natures, and is also the reason that the final result of hypersecretion, Graves' disease, occurs four times as frequently in women as in men. The opposite is also true (as is so true of every glandular activity), *viz.*, that this gland is more likely to wear out, atrophy and hyposecrete in women after 45 than in men, and in the same ratio, 4 to 1.

There is a condition recognized as *thyroid instability*, *i. e.*, there are at one time symptoms of hypersecretion,

and at another time symptoms of hyposecretion, or the secretion of the gland may be apparently normal, and there may occur crises of hypersecretion or disturbed secretion. Symptoms of this condition are evidenced by unexplainable and otherwise inexcusable asthmatic attacks, urticarial attacks, eczematous eruptions, diarrheas, subacute rheumatic attacks, unexplainable vomiting, and, perhaps, attacks of migraine, to say nothing of attacks of tachycardia. While many of these conditions may be otherwise explained, instances occur in neurotic patients when no one condition other than disturbance of the thyroid could cause so many apparently serious but self-limited conditions. The least that can be said is that such unexplained attacks should be studied from the standpoint of disturbance of the thyroid.

The evident conditions caused by hypersecretion are: (1) menstrual disturbances; (2) hysteria; (3) tachycardia; (4) symptoms of the menopause; (5) Graves' disease; (6) puerperal insanity; (7) acute mania.

1. The *profuse menstruation* of young girls is generally due to excessive activity of the thyroid gland, whereas its underactivity causes amenorrhea and chlorosis. Such girls with undersecretion or disturbed secretion may have peculiar nervous crises, perhaps even epileptic attacks, and the case is on record of one patient who was cataleptic. Women may also have profuse menstruation from too much thyroid secretion. The thyroid is also often at fault (*i. e.*, hypersecreting) when menstruation occurs too frequently, as every three or even every two weeks. This is especially true in young girls. The best treatment for this profuse menstruation or *menorrhagia*, when there is no apparent uterine reason, and also for this too frequent menstruation, is mammary extract, in tablet, to be crushed by the teeth and taken in doses of from 3 to 5 grains, three or four times a day. It is partially efficient in shortening a prolonged menstrual flow (its administration is best begun on the third day), but its best action is when administered during the interim between the periods. It will often postpone the period to the normal time, and prevent the flow from being profuse.

2. *Hysteria* has never yet been definitely defined. There has never been a lesion found; the condition has never been explained. What better etiology do we require to explain the manifold manifestations of hysteria than in disturbance of this emotional gland? Most hysterical symptoms are due to overactivity or disturbed activity of the gland, and it is perfectly natural that this gland, which is over-acting so many more times in women than in men, should cause them to be the ones most frequently to suffer from hysteria. It is hardly necessary to enumerate the hysterical manifestations to see how closely they coincide with known symptoms of thyroid hyperactivity. The crying, the laughing, the flushing, the sweating, the rapid heart, the pains without reason, and even the hysterical fever can all be accounted for by reference to the thyroid. The opposite, hysterical indifference, apathy, slow heart, hysterical moroseness, and even hysteroepilepsy, may be accounted for by subsecretion, or hyposecretion, of the thyroid.

3. It is merely begging the question to entitle a condition in a text-book as tachycardia, and yet this has been done for years. *Tachycardia* without a cardiac lesion or cardiac excuse, occurring often on least excitation, as after a cup of coffee or a glass of wine, or after mental excitation or any sudden nervous disturbance, or after any other intangible reason for rapid heart action, a paroxysmal misbehavior of the heart (not permanent, as occurs in Graves' disease), is undoubtedly

due to thyroid hyperactivity. Anything that will quiet the thyroid will stop the tachycardia. Of course such tachycardias tend soon to stop without treatment.

4. The so-called *menopause* symptoms are simply those of thyroid activity. They will be present in modified form or entirely absent if the menstruation ceases gradually and the thyroid thus gradually ceases its periodic hyperactivity. If the menstruation ceases rather abruptly, or there are long abrupt periods of intermittency, the thyroid persists in its cyclic hypertrophy and hyperactivity, and with the inability of the blood to rid itself of extra thyroid secretion by bleeding, the woman becomes intoxicated with the thyroid and develops symptoms, such as hot flashes, sweatings, palpitations, nervous irritability, restlessness, and perhaps actual hysteria. She may be relieved by bleeding from the nose, by diarrheas, polyuria, or in some other way, but she is miserable for several or more days until the period of the activity has passed. Little by little the gland will normally lessen its activity, and these symptoms disappear. If she again menstruates the relief which she gets is absolute until the next or permanent stoppage of menstruation. She will pass through this same condition if, for any reason, both ovaries are removed. Fortunately, this is now rarely done, as it has been learned that even a small piece of an ovary will functionate and prevent operative menopause. Any of the conditions or drugs named under those that tend to inhibit secretion of the thyroid are of value. Perhaps the drug of greatest value at this period is a bromid. Patients, however, having these uncomfortable menopause symptoms should be treated much on the plan of a mild Graves' disease.

The above symptoms of the menopause are very frequent and very constant, but that the symptoms of the menopause are due to a hyperactivity of the thyroid, is a fact even yet recognized by but few as the cause of the condition. Rarely the thyroid ceases its activity abruptly, or at least too greatly under-secretes soon after the menopause. Such patients rapidly put on weight, and, if the secretion is too greatly diminished, develop myxedema. Myxedema has been recognized for years as due to subcretion of the thyroid. Most women and many men put on weight after the age of 45, owing to a diminished thyroid secretion.

5. Graves' disease will be treated in the next article on thyroid.

6. The cause of *puerperal insanity* has not been explained. It is probable that this is due to a disturbed thyroid, and probably to a hypersecretion. During pregnancy the thyroid is hypersecreting, or at least should be hypersecreting, to care for the double metabolism of mother and fetus. If it is insufficient, symptoms occur, and if much insufficient, it may be a cause of puerperal eclampsia. That its increased secretion is utilized is shown by the fact that if a woman who is suffering from Graves' disease becomes pregnant she often suffers no symptoms of thyroidism during the pregnancy, but frequently the symptoms again occur after the pregnancy has terminated. However, it should be emphasized that a woman who has Graves' thyroid disease should not marry. From deductive reasoning, then, it would seem probable that puerperal insanity is due to abnormal activity of the thyroid.

7. There are certain forms of *acute mania* occurring as an intoxication, the causes of which have not yet been explained. It is possible that excessive thyroid secretion or disturbed thyroid secretion is the cause.

(To be continued)

GOOD SENSE IN PRESCRIBING

R	Gm.
Digitalis	
Quinine sulphat aa.....	0.05 (gr. 1)
Extract gentiane q. s. ut ft. pilula, d. tal. dos. No. xx.	
Sig.: One or two pills three times daily.	

It makes no difference whether Skoda (the alleged author of this pill) or some other man of equal or greater note first wrote or recommended this combination. It is not good sense. In the first place, the amounts in the prescription should be distinctly ordered by the prescriber, and then the amount divided into as many pills or capsules as the physician desires. The exact dose is thus supervised by both the physician and the pharmacist. In the above prescription there is only one to supervise the dose, and that is the pharmacist; in other words, he multiplies the dose by 20, and has no supervisor as to whether or not he makes a mistake.

In the next place, the amount of Latin required to write this prescription correctly, even with everything abbreviated, is unnecessary and uncalled for. If 1 gram (15 grains) of each of the active ingredients is ordered, and then the pharmacist is ordered to make 20 pills, the whole prescription is much simpler. The amount of the extract of gentian is entirely left to the decision of the pharmacist; in other words, it is not used at all as a drug, but is simply used as an excipient with which to make up the dry powders into pills. Why specify a pharmacopoeial preparation for such a simple thing as an excipient? Whatever amount of gentian was used as the extract would be of no tonic value under any circumstances. Therefore, the excipient had much better be left to the pharmacist, if a pill is to be made.

It is always uncertain just when a pill of this description will dissolve and how much of the 0.05 gram of digitalis will ever give up its activity. If it is advisable to give digitalis in powdered form with quinin, how much better to order these two dry drugs placed dry in a capsule; then, as soon as the gelatin dissolves the powder is ready for chemical combinations and absorption.

The playing with strong drugs is inadvisable; digitalis leaves in dry powder and of uncertain strength combined in a sticky pill for slow disintegration and absorption is very uncertain, and if digitalis is actually needed, is too uncertain for scientific use. On the other hand, if digitalis is not needed, it is wrong to use a strong drug thus carelessly. With such a prescription, then, the patient gets better because of the other orders and his general management, and the prescription plays but a small part in the effect, except that on his mind. This of course is very valuable, but, if analyzed, it brings the physician into ridicule from the intelligent mental curist who knows that it is the general management and the impression on the mind rather than the prescription that did the work. If a prescription is to be written or a drug given for impression on the mind, let it not carry with it the uncertain activity of poisonous drugs.

The quinin in this prescription may become a tonic because, if enough of it is absorbed, it is more or less excreted by the saliva, and at the following meal food and drinks taste slightly bitter, and such a bitter is an appetizer. Also, quinin is a stimulant to the nervous system. The above dose of course is very small.

To sum up, if digitalis is needed it had better be administered in liquid form. If it is not needed, it should not be used at all. The extract of gentian plays no part in the therapeutic story. The small dose of quinin may be advisable in pill, tablet, or capsule.

ERGOT

Some splendid work on this drug has recently been completed by Dr. Horatio C. Wood, Jr., and Dr. Clarence A. Hofer, of Philadelphia. Their results and the tables of their experiments are published in the *Archives of Internal Medicine*, (October, 1910, p. 388).

It is a pleasure to note that they have pharmacologically determined what has been urged by a few men clinically, that ergot causes vasocontraction of the arteries and is probably a stimulant to the heart. In other words, ergot raises the blood-pressure and is of benefit to the heart. These investigators show that the action on the blood-vessels is due to peripheral action on the muscles in the blood-vessel walls, and not to action on the vasomotor center. They also show that the increase in blood-pressure caused by the drug is an accurate indicator of the activity of the ergot employed, and that the amount of the active principle of the drug, sphacelotoxin (a chemical union of the alkaloidal substance of the drug *hydro-ergotinin* with a resinous body) is also indicated by the rise in blood-pressure. Ergot is also a stimulant to all of the unstriped muscle tissue of the body.

Wood and Hofer also positively prove that the ergot on the market varies greatly in its active principle, *i. e.*, in its power to cause unstriped muscle stimulation. They also show that a perfectly prepared fluidextract rapidly and continuously loses its activity and becomes worthless. The crude drug also loses its activity on keeping. Therefore, they come to the conclusion that all liquid preparations of ergot should be kept in small bottles, hermetically sealed, and even then they think that the label should declare at what date it is manufactured, since, if a preparation is old, it is of but little value. Ordinary fluidextracts, even if not exposed to the air, will lose approximately 10 per cent. of their strength per month; hence the ordinary fluidextract on the market, bottles of which are frequently opened, lose their strength much more rapidly, and are really generally worthless.

Vaccine Therapy in Otology.—H. O. Reik in the *Laryngoscope* states that the employment of vaccine therapy in otology, although having had but a limited trial so far, has been attended by such successful results as to warrant us in feeling greatly encouraged. Furunculosis, with its recognized tendency to the formation of boils in crops, seems to have responded more promptly and satisfactorily to this form of treatment than to any other, and, in tuberculosis of the middle-ear, a condition heretofore so baffling to the otologist, there would seem to be a good reason to believe that at last we have a controlling, curative remedy. Looking into the future, there has been held out to us the enticing prospect of being able to cure without operation a larger percentage of patients with persistent chronic, purulent otitis media, or, failing in that, of insuring success for operative treatment of this affection. The aural conditions to which this new form of treatment would appear to be reasonably applicable are, Reik says, the treatment of chronic suppurative otitis media; the preparation of patients for operation, raising the opsonic index in order to facilitate rapid healing after obliteration of the gross lesions, and the postoperative treatment of mastoiditis and its complications, when healing is delayed and the patient is unable to construct new tissue without aid. While the outlook is hopeful in these several directions, we must not grow too enthusiastic as yet. We are perhaps justified in some degree of optimism but not in enthusiasm. Let us try the method further, with fairness and judiciously, Reik urges, not expecting the impossible of it, for it will not entirely displace any other form of treatment; no matter how valuable it ultimately becomes, it will only be an additional therapeutic measure at our command.

New and Nonofficial Remedies

SINCE THE PUBLICATION OF THE BOOK "NEW AND NONOFFICIAL REMEDIES, 1910," THE FOLLOWING ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK ARE ASKED FOR.

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT SO FAR AS KNOWN IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

[For list of articles which have already been mentioned in detail, see THE JOURNAL, page 1980, last week.]

ARBUTIN.—*Arbutinum.*—Arbutin. $C_{12}H_{16}O_7 + \frac{1}{2}H_2O$, is a glucosid occurring in the leaves of *Arctostaphylos Uva-ursi* Spr., *Vaccinium Vitis-Idaea* L. and many other genera of the family *Ericaceae*.

Arbutin occurs in long, glistening, colorless needles, or as a fine, white, crystalline, odorless powder having a bitter taste. It is soluble in 8 parts of water and 16 parts of alcohol; very soluble in hot water and hot alcohol; insoluble in chloroform, ether and carbon disulphid. Its aqueous solution is neutral to litmus paper and is not precipitated by solutions of the metallic salts or by solution of tannin. Its aqueous solution is colored blue by ferric chlorid test solution. By boiling with diluted sulphuric acid or by treatment with emulsin arbutin is converted into glucose and hydroquinone.

When heated to 100° C. (212° F.) arbutin loses its water of hydration. At 144° to 146° C. (291.2° to 294.8° F.) the anhydrous glucosid melts. It should leave no residue on ignition.

An aqueous solution of arbutin (1/20) should not be affected by hydrogen sulphid (absence of lead).

Actions and Uses.—Arbutin probably owes its effect, at least in part, to the antiseptic action of hydroquinone, formed by its decomposition in the urinary tract. It has been used as a urinary antiseptic and diuretic.

Dosage.—0.2 to 0.5 Gm. (2 to 7 grains) three or four times a day.

NUCLEIC ACID.—*Acidum Nucleicum.*—Nucleinic Acid.—Nucleic acid is an organic acid obtained from nuclein by the action of alkalis or by tryptic digestion.

Nucleic acid is an amorphous, white powder and has an acid reaction. It is readily soluble in ammoniacal or alkaline water with the formation of water-soluble salts. From these solutions it is precipitated by slight excess of hydrochloric acid but not by acetic acid. It is insoluble in alcohol and ether. When chemically pure it does not give the biuret test or Millon's reaction, but a slight response to these reagents does not indicate a degree of impurity incompatible with its use as a medicinal agent.

It should contain between 14.5 and 16.5 per cent. of nitrogen and between 8.5 and 10.5 per cent. of phosphorus, the relative proportion being 4 atoms of P to 14 or 16 N, approximately.

Actions and Uses.—See Nuclein, Nucleic Acid and Nucleates.

Dosage.—0.06 to 0.3 Gm. (1 to 5 grains) three times a day.

Non-Proprietary Preparation:

Nucleinic Acid Merck (from Yeast).—Manufactured by E. Merck, Darmstadt, Germany (Merck & Co., New York).

ACNE VACCINE.—A vaccine prepared from acne bacilli (*Bacillus acnes*). Said to be useful in the milder forms of acne.

H. K. Mulford Co., Philadelphia.

Acni-Bacterin. This product is marketed in four syringes containing respectively 25 million, 50 million, 100 million and 200 million killed acne bacilli, sold in a package or as separate syringes.

Dose. Initially 5 to 25 millions.

FRIEDLANDER VACCINE.—A vaccine prepared from the Friedlander bacillus. It is said to be useful in infections by the Friedlander bacillus, such as chronic nasal catarrh and chronic gleet.

H. K. Mulford Co., Philadelphia.

Friedlander Bacterin. This product is marketed in packages of four syringes, containing respectively 50 million, 100 million, 200 million and 400 million killed Friedlander bacilli. The single syringes may be obtained separately.

NORMAL HORSE SERUM.—(See N. N. R., p. 186).

H. K. Mulford Co., Philadelphia.

Normal Serum (From the Horse). Marketed in packages of two syringes, each containing 10 Cc.**ANTIMENINGOCOCCUS SERUM.**—(See N. N. R., p. 172).

H. K. Mulford Co., Philadelphia.

Antimeningitis Serum. A serum prepared from the blood of horses immunized to the meningococcus of Weichselbaum (*Diplococcus intracellularis*), according to the method of Flexner (inoculation of antolyzed cultures followed by living organisms).

It is useful for the treatment of epidemic cerebrospinal meningitis, due to the meningococcus.

Dose. 15 to 30 Cc. (4 to 8 fluidrams) given by intraspinal injection. For young infants, 10 Cc. (2½ fluidrams). The serum is marketed in aseptic glass syringes with sterilized needle.**STAPHYLOCOCCUS VACCINES.**—(See N. N. R., p. 179).

H. K. Mulford Co., Philadelphia.

Four varieties of vaccine are offered:

1. *Staphylo-Albus Bacterin.* From staphylococcus pyogenes albus.
2. *Staphylo-Aureus Bacterin.* From Staphylococcus pyogenes aureus.
3. *Staphylo-Bacterin.* Containing a mixed culture of staphylococcus albus, aureus, and citreus.
4. *Staphylo-Acne-Bacterin.* A mixed vaccine prepared from cultures of staphylococcus albus, aureus, and citreus with bacillus acneus.

All the above are marketed in packages of four syringes containing respectively 250 million, 500 million, 1 billion and 2 billion killed staphylococci. The syringes of staphylo-acne bacterin contain in addition, respectively, 25 million, 50 million, 100 million and 200 million acne bacilli. The single syringes may be obtained separately.

TUBERCULOSIS SERUM VACCINE.—An emulsion of human tubercle bacilli, sensitized by the application of tuberculosis serum.

The production of sensitized tubercle bacilli, or bacilli which are capable of complement fixation, is accomplished with the assistance of an efficient tuberculosis-immune serum, which has a considerable content of specific amboceptor antituberculin. The content of this serum in specific amboceptor is ascertained according to the method of complement fixation. Besides antituberculin, this serum contains agglutinating, precipitating and bacteriotrope immune bodies.

Emulsions of sensitized tubercle bacilli are prepared as follows: Human tubercle bacilli, after having been thoroughly washed and briskly dried, are mixed with fresh tuberculosis serum, the quantity of which is calculated from the determination of the immunity bodies. This mixture is left for several days in the incubator, at a temperature of 37° C., and is then shaken in an apparatus, with glass beads, until intact tubercle bacilli are no longer demonstrable in the removed sample. The broken-up masses of bacilli are then separated from the serum, through centrifugalization, washed with physiologic salt solution, and finally worked into fine emulsions, with 40 per cent. glycerin water, to which has been added phenol 0.5 per cent. The contents of this emulsion in bacillary substance amounts to 0.905 Gm. in 1 Cc. The original emulsions and dilutions are to all intents and purposes permanently durable, provided they are kept in a cool place, not exposed to freezing, and protected from the light.

Actions and Uses.—It is claimed that this emulsion contains specific immune bodies which are non-poisonous for healthy and tuberculous subjects, but are capable of exerting a remarkable effect on tuberculous processes.

Farbwerke vorm. Meister Lucius and Bruening, Hoechst, a. M., Germany. (Victor Koechl & Co., New York.)

Tuberculin "Koch" (old). Marketed in vials containing 1 Cc., 5 Cc. or 50 Cc.*New Tuberculin "Koch" (T. R.).* Marketed in vials containing 1 Cc. and 5 Cc.*Koch's Bacilli Emulsion.* Marketed in vials containing 1 Cc. and 5 Cc.*Tuberculosis Diagnostic "Hoechst."* Dried tuberculin free from glycerin, prepared from Tuberculin Koch (old Tuberculin). To be used in 0.1 per cent. solutions for the tuberculo-ophthalmic reaction.*Tuberculosis Diagnostic "Hoechst" Dry in Tubes.* Each tube contains 0.905 Gm. (1 10 grain).*Dosage.* The contents of a tube are dissolved in 5 Cc. of cold sterile water.*Tuberculosis Diagnostic "Hoechst" 0.1 per cent. solution.**Dosage.* The contents of the tube are ready for use.*Tuberculin T. O. A. Original Tuberculin T. O. A.* This preparation is a bouillon filtrate. For preparation see Tuberculin "Deny's." N. N. R., p. 181. Supplied in bottles containing 1 Cc. and 5 Cc.*Vacuum Tuberculin.* Tuberculin T. O. A. reduced to 1/10 of its volume in a partial vacuum at a low temperature.*Actions and Uses.* It is intended solely for the treatment of patients who exhibit too violent reactions to Old Tuberculin, to Tuberculin T. R. and to Tuberculin Bacilli Emulsion.

Vacuum Tuberculin is marketed in glass bottles containing 1 Cc. and 5 Cc.

Dry Dead Tubercle Germs. For use in making the bacillary emulsion for the tuberculo-opsionic test.*Bovine Tuberculin.* Tuberculin corresponding to Tuberculin "Koch" Old but prepared from bovine bacilli. Marketed in bottles containing 1 Cc. or 5 Cc.*Bovine Bacilli Emulsion.* Corresponding to Koch's Bacilli Emulsion but prepared from bovine bacilli. In original bottles containing 1 Cc. and 5 Cc.*Bovine Tuberculin T. R.* Corresponding to Tuberculin T. R. but prepared from bovine bacilli. In bottles containing 1 Cc.*Bovine Tuberculin Old.* A bouillon filtrate from bovine bacilli. Indications similar to those for Tuberculin T. O. A. Supplied in glass bottles containing 1 Cc. and 5 Cc.*Vacuum Bovine Tuberculin.* A tuberculin prepared from bovine bacilli by the process for vacuum tuberculin. The advantage of the vacuum preparations is only in their better keeping qualities. Vacuum bovine tuberculin is supplied in glass bottles containing 1 Cc. and 5 Cc.*Polygenous Tubercle Bacilli Emulsion.* A bacilli emulsion prepared from eight different cultures of tubercle bacilli which differ as much as possible from each other.*Dead Bovine Tubercle Bacilli.* Supplied in flasks containing 1 Gm. and 5 Gm.*Tuberculin Residue.* Tuberculin residue is supplied in the form of a moist paste and a dry preparation in vials of 1 Gm. and 5 Gm. each.*Tuberculosis Serum Vaccine "Hoechst."* Emulsions of sensitized tubercle bacilli are supplied in the original concentration, in vials of 1 and 5 Cc. each, and also in serial dilutions.*Dosage.* The treatment is begun with 0.1 Cc. of a dilution 1:1,000,000 and the dose gradually increased until 0.5 Cc. of the original emulsions are readily tolerated and the corresponding clinical effects are demonstrable. It should not be used in the presence of cachexia, mixed infection or permanent rise of temperature.

Tuberculin Gesellschaft, St. Petersburg, Russia. (Morgenstern & Co., New York.)

Endotin.—Tuberculinum Purum. Endotin is the purified extract of a filtered culture of human bacilli in 50 per cent. glycerin.

Endotin is prepared exactly as Koch's "Old" tuberculin, but is subsequently treated with alcohol, ether, chloroform and xylol in order to eliminate the deuterioalbumoses present.

Tuberculinum purum is now supplied in a carton of 4 series which are intended to represent a course of tuberculin treatment. Each series consists of 7 ampuls.

Noguchi Test for Syphilis

Noguchi test for syphilis is a modification of the method of Wassermann and involves the use of two standardized papers as follows:

Amboceptor Paper.—This is obtained by injecting washed human blood corpuscles (erythrocytes) into rabbits, at intervals of five to seven days, over a period of five or six weeks. Ten days are allowed to elapse after the last injection. The rabbits are then bled and the serum collected. Filter paper is now saturated with this serum and allowed to dry. The paper is cut in strips and set aside until wanted for use. In this form amboceptor will keep for a considerable length of time.

Amboceptor paper is standardized by measuring its specific activity. The measurement of specific activity consists of finding the amount of amboceptor necessary to cause hemolysis in 1 Cc. of suspended human red corpuscles, one drop of blood in 4 Cc. normal saline solution with 0.02 Cc. of fresh guinea-pig serum. Incubate this at a temperature of 37½ C. for one hour. The quantity of paper necessary to cause hemolysis under these conditions is known as 1 unit.

Antigen Paper.—Antigen is made by rubbing liver tissue with sand and extracting with alcohol. One Gm. of liver tissue is macerated in 10 Cc. of alcohol for one week at 37.5 C., shaking the container every day. It is filtered until clear and the filtrate evaporated. The resulting extract is dissolved in ether and this solution poured into a large quantity of acetone. The acetone precipitates certain lipid substances, which are then collected and redissolved in ether-alcohol and constitute the antigen. Antigen papers are now prepared by saturating filter paper with this solution and allowing it to dry, after which it is cut into strips. The unit of standardization is the amount of antigen paper necessary to prevent hemolysis of human red corpuscles in the presence of syphilitic serum. The antigen paper must not of itself cause hemolysis.

H. K. Mulford Co., Philadelphia.

Noguchi Test Mulford. Noguchi test Mulford consists of amboceptor paper and antigen paper in a package accompanied with full directions for use.*Amboceptor Paper.* Amboceptor paper is marketed in a glass tube.*Antigen Paper.* Antigen paper is marketed in tubes containing acetone, because it is believed to prevent oxidation. When wanted for use, a strip of the paper is removed from the vial and the acetone allowed to evaporate.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 DEARBORN AVENUE . . . CHICAGO, ILL.

Cable Address . . . "Medic, Chicago"

Subscription price Five dollars per annum in advance

[For other information see second page following reading matter]

SATURDAY, DECEMBER 10, 1910

KOCH'S LAST WORD ON TUBERCULOSIS

Shortly before he died, Robert Koch delivered an interesting lecture in the Academy of Sciences in Berlin on the epidemiology of tuberculosis. This lecture has now been published.¹ In it Koch discusses certain statistics bearing on the death-rate of pulmonary tuberculosis, or phthisis, which is the most favorable form of tuberculosis for statistical purposes.

It appears that the first reliable statistics were gathered in Sweden and that in the middle of the eighteenth century the mortality in Sweden for the country was 21.5 per ten thousand of the living population and for Stockholm 73.2. The rate rose slowly and steadily far into the nineteenth century, owing, it was thought, to the abuse of alcohol.

One of the most remarkable features in the epidemiology of tuberculosis is the lowered death-rate during more recent years, and it is to this phase that Koch directs especial attention. At first the statistics showing decrease were received with skepticism, but as the decrease became more and more general, it became an accepted fact. Koch gives curves showing that in Prussia a decrease commenced in 1886, which has been going on fairly regularly since, so that in 1908 the death-rate had fallen 50 per cent. The curve for the whole of Germany resembles very much that for Prussia. If the conditions that obtained in Germany thirty years ago had continued up to the present, something like a hundred thousand human beings more per year would have died from pulmonary tuberculosis. Consequently it becomes a matter of the greatest importance to discover, if possible, the causes of the decrease with a view to favoring its rate and its continuance.

As the death-rate of pulmonary tuberculosis falls more rapidly than the general death-rate, which is also decreasing, there must be factors at work that are peculiar for tuberculosis. If the decrease depends on something inherent in the nature of tuberculosis so that the disease was bound to decrease of itself, then the decrease should take place in a uniform manner everywhere. But this is not the case. There are coun-

tries in which the disease has been increasing, notably Ireland, Norway, until very recently, and Japan. In Paris the curve shows little tendency to go down. It appears also that in New York and especially in Berlin the decrease has been less during the last few years than previously. There are also difficulties in the way of explaining the fall in the mortality of pulmonary tuberculosis by any sudden loss in virulence of the disease.

The fall in the death-rate of tuberculosis is often brought into relation with the discovery of the bacillus. This established the transmissible character of the disease and naturally led to preventive measures. Thus it is remarkable that with few exceptions the decrease begins almost everywhere within a few years after this discovery. There are, however, exceptions to this connection. Koch finds the conditions in Great Britain especially interesting. As is well known, the death-rate from tuberculosis is decreasing in England and Scotland and increasing, although slowly, in Ireland. Newsholme, who has studied this question with the greatest care and from all sides, reached the conclusion that the modes of caring for the tuberculous poor form the determining factor: in England and Scotland they are cared for in institutions, whereas in Ireland they are not necessarily so cared for. This was the case in Norway also until recently; since special institutions began to be established the death-rate has fallen. In Paris also there is a lack of suitable hospitals. Koch supports Newsholme; in no other way is the danger of infection from a phthisical patient so thoroughly avoided as by isolation in a hospital. In leprosy we have a striking example of the preventive effect of isolation and hospital treatment.

Koch then goes on to discuss the importance of the character of the living-rooms and more particularly the sleeping-rooms with respect to the spread of tuberculosis. In Germany the highest mortality is not in the poorest districts, but in relatively prosperous regions along the North Sea, where it is the custom to place the beds in small cell-like rooms or cubicles which are carefully closed during the night, and he would trace the greater death-rate in certain parts of the country as compared with cities as dependent in many cases on the facilities for infection afforded by the confined sleeping-room. The great danger of infection from phthisical patients in lodgings of one room is self-evident. He reaches the final conclusion that the decrease in tuberculosis of the lungs is dependent on various factors, the two most important being isolation of patients in hospitals and improvement of the sleeping-rooms and living-rooms.

Great difficulties are still in the way before the mortality can be depressed to the lowest possible level. The exact statistical determination of the mortality of tuberculosis has been and will be of great value, because the mortality curve at once indicates whether the measures employed are effective. Thus, New York City, when its curve began to flatten out, at once resolved to increase its hospital facilities. The same is true of Berlin. To

1. Koch: *Ztsch. f. Hyg. u. Infektionsk.*, 1910, lxxii, 1, and Berlin letter, *THE JOURNAL*, Nov. 26, 1910, p. 1904.

penetrate as deeply as possible into the situation, exact studies should be conducted of smaller districts and towns. Only by so doing will it be possible to secure the greatest help from the lessons obtained from the mortality statistics of tuberculosis. In conclusion we may say then that Koch's last word on tuberculosis is that mortality statistic, carefully obtained and intelligently studied, constitute important factors in our understanding of the subject, which we should utilize to the fullest possible extent as an aid in the prevention of tuberculosis.

THE SEPTIC TANK

The interest that has been expressed in our recent editorial on the septic tank,¹ and the number of inquiries received regarding additional data on the subject, make it seem worth while to give a few supplementary details. The septic tank owes its rather singular name to Donald Cameron of Exeter, England, through whose work about fifteen years ago the so-called septic process of treating sewage first became prominent. The observations on which the process is based are first, the settling out on standing of a considerable proportion of the suspended particles in sewage leading to a sediment or sludge formation, and, second, the dissolving of a part of the sludge, presumably through the activity of bacteria or their enzymes. The partial freeing of sewage from suspended particles by sedimentation was nothing novel, since the advantages of settling tanks, particularly in connection with chemical precipitation, had long been known. On the other hand, the digestion of some of the solid matter of the sewage within the septic tank was supposed to be a feature of very great value. Furthermore, it was believed, although the evidence on this point was never very convincing, that the effluent from septic tanks could be more effectively dealt with than fresh sewage by biologic after-treatment, such as application to contact beds or sprinkling filters. Roughly speaking, then, the septic tank may be looked on as a kind of settling-tank in which the sewage is retained long enough to permit of a diminution in the amount of the sludge and of other chemical changes. The main difference between the settling-tank and the septic tank is the length of time of retention of the sewage.

The diminution of sludge, such as it is, is undoubtedly an advantage. In the early days of septic tank experimentation the amount of sludge digestion seems to have been overestimated. On this point Dunbar of Hamburg, one of the leading students of sewage disposal, writes: "At first it was maintained that the sludge was entirely liquefied and gasified; then that its volume was reduced by 50 per cent., and, as a result of the most recent investigations of which I am aware, it is stated that the amount of sludge is not reduced by more than 9 per cent." For some reason, at present not clearly

understood, there seems to be a high degree of variation in the percentage of sludge digestion effected in different septic tanks. Probably differences in the composition of the sewage, in climatic conditions, in size of tank employed and other local factors are in part responsible for the wide range of variation in sludge digestion.

At one time much was hoped from the septic tank in the way of providing a clear and favorable effluent for biologic after-treatment. It was even said with an appearance of precision that the anaerobic changes which took place in the septic tank were essential to prepare the sewage for the aerobic or nitrifying changes which occurred in the filter-bed. On this point faith in the septic tank as a useful adjunct to the purification process has suffered its most grievous disappointment. The effluent from the septic tank is no easier to purify than fresh sewage; indeed, it is more difficult. There is now everywhere agreement among sewage-works engineers that septic action retards rather than facilitates purification both on filter-beds and irrigation fields. The well-known sanitary engineer, Rudolph Hering, has recently expressed the prevailing view where he says that "there is being more and more recognized, on the one hand, the disadvantage of treating foul instead of fresh sewage and the further disadvantage of passing sewage through septic tanks; and on the other hand, the advantage of passing thin layers of fairly fresh sewage over extensive surfaces, exposed to simple attracting forces which segregate the suspended matters."²

In answer to the question, therefore, what is gained by allowing a sewage to remain in a settling-tank long enough for decomposition to take place, the reply must be that practically no advantage is obtained. The elaborate experiments which were carried out by Winslow and Phelps³ on the purification of the sewage of Boston led to the conclusion that the septic tank treatment affords no particular advantage. On the contrary they say: "Since November, 1906, when the distribution system was put in order, crude sewage has been treated on one of our trickling beds with perfect success. The effluent from this filter was less frequently putrescible than that from the bed which received septic effluent. The filter taking septic effluent showed a deposit on its floor, due to secondary reducing changes, which was absent from the crude sewage bed. Furthermore, the absence of the odors produced by spraying septic sewage is an advantage of considerable moment in favor of the process of treating fresh sewage." Recent experiments at Gloversville, N. Y., where the sewage contains a large amount of industrial waste from tanneries, have led to similar conclusions and have shown that while the amount of sludge produced by the septic process is somewhat less than that obtained by sedimentation, this advantage is nullified in other ways as in the tendency towards an increased amount of suspended matter in the septic tank effluent.

2. Hering, R.: Engineering News, Oct. 6, 1910.

3. Winslow and Phelps: Contributions from Sanitary Research Laboratory, Mass. Inst. Tech., 1907.

1. The Rise and Fall of the Septic Tank, THE JOURNAL A. M. A., Nov. 5, 1910, p. 1650.

On the whole, then, it may be said that apart from the advantages that may also be obtained by simple sedimentation (four hours or less), the septic tank has little to recommend it. The slightly increased digestion of sludge is in large degree counterbalanced by the added difficulty of treating the septic effluent. The prevailing opinion among students of the sewage disposal problem is that there is no substantial gain from retaining sewage in tanks until decomposition has set in, but that on the contrary the practice is often distinctly disadvantageous as compared with mechanical sedimentation for a brief period.

THE DEATH OF MRS. EDDY

Announcement has been made of the death of Mrs. Mary Baker Glover Eddy, of pneumonia, at Boston, at the age of 88. Her death marks the close of the first chapter of a most remarkable instance of human credulity—a movement all the more notable in that its origin and development have taken place in the full view of nineteenth century civilization.

Mrs. Eddy has been more fortunate than many other founders of cults and religious teachers. Some of these died before they saw the wide-spread acceptance of their peculiar doctrines, whereas at Mrs. Eddy's death her teachings were followed by thousands in various parts of the world. The beginnings of most movements of this character, and in many cases the personalities of their founders as well, have been shrouded in a veil of mysticism, which has lent an increased attraction and fascination to the susceptible convert and follower. A modern substitute for this mysticism has been afforded to some extent in recent years by the discreet reserve with which Mrs. Eddy's personality has been shielded from public observation. At the same time, the serene unreason of her doctrines has a certain fascination for some otherwise literal-minded individuals, who apparently find in these doctrines and formulas an unforeseen avenue of escape from the harsh tyranny of fact. Perhaps, after all, it is not strange that it should be in the age of material progress—of steam printing-presses, of electric railways and of telegraphs and telephones—that Berkeley's easy short cut out of theoretical materialism should be made the basis of a new cult. "When Berkeley says there is no matter, it is no matter what he says"; but when thousands of people repeat devoutly after Mrs. Eddy, "Mind is all; all is mind" the affair cannot be so lightly dismissed. And on the other hand, not only have modern (and material) methods of communication made possible an unprecedentedly rapid spread of the new cult, but the adherents of that cult have shown a marvelous aptitude for acquiring and making use of these highly esteemed nonentities, cash and credit—and the newspapers. Still, that an unknown, uneducated and almost friendless woman could, from the fifty-sixth to the eighty-ninth years of her life, adapt a creed and establish a cult which would attract many thousands of

adherents and draw the attention of the world, cannot but be regarded as a strange and unique chapter in the history of human beliefs and religious vagaries.

It is impossible to determine, at present, what effect her death will have on the movement which she inaugurated. Some years ago it might have precipitated a collapse, but conditions have changed. It must be remembered that for a number of years, Mrs. Eddy has been eliminated from the actual management of the affairs of her following by a well-organized group of experienced business promoters. The principal effect of her death, therefore, for the time being at least, will be a sentimental one. One prophecy, however, may be safely made in the light of the history of other religious movements: the cult will not continue long in its present condition. But whether it will suddenly fall to pieces, as did the following of Dowie after his death, or whether, gradually losing its peculiar features, it will become one of the conventional religious bodies, as have so many similar movements; or whether, broken into warring factions by ambitious and rival leaders, it will gradually disintegrate, time alone will tell. Whatever fate awaits it, however, it is safe to predict, judging from similar movements of the past, that it has reached its high-water mark.

Current Comment

BUSINESS PHILANTHROPY

The linking of the terms "business" and "philanthropy" seems at first sight to be an incongruity or a paradox; and yet business philanthropy is philanthropy in its most effective form. An example of this form of philanthropy is described by Dr. George M. Sternberg¹ in an article on the improvement of housing conditions among the working classes as a factor in the reduction of tuberculosis. In the city of Washington, with its large colored population, with a tendency to overcrowding, tuberculosis has been very prevalent, and this is true also of the white laboring population. As a means of improving the situation and at the same time of securing a reasonable return on the investment, in 1898, Dr. Sternberg, together with some other public-spirited citizens, organized a company for the building of apartments for the laboring classes, which would provide light and air and be equipped with all sanitary conveniences, and which might be rented at a rental compatible with the incomes of that class of people. The houses constructed by this company, and also by other real-estate owners, are of the two-flat type, each flat being entirely independent, having three to five rooms, bath and all sanitary conveniences, and provided with a separate yard. These houses present an attractive appearance; they are built in blocks, often occupying a minor street, formerly an alley, but widened and well paved. Each room is supplied with an abundance

1. Sternberg, G. M.: Housing of the Working Class, as a Factor in the Prevention of Tuberculosis, *Jour. Outdoor Life*, November, 1910, p. 319.

of light, and the flats are so constructed as to eliminate all the unpleasant features of the usual tenement houses. The average rental of these houses is \$3.25 per month per room, which brings them within the rule that a laborer should pay not more than one-fifth of his income for rental. An admirable device for securing the cooperation of tenants in the care of the apartments is the provision for devoting one month's rent to repairs, and making a rebate to the tenant of this month's rent if no repairs are necessary; otherwise a rebate is made of the difference between the month's rent and the cost of repairs. Nearly 2,000 such houses have been built in Washington. The original company now has \$940,000 invested in 289 of these houses, containing 578 apartments; they have paid annually dividends of 5 per cent., besides a surplus of over 20 per cent. of the original capital, which is included in the total investment. It is an evidence of the advantage of hygienic homes for the working classes, and a sufficient justification and reward for this sort of philanthropy, entirely aside from the financial feature, that the death-rate among the tenants of these houses is considerably below the general mortality rates of the city. This is practical philanthropy which is worthy of serious consideration and general imitation.

SUPPORT THE HONEST MEDICAL JOURNAL

We have repeatedly called attention to the fact that physicians cannot consistently blame the lay press for carrying lying medical advertisements, so long as they support medical journals which are doing the same thing. Not, of course, that the medical journals advertise nostrums of the "patent medicine" type, but there are many in existence that carry advertisements of so-called ethical proprietaries (save the mark!) whose worthlessness is at least equal to that of the rankest "patent medicine" and the therapeutic claims for which are just as grossly false. The question of nostrum advertising in medical journals is one that can be settled definitely by the medical profession. If physicians will support those journals whose advertising pages are free from pharmaceutical humbugs, the problem is solved. In our previous notices of those independent medical journals, which strive for decency first and dollars afterward, one publication was inadvertently omitted. As the editor states in a letter that appears in this issue,¹ the *Cleveland Medical Journal*, more than a year ago, announced that it would eliminate from its pages, as fast as the contracts expired, all advertisements of medicinal preparations that did not comply with the requirements of the Council on Pharmacy and Chemistry. The last objectionable advertisement appeared in the July issue, and since that time, this journal's pages have been clean from cover to cover. There is no doubt that this stand has been taken at a great financial sacrifice; neither is there any doubt that all right-thinking physicians will approve of the stand; but mere approval will not pay the expenses of publishing a medical journal. The Ohio physicians in general and the physi-

cians of Cleveland in particular should express their approval of clean medical journalism in a concrete and practical way.

THE LOS ANGELES SESSION

As we look forward to the next annual session of the American Medical Association, it is a pleasure to note the activity of the Committee on Arrangements. The chairman, Dr. H. Bert Ellis, Los Angeles, has gathered about him a well-organized committee of the active men of Los Angeles, who are laying plans to show the United States what southern California hospitality means. They call attention to the fact that Los Angeles has several of the finest hotels in the world, as well as many mountain and seaside resorts, flower-laden orange groves, beautiful flower-gardens and parks. One of the complimentary trips will be to some of the orange-groves, where members will be allowed to gather the fruit from the trees. Another trip will be to the famous Catalina Island, twenty-five miles at sea, and will form an auspicious introduction to the Pacific Ocean. The ladies of Los Angeles also are planning to do their part in making the time pleasant for the ladies who accompany the members of the Association. It is not too early to lay plans for the annual outing of 1911, so that it may be taken in connection with the Association's scientific meeting, which is expected to be of the usual high quality. Dr. Ellis will be glad to answer any questions relative to local affairs, while plans for railroad accommodations may be discussed with Dr. M. L. Harris, Chicago, Chairman of the Committee on Transportation.¹

SIMPLE METHOD OF WATER PURIFICATION

The following simple means of purifying drinking-water is recommended by the provincial health authorities of Ontario to campers, prospectors and travelers. A teaspoonful of chlorid of lime, leveled off by rolling a pencil over it, is rubbed up in a cup of water. This is diluted with three cupfuls of water, and a teaspoonful of this dilution is added to a two-gallon pailful of the water to be purified, mixing it thoroughly. This will give between four and five parts of free chlorine in a million parts of water, which is said to destroy in ten minutes all typhoid and cholera bacilli and dysentery-producing germs, at the same time leaving the water without taste or odor. This has been tried and found effectual, it is said, when used in the germ-laden water of Toronto Bay.

Unobserved Fractures in Early Life.—The child was nursed for three months, and then fed artificially until aged 1 year and 8 months. Then the child "became paralyzed" and screamed whenever he was picked up. X-ray photographs showed that there had been a fracture through the upper part of the shaft of the right humerus and another fracture through the lower end of the shaft of the left femur. There was a rachitic condition.—Harold Burrows, *Proc. Roy. Soc. Med.*, July, 1910.

¹ Department of Correspondence, page 2080.

¹ A communication from Dr. Harris on the subject appears in the Department of Association News, page 2078, this issue.

Medical News

ARKANSAS

Death of Mrs. Sarah Collings.—The death of Mrs. Sarah Collings, the esteemed wife of Dr. Samuel P. Collings, Hot Springs, is reported. Mrs. Collings has been ill for several months, and her death is a severe shock and a distinct loss to the community, and the cause of deep grief to her many friends in Hot Springs and elsewhere.

Personal.—Dr. Fred Roberts, Lake City, has been elected president; Dr. Rufus W. Ratliff, Jonesboro, vice-president, and Dr. Charles M. Lutterloh, Jonesboro, secretary-treasurer, of the Craighead County Board of Health.—Dr. John P. Brown, Rogers, who has been seriously ill, is reported to be improving.—Dr. S. F. Walker, Texarkana, has been notified by the attorney general that he is entitled to his license to practice, having complied with the provisions of the act of 1903.—Dr. Charles H. Cargile, Bentonville, was thrown from his buggy in a runaway a mile north of Rodgers, November 5, fracturing his leg.—Dr. John C. Hughes, Walnut Ridge, after a short trial, was exonerated from all blame in the killing of Alf. and I. K. Bagley, father and son, the killing being the termination of a feud.—Dr. Arthur G. Thompson has been elected president of the Pine Bluff Board of Health.

ILLINOIS

Fire in Tent Colony.—Fire at the Bartonville State Hospital, November 29, imperiled the fifty-six tuberculosis patients in that institution, but by energetic work on the part of the fire department of the asylum all were removed without casualty.

Chiropractor Fined.—Walter B. Vogel, a chiropractor of Mount Carroll, charged with practicing medicine without a license, is said to have been found guilty, November 23, and fined \$200. The defendant gave bonds and says he will appeal the case.

Personal.—Dr. George S. Chalmers, Galesburg, who has been ill, is reported to be improving.—Dr. Fred H. Langhorst, Elgin, has returned from abroad and resumed the practice of his specialty.—Dr. St. Elmo M. Sala, Rock Island, has been elected president of the Rock Island County Society for the Prevention of Tuberculosis.—Dr. Arthur E. Lord, Plano, has returned from abroad.—Dr. Karl F. Snyder, Freeport, has entirely recovered from the accident sustained about two months ago and has resumed practice.—Drs. Joseph De Silva and Albert N. Mueller have been appointed members of the board of directors of the Rock Island Public Tuberculosis Sanatorium.

Chicago

Personal.—Dr. William E. Morgan, who was operated on for appendicitis at Mercy Hospital recently, is reported to be well on the road to recovery.—Dr. Julia Holmes Smith is reported to be seriously ill at her home.

Additional Tuberculosis Nurses.—The directors of the Municipal Tuberculosis Sanatorium have added nine additional nurses to the dispensary department of the institution, bringing the total number of nurses now employed up to twenty-six.

Increase of Diphtheria and Typhoid Fever.—On account of the amount of diphtheria and typhoid fever in Chicago and the steady increase of the number of cases, the department of health has asked and received a special appropriation of \$10,000 to be used in fighting the threatened epidemics of these two diseases.

Location for City Sanatorium Fixed. The city of Chicago is said to have agreed on an eighty-five acre tract of land bounded by Foster, California, Olive, Western, Bryn Mawr Avenues and Rockwell Street, as the location for the new municipal tuberculosis sanatorium. The land is relatively high, being from 18 to 40 feet above the city datum, and is owned by Mrs. Julia F. Porter, who offers it to the city for \$100,000.

INDIANA

Pure Drug Organization.—The Indiana Physicians' Pure Drug Association has recently been formed with the object of supporting the state and national pure drug organizations, with the following officers: president, Dr. Edmund D. Clark, president of the Indianapolis Board of Health; vice-presidents, Drs. Frederic C. Heath, Frank M. Morrison, Thomas C. Kennedy and I. H. Roberts, and secretary-treasurer, Dr. Charles E. Cottingham.

Personal.—Dr. Ora L. McCay has returned after a year's absence and resumed practice at Romney.—Dr. Oliver L. Rea, Culver, has moved to Rochester.—Dr. Halsted Murat, Indianapolis, has been appointed assistant physician at the Indiana Reformatory, Jeffersonville, vice Dr. Edward L. Swadener, resigned to enter the government Indian service.—Dr. Thomas J. O'Neil, Anderson, has been seriously ill with septicemia due to an infected wound of the hand.—Drs. Ralph S. Chappell and M. Cortez Leeth, Indianapolis, have been appointed deputy coroners of Marion County.—Dr. William P. Lane has been elected president, and Dr. I. S. Milstone, secretary of the board of health of Gary.—Dr. Clarence L. Bell, Hartford City, is said to have been declared insane by a medical board recently.—Dr. John W. Snyder, Michigan City, has succeeded the late Dr. J. Lucius Gray, Laporte, as health officer of Laporte County.—Dr. Chester B. Crumpacker, South Bend, has been reelected physician of St. Joseph County.—Dr. Franklin C. Cregor, Greenfield, while making a professional call at the county jail, suffered the loss of a finger by the sudden closing of a heavy door.—Dr. James A. Rawley has leased a two-story house in Brazil, which he is equipping as a hospital.

IOWA

Fire in Tuberculosis Camp.—A fire in the attic of the administration building of the Tuberculosis Camp, Des Moines, November 11, almost destroyed the building with a loss of about \$1,000.

Personal.—Dr. Aaron A. Noyes, Mason City, who is still in active practice, celebrated his 88th birthday, November 26.—Dr. Nic. Gay O. Coad, Hull, and wife have started for the Isle of Pines to spend the winter.—Dr. Walter H. Grimwood, Fort Madison, was operated on November 23, for the removal of gall-stones.—Dr. P. F. Lange has been added to the staff physicians of the Iowa Institution for the Feeble-Minded, Glenwood.—Dr. S. Oliver Stockslager, Boone, is reported to be seriously ill.—Drs. Ray R. Harris and Mathias D. Linehan, Dubuque, have been appointed surgeons of the Burlington System between Dubuque, Lacrosse and Galena.

KANSAS

Tuberculosis Notes.—At a recent meeting of the Kansas Association for the Prevention of Tuberculosis in Topeka, it was decided that the association hire a visiting nurse to travel through the state instructing tuberculosis patients regarding the proper care of themselves and the protection of their families.—At the meeting of the commissioners of Shawnee County, held in Topeka, November 7, it was decided to appropriate \$135 a month for the months from October to January, inclusive, for the benefit of the Antituberculosis Camp.

Personal.—Dr. Sarah A. Noble, Clearwater, has located in Chicago.—Dr. M. A. Barber, professor of bacteriology at the University of Kansas, Lawrence, will, it is reported, go to the Philippine Islands at the close of the present school term to spend two years in medical research.—Considerable damage was done by fire to the office of Dr. Simon Steelsmith, Abilene, October 25.—By the will of the late Mrs. Samuel Adams, Powhattan, \$25,000 has been devised to Dr. Ralph L. Funk, Powhattan, family physician of the deceased, who was also appointed as executor.

KENTUCKY

Personal.—Dr. Frederick D. Cartwright has been appointed pension examining surgeon at Bowling Green.—Dr. M. L. S. Lutner, Shelbyville, was operated on November 23, at Norton Memorial Infirmary, Louisville.—Dr. Bowers, Newport, has been elected a member of the board of health, vice Dr. John Todd, resigned, to accept the position of health officer.

Hospital May Occupy Medical Building.—The Board of Public Safety and Hospital Commission of Louisville are considering the advisability of using the building formerly occupied by the Kentucky School of Medicine as the temporary location of the City Hospital, pending the erection of new buildings. The building in question contains at present about fifty beds.

Jefferson County Institutions. The grand jury, in its November report, criticizes the condition of the Home for the Aged and Infirm in not having separate quarters for the white and colored inmates; for the uncleanly condition of the bread storeroom, and for an inadequate sewerage system.—The county poor farm was found antiquated, the laundry methods were declared crude and uncomfortable, the cottages housing the inmates old and the heating system was said to be dangerous.—Comment is made on the fact that the excellent hospital department at the Kentucky Institute for the Blind has had no inmate for two years.

Cannot Recover from Medical College.—The Court of Appeals has reversed the decision of the Jefferson County Circuit Court, in which Dr. Harry A. Davidson sued to annul the contract and payment of notes for \$3,000 which he gave in consideration of being appointed to the chair of diseases of women in the Hospital College of Medicine before that institution was merged with the Louisville Medical College. The court decided that Dr. Davidson had acquiesced in the merger, and had accepted an appointment in the new institution as professor, and was therefore barred from now making any complaint that the merger terminated the contract. By this decision Dr. Davidson must pay the residue of the notes which he gave for the purchase of the professorship.

MARYLAND

Personal.—The State Board of Health has appointed Dr. Frederick V. Beidler, Halethorp, chief of the Bureau of Vital Statistics, vice Dr. William F. Hines, Baltimore, deceased.—On the occasion of the resignation of Dr. Robert P. Winterode, pathologist at Spring Grove Asylum for the Insane, near Catonsville, he was presented by the nurses and attendants with a handsome meerschaum pipe.

Baltimore

College Suspended.—It is reported that Atlantic Medical College, formerly the Southern Homeopathic Medical College, has been suspended owing to lack of financial support.

Tags for Physicians' Carriages.—The city has issued new tags for the carriages and automobiles of physicians, which instead of the red cross now bear a blue cross on a white field.

New Home for Crippled Children.—Dr. R. Tunstall Taylor, director and chief surgeon of the Hospital for the Relief of Crippled and Deformed Children, Baltimore, announces that James Lawrence Kerman, a wealthy hotel and theatrical man of Baltimore, has purchased for the hospital a new location, known as Radnor Park, in the suburbs of the city. In its new quarters the institution will be known as the James Lawrence Kerman Hospital for the Relief of Crippled and Deformed Children. The property is beautifully located, and the large colonial mansion and other buildings will be utilized for hospital purposes, while other buildings will be erected as necessary. Mr. Kerman has also provided a magnificent permanent endowment for the institution. The present institution will be continued as a reception and emergency hospital.

MASSACHUSETTS

Medical Club Meets.—Brookline Medical Club, at its recent meeting, elected Dr. George W. Kaan, president; Dr. Robert W. Hastings, vice-president, and Dr. H. Hale Powers, secretary-treasurer.

Woman's Medical Society Meeting.—The regular meeting of the Woman's State Medical Society of Massachusetts was held in Boston, November 8. A review of the work of the society of the last year was given. Dr. M. Marie Knudson, sanitary inspector of the Food Department of the Woman's Educational and Industrial Union, presented her report, and Dr. Eliza J. Dadmun, the president, gave an illustrated address on Oberammergau and the Passion Play.

What Is Being Done for Tuberculosis.—The New Bedford Antituberculosis Society moved its twenty-three patients from the old sanatorium building to the new infirmary near Sassanquin, November 29.—The special commission created by the last legislature to investigate and report on a system of caring for tuberculosis patients by state and local authorities recommends that from 5,000 to 6,000 additional beds be provided for such patients, that \$5 a week be paid by the state for each non-paying tuberculosis patient in the local hospital, and that a system be established whereby tuberculosis patients may be supplied with food at their homes. The commission finds that there are now about 35,000 cases of tuberculosis in the state, and that for the accommodation of these patients there are at present 2,773 beds in hospitals and sanatoriums.—Fall River has permitted the use of its contagious disease hospital for tuberculosis patients, and fifty have been removed to the institution from the shacks on the Highlands.—Dr. Ralph B. Ober has been elected president of the Springfield Antituberculosis Association, vice Dr. Herbert C. Emerson.

MICHIGAN

The Small-Pox Situation.—The general quarantine against Saginaw was raised December 1, by proclamation of the mayor and on statement of the actual conditions. On October 17 and 18, forty-five cases of small-pox were reported in different parts of the city, and by November 7, 102 cases of small-pox had been reported with twenty-six deaths. Nearly all of the

forty-five cases first reported were of the confluent type, and almost all the deaths were among patients of this class. General vaccination has practically stamped out the epidemic, and the expectation is that few more cases or deaths will occur.

MINNESOTA

County Society Meeting.—Mower County Medical Society, at its annual meeting in Austin recently, elected Dr. Charles F. Lewis, president; Dr. G. M. Frank Rogers, vice-president; Dr. Clifford C. Leek, secretary, all of Austin; and Dr. George J. Scottler, Dexter, treasurer.

Plan Sanitarium for Nervous Diseases.—Drs. Arthur Sweeney and Haldor Sneve, St. Paul, and William A. Jones, Minneapolis, have asked authority from the St. Paul City Council to erect a sanitarium in St. Paul, to cost \$100,000, for the treatment of nervous diseases.

Unvaccinated Students Excluded from Classes.—By order of President Northrup of the University of Minnesota, about 350 students who had failed to comply with the law that all students should be vaccinated within three days after exposure to small-pox or be excluded from recitations for three weeks, have been excluded from classes.

Home for Crippled Children.—The new Home for Crippled and Deformed Children, adjoining Lake Phalen, St. Paul, is completed, and the installation of the equipment is all that remains to be done before the 100 children, who are now being accommodated in the City Hospital, can be transferred. It is expected that the institution will be fully equipped and ready for occupancy January 1.

Model Isolation Hospital.—Dr. Henry M. Bracken, secretary of the State Board of Health, has been instructed to have plans drawn for an isolation hospital in which to care for persons afflicted with epidemic diseases. This plan is to be kept in the office of the Board of Health and is to be used as a standard for all cities and counties in Minnesota which desire to erect such a building.

Personal.—Dr. Thomas G. Lee, Minneapolis, has returned from Europe.—Dr. Ignatius J. Murphy, Minneapolis, has been appointed inspector of the health department and assistant to Health Commissioner Henry E. Webster.—Dr. Joseph Nicholson, Brainerd, has recovered his health and resumed the management of the Northwestern Hospital.—Dr. Joseph D. Budd, Two Harbors, has been elected president of the Lake County Antituberculosis Society.

MISSOURI

Cocain Peddlers Fined. Six men, convicted of peddling cocain in Kansas City, were fined sums aggregating \$700, November 14. One of the individuals, said to be the executive head of the outlaw cocain business, was fined \$200.

New Buildings and Betterments Needed for State Hospital.—New buildings to cost \$35,000 are needed at State Hospital No. 2, St. Joseph, and requisitions for betterments and repairs to the old buildings amounting to \$50,000 have also been made by the board of managers.

Tag Day in Kansas City.—The Kansas City Hospital Day Association realized \$8,430.77 as the proceeds of its third annual tag day, November 19. This money will be divided among the German, Swedish, St. Luke's, St. Mary's, Baptist, Kansas City Post-Graduate and St. Anthony's hospitals, the Florence Crittenden Home and the Visiting Nurses' Association.

Society Meetings.—The seventy-first semiannual meeting of the Rolla District Medical Society was held in Rolla, November 18, and the following officers were elected: president, Dr. Charles F. Briegleb, St. Clair; vice-president, Dr. Samuel B. Rowe, Rolla, and secretary-treasurer, Dr. William H. Breuer, St. James. The next meeting will be held in St. James in May.—The Linton District Medical Society met in Mexico, November 16, and elected the following officers: president, Dr. Frank G. Nifong, Columbia; vice-presidents, Drs. Arthur R. McComas, Sturgeon, and Robert C. Strode, Mexico; secretary, Dr. R. T. Gibbs, Mexico; and treasurer, Dr. Ned R. Rodes, Mexico.—St. Charles County Medical Society, at its annual meeting, November 16, elected the following officers: president, Dr. Samuel R. Johnson; vice-president, Dr. Benedict P. Wentker; secretary, Dr. Thomas L. Hardin; treasurer, Dr. Carl H. Bitter; and censor, Dr. Frank J. Tainter, all of St. Charles.

NEBRASKA

Colored Physician Not Guilty.—Dr. C. A. Flippin, Grand Island, charged with performing a criminal operation which resulted in the death of Julia Kath at Stromsburg, has been acquitted.

Insurance Companies Lose Suit.—The accident insurance companies which had policies on the life of the late Dr. Frederick Rustin, Omaha, have been defeated in their suits to recover the \$31,000 insurance involved in the case.

District Society Organized.—Physicians of Chase, Hayes, Dundy and Hitchcock counties met in Wauneta recently, and organized a medical association and elected Dr. Andrew B. Fellers, Palisade, president; Dr. C. E. Stewart, Imperial, vice-president, and Dr. Albert J. Boren, Palisade, secretary-treasurer.

Personal.—Dr. Walter O. Henry has resigned the chair of gynecology in Creighton Medical College, Omaha.—Dr. Louis L. Henninger has located in Omaha as a specialist in diseases of the eye, ear, nose and throat.—Dr. Oscar H. Hahn, Home, Kan., has been appointed medical superintendent of the Nebraska Sanitarium, Hastings.

NEW JERSEY

Hospital Site Abandoned.—Because of the many protests made, the Morris County Antituberculosis Society has abandoned the site in Morris Plains for its sanatorium for tuberculosis.

Personal.—Dr. William D. Mingham, Newark, has started on a trip around the world.—Dr. Frank R. Sheppard, of Millville, made a misstep in the dark, December 1, and fell down a flight of steps, sustaining a fracture of the ankle.—Dr. Herbert Willis, Beach Haven, has been appointed medical examiner of public schools of Tuckerton.

Ice Cream Inspection.—At the meeting of the National Association of Ice Cream Manufacturers held at Atlantic City during the past week, it was announced that out of fifty-one ice cream factories in the state, only fifteen were found that met with the requirements of the law. As a total of 3,000,000 quarts were manufactured in these fifty-one factories during the year, the necessity for laws requiring proper sanitation and greater cleanliness was emphasized.

Children's Seashore House Always Open.—The improvement in chronic cases sent to the Children's Seashore House, Annapolis and Atlantic Avenues, Atlantic City, N. J., chiefly from the hospitals of Philadelphia, in January, 1910, has inspired the management to keep it open the year round. Tuberculous cases are given preference, both in admission and length of stay, but convalescents from acute diseases and other children likely to be benefited by a short stay at the seashore will also be received as there may be room. Cases of pulmonary tuberculosis are not received. Only children between 4 and 12 years of age can be admitted in the winter. Those able to pay are charged \$2 a week or less, but no child will be refused admission because of inability to pay. The services of a teacher have been provided for the instruction of such of the chronic invalids as are in a condition to be taught. Those who are able, go to a large sunny school room right on the beach, while those confined to bed are taught in the wards or on the porches.

NEW YORK

Physical Test for Marriage.—A bill drawn by Mrs. Harriet Johnston-Wood and endorsed by the City Federation of Woman's Clubs, is to be introduced into the legislature this session, which provides that all applicants for marriage license shall be obliged to present a clean bill of health.

To Fight Infantile Paralysis. A request will be made to the new legislature for a special appropriation to permit the State Health Department to make a thorough investigation of the causes and the steps to be taken for the prevention of infantile paralysis. The proposition has the endorsement of the health officers of the state.

Another Typhoid Carrier.—A man who is known as "Typhoid John" is giving the State Health Department and the New York Milk Committee some concern. Last summer there were thirty cases of typhoid in an Adirondack camp. The water and milk supplies were above suspicion. The last person to handle the milk was an Adirondack guide, and he was found to be a typhoid carrier. The man is willing to be treated, which is fortunate, since there is no state law under which he could be detained had he objected.

An Important Court Decision.—Holding that municipalities have no right to pollute public water-courses through their sewage systems the Supreme Court has granted an injunction restraining the village of Sharon Springs from polluting the waters of Brimstone Creek, the waters of which are used by property owners along its course for dairy purposes. The defense of the village was that the state had approved the

plans of its sewage system. This was a test case, there being fifty similar suits pending. The court held that it was the policy of the state that water-courses be maintained in a pure and wholesome condition, and that in granting aid to municipal corporations to install sewer systems, the right to maintain a public nuisance was not conferred.

New York City

Flexner Operated On.—Dr. Simon Flexner, director of the Rockefeller Institute for Medical Research, who was operated on for appendicitis at the Presbyterian Hospital, December 4, is reported to be doing well.

Fined for Selling Prayers.—Mrs. Eva Stein has paid a fine of \$500 in Special Sessions for violating the medical law. She told the agent of the New York Medical Society that the latter had rheumatism and that she would guarantee a cure. She wrote prayers which were to be repeated, and sold them for 15 cents each.

Easy to Buy Red Cross Seals.—The Committee on the Prevention of Tuberculosis of the Charity Organization Society reports through its sales manager that more than 1,800 agencies for the sale of the Red Cross Christmas seals have been opened in Manhattan and the Bronx. They are on sale at every ticket booth of the Hudson tunnel system; all the news stands of the elevated roads also sell the seals. Gifts of advertising space have been made by many of the newspapers and also space in the street cars and in the windows of many stores.

A Good Summer for Babies.—The statistics from St. John's Guild, which operates the Sea Side Hospital, New Dorp, S. I., show that during the past summer the Guild cared for 2,400 mothers and children, 296 less than during the previous season. The number of hospital days of treatment was 20 per cent. less than during the summer of 1909. There were only thirty-eight deaths compared with fifty-one for the summer of 1909. It has been recommended that this hospital, which lies idle during eight months of the year, be used as a convalescent home for infants and their mothers.

The Conference on the Milk Problem.—The conference held under the auspices of the New York Milk Committee at the United Charities Building, passed resolutions advising the investigation of milk production, transportation and distribution, labeling, pasteurization and cooking of milk, and recommending to the city health authorities that special milk for 500,000 infants and children under 5 years of age be immediately obtained. The president of the Board of Aldermen spoke of the city's appropriation of \$40,000 to investigate methods of furnishing pure milk. Julius Millenhawer, assistant in the New York State Agricultural Department, stated that the milk supply was better and safer to-day than ever before. Prof. William T. Sedgewick of the Massachusetts Institute of Technology, was of the opinion that cooked milk, though not so palatable, was by far the safest.

NORTH DAKOTA

Society Meetings.—The Grand Forks Medical Club, at its annual meeting November 4, elected the following officers: president, Peter Nestos; vice-presidents, Herbert Movius and Joseph Martineau, and secretary-treasurer, Fred DuBois.—The Grand Forks Public Health League, at its annual meeting, elected the following officers: president, Dr. Gustave F. Ruediger; honorary vice-presidents, President McVea of the University and Dr. George M. Williamson; and vice-president, Dr. Anders A. Westeen.

Personal.—Dr. John C. Smith, Thompson, has been appointed physician for District No. 3, Grand Forks County, to fill the unexpired term of Dr. Frederick V. Lyman, Thompson.—Dr. William C. Eichler, Underwood, suffered a loss of \$500 by fire in his office, November 10.—Dr. and Mrs. Martin W. Roan, Bismarek, have returned from Europe.—Dr. John D. Taylor, Grand Forks, has started for Europe.—The branch station of the North Dakota Public Health Laboratory is to be established at Bismarek under the charge of Dr. Carl T. Raven, formerly city bacteriologist of Oklahoma City.

OHIO

Sanatorium Cottages Opened.—Eight new cottages are now practically completed at the State Sanatorium, Mount Vernon, which will increase the capacity of the institution to more than 200.

Fail to Report Births.—Health Superintendent Ford of Cleveland declares that of 1,400 deaths of infants reported during the last two years not one birth certificate has been filed.

He believes many women are practicing midwifery in the city without license.

Faculty Changes.—Dr. Lyman A. Brewer, associate professor of surgery in Toledo Medical College, has been elected dean of the college, vice Dr. James Donnelly, deceased.—Dr. Perry C. Pike of the University of Pennsylvania has been made professor of physiology in Toledo Medical College.

Alumni Meeting.—The third annual meeting and banquet of the Starling-Ohio Medical Alumni Association of the Miami Valley was held in Dayton, November 22, and the following officers elected: president, Dr. Francis C. Gray, Dayton; vice-president, Dr. Elwood E. Bevington, New Paris; secretary, Dr. G. W. Riche, D.D.S., Dayton; treasurer, Dr. S. Edwards Hendren Dayton, and trustee, H. L. Oliver, D.D.S., Dayton.

Personal.—Dr. Adam L. Jackson, Zanesville, is said to have suffered a cerebral hemorrhage, November 19, and to be in a critical condition.—Dr. Richard A. Bolt, Cleveland, has been appointed medical director of the College of Young China near Peking. He will teach anatomy, physiology and hygiene.—Dr. William H. Harper, Columbus, received injuries about the legs in a collision between his automobile, a bakery wagon and a street car, November 21.—Dr. George S. Weger, Delphos, is said to have retired from practice to become secretary-treasurer and general manager of the Mueller Implement and Auto Company of that city.—Dr. William F. Teegarden, Columbus, charged with selling liquor in a prohibition district, is said to have pleaded guilty at Marysville, November 12, and to have been fined \$75 and costs.

PENNSYLVANIA

Anniversary of Academy.—The Harrisburg Academy of Medicine celebrated its fifteenth anniversary, November 25. Dr. Judson Daland, Philadelphia, delivered an address. Dr. William J. Middleton, Steelton, president, was in the chair, and after the ceremonies, a banquet was served at the Commonwealth Hotel.

Norristown Asylum Report.—The annual report of the Norristown Hospital for the Insane, claims for this year the largest percentage of patients restored since its foundation. Since it was founded, 30 years ago, there have been 13,715 patients treated at the institution. Of these 2,911 have been discharged as restored, 1,991 have improved, 922 are unimproved, 38 were decided not insane and 4,943 died.

Personal.—Dr. Cornelius C. Wholey has been appointed a member of the staff of the St. Francis Hospital, Pittsburg, in charge of the inebriate department.—Dr. Cyril H. Haas, Selinsgrove, is going as medical missionary to Turkey.—Dr. C. Montgomery, resident physician at the Punxsutawney Hospital, was attacked by an insane patient and was saved from severe injury or death only by the timely arrival of assistance.

Medical Club Organized.—The physicians of Armstrong, Butler, Clarion and Venango Counties have formed an organization known as the Foxburg Medical Club, which meets in that city weekly. The object of the organization is the study of medicine in its various phases. At each session, after the scientific papers and discussions are finished, a social hour is spent at lunch at the Foxburg Inn, at which, by common consent, medical subjects are tabooed.

County Societies Elect.—At the annual meeting of the Bucks County Medical Society, in Doylestown, November 9, the following officers were elected: president, Dr. William Martin, Bristol; vice-presidents, Drs. Frank B. Swartzlander, Doylestown, and Harry L. Thomas, Langhorne; secretary-treasurer and reporter, Dr. Anthony F. Myers, Blooming Glen, and censors, Drs. George M. Grim, Ottsville, William R. Cooper, Point Pleasant, and Walter H. Brown, Richlandtown.—A public meeting of the Greene County Medical Society was held in Waynesburg, October 25, when the following officers were elected for the coming year: president, Dr. Thomas L. Blair, Waynesburg; vice-president, Dr. B. L. Cowan; and secretary, Dr. Thomas B. Hill, Waynesburg.

Philadelphia

DaCosta Dead.—As we go to press the notice of the death of Dr. John C. DaCosta, on December 6, is received.

Bottlers Plead Guilty.—Pleading guilty to charges of adulterating their bottled drinks with saccharin, preferred against them by Harry P. Cassidy, special agent of the State Dairy and Food Commission, ten bottlers were fined \$25 and costs, November 29.

Measles on Steamship.—The North German Lloyd steamship *Cassel*, from Bremen, which docked November 30, carried more than 1,500 cabin and steerage passengers. A baby died at sea

of measles and sixteen other children in the steerage were found to have the same disease and were all sent to the Philadelphia Hospital.

Donation and Bequest.—A donation of \$5,000 to the endowment fund of St. Timothy's Hospital has been made by Mrs. Elisabeth L. Clark, in memory of her son, Robert C. Clark. The hospital board will erect a bronze tablet marking the Robert C. Clark bed in perpetuity.—The will of the late Robert O'Donnell bequeaths to St. John's Orphan Asylum and the Little Sisters of the Poor, \$1,000 each; to St. Vincent's Home for Infants, St. Vincent's Maternity Hospital, and the Home of the Good Shepherd, \$500 each.

Medical Portraits for the University.—Julian Story, the artist, is painting a portrait of Dr. Samuel G. Dixon, State Health Commissioner, which will be hung in the laboratory of pathology at the University of Pennsylvania. The university is also having painted, by Hugh Henry Breckenbridge, a portrait of Dr. James Tyson, recently elected emeritus professor of medicine. A portrait of Dr. Louis Starr, who from 1884 to 1890 was clinical professor of children's diseases, is being painted by Joseph de Camp, and Dr. Simon Flexner, of the Rockefeller Institute, who was professor of pathology from 1899 to 1904, is also sitting for a portrait.

Increased Health Budget.—The Council's Committee on Health and Charities has approved the budget of the department of Health and Charities for 1911, in which Dr. Joseph S. Neff asks an appropriation of \$7,127,562 as compared with an appropriation for the current year of \$1,016,393. The budget includes an item of \$5,000,000 for hospital buildings for the insane on the 800 acres of city land at Byeberry; an item of \$100,000 for the Home for the People-Minded; \$150,000 for new boilers, dynamos and buildings at the General Hospital; \$35,000 for additional fireproof bridges at the Philadelphia General Hospital, and \$15,000 for a tuberculosis sanatorium at Byeberry.

Personal.—Dr. Howard S. Anders has been elected fellow of the Royal Meteorological society of London, on account of a series of investigations relating to weather phenomena and influenza epidemics, published since 1898 in the Transactions of the American Climatological Association.—Dr. Claude A. Dundore is spending the winter in Colorado.—Dr. Benjamin A. Thomas has been elected professor of genitourinary surgery in the Polyclinic Hospital.—Dr. Thomas S. Githens has been appointed to a fellowship in the pharmacologic department of the Rockefeller Institute for Medical Research.—Dr. Louis Mutschler, assistant surgeon in the Episcopal Hospital for ten years, has been elected surgeon.

SOUTH DAKOTA

Personal.—Dr. Charles M. Hollister has been appointed surgeon for the Chicago Northwestern Railroad at Pierre, vice Dr. De Lorme W. Robinson, deceased.—Dr. Frank H. Creamer has been appointed local surgeon of the Milwaukee System at Dupree.

New County Society Meeting.—The Gregory County Medical Society was recently organized at Dallas, and the following officers were elected: president, Dr. Harry A. Murnan, Gregory; vice-president, Dr. Edwin B. Bradley, Burke; and secretary-treasurer, Dr. Thomas R. Castles, Dallas.

State Society Meeting.—The South Dakota State Medical Association held its twenty-ninth annual meeting in Hot Springs, September 27-29. Dr. Hans M. Finnerud, Watertown, was elected president; Dr. Charles E. McCauley, Aberdeen, vice-president; and Dr. Robert D. Alway, Aberdeen, secretary-treasurer. The next meeting will be held in Pierre in June, 1911.

District Society Meets.—The physicians of Pennington, Custer, Fall River and Stanley counties have organized a district society, to be known as the Hot Springs District Medical Society No. 10, and have elected the following officers: president, Dr. Frederick E. Walker, Hot Springs; vice-president, Dr. Frederick W. Minty, Rapid City; and secretary-treasurer, Dr. William E. Robinson, Rapid City.

Black Hills Physicians Hold Meeting.—At the annual meeting of the Black Hills Medical Association, held in Deadwood, November 17, the following officers were elected: president, Dr. Frank S. Howe, Deadwood; vice-president, Dr. Arthur S. Hoon, Nemo; secretary, Dr. Walter L. Vercoe, Lead; treasurer, Dr. Francis E. Clough, Lead; delegates to the state society meeting, Drs. John W. Freeman, Lead, and Frederick A. Brandt, Sturgis; and censors, Drs. John R. Nilsson, Lead; Charles Richards, Sturgis, and Herman F. Ratte, Rapid City.

VIRGINIA

Personal.—Capt. Lyle F. Hansbrough, Front Royal, has resigned from the Medical Corps, Virginia Volunteers.—Dr. Robert C. Randolph, Boyce, is reported to be seriously ill with typhoid fever in Winchester Memorial Hospital.—Dr. Lewis B. Firey, Norfolk, was attacked in his office by two men, November 21, bound hand and foot to a chair, and robbed of \$24.

Advocates Hospital for Inebriates.—In the annual report of Dr. John C. King, superintendent of the Southwestern State Hospital for the Insane, Marion, he advocates a separate institution for the care and treatment of individuals addicted to the liquor or drug habit.—Four new buildings have been completed at the State Sanatorium, Catawba, near Salem, which will increase the capacity of the institution to 118.—The new Municipal Tuberculosis Hospital Camp in Henrico County, near Richmond, narrowly escaped destruction by a field fire, November 24.

Medical Society Meetings.—The annual meeting of the Petersburg Medical Faculty was held November 17, and the following officers were elected: president, Dr. W. Preston Hoy; vice-presidents, Drs. Julian R. Beckwith and Robert A. Gamble; corresponding secretary, Dr. Hampden A. Burke, and secretary-treasurer, Dr. William C. Powell.—Rockingham County Medical Society has elected Dr. John F. Wright, Keezletown, president; Dr. Ashby C. Byers, Lacey Spring, vice-president, and Dr. John M. Biedler, Harrisonburg, secretary-treasurer.

GENERAL NEWS

International Dermatology Congress.—The seventh international congress for dermatology and syphiligraphy will meet at Rome, Sep. 25 to 29, 1911. The questions appointed for discussion are the treatment of syphilis, physiotherapy in treatment of skin diseases, and blastomycosis and sporotrichosis and their relations with analogous affections.

International Prize for Work in Obstetrics and Gynecology.—The surplus left from the international congresses for gynecology and obstetrics in 1892 and 1895 amounts now to about \$6,000, and at the fifth congress, recently held in Russia, it was decided to devote most of the income to an international prize for some important achievement or work in the line of obstetrics or gynecology, to be awarded at future congresses. The next congress is to be held in Berlin in 1912. Eclampsia is the chief topic appointed for discussion.

International Hygiene Exposition.—The Germans are making every effort to render the Hygiene Exhibition at Dresden in 1911 an epoch-making educational force, concentrating the results of advanced hygiene and sanitation as achieved in the various countries of the world into a grand object-lesson for comparison and the triumph of the fittest. The exhibition, to which several references have been made in THE JOURNAL, includes the five sections, the Scientific, the Historical, the Popular, the Section of Sports and, inseparably connected with them all, Industrial Conditions. The Popular Section is devoted to the whole province of the hygiene of the individual, how to maintain health and strength and improve it under all conditions, and how to rouse the people to a consciousness of the significance and importance of legislative measures enacted in the interests of health protection. The various countries are taking a practical interest in the exhibition, Russia having appropriated 102,000 roubles, over \$50,000, and Japan having recently increased its appropriation from \$125,000 to \$165,000, and speaking for over 1,500 square yards of floor space. The third series of Olympian games is to be held in connection with the exhibition, July 8 and 9, concluding with a climbing trip through the mountainous district nearby. A number of national congresses dealing with matters more or less connected with hygiene are also to be held in connection with the exhibition, the dates of several French congresses of the kind being already announced; among them are the Société Française des Habitations à Bon Marché, several engineering and architect societies, women's clubs, labor unions, etc. Our British exchanges are lamenting that the British government referred to the Board of Trade the invitation to participate in this exposition, and the latter declined as it had already three industrial expositions on its hands—Brussels, Turin and Rome—so that they say that Great Britain is the only great power which is not to be officially represented. The publicity bureau is issuing once or twice a month for free distribution a circular of "social-hygienic correspondence," which contains many interesting items and data. Address H. Pfeiffer, Zwickauerstrasse 35, Dresden, Germany. Further details of the exposition and its organization were given in THE JOURNAL, Oct. 1, 1910.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Nov. 18, 1910.

Professor Gaucher on Arsenobenzol ("606")

Professor Gaucher, who has succeeded Professor Fournier in the clinic of cutaneous and syphilitic diseases of the Paris medical college, has just devoted one of his clinical lessons to the treatment of syphilis by Ehrlich's method and, in the last session of the Académie de Médecine, he made a report on the same subject. From his personal observation he believes that arsenobenzol does not deserve the name of *therapia sterilisans magna* which Ehrlich has given it. The relapses and the appearance of new manifestations after the injection of this remedy have become innumerable. General paralysis, tabes, the visceral lesions and the quaternary or parasymphilitic lesions, such as lingual leukoplakia, are absolutely intractable to "606." Other forms of syphilis are cured as slowly with "606" as with mercury and potassium iodid. This is particularly the case for the ulcerated gummata. On the other hand, superficial ulcerations and erosive mucous plaques improve very rapidly under "606." Ulcerated and papulous mucous plaques improve much more slowly and sometimes are altogether intractable. Erosive or ulcerated chancres are very quickly cured, but papulous hypertrophic chancres of the skin are cured more slowly. Dry cutaneous lesions are commonly less quickly influenced than ulcerated lesions and often even resist treatment altogether. As for papulous and tubercular lesions, they are cured less rapidly by "606" than under the classical treatment. However, arsenobenzol sometimes gives remarkable results for the tubercular syphilides, as for gummata in cases in which mercury has failed. Gaucher believes that "606" is a remedy which has come to stay but to be used only exceptionally. In most cases, mercury treatment ought to be relied on and it ought always to be used first, arsenobenzol being employed only when the patient is intolerant of mercurial preparations or when the latter are ineffective or insufficient. Cases in which mercury is sufficient are very rare, so that there are few indications for the "606." Moreover, it is not a practical remedy. Gaucher has seen patients much weakened by injections: one lost 12 and another 14 kilos (26 and 30 pounds).

Contagiousness of Malta Fever

At the last session of the Académie de Médecine, Professor Widal reported a case of Malta fever which occurred in his own laboratory in an attendant who had taken care of cultures of *Micrococcus melitensis*. In laboratories where the agglutination reaction for Malta fever is often produced, cultures killed by formaldehyd vapor should be used. Moreover, since cases of Malta fever have multiplied in France in the last few years, goats' milk ought not to be used unboiled. The importation of goats from the island of Malta ought to be prohibited in French ports as it has already been in the ports of Tunis. On the motion of Dr. Widal, the academy passed a resolution that Malta fever ought to be included in the list of diseases compulsorily reportable.

Professor Grasset on the Medical Crisis

At the opening session of the University of Montpellier, Professor J. Grasset made an address in which he answered objections to the *concours d'agrégation*. He believes that the training of the clinician in Germany and in England is much inferior to that in France. In Grasset's opinion, the German private-doctor system is the most undemocratic imaginable. He declares that it is not the preservation or suppression of the *concours* that ought to cause disquietude; it is something more serious: the "phobia of inequality" with which the medical profession is imbued.

Plans for the Formation of a Medicolegal Institute

In one of my previous letters (THE JOURNAL, Jan. 15, 1910, p. 215) I noticed the plan for the reorganization of the morgue. The Minister of Public Instruction has just presented a bill for the foundation in Paris of a medicolegal institute, comprising all the administrative and educational services installed in the morgue building, which will make investigations to identify unknown bodies, perform judicial necropsies and give expert medicolegal opinions as well as instruction with laboratory and practical work in legal medicine. For instruction and scientific research, the institute will be connected with the Paris Medical college, which will have free disposition of unclaimed bodies left in the institute.

Abuse of the Red Cross Emblem

In *Caducee*, a journal of military medicine, Dr. Granjux has undertaken a campaign for the prohibition of the abuse of the

Red Cross emblem in France. At the time of the revision of the Geneva Convention, in 1906, an article was voted requiring all the states which signed the convention to prevent the use of the emblem and even the name of the Red Cross or Geneva Cross by private individuals or by societies not entitled to it, and especially for commercial purposes as a trade-mark. A maximum period of five years was allowed the governments to put these measures into effect. Some countries have already forbidden the abuse of the emblem, but in France one may still see used red crosses on the signs of pharmacists, on nurses' houses and on ambulances.

Homage to Professor Bernheim

On the retirement of Dr. H. Bernheim, professor of clinical medicine at the Nancy medical college, his collaborators and friends presented him with an artistic medal. Several addresses were given, especially by Dr. Gross, dean of the Nancy medical college and by M. C. Adam, rector of the university. Dr. Bernheim gave an interesting review of his whole life, first in Strasburg before the war of 1870-71, then in the army ambulance service during that campaign and finally, since 1872, at Nancy, where he has been occupied since 1883 with the subject of suggestion, taking sides against the school of the Salpêtrière represented by Charcot.

Measures Against Alcoholism

Taking the stand that the greater number of crimes committed are the direct result of alcoholism and that the latter constitutes a veritable social scourge which must be checked most energetically, the jury of the Seine in November passed the following resolution: (1) that every individual found drunk on the public thoroughfare ought to be immediately arrested and brought before the courts; (2) that for ten years, all granting of licenses ought to be absolutely prohibited.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Nov. 10, 1910.

Suicide Statistics

According to the statements made by Dr. Schilling, the frequency of suicide in Europe has increased since 1831 by 400 per cent., while the growth of the population is only 60 per cent. From 1869 to 1872 there were 72 suicides to 1,000,000 inhabitants in Prussia, while from 1891 to 1900 there were 60,518. In the German empire the number of suicides for 1881 was 9,944; for 1903, 12,730. Even the suicide of children has continually increased. Only in a few countries, such as Norway, Denmark and Spain, has the number of suicides decreased. In addition there is no doubt that, as a rule, the number of suicides is materially larger than the official figures, as cases of suicide are frequently concealed. Among the methods, hanging is most frequently employed. Of 100 suicides during the years 1883 to 1890, 57.3 to 62 hung themselves, 17 to 20 drowned themselves, 9.4 to 12.8 shot themselves, and in the fourth place come those who stab themselves and fifth, those who take poison. More unmarried persons kill themselves than married, more single women than single men, more widowers than widows. Among motives, love and jealousy predominate among the women; alcoholism furnishes many victims. As to age, a suicide under five is scarcely known and the rate constantly increases from five to twenty-five and then falls off somewhat until the fiftieth year, and again increases during old age. Suicide is scarcely influenced by climatic conditions, but the season of the year has an especial importance. In summer the cases are most frequent and least so in December. Also with reference to the time of day there are differences. The largest number of suicides occurred between 6 and 12 a. m. and 2 to 6 p. m. With reference to profession and occupation, there were in Prussia from 1883 to 1890 for 100,000 inhabitants only 40 suicides among those in business for themselves, 61 among public officials, 63 among private officers, 40 among laborers and servants, 59 among persons in the army, 84 among those having incomes and pensions and 67 among the recipients of charity.

Alcoholism and Mental Diseases

From his investigations in the insane asylum at Frankfort a. M., on the question to what extent alcohol is to be regarded as the cause of insanity, among a total of 2,032 who were received in 1907-08 with a history of alcoholic antecedents, Dr. Siegel found drunkenness of the parents or near relatives in 308 cases. The alcoholic taint was distributed as follows among the various forms of mental disease: Chronic alcoholism 39.9 per cent.; imbecility and idiocy, 16.4 per cent.;

dementia præcox, 14.3 per cent.; depressive mania, 3.6 per cent.; epilepsy, 15.2 per cent.; hysteria, 7.5 per cent.; traumatic psychoses, 0.6 per cent.; paralysis and organic psychoses, 4.6 per cent.; senile psychoses, 1.6 per cent.; psychoses of other forms, 2.3 per cent.; psychoses and alcoholism, 17.2 per cent. The fact first recognized by Sioli that there is a homogeneous inheritance of particular forms of mental disease is also evident here; two-fifths of the patients tainted by the drunkenness of their parents become drunkards, and alcohol plays a large rôle in the psychoses of another fifth. The majority of the patients were received on account of alcoholic disturbances, especially delirium tremens. Next in frequency come epilepsy and dementia præcox. With reference to the other psychoses, it should not be overlooked that in addition to alcoholism in many cases there were other forms of inherited taint.

Those with alcoholic inheritance show in comparison with other insane a predominance in the first decade; the children of drunkards need institutional treatment earlier than others. Among the 308 patients there were thirteen children of and under school age. The maximum of admissions among those with alcoholic taint, as well as with other mental diseases, falls in the fourth decade. The data with reference to the offspring of patients coming from families of drunkards are below the reality, as they represent a minimum obtained from the historical data. The percentage of sterile marriages is strikingly large: Among 130 married patients, 22 marriages were without offspring (not even stillbirths or miscarriages); of 10 marriages nothing could be learned. From the remaining 98 marriages there were 205 children who might be designated as healthy, and 118 of whom no exact information could be obtained; 52 were not carried to full term; 20 were stillborn; 75 died soon after birth, 21 of convulsions, 32 of infectious diseases. Altogether 200 individuals perished at birth or soon after. Among the survivors, diseases of the nervous system appeared at an early date in a considerable percentage. Here the figure obtained is surely below the truth. Some were already in institutions, others had left home and were lost sight of. The patients of the institution are drawn from all classes of the population but the group under consideration belongs in the great majority to the lower classes. Among the victims of alcoholism the effort to raise their offspring above their own social level appears to be totally lacking; 61 per cent. of the patients were paupers.

On the relations of alcoholism to etiology of epilepsy, Dr. M. Müller has investigated the material of the Swiss institutions for epileptics. The material of the Zürich institute for the years from 1896 to 1907 showed that among 503 patients admitted, a history of alcoholic taint was obtained in 369 cases. These showed alcoholism in the progenitors in 33.99 per cent.; psychoses and neuroses in 29.22 per cent.; epilepsy in 10.13 per cent. He remarks that collective statistics cannot lead us much further in the investigation of the conditions of heredity but that there is need of study of the individual family in order to gain a deeper insight into the matter. He has the tabulated details for thirty families all of which show analogous conditions. The number of inferior members is very large. The appearance of affections of the nervous system and of other organs, such as tuberculosis and carcinoma, is frequent. The parents of the patient show no abnormalities, but the grandparents and the collateral lines on the mother's side are characterized by abnormalities of all sorts. The inferior germ plasma came into the family through the mother and this inferiority was occasioned by the alcoholism of the grandparents; in the mother it remained latent. Epilepsy in these families is of a severe type and associated with physical inferiority. Very often the only heredity in the direct line of the mother is alcoholic and the healthy germ plasma of the father is unable to neutralize this injurious influence. The simultaneous occurrence of alcoholism or alcoholic taint on the paternal side is correspondingly graver. As to the relations of individual alcoholism to epilepsy, Müller is of the opinion that an epilepsy generated by the use of alcoholic drinks in a healthy constitution does not exist, but that the use of alcohol in a nursing woman may produce epileptic convulsions in the infant.

Bill for a Law Against Quackery

The antiquackery bill which I mentioned some time ago has just passed the senate. Whether it will meet the wishes of the medical profession and is suited to restrain the growth of quackery remains to be seen. Also it is a question what position the Reichstag, the lower house, whose consent is necessary for the enactment of the law, will take in reference to this bill.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Nov. 22, 1910.

A General Medical Tariff for Prague

The physicians of Prague have, after repeated efforts, succeeded in convincing all members of the local medical association of the necessity for a minimal tariff for professional services. In a memorandum addressed to the general public, the necessity of having a fixed tariff is explained by the frequent disputes between patients and doctors as to fees and by the increase of the general cost of living. The tariff divides the doctors into general practitioners, specialists and consultants. The last-named doctors are not bound to any fixed sum, but they may not go below the usual terms of specialists. The general practitioner must charge at least 2 kronen (40 cents) for a consultation in his office and 3 kronen (60 cents) for a visit in the patient's house. Night visits to be charged for at double rates of the day fee. Specialists have to charge double the rates of the ordinary doctor's fee. This is only the lower margin, as of course no upper limit can be fixed. All consultations by telephone, all written testimonials, all surgical dressings and appliances shall be charged for, the latter according to their actual cost, the former at the rate of 2 kronen each. The fee shall be due when the treatment or attendance on the patient ends. Accounts shall be sent in every quarter of the year; for fees due longer than a year, the doctor shall be entitled to ask interest at the rate of 5 per cent.

Mortality and Health of the Jewish Population in Vienna

A remarkable report by the Jewish board of health of Vienna has just now been published. It is interesting to compare its figures with those of the Gentile population. In 1909, there were 180,000 Jews among 2,100,000 of Viennese inhabitants, or a little less than 9 per cent. They have increased by 4 per cent, against 2 per cent, of the other part of the population, when the year 1908 is considered. There were 2,502 children born alive. The increase by births was 7.5 per cent. The percentage of childbirth at Vienna generally, is less than 1 per cent. The Jewish mortality was 125 per 1,000. The general Vienna mortality was 16 per cent, in 1909. A large number of deaths was due to senility; more than 20 per cent, of the deaths happened at ages over 75. It is interesting to note that only 185 Jewish infants under one year of age died in 1909, less than 9 per cent, of all deaths. Among the Jews, there is a marked freedom from alcoholism and its sequelae; diabetes, obesity, leukemia and neurasthenia are very frequent complaints, according to hospital registers, while insanity is not more frequent than in the whole community. Taken all in all, the Jewish population in Vienna is an excellent example of the value of long-continued observations of hygienic principles; for as such, most of their religious rules regulating their living must be regarded. The special care paid by them to children, the absence of factory working by mothers, tends to propagate a healthy stock of people up to a high age.

Marriages

BOHUMIR J. DVORSKY, M.D., to Miss Rose M. Votipka, both of Chicago, November 24.

FRANK BROWER, M.D., to Mrs. Alida Kirk, both of Toms River, N. J., November 25.

HARRISON S. THURSTON, M.D., to Miss Ella C. Shannon, both of Indianapolis, November 23.

WALTER O. GRAY, M.D., Worland, Wyo., to Miss Mary Forbes of York, Neb., November 24.

JAMES G. MARRON, M.D., Brainard, Neb., to Mrs. Frances Bainforth of Omaha, November 17.

JOEL D. WHITAKER, M.D., Raleigh, N. C., to Miss Melissa Myers of Logansport, Ind., November 22.

DAVID J. HALE, M.D., Las Cascadas, C. Z., to Miss Edith Dean of Mount Pleasant, Mich., recently.

JOSEPH C. R. DOGGETT, M.D., Crane, Mo., to Miss Erma Ethel Craig of Galena, Mo., November 20.

JOSEPH LANE FINLEY, M.D., Betterton, Md., to Mrs. Emma R. Baughman, at Baltimore, November 23.

CHARLES HENRY McDONALD, M.D., to Miss Vesta L. Vradenburg, both of Arthur, Ill., November 17.

CLAUDE SMITH BLACK, M.D., Warren, Ind., to Miss Hallye Nelson of Greenacastle, Ind., November 16.

ALBERT L. SHELD, M.D., McDonald's Mill, Va., to Miss Addie V. Parks, at Baltimore, November 19.

HERMAN THEODORE BECHTOLD, M.D., O'Fallon, Ill., to Mrs. Elle Merch-Bechtold of Belleville, Ill., November 17.

JOSEPH W. SHAW, M.D., Buckville, Ark., to Mrs. Susie Johnson of Lena, Ark., at Hot Springs, November 21.

GUY DAWSON RUTLEDGE, M.D., Junction, Utah, to Miss Anna Mary Fletcher of Smithshire, Ill., October 20.

RUSSELL WESLEY RAYNOR, M.D., White Haven, Md., to Miss Lola E. Wilson, at Deal's Island, Md., November 20.

LESLIE ERWIN COFFIN, M.D., Iron Mountain, Mich., to Miss Emily May Boeson of Marshalltown, Ia., October 27.

HOWARD STANLEY GORSUCH, M.D., to Miss Clara Strauff, both of Baltimore, at Wilmington, Del., November 22.

CHARLES WAITE ORVILLE BUNKER, M.D., U. S. Navy, to Miss Eleanor Garrett Caldwell, at New York City, November 12.

Deaths

Landon Brame Edwards, M.D. New York University, New York City, 1867; for many years secretary of the Medical Society of Virginia; one of the founders of the University College of Medicine; founder in 1874 and for many years editor of the *Virginia Medical Monthly*, later known as the *Virginia Medical Semi-Monthly*; died at his home in Richmond, November 27, aged 65. In 1863, Dr. Edwards enlisted in the Artillery Corps of the Confederate army and served until the close of the war, and served afterward as surgeon of the First Regiment, Virginia Volunteers. He attended his first course of medical lectures at the University of Virginia. In 1868 he moved to Lynchburg, where he remained until 1872, when he removed to Richmond. He was a member of the American Medical Association; a charter member of the Medical Society of Virginia and recording secretary since 1870; a member of the Southern Surgical and Gynecological Association; past president and honorary fellow of the Richmond Academy of Surgery; from 1872 to 1908 he was a member of the State Board of Health. His work as a teacher began in 1874, when he became lecturer on anatomy in the Medical College of Virginia; in 1875 he was elected lecturer on materia medica and therapeutics and served in this capacity for two years. In 1893 he was made professor of practice of medicine in the University College of Medicine, Richmond, and from 1900 to 1907, was professor of clinical medicine and dean of the medical faculty of the institution and later emeritus professor. His hospital experience began in 1867, when he served for five months as house physician at Charity Hospital, Blackwell's Island, and later as assistant physician to Dr. M. Gonzales Echeverria, at his hospital for nervous diseases, Lake Mahopac, N. Y. In 1902 Dr. Edwards was elected an honorary member of the Medical Society of Virginia, and at the session of that body in Roanoke, in 1909, he was presented with a purse containing \$1,000 as a token of the affection in which he was held by the members.

David Nathaniel Kinsman, M.D. A veteran physician and educator and public-spirited and progressive citizen of Columbus, O.; died at his home in Columbus, November 24, from heart disease, aged 76. Dr. Kinsman was graduated from the Medical College of Ohio, Cincinnati, in 1863, and since 1866 practiced in Columbus. He was a member of the American Medical Association; formerly president of the Ohio State Medical Society; a member of the American Academy of Medicine, and Columbus Academy of Medicine; a member and first president of the Columbus Medical Society in 1882. From 1872 to 1874 he was professor of diseases of women and children in Starling Medical College; professor of practice of medicine in Columbus Medical College from 1875 to 1892; professor of nervous diseases in Starling Medical College from 1892 to 1898; professor of practice of medicine in Ohio Medical University from 1898 to 1907, and thereafter emeritus professor. For many years he was chief of staff of the Protestant Hospital, Columbus. He served as health officer of Columbus from 1893 to 1897, and was a member of the Ohio Live Stock Commission from 1886 to 1900. At a meeting of the physicians of the city, November 27, presided over by Jesse A. Van Fossen, Dr. John H. J. Upham spoke in laudation of "Dr. Kinsman, the Teacher;" Dr. John M. Dunham on "Dr. Kinsman, the Advisor;" Dr. Theodore W. Rankin on "Dr. Kinsman, the Physician and Student," and Dr. John W. Wright, on "Dr. Kinsman as a Friend and Associate." Dr. Florus F. Lawrence then narrated numerous instances of sacrifices made by Dr. Kinsman for the sake of friends and patients.

Christian Archibald Herter, M.D., treasurer of the Rockefeller Institute for Medical Research, and one of the board of five referees appointed by the President of the United States to act as advisers of the Department of Agriculture in the enforcement of the national Food and Drugs Act, died at his home in New York City, December 5, aged 45. He was a native of Glenville, Conn., received his preliminary academic education in New York City, and was graduated from the College of Physicians and Surgeons in 1885. His especial work was that of an investigator and chemical pathologist. He was professor of pathologic chemistry in the University and Bellevue Hospital Medical College from 1898 to 1903, and professor of pharmacology and therapeutics in the College of Physicians and Surgeons since that time. Dr. Herter was a prolific writer, his more ambitious works being those on "Diagnosis of Nervous Diseases," published in 1890, and "Lectures on Chemical Pathology," which appeared twelve years later. From 1894 to 1904, Dr. Herter was visiting physician to New York City Hospital. He was a member of the American Medical Association, New York Academy of Medicine, Association of American Physicians, American Physiological Society, American Society of Experimental Biology and Medicine, and other scientific bodies. Dr. Herter had been in ill health for more than a year, but his death was due to pneumonia.

David Lynn Magruder, M.D. University of Maryland, Baltimore, 1849; Brigadier General, Medical Corps, U. S. Army, retired; died at his home in Bryn Mawr, Pa., November 22, aged 85. He entered the Army as an assistant surgeon in 1850; was made captain five years later; in 1862 he was made major; in 1882, lieutenant colonel; in 1886, colonel; and was retired April 23, 1889, by operation of law, on account of age. He served as medical director of the Department of the Missouri at St. Louis until October, 1863, and then became chief medical purveyor at Louisville. After service as medical director of the departments of the Platte and Arizona, he again served as medical director of the Department of the Missouri, until 1884. He was brevetted lieutenant colonel in 1865 for faithful and meritorious service during the war, and was advanced to brigadier general on the retired list in 1904 on account of Civil War service.

Frederick W. Van Slyke, M.D. Minnesota Hospital Medical College, Minneapolis, 1883; a member of the American Medical Association; Minnesota Valley Medical Society, American Academy of Ophthalmology and Oto-Laryngology, and the Heidelberg (Germany) Ophthalmological Society; ophthalmologist and otologist on the staff of the City and County Hospital, St. Paul, University Free Dispensary and Protestant Orphan Asylum; died in St. Joseph's Hospital, St. Paul, November 23, from hemorrhage of the stomach, aged 53.

John D. Axline, M.D. Medical College of Ohio, Cincinnati, 1869; a member of the American Medical Association; a veteran of the Civil War, and first president of the Red, White and Blue Society, of which the Grand Army of the Republic was an outgrowth; for twenty-six years local surgeon of the Baltimore and Ohio Railroad at Shawnee, O.; for twelve years surgeon of the C. H. and S. Railroad; a member of the Seventieth General Assembly of Ohio; died at his home in Shawnee, November 19, from diabetes, aged 68.

Samuel Alexander, M.D. Bellevue Hospital Medical College, 1882; a member of the American Medical Association; New York Academy of Medicine, New York Surgical Society, and American Association of Genitourinary Surgeons; professor of diseases of the genitourinary system in Cornell University; surgeon to Bellevue Hospital, and consulting surgeon to the Montefiore Hospital; died in the New York Hospital, November 29, after an operation for appendicitis, aged 52.

James H. Green, M.D. Medical College of Ohio, Cincinnati, 1884; a member of the American Medical Association; Association of Surgeons of the Baltimore and Ohio Railway; Big Four Railway Surgeons' Association, and National Association of United States Pension Examining Surgeons; local surgeon at Mount Vernon, Ind., for the Big Four and Baltimore and Ohio systems, and local member of the pension board; died at his home, November 21, from nephritis, aged 51.

Oliver Roland, M.D. University of Pennsylvania, Philadelphia, 1875; a member of the American Medical Association; for many years a member of the school board and board of health of Lancaster, Pa.; for twenty years physician to the Children's Home and Hospital, attending physician to St. Joseph's Hospital, and consulting physician to the Lancaster General Hospital; died at his home, November 20, from cerebral hemorrhage, aged 60.

William Robert Bross, M.D. College of Physicians and Surgeons, New York City, 1881; formerly a railway surgeon in Costa Rica, and port health officer of Port Limon; a member of the yellow fever commission for South America; since 1889 a member of the staff of the Equitable Life Assurance Company, and for several years medical director of the company; died at his home in Babylon, L. I., November 21, from cerebral hemorrhage, aged 56.

Alvah Coit Van Syckle, M.D. New York University, New York City, 1878; a member of the Medical Society of New Jersey, and vice-president of the Tri-County Medical Society; twice mayor of Hackettstown; a member of the board of education, and president of the Warren County Medical Society; died suddenly while attending a meeting of the society, November 22, from heart disease, aged 57.

Robert Quincy Gray, M.D. Washington University, St. Louis, 1907; a member of the Missouri State Medical Association; formerly a practitioner of Cabanne, Mo.; later surgeon to the Guggenheim lead mines in Mexico; died in a hotel in San Antonio, Texas, November 24, from the effects of a gunshot wound believed to have been self-inflicted with suicidal intent, aged 27.

David Sisson, M.D. Physio-Medical Institute, Cincinnati, 1876; a member of the American Medical Association; a veteran of the Civil War; for several years secretary of the Ohio Valley Medical Association; for several years health officer of Middleport, Ohio; at one time assessor of Yuma County, Colo.; died at his home, November 15, from cardiac asthma, aged 66.

William Watson, M.D. Rush Medical College, 1854; surgeon of the Eleventh Iowa Volunteer Infantry during the Civil War, and for two years surgeon-in-chief of the Military Hospital, Rock Island, Ill.; a practitioner of Dubuque, Iowa, until 1901, and thereafter of River Forest, Ill.; died at the home of his son in that place, November 21, from the effects of a fall, aged 84.

Stephen G. Cook, M.D. New York University, New York City, 1857; for twenty-five years police surgeon of New York City, and formerly president of the Board of Police Surgeons; surgeon of the One Hundred and Fiftieth New York Volunteer Infantry during the Civil War; died at his home in New York City, November 21, from senile debility, aged 79.

William H. Williams, M.D. Western Reserve University, Cleveland, 1900; for six years local surgeon of the Lake Shore System and superintendent of the board of health at Collingwood, Ohio, and mayor of that city in 1909 and until it was annexed to Cleveland; died in the Charity Hospital, Cleveland, November 17, from heart disease aged 40.

J. G. Cox, for sixty years a practitioner of medicine of Jacksonville, Ill., and Humboldt, Neb.; a veteran of the Mexican War; assistant surgeon of the One Hundred and Fiftieth Illinois Volunteer Infantry during the Civil War; died at his home in Humboldt, Neb., July 15, from senile debility, aged 87.

Frank E. McGann, M.D. Barnes Medical College, St. Louis, 1904; a member of the Illinois State Medical Society and coroner of Brown County; and formerly secretary and treasurer of the Brown County Medical Society; died at his home in Mount Sterling, November 28, from pneumonia, aged 30.

Thomas Lincoln Wells, M.D. Bellevue Hospital Medical College, 1883; a member of the Medical Society of the State of New York, and Brooklyn Neurological Society; formerly a member of the staff of the State Hospital for the Criminal Insane; died at his home in Brooklyn, October 20, aged 49.

Jesse M. Jones (license, Ind., 1897); a member of the Indiana State Medical Association; a practitioner of Indiana for forty-two years; for four years member of the Pension Examining Board of Catawact, Ind.; a veteran of the Civil War; died at his home November 1, aged 75.

Charles L. Mitchell, M.D. Jefferson Medical College, 1880; one of the founders of the Medico-Chirurgical College of Philadelphia, and for many years professor of chemistry in that institution; died in Presbyterian Hospital, Philadelphia, November 24, from heart disease, aged 58.

Linn Archibald Kelly, M.D. Bennett Medical College, Chicago, 1869; a member of the school board and city physician of Winona, Minn.; a member of the local board of U. S. pension examiners; died at his home, November 24, from septicemia due to an operation wound, aged 65.

George Henry Plitt, M.D. State University of Iowa, Iowa City, 1895; a member of the Kentucky State Medical Association; representative from Hancock County in the state legislature; was found dead in his home at Lewisport, November 22, from heart disease, aged 39.

Robert C. Tuttle, M.D. Albany (N. Y.) Medical College, 1863; assistant surgeon in the U. S. Navy from 1862 to 1866; formerly of Rockland, N. Y., but for ten years past associated with his son at Roscoe, N. Y.; died at his home, November 10, from angina pectoris, aged 76.

Albert Berry Clanton, M.D. Jefferson Medical College, 1852; of Hattiesburg, Miss.; a lieutenant in the Mexican War, and a surgeon in the Confederate service during the Civil War; died at the home of his daughter in St. Louis, February 17, from pneumonia, aged 81.

George R. Millhouse, M.D. Columbus (Ohio) Medical College, 1878; a veteran of the Civil War; formerly of Allentown and Elida, Ohio, but for some time past a resident of Lima; died at the home of a niece in Piqua, Ohio, October 22, from heart disease, aged 70.

John Henry Shenk, M.D. University of Pennsylvania, 1861; a member of the Medical Society of the State of Pennsylvania; formerly school director and a member of the Lititz city council; died at his home, November 23, from uremia, aged 71.

John W. Cringan, M.D. University College of Medicine, Richmond, Va., 1901; of Arrington, Va.; a member of the American Medical Association; died on a Chesapeake and Ohio train at Ashcake, Va., November 22, from heart disease, aged 33.

John Thaddeus Carter, M.D. Cleveland University of Medicine and Surgery, 1890; professor of chemistry, toxicology, analysis, and physiology in Cleveland Medical College; died at his home in Cleveland, November 19, from nephritis, aged 48.

Harry S. Ford, M.D. McGill University, Montreal, 1904; of Vancouver, B. C.; died about November 10, from exposure, while lost in a forest near Jervis Inlet, 130 miles north of Vancouver, where he had been on a hunting trip, aged 30.

George Anthony Byrs, M.D. Rush Medical College, 1855; assistant surgeon of the One Hundred and Nineteenth Illinois Volunteer Infantry during the Civil War; died at his home in Clayton, Ill., October 25, from senile debility, aged 81.

Daniel O'Callaghan, M.D. Trinity College, Dublin, Ireland, 1871; Jefferson Medical College, 1882; for ten years a practitioner of London, and later of Kensington, Philadelphia; died at his home, November 13, from pneumonia, aged 71.

Herbert Charles Switzer, M.D. Detroit College of Medicine, 1902; a member of the American Medical Association; formerly of Gaines, Mich.; died at his home in Highland Park, Detroit, November 28, from pneumonia, aged 36.

James Hugh Bledsoe, M.D. Jefferson Medical College, 1891; formerly vice-president of the Marshall County (Tenn.) Medical Society; died at his home in Yokely, near Lynnville, Tenn., November 17, from pneumonia, aged 41.

James Pollock McCleery, M.D. Jefferson Medical College, 1857; surgeon of the Fifty-Sixth Pennsylvania Volunteer Infantry during the Civil War; died at his home in Milton, Pa., November 25, from paralysis, aged 78.

Robert Wallace Jakes, M.D. McGill University, Montreal, 1893; died at his home in San Francisco, November 20, from the effects of cyanid of potassium, believed to have been self-administered with suicidal intent, aged 40.

Sidney C. Burgess, M.D. University of Arkansas, Little Rock, 1886; president of the Polk County (Ark.) Board of Health; local surgeon at Russellville for the Missouri Pacific System; died at his home, November 12, aged 51.

William C. P. Butman, M.D. Albany (N. Y.) Medical College, 1854; assistant surgeon of the Third Missouri Volunteer Infantry throughout the Civil War; died at his home in Macon, Mo., November 12, aged 83.

Howard C. Brown, University College of Medicine, Richmond, Va., 1899; of Blythedale, Md.; while waiting for a train at Newark, Del., November 24, was struck by a train and instantly killed, aged 35.

William L. Miller, M.D. George Washington University, Washington, D. C., 1883; a member of the Medical Association of the District of Columbia; died at his home in Washington, November 20, aged 51.

Edmund D. Burwell, M.D. Louisville Medical College, 1875; a member of the Medical Association of the State of Alabama; died at his home in Huntsville, November 6, from intestinal miliary tuberculosis, aged 62.

Elam Bahr Mauger, M.D. Jefferson Medical College, 1875; a member of the Medical Society of the State of Pennsylvania; died at his home in Pottstown, November 20, from angina pectoris, aged 57.

John H. O'Bar, M.D. St. Louis College of Physicians and Surgeons, 1908; professor of fractures and dislocations in his alma mater; died in the O'Bar Sanitarium, St. Louis, November 22, from pneumonia, aged 39.

Leonard M. Mings, M.D. Chicago Homeopathic Medical College, 1878; of Towanda, Pa.; died at his country home in Danville, N. J., November 3, from injuries received in a run-away accident, aged 56.

Homer L. Rochelle, M.D. Western Eclectic College of Medicine and Surgery, Kansas City, Kan., 1908; of Kansas City; died in Hot Springs, Ark., November 23, from nephritis, aged 48.

Martin Luther Corbin, M.D. Kentucky School of Medicine, Louisville, 1892; a member of the American Medical Association; died at his home in Ellenboro, W. Va., October 23, aged 57.

Emmett Willin Price, M.D. University of Michigan, Ann Arbor, 1865; a member of the Ohio State Medical Association; died at his home in Kent, November 22, from uremia, aged 66.

John A. Washington, M.D. Vanderbilt University, Nashville, 1879; University of Nashville, 1880; of Murfreesboro, Tenn.; was thrown from a buggy, November 12, and instantly killed.

Placido Ferretti, M.D. College of Physicians and Surgeons, Boston, 1906; was found dead at his home in Worcester, November 16, from accidental poisoning by chloroform.

M. G. Parker, M.D. Rush Medical College, 1852; a member of the Indiana legislature in 1891; died at his home in Danville, November 12, from senile debility, aged 91.

George F. Marsden, M.D. Hahnemann Medical College, Philadelphia, 1866; died at his home in Red Bank, N. J., November 23, from disease of the stomach, aged 64.

John W. Webb, M.D. Jefferson Medical College, 1866; died at his home in Island Heights, N. J., November 13, aged 81.

Andrew M. Brown (license, Ga., 1898); died at his home in Jesup, November 3, after a surgical operation, aged 42.

Association News

HOW TO GO TO LOS ANGELES

The Railroad Routes to the Next Annual Session of the American Medical Association

The question of how to go to Los Angeles next June to the session of the American Medical Association is one which is interesting many members of the Association at this time. As is well known, there are three prominent routes to the far West: the southern route through Arizona, New Mexico, etc., taking in the Grand Canon; the central route through Colorado, the beautiful mountain scenery of the Rio Grande, etc., and the northern route, taking in Yellowstone Park and the magnificent Shasta trip along the mountain range of the Pacific slope.

The Committee on Transportation is now making arrangements for special trains for the use of members and their families who expect to attend the session. The committee is in touch with all the principal railroads and can make arrangements for special trains or cars as may be necessary from almost any point in the United States.

The chairman of the committee earnestly requests all those who expect to attend the session, particularly those living in the middle and eastern states, to communicate with him as soon as possible as to the route, southern, central, or northern, they desire to take west from Chicago. In this way, ample and satisfactory accommodations can be arranged for all. If any group of members from any city or territory will express their wishes to the committee, every effort will be made to secure special cars or train as may be necessary for their accommodation over the best route possible.

Applications for reservations on the special trains or on regular trains from Chicago west may now be filed with the Chairman of the Committee on Transportation, who will see that they are all properly taken care of.

M. L. HARRIS, Chairman,
Committee on Transportation.

100 State Street, Chicago.

Pharmacology

A FRAUDULENT DRUG-HABIT "CURE"

Dr. J. W. Coblentz and His Compound Oxygen Association

Dr. J. W. Coblentz, of Ft. Wayne, Ind., has for years operated a mail-order drug habit "cure." In the early nineties Coblentz—who admits that he has been addicted to the alcohol and morphin habits—advertised extensively to cure persons addicted to the morphin habit. Of late years he has not advertised, but has relied on circular letters for what business he could get.

When the government commenced investigating the Compound Oxygen Association, one of the post-office inspectors wrote, under an assumed name, representing himself as a man 50 years old who had been addicted to the morphin habit for about six years, and who was using about 15 grains daily. Coblentz replied that he could be cured in four treatments, and that the cost of treatment would be \$11. Advertising leaflets were also sent to this inspector in which it was stated that Coblentz' treatment was a "permanent and positive cure

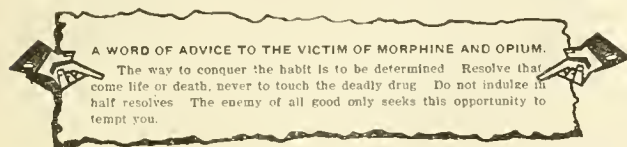


Fig. 1.—A photographic reproduction (reduced) of a paragraph in one of Coblentz' pamphlets. What can be thought of a man who urges the victims of the morphin habit "never to touch the deadly drug," while at the same time he is supplying "treatments" which were loaded with morphin?

for the morphin habit." By implication the patient was led to believe that the "treatment" contained no morphin. For instance:

"Do not take every cure you see advertised, for how easy it is to disguise the drug under the garb of a new cure and beguile the poor, unsuspecting victim into the belief of being cured while all the time he is taking the drug under a different name."

"The cure is simple and harmless."

"I do not send out trial bottles. This is the method pursued by the medical shark. Half the time you receive your old drug (from whose clutches you are trying to escape) with the taste disguised."

"I can truthfully say I can and will cure you if you will put your case in my hands."

The inspector sent \$11 to Dr. Coblentz and received seven packages of medicines, which were analyzed by chemists in the Department of Agriculture.

No. 1.—A 16-ounce bottle of brown liquid, containing vegetable extractives, alcohol, water and morphin.

No. 2.—A 16-ounce bottle of brown liquid, having essentially the same composition as No. 1, except that there was some quinin salt in addition.

No. 3.—An 8-ounce bottle of liquid similar to that in Nos. 1 and 2, but with a smaller percentage of morphin.

No. 4.—A stomachic preparation, composed of water, alcohol, capsicum and morphin derivatives.

No. 5.—"Nervine Tablets;" chocolate-coated tablets of iron and quinin.

No. 6.—"Stomach Tablets;" sugar-coated tablets containing sodium bicarbonate, capsicum and strychnin.

No. 7.—"For the Bowels;" sugar-coated, laxative tablets containing aloes, cascara, ginger and licorice.

It was shown at the trial that the twenty-four-hour dose of the "treatment" sent by Dr. Coblentz to the person who was supposed to be using 15 grains of morphin daily, contained 20 grains of morphin!

The post-office inspector testified that he had interviewed Dr. Coblentz, and that Coblentz had told him that he was "treating" about twenty-five patients for the morphin habit, and that these patients had been under "treatment" for from five to

twenty years! Coblentz also admitted that the medicine which he sold to patients for the cure of the morphin habit contained morphin in about the same amount as the patient was accustomed to using, and that this quantity was continued throughout. Coblentz is said further to have admitted that he had never really cured the appetite of anyone addicted to the morphin habit, but that the patients reached the point where he called them cured, but they had to keep up the use of the medicines. Correspondence was submitted at the trial which showed that one of Coblentz' patients had been taking the "cure" for fifteen years and was still taking it!

In view of all the evidence, the acting assistant attorney general summed up the case against Coblentz as follows:

"The respondent is engaged in mailing letters and printed circulars to morphin habitués, and is soliciting and obtaining money from such persons by promising to cure them of that habit—that is to say, of the taste, desire and appetite for

THE COBLENTZ
COMMON SENSE METHOD
OF CURING THE
Morphine, Opium, Laudanum,
OR ANY

DRUG HABIT

In putting this pamphlet before the public I wish to make my statements as plain and emphatic as possible. My readers will understand my motive for this when they learn that for twenty years I was a victim of this accursed habit and know that nothing but a common sense talk will appeal to you. In the first place

Do Not Try To Conceal The Fact
from your family or friends that you are a slave to the drug, for you can not do it. You may conceal your bottle or the needle and administer it in the secret hours of the night

But Its Effects Will Tell
and only antagonizes you with them.

Take Them Into Your Confidence
and secure their aid, for your family as well as every other well-thinking person know that

You Nor Any Other Ever Contracted The Drug Habit Of Their Own Free Will.
In nine cases out of ten it was

Brought On By The Family Physician
who in case of an accident or long siege of sickness

Administered It To Relieve Pain

Fig. 2.—Photographic reproduction (reduced) of the first page of one of Coblentz' pamphlets. "The Coblentz Common Sense Method of Curing the Morphine . . . Habit" consisted in substituting a morphin mixture for the simple drug, thus creating a permanent customer for the "treatment!"

morphin, whereas, in truth, he does not intend to cure or try to cure such habit, but instead intends to furnish patients with a preparation containing substantially the same amount of morphin as they are accustomed to take, his purpose being to deceive such persons and to profit by their appetite for morphin and to get money out of them under false and fraudulent pretenses of furnishing them a cure for the habit, when he is simply furnishing the drug itself and not a cure.

"On full consideration of the case, I find that Dr. J. W. Coblentz, under his own name and under the name of the Compound Oxygen Association, Fort Wayne, Ind., is engaged in carrying on a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises. I recommend, therefore, that a fraud order be issued against him and said Association."

The order was issued.

Correspondence

Foreign Matter vs. the Treponema in Ink Methods

To the Editor:—In THE JOURNAL (Nov. 26, 1910, p. 1892), Dr. J. H. Barach gives an interesting criticism of the American India inks with special reference to foreign matter which may be present. His observations are good, especially as regards the "dried" preparations. I desire to add that these inks are not usually sterile, but often contain many microorganisms. Some of these methods, however, especially those in which the "wet" technic has been adopted, have been serving, exceedingly well, men who have found an office diagnosis necessary in many suspected cases of lues (*Arch. Diagnosis*, January, 1910). Can it be possible that this one communication must drive us back to the more tedious methods? Has any person claimed that these inks are free from extraneous material and their use without objection?

It may be well to note the following points:

1. No motions or other indications of life were observed in the "wavy fibers."

2. There is no mention that the turns of these lines or fibers were "close and regular" (Jordan's "General Bacteriology").

3. No emphasis was laid on the following important differentiation: "apparent rigidity vs. flexibility of spirals."

4. Stitt ("Practical Bacteriology") offers a test which should rule out "cracks" and which may be stated as follows: "*Treponema pallidum*, . . . is characterized by its very geometric regularity in the spirals which are deeply cut, etc."

5. It is manifestly unfair to condemn any of these methods until their critic can say, "After a careful investigation, I cannot distinguish between these fibers and the true *Treponema pallidum*."

And with this last point in view, I believe that I have occasion to criticize the term "experienced microscopist" when used in reference to any ordinary clinical examination. Very often the fact is overlooked that, after all, many of our so-called country doctors recognize cotton fibers, *Spirocheta refringens*, spirilla, cracks, etc., and dare not conscientiously term any and every wavy line, Schaudinn's specific microorganism. (It has been pointed out repeatedly, by the way, that the term "treponema" is preferable to "spirochete," and I believe that the latter term should be dropped, so far as the germ of syphilis is concerned.) The physicians who are doing this work every day are not tyros but usually graduates of our best schools and received their training during the era of microscopy.

Please to remember that a good Giemsa's stain requires two hours and is complicated and that the dark field attachment for the practitioner is an expensive asset. I do not believe that the article in question was intended to condemn the American inks, though it might be so interpreted by the man who has not yet observed their good points. There is a tendency in medicine, however, to belittle anything which will make laboratory work possible to the man outside the college or hospital and an attempt—unconscious often, I believe to convince him that he is not capable of recognizing so simple a thing as the urinary cast. What is the result? Such examinations are left undone.

Far be it from me to hold up any of the ink methods as model procedures. Beauty is lacking. The preparations do not in every portion show spirochetes. Many bacteria are present in the ink and I believe that special inks should be made up for these examinations (let some chemical or optical company take up the suggestion). I have also observed many fibers and cracks. But I have yet to find the *Treponema pallidum* in a bottle of Higgins' ink and I doubt if it occurs in others. Surely, if it does, the war against the public drinking-cup should be waged against another dangerous carrier of the modern black plague. These difficulties may be overlooked when we are considering diagnosis.

Although I prefer to make these examinations from suspensions in warm, physiologic salt solution, I see no objection to studying these preparations after they have dried. It should be remembered, however, that desiccation causes often, though not always, a loss of characteristic windings.

In conclusion, permit me to say that the physician who has mastered his laboratory courses in microscopy may depend on the ink methods—he may still search for casts even though a few cotton fibers from his towel have fallen on his slide.

B. G. R. WILLIAMS, M.D., Paris, Ill.

Another Clean Medical Journal

To the Editor:—An editorial in THE JOURNAL, Aug. 20, 1910, p. 697, discusses the action of the *Gulf States Journal of Medicine and Surgery* in eliminating from its pages advertisements of such medicinal preparations as do not comply with the requirements of the Council on Pharmacy and Chemistry of the American Medical Association.

May I call your attention to the fact that the *Cleveland Medical Journal* in November, 1909, announced a similar program and since then this rule has been observed in accepting new advertisements? Existing contracts, of course, had to be observed, and although practically all of the objectionable advertisements appeared for the last time in the issue of December, 1909, it was not until August, 1910, that the last one had disappeared.

Publicity of such facts as the above should certainly help in inducing other independent journals to adopt a similar censorship. WILLIAM H. WEIR, EDITOR, Cleveland, Ohio.

[See Current Comment in this issue.—Ed.]

Request for Specimens

To the Editor:—May I ask through your columns for a few specimens? I need particularly a specimen of a tuberculous spine, a tuberculous sternoclavicular articulation and a tuberculous sacro-iliac articulation. If any of your readers, on removing one of these at autopsy will place it in a 2 per cent. dilution of liquor formaldehyde and will send it to me, I shall be glad to pay expressage, and shall be very grateful to him.

LEONARD W. ELY, Metropolitan Bldg., Denver.

Coblentz Not With Medical Research Corporation

To the Editor:—In one of the summer numbers of THE JOURNAL (Aug. 6, 1910, p. 519), there appeared an article relative to the "Medical Research Corporation" ["International Encyclopedia of Ethical Non-Official Pharmaceuticals"] with which I was at that time connected as editor-in-chief. I call attention to the fact that I have severed my connection with this corporation. V. COBLENTZ, New York City.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

FINAL RESULTS IN VARICOSE ULCERS OF THE LEG

To the Editor:—Please inform me what have been the final results in varicose ulcers of the leg on which an operation was performed by excision of veins and otherwise, and if a support like an elastic stocking must be worn afterward. NAGLOE.

ANSWER.—The final results of the treatment of varicose ulcers of the leg in which an operation such as excision of veins or otherwise has been performed depend largely on the nature of the operation done. The ulcers are so intimately dependent on the varicose veins that the end results of the treatment of the latter represent equally well the end-results of the treatment of the former.

Perhaps the operation most frequently performed at the present time is the modified Trendelenburg operation, which consists in the excision of from 8 to 10 cm. of the internal saphenous vein just below the saphenous opening. This operation gives on an average about 70 per cent. of objective cures and 75 per cent. of subjective cures in cases followed from five to ten years. The longer the elapsed time after the operation the greater the percentage of recurrences.

The Schede operation, which consists of a circular incision around the leg just below the knee with the ligation and section of all the veins encountered, gives permanent good results in about 30 to 35 per cent. of the cases.

Madelung's operation, or some modification of it, which consists in the more or less complete excision of the internal saphenous system of veins, is the most extensive operation and the least likely to be followed by a recurrence, but it is unnecessarily severe in a large percentage of the cases.

Cases of varicose veins of the leg may be divided into three classes:

1. Those in which the enlarged veins are all tributary to the internal saphenous and in which pressure on the internal saphenous, after depleting the veins, prevents their refilling when the patient resumes the erect position.

2. Those in which the enlarged veins communicate with the short or posterior saphenous in addition to the internal saphenous, and therefore pressure on the internal-saphenous alone does not prevent the refilling of the veins.

3. Those in which, in addition to the conditions found in Classes 1 and 2, there are communications between the superficial and deep set of veins by means of large sinuses, usually on the calf and inner surface of the leg, with the formation of large "knots" of veins in this region, and the veins refill even when pressure is made on both the internal and short saphenous veins.

In Class 1 Trendelenburg's operation is usually sufficient; in Class 2 Trendelenburg's operation combined with excision of a section of the posterior saphenous. In Class 3 there must also be aided excision of the "knots" of veins with ligation and section of the communicating sinuses between the superficial and deep set of veins.

If the cases be thus differentiated and the proper operation selected for each case, permanent results may be expected in from 90 to 95 per cent. Of course, ulcers when present should receive proper treatment. If they are large it is best to excise them completely and cover the surface with a Thiersch graft. It is unnecessary to wear an elastic stocking after recovery, but the bandage should not be removed too soon after the patient gets up and around.

TORTICOLLIS

To the Editor:—Please give me references to articles on the subject of torticollis which have appeared during the past few years.
R. M. SCHLEY, Buffalo, N. Y.

ANSWER.—The following are some of the articles which have appeared on the subject within the past two years:

- Böhm, M.: Etiology of Congenital Torticollis, *Berl. klin. Wochenschr.*, Aug. 9, 1909; abstr. in THE JOURNAL, Sept. 18, 1909, p. 381.
- Broca, A.: Torticollis from Inflammatory Retraction of the Sternocleidomastoid Muscle, *Presse med.*, Sept. 12, 1908.
- Kennedy, R.: Section of the Posterior Primary Divisions of the Upper Cervical Nerves in Spasmodic Torticollis, *Brit. Med. Jour.*, Oct. 3, 1908.
- Lister, T. E.: Spasmodic Torticollis Following Chorea, *Lancet*, July 24, 1909.
- Newlin, A.: A Case of Torticollis, Probably Congenital, *Internat. Clin.*, 1907, series 17, iv, 255.
- Peters, A.: Asymmetry of Face and Skull in Relation to Torticollis, *München. med. Wochenschr.*, Aug. 25, 1908.
- Rowlands, R. P.: Treatment of Wry-Neck by Lengthening the Sternomastoid, *Practitioner*, September, 1908; abstr. in THE JOURNAL, Oct. 3, 1908, p. 1190.
- Weinstein, J.: Torticollis After Removal of Adenoid Vegetations, *Med. Klin.*, May 9, 1909.
- Williams, T. A.: Facial Spasm and Tic; Torticollis and Treatment, *Month Cycl. and Med. Bull.*, January, 1910.

SEROTHERAPY OF TYPHOID FEVER

To the Editor:—Where can I secure bacterial cultures or serums or antityphoid serum and literature on treatment with the serum?
F. P. DORSEY, Hartington, Neb.

ANSWER.—The bacterial cultures and antityphoid serum are described in New and Nonofficial Remedies and the names of manufacturers are there given. There is little recent literature with reference to the use of the serums. The following, dealing with antityphoid vaccination, may be referred to:

- Chantemesse, A., and Landouzy: Discussion of Antityphoid Vaccination, *Bull. de l'Acad. de med.*, Feb. 8, 1910; referred to in the Paris letter in THE JOURNAL, March 5, 1910, p. 804.
- Russell, F. F.: Antityphoid Vaccination, the Immediate Result of the Administration of 3,600 Doses, *Bull. Johns Hopkins Hosp.*, March, 1910; abstr. in THE JOURNAL, April 16, 1910, p. 1337.
- Eckelman, M. M.: Vaccination Prophylaxis in Typhoid, *Jour. Indiana Med. Assn.*, April, 1910.
- Hartsock, F. M.: Antityphoid Vaccination, Result of 1,100 Inoculations, THE JOURNAL, June 25, 1910, p. 2123.
- Cosman, G. H. R.: The Present Status of Typhoid Inoculation, THE JOURNAL, Oct. 1, 1910, p. 1169.

STAINING SMEARS OF SPIROCHLETA PALLIDA

To the Editor:—Please describe an effective way to make the smears and stain the *Spirochata pallida* to be used by the general practitioner.
C. A. MANAHAN, Center Point, Iowa.

ANSWER.—The chancre or a skin lesion is cleansed with soap and water, lightly curetted, the blood wiped off, and a thin smear made from the exuded serum. Enlarged glands may be examined by aspirating a drop of serum from them with a hypodermic syringe. The smear is fixed by drying in the air and then placing for an hour in absolute alcohol and stained for twenty-four hours in diluted Giemsa mixture of 1 drop of Giemsa stain to 1 c.c. of the distilled water. The organism stains a delicate violet-purple color, while the nuclei of the leukocytes are of a deep blackish red. The latter appearance shows that the specimen has been sufficiently stained. The organisms are most numerous in moist papules and chancres (when the curettage is carried out at the edge of the lesion). In scrapings from roseole the search is frequently disappointing. The organism should be distinguished from *Spirochata refringens*, *Spirochata dentium*, etc.

SODIUM CITRATE IN FURUNCULOSIS

Since publishing the query of J. L. L. in the issue of Nov. 26, 1910, p. 1911, in regard to Wright's method of using sodium citrate in furunculosis, we have received a number of letters giving references to this method. Nearly all refer to Crandon's work on "Surgical After-Treatment," which explains Wright's method, or to an article by Crandon in the *Annals of Surgery*, October, 1910, abstracted in THE JOURNAL, Nov. 5, 1910, p. 1685, which also explains the Wright method of using sodium citrate solution in furunculosis, which we omitted in our former answer to the query.

The Public Service

Medical Department, U. S. Army

Changes for the week ended Dec. 3, 1910.

- Brown, Wilmont E., M.R.C., November 23, relieved from duty at Army General Hospital, Fort Bayard, N. Mex., and ordered to proceed to his home. Lieutenant Brown will stand relieved from further active duty in the Medical Reserve Corps, to take effect on his arrival at his home.
- Wood, Frank W., captain, November 26, granted one month's leave of absence, to take effect about Dec. 15, 1910.
- Haverkamp, C. W., lieutenant, November 22, reports departure on ten days' leave of absence.
- Wolven, F. Homer, D. S., November 21, reported at Fort Casey, Wash., for temporary duty.
- Leslie, Samuel H., D. S., November 25, left Fort Robinson, Neb., en route to Fort McKenzie, Wyo., for temporary duty.
- Usher, F. M. C., major, November 26, granted fourteen days' leave of absence.
- Stone, John H., major, November 25, granted four months' leave of absence with permission to go beyond the seas.
- Eber, Albert H., M.R.C., November 15, ordered to proceed from Fort Moultrie, S. C., to Fort Pade, Fla., for temporary duty, during the absence of First Lieut. John H. Hareford, M.R.C.
- Jenkins, Frederick E., M.R.C., November 17, will report for duty with Co. I, Signal Corps, en route to Fort D. A. Russell, Wyo., on the completion of this duty to return to station at Fort Leavenworth, Kan.
- Mason, George L., D. S., November 16, reported for duty (temporary) at Fort Yellowstone, Wyo.
- Scott, H. O., D. S., November 26, reported for duty at Fort Hamilton, N. Y.
- Dougherty, James C., M.R.C., November 27, reported for temporary duty at Fort Huachuca, Ariz.; left Fort Bliss, Texas, November 25, 1910.
- Miller, E. W., captain, November 28, granted leave of absence to and including Dec. 25, 1910.
- Brown, H. L., captain, November 28, left Fort Morgan, Ala., on ten days' leave of absence.
- Candy, Charles M., lieutenant-col., December 1, in addition to his duties as chief surgeon, Department of California, will assume the duties of medical superintendent, Army Transport Service, San Francisco, relieving Lieut.-Col. Henry S. T. Harris, Medical Corps.

Medical Corps, U. S. Navy

Changes for the week ended Dec. 3, 1910.

- Hibbett, C. T., medical director, commissioned medical director from Oct. 7, 1910.
- Stone, E. P., medical inspector, commissioned medical inspector from Aug. 24, 1910.
- Pickrell, G., medical inspector, commissioned medical inspector from Oct. 7, 1910.
- Trible, G. B., P. A. surgeon, commissioned passed assistant-surgeon from June 27, 1910.
- Hale, G. D., and Bunker, C. W. O., P. A. surgeons, commissioned passed assistant-surgeons from Sept. 21, 1910.
- Higgins, M. E., P. A. surgeon, commissioned passed assistant-surgeon from Oct. 4, 1910.
- Stanley, A. C., asst.-surg., transferred to the retired list from Nov. 23, 1910.

Ely, C. F., P. A. surgeon, detached from the *Wilmington* and ordered home.

Minter, J. M., asst.-surg., detached from the *Monterey* and ordered to the *Wilmington*.

Bloedorn, W. A., asst.-surg., detached from the naval hospital, Canacao, P. I., and ordered to the *Monterey*.

Allen, D. G., asst.-surg., detached from the naval hospital, Canacao, P. I., and ordered to the *Elcana*.

U. S. Public Health and Marine-Hospital Service

Changes for the seven days ended Nov. 30, 1910.

White, J. H., surgeon, leave of absence granted for ten days from Nov. 11, 1910, amended to read eight days from November 13.

McIntosh, W. P., surgeon, leave of absence granted Oct. 22, 1910, amended to read seventeen days from Nov. 11, 1910.

Grubbs, S. B., P. A. surgeon, granted seven days' leave of absence from Nov. 28, 1910, on account of sickness.

Anderson, J. F., P. A. surgeon, directed to inspect the Saranac Laboratory for the Study of Tuberculosis, Saranac Lake, N. Y.

Bahrenburg, L. P. H., P. A. surgeon, granted eleven days' leave of absence from Nov. 10, 1910, on account of sickness.

Frost, W. H., P. A. surgeon, directed to rejoin station at Washington, D. C., stopping at Des Moines, Iowa, for conference with secretary of state board of health.

Hotchkiss, S. C., asst.-surgeon, relieved from duty on the Revenue Cutter *Bear* and directed to report to the director of the Hygienic Laboratory.

Atiles, P. del Valle, A. A. surgeon, granted thirty days' leave of absence from Dec. 1, 1910.

Gustetter, A. L., A. A. surgeon, granted fifteen days' leave of absence from Dec. 5, 1910.

Tarbell, B. C., A. A. surgeon, granted thirty days' leave of absence from Dec. 1, 1910.

Board of medical officers convened to meet at Angel Island, Cal., for reexamining an alien. Detail for board: P. A. Surgeon F. E. Trotter, chairman; P. A. Surgeon N. W. Glover; Assistant Surgeon A. J. Lanza, recorder.

Medical Economics

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Fifth Month—First Weekly Meeting

General Subject for the Month: Diseases of the Skin

ANATOMY OF THE SKIN

EPIDERMIS: Stratum corneum, stratum lucidum, stratum granulosum, rete malpighii.

CORIUM: Pars papillaris, pars reticularis.

SUBCUTANEOUS LAYER: Blood-vessels, Lymphatics, Nerves, Muscles, Glands, Appendages.

PHYSIOLOGY OF THE SKIN

Protective function, Heat regulation, tactile and pain sensations, respiratory and secretory functions, elimination.

GENERAL SYMPTOMATOLOGY

SUBJECTIVE SYMPTOMS: Itching, burning, tingling, pain, tenderness, etc.

OBJECTIVE SYMPTOMS: Primary lesions: Macules, papules, vesicles, blebs, pustules, wheals, tubercles, tumors.
Secondary lesions: Scales, crusts, excoriations, fissures, ulcers, scars, pigmentations.

TREATMENT IN GENERAL

HYGIENE: Diet.

MEDICINAL TREATMENT: General tonics, aperients, gastrointestinal antiseptics, diuretics, alteratives, animal extracts, germicides, antipruritics, vasoconstrictors.

LOCAL TREATMENT: Baths, soap, dusting-powders, lotions, ointments, pastes, oils, fixed dressings. Antipruritics, parasiticides, caustics, Mechanical measures.

REFERENCE BOOKS FOR THE FIFTH MONTH

Works on "Diseases of the Skin," by Stolwagon, Hyde, Shoemaker and Crocker.

Pusey: Principles and Practice of Dermatology.

Kapost: Pathology and Treatment of Diseases of the Skin.

Morrow: Genitourinary Diseases, Syphilology and Dermatology.

Fox: Diseases of the Skin (Photographic Atlas).

Miscellany

Tuberculosis in the Philippine Islands.—It is the opinion held by most persons who have not lived in the tropics that tuberculosis is less prevalent there than in the temperate zones. This, however, according to Dr. Isaac W. Brewer (*Journal of the Outdoor Life*, September, 1910) is not true of the Philippines. Brewer states that the deaths in those islands from tuberculosis outside of Manila in 1907 was 210 per hundred thousand as against 172 in the registration area of the United States, for instance, and that the death-rate from this cause in Manila during 1908 was 486 per hundred thousand as against 89 for the city of St. Paul, Minn. He says that if there is any virtue in sunshine and fresh air there should be but little tuberculosis in those islands, as the climate is rarely so severe even in the rainy season as to compel the inhabitants to keep their houses closed. The habits of the Filipino, however, are such that fresh air is usually lacking in his residence. The rarity of tuberculosis among cattle in the Philippines indicates that the climate itself cannot be responsible for this disease among the natives. Dr. Brewer's study shows that the same causes are operative as apply elsewhere—bad hygienic surroundings, poor food, and improper clothing. The houses of even the better classes are lacking in ventilation and are kept religiously closed during the day to exclude the heat and also at night because of the belief that the night air will cause fever. An actual count of 200 houses in Manila at midnight showed that less than 25 per cent, had the street windows open, and in many there were no windows in the bedrooms. It is not uncommon to find horses and other animals kept in the lower floors of the best houses in Manila. The poorer natives in both the cities and the provinces live in thatched cottages which seem to be well ventilated, but on closer examination it is found that the windows are closed during the greater part of the day and all night; the space beneath the houses is occupied by hogs, goats, and cattle, and beneath the kitchen will be a filthy hog-wallow into which is thrown the refuse from the house. The Filipino is a great chewer and spitter and he expectorates wherever most convenient. There is also a habit of exchanging partially smoked cigarettes and cigars which undoubtedly is a means of conveying the infection of tuberculosis. In addition, over 90 per cent. of the natives are the hosts of intestinal parasites, which, while they may cause no special symptoms in themselves, predispose their host to other infections, particularly tuberculous. The average native is poorly nourished, living mostly on rice and fish, with occasionally pork and rarely beef, together with a few roots, fruits and green vegetables. The clothing is mostly cotton, which in the rainy season remains damp; shivering natives are a common sight. Except in the larger towns there is a great lack of medical attention, and indeed few towns could support a physician. Brewer believes that the inhabitants would readily avail themselves of hospitals or dispensaries and that much good could be accomplished by the American government by the establishment of such institutions in the small country towns. He thinks that an enthusiastic physician with a few good trained nurses and a supply of drugs could accomplish wonders. An active campaign of education must be instituted, but the methods adopted must be different from those adopted in other countries because the people are not so far advanced in their knowledge of hygiene.

Influenzal Meningitis.—Influenzal meningitis is a rare disease, chiefly restricted to young children, and having a mortality of 90 per cent. About 40 cases have been reported in the literature but it is probably more common than these reports indicate. David J. Davis (*Tr. Chicago Path. Soc.*, June, 1910) reports seven cases of influenzal meningitis which were recognized in Chicago in a little over a year, all resulting fatally, and in duration varying from three to fourteen days. All the patients were infants, the oldest being 13 months and the youngest five days. A definite history of "cold" preceding the meningeal trouble was obtained in four cases. Temperature as a rule was variable and ranged from 100 to 105 F. or higher. Petechial hemorrhages in the skin occurred in one

case and herpes labialis in one. Eye symptoms as a rule were present and also marked retraction of the head and rigidity of the back and limbs. Lumbar puncture was made in four cases, and in all turbid fluid under pressure was obtained, which contained many leukocytes, the polymuclear cells predominating (usually about 80 per cent.). Five of the cases were examined post-mortem. An abundant highly purulent greenish yellow friable leptomeningeal exudate was present in four; in the remaining case, in which the patient died on the third day, the exudate was scant and not characteristic. As a rule the exudate was very abundant at the base and over the frontal lobes. In one case there was an extensive hemorrhagic serofibrinous exudate lining the dura, and in one case a large cerebral abscess occurred in the right hemisphere, and extensive acute softening occurred in the cortex of the opposite hemisphere. Internal hydrocephalus existed in this case also. Acute bronchitis was present in four and bronchopneumonia in three cases. Acute rhinitis was found in three, one showing extensive necrosis of the entire nasal mucosa involving the cribriform plate. Bilateral otitis media occurred once and acute gastro-enteritis once. In all cases acute degeneration of the various organs was evident. The influenza bacillus was isolated in practically pure culture from the meningeal exudate and cerebrospinal fluid in all cases. In two it was found pure in the heart's blood; in one in the peritoneal fluid, and in one in the pericardial fluid. In three cases it occurred mixed with streptococci in the bronchial secretion, and once it was grown from the surface of the nasal mucosa. The atrium of infection in four cases was in all probability the upper respiratory passages, in two of which the infection undoubtedly penetrated the cribriform plate. The serum obtained from the heart's blood in four cases failed to agglutinate influenza bacilli. The bacilli are pathogenic for guinea-pigs in moderate doses, and are about equal in this respect to influenza bacilli isolated from other sources. Morphologically and culturally they are identical with Pfeiffer's bacillus, all being strictly hemophilic and showing the property of symbiosis. The grouping of these cases is interesting. The occurrence of the disease in twins beginning on the same day is suggestive of a common source of infection, but this could not be determined. Two patients came from a small institution for children in which an epidemic of "colds" had existed for several weeks. The children were all constantly in intimate contact with each other. The second of these patients developed the disease about four weeks after the first was taken ill, or about two weeks after her death. Three of the cases developed in institutions. They did not occur in the poorer parts of the city. Except two, which developed in October, all the cases occurred in the winter months. A general influenza epidemic was not raging during this period.

Utero-Ovarian Asthma.—E. Percepsid cites a number of instances in which reflex action from the genital organs was responsible for the development of asthma; in fully 40 per cent. of his female patients with asthma the attacks came on with or just before menstruation. In 3 of the patients in this class the attack always preceded the menses by 4 days; in one patient the attack followed the period. In one case the patient had a cough during menstruation and in the course of years this cough finally became actual asthma. Among his 381 asthmatic female patients the asthma came on at the menopause in 26 and 12 others had then spasmodic coryza, or a wheezing bronchial affection without true asthma. In 7 cases there was great aggravation of the asthma during the menopause. In 8 cases the asthma came on for the first time during a pregnancy or the puerperium and recurred in some of the patients during later pregnancies, while 2 other patients were relieved during pregnancy. Tentative treatment with ovarian or thyroid extract may be instituted, he says, though he never observed any improvement from ovarian treatment in his climacteric cases. The tendency to respiratory troubles in general should be combated and this is the main factor in treatment. His article on the subject appeared in the *Annales de la Soc. Méd.-chir. de Liège*, 1910, XLIX, 126.

Mortality from Infectious Diseases in Europe.—F. Loeb at Munich has compared the vital statistics of various European cities and tabulated the condensed findings in the *Münchener medizinische Wochenschrift*, Nov. 8, 1910, as follows: For each 100,000 inhabitants the highest mortality was for

Small-pox	336.4 at Marseilles,	35.6 at Moscow
Typhoid	51.7 at Marseilles,	58.5 at Athens
Diphtheria and croup....	37.0 at Dresden,	33.9 at Moscow
Measles	101.1 at Rome,	45.9 at Vienna
Whooping-cough	37.3 at Copenhagen,	32.2 at Edinburgh
Scarlet fever	45.4 at Warsaw,	39.6 at Moscow
Tuberculosis of lungs and other organs	631.2 at Prague,	
Pulmonary tuberculosis ..	397.0 at Paris,	337.8 at Lyons
Pulmonary tuberculosis and other respiratory diseases	793.1 at Moscow,	718.5 at Lyons
Pneumonia	303.5 at Warsaw,	238.7 at Brussels
Malignant disease	228.7 at Prague,	157.6 at Lyons

The mortality from pulmonary tuberculosis was:

In seventy-two cities of France with population over 30,000.....	325.7
In twelve cities of Greece with population over 10,000.....	276.5
In forty-nine cities of Spain.....	238.3
In Switzerland.....	172.1
In German Empire.....	159.2
In the Netherlands.....	120.7
In England and Wales.....	111.7
In Belgium.....	101.3

In the 350 largest towns in the German Empire from tuberculosis of lungs and other organs the mortality was 192.4.

From "Tuberculosis of Other Organs," Switzerland, 78.5; 49 cities of Spain, 65.2; 72 cities of France, 61.4; England and Wales, 46.9; Germany, 22.5. The mortality from diphtheria and croup for 100,000 inhabitants was:

In Russia	59.1	In German Empire.....	22.9
In 49 cities of Spain	19.1	In 72 cities of France.....	9.0
In the Netherlands.....	8.2		

The mortality from scarlet fever for 100,000 inhabitants was:

In Russia	111.0	In Greece.....	20.0
In German Empire.....	19.1	In the Netherlands.....	5.3

The mortality from small-pox for 100,000 inhabitants was:

In Russia	51.6
In seventy-two cities of France with population over 30,000.....	27.1
In forty-nine cities of Spain.....	16.0
In the German Empire.....	0.1

British Comment on Medical Practice in the United States.—The laws regulating the practice of medicine in the various states and territories of the United States of America differ to a considerable extent in detail. In spirit, however, they are beginning to assume that uniformity which all medical reformers must desire for them. It has long been pointed out that one of the most open doors to abuse of medical practice in the United States was the fact that while in some states an excellent medical curriculum was required before admission to legal practice, in other states but little scientific training was exacted and freedom to practice was extended to dangerous forms of quackery. This position of affairs had its origin, of course, in the evolution of the United States, certain divisions of the country being in the forefront of civilization, while others were, to say the least, in a rudimentary plight; but of late a great process of leveling-up has been witnessed. The progress of the United States is in no way better shown than in the fact that throughout its vast length and breadth there is now an attempt to secure for the people of the country adequate medical treatment based on scientific grounds. . . . We must continue to warn the British medical man desiring to practice his profession in the United States that in all the more enviable centers he will find a vast number, almost a plethora, of medical men, the great proportion of whom have been thoroughly well educated and trained. He must remember also that in the more important states, generally speaking, although the remuneration may run high, the expense of living is proportionate. He will understand that the less highly the state is developed the more easy will it be for him to obtain a footing, but the less pleasant in all probability will be his professional career.—*Lancet* (London), August 27.

State Boards of Registration

Oregon July Report

COMING EXAMINATIONS

DELAWARE: Regular, Dover, December 13-15; Homeopathic, Wilmington, December 13-15. Secretary of the Medical Council, Dr. H. W. Briggs, Wilmington.
 KENTUCKY: Louisville, December 15-17. Sec., Dr. J. N. McCormack, Bowling Green.
 MARYLAND: 1211 Cathedral St., Baltimore, December 13-16. Sec., Dr. J. McPherson Scott, Hagerstown.
 VIRGINIA: Lynchburg, Dec. 20-23. Sec., Dr. R. S. Martin, Stuart.

Iowa Adopts Concentration Method

The State University of Iowa College of Medicine has adopted the concentration method of teaching for the courses of the first two years. It is the Harvard plan modified to a considerable extent. The arrangement of the work and the number of class-room hours per week in each subject are shown in the following schedule:

Subject	—Class-Room Hours per Week—			
	First Year		Second Year	
	1st Sem.	2d Sem.	1st Sem.	2d Sem.
Anatomy, histol. and embryol.	27	19	9	—
Physical and organic chem.	4	2	—	—
Physiologic chemistry	—	—	4	6
Physiology	—	10	8	—
Pharmacy	1	—	—	—
Materia medica	—	2	2	—
Pharmacology	—	—	—	4
Bacteriology	—	—	10	—
Pathology	—	—	—	18
Hygiene and dietetics	—	—	—	4
Physical diagnosis	—	—	—	2
Total class-room hrs. per week	32	33	33	34

Since this method applies only to the freshman class this year, it is too early to make any definite statements, but thus far the results are very satisfactory.

Standard of Preliminary Education in Iowa

Dr. G. H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports that at a recent meeting the following schedule was adopted, giving the minimum entrance requirements which must be enforced by all colleges after Jan. 1, 1911, in order to be in good standing:

Sec. 1. The college must require of each student a creditable certificate of good moral character, signed by at least two physicians in good standing in the state from which the applicant comes.

Sec. 2. The minimum scholastic attainments to be required of each student for admission to the medical school must be a four-year course in a fully accredited* high school, academy or seminary in which at least two years of foreign language is required, and, in addition thereto, two full years of college work in an accredited college, which shall include at least ten semester-hours† of chemistry, ten of physics (or six, if one year in the subject was done in high school), six of biology, and ten of foreign language. The foreign language taken in college must include enough Latin to make the total Latin taken in high school and college together equal to two years' work in that subject.

Sec. 3. The above requirements are hereby adopted and are in full force and effect on and after January 1, 1911; and thereafter any medical or osteopathic college requiring a lesser standard of qualifications will not be considered in good standing with the Iowa State Board of Medical Examiners.

* By an "accredited" high school, academy or seminary is meant one that has been inspected and fully accredited by the state university of the state in which it is located; or, in other words, a high school, academy or seminary, a diploma from which would admit the holder to the College of Liberal Arts of the University of Iowa without examination. The matriculation examination for entrance on the study of medicine must be conducted by one especially qualified and not by any member of the medical faculty. Any disputes arising us to an accredited school or as to the standard of examination for applicants for matriculation shall be referred for settlement to the Iowa State Inspector of Schools.

† By "semester-hour" is meant a subject taken for one hour a week during one semester. This equals from sixteen to eighteen hours of didactic class-room work or thirty-two to thirty-six or more hours of laboratory work.

Dr. E. B. McDaniel, secretary of the Oregon State Board of Medical Examiners, reports the written examination held at Portland, July 5-7, 1910. The number of subjects examined in was 15; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 106, of whom 58 passed, including 8 osteopaths and 1 non-graduate and 48 failed, including 6 osteopaths. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.	
Denver and Gross College of Medicine	(1909)		77.8	
Yale Medical School	(1909)		75	
George Washington University	(1904)		75	
Rush Medical College	(1900) 81.1;	(1907)	85.4	
College of Physicians and Surgeons, Chicago	(1905)		76.2	
Chicago College of Medicine and Surgery	(1909)		87.9	
Hahnemann Medical College and Hospital, Chicago	(1909)		75	
State Univ. of Iowa, Coll. of Med.	(1897) 79.8;	(1909)	76.4	
Medical School of Maine	(1900)		77.1	
Johns Hopkins University	(1910)	84.5	91.3	
Southern Homeopathic Medical College	(1899)		78.2	
University of Maryland	(1909)		75.4	
Detroit College of Medicine	(1896) 85.2;	(1905)	77.7	
Univ. of Minnesota, College of Medicine	(1902) 81;	(1907)	77.1	
Barnes Medical College	(1906)		75.8	
Creighton Medical College	(1901) 75;	(1905) 75;	(1906)	75
Columbia University, College of Phys. and Surgs.	(1904)		80.1	
New York University Medical College	(1898)		84.5	
Starling Medical College	(1901)		78.4	
Cincinnati College of Medicine and Surgery	(1898)		76.9	
Medical College of Ohio	(1870)		70.4	
Willamette University	(1907) 77.6;	(1910) 75, 81.4, 82.9,		
University of Oregon	(1908) 84.7;	(1910) 75.8, 75.8, 76.9, 79.2,		
	79.6, 80, 86.1, 87.7.			
University of Pittsburgh	(1908) 75;	(1909)	79.6	
Medico-Chirurgical College, Philadelphia	(1904)		82.1	
Woman's Medical College of Pennsylvania	(1908)		78.8	
Jefferson Medical College	(1908)		79.7	
Western University, London, Ontario	(1895)		75	
University of Toronto, Canada	(1907)		79.6	
McGill University, Quebec	(1906)		86.5	
London Hospital, University of London	(1875)		86.8	

FAILED

Gross Medical College	(1892) 64.1;	(1901)	70.3	
Denver and Gross College of Medicine	(1905)		69.1	
Illinois Medical College	(1908)		70.3	
College of Physicians and Surgeons, Chicago	(1903) 64.8;	(1908)	64.7;	
	(1909) 66.3;	(1910) 67.6.		
Rush Medical College	(1900) 64;	(1903)	60.6	
Physio-Medical College of Indiana	(1904)		71.6	
Keokuk Medical College	(1895)		53.3	
University of Louisville	(1903) 62.9;	(1905) 50;	(1910)	67, 71.3
Kentucky School of Medicine	(1894) 63.9;	(1903)	70	
Baltimore Medical College	(1905)		66.8	
University of Michigan	(1864)		49.7	
University of Nebraska	(1903)		72.1	
Barnes Medical College	(1893) 58.1;	(1910)	64.1	
Washington University, St. Louis	(1910)		70.7	
St. Louis College of Physicians and Surgeons	(1909)		48.3	
Ohio Medical University	(1904)		41, 72	
Eclectic Medical College, Cincinnati	(1906)		60.4	
Willamette University	(1905) 54.7;	(1909)	54.6	
University of Oregon	(1908) 69.6, 72.5;	(1910)	71.2, 71.6	
University of Pennsylvania	(1908)		71.1	
University and Bellevue Hospital Medical College	(1908)		72.5	
Memphis Hospital Medical College	(1909)		72.5	
Tennessee Medical College	(1907) 66.3;	(1908)	65.2	
Laval University, Canada	(1904)		54.1	
Royal University of Turin, Italy	(1893)		65.7	
Facultad de Medicina, Guatemala	(1891)		58.5	

The following questions were asked:

CHEMISTRY

1. Define chemistry, including its two principal divisions, and their subdivisions. 2. Name and describe the crystals that may be found in acid urine and in alkaline urine. 3. Differentiate an alkaloid from a glucosid, defining each, and name three of each used in medicine. 4. Write a prescription wherein a chemical reaction resulting in a new end-product is produced, and name the end-product. 5. Write two prescriptions which, if carelessly compounded, would result in explosions, and state what chemical action occurs to produce the explosion in each case. 6. Give a chemical test for arsenic. Name chemical antidote. State how it is prepared. 7. Give a simple test for mineral impurities in drinking water; also for vegetable impurities in drinking water. 8. Define resin. Name five used in medicine.

PHYSIOLOGY

1. In which part of the alimentary tract does the greatest amount of absorption of foods take place? Of water? Is absorption a physical or vital process? 2. State concisely but in detail what happens to proteins, carbohydrates, and fats, after absorption. 3. Give proportion of blood to total body weight. In sudden hemorrhage in a healthy individual, what proportion of blood to the body weight may be lost without proving fatal? 4. What are the principal heat-producing tissues? Mention the circumstances which cause variation in temperature. 5. Where are the following centers: (a) respiratory, (b) micturition, (c) vasomotor, (d) visual, (e) auditory? 6. What are the important parts of the eye physiologically? 7. Name and specifically state the functions of the tenth cranial nerve. 8. Define diapedesis, hemolysis, osmosis, zymogen, colostrum, cholesterol.

HISTOLOGY

1. What is a gland? Name its forms. Of what does the secreting portion of all glands consist? 2. Define and classify epithelial tissue. 3. Of what do ganglia consist? Name kinds of ganglia and state what covers outer surface. 4. State specifically where you find (a) Meissner's plexus, (b) Auerbach's plexus, (c) crypts of Lieberkuhn, (d) Bowman's capsule, (e) Heller's plexus.

PATHOLOGY

1. Differentiate the blood of pernicious anemia from that of myelogenous leukemia. 2. Give pathology of follicular tonsillitis in detail. 3. Give pathologic changes taking place in chronic myocarditis. 4. Give pathologic anatomy of simple catarrhal bronchopneumonia.

NERVOUS DISEASES

1. Give the etiology and diagnosis of sciatic neuralgia (sciatica). 2. Give the differential diagnosis between hemorrhage into the brain substance and ventricular hemorrhage and meningeal hemorrhage. 3. Give symptoms of bulbar paralysis. 4. Describe in detail the "rest cure" treatment of neurasthenia.

OBSTETRICS

1. What is the difference in measurements between the antero-posterior diameter of the superior strait and the oblique diameter at the same point? 2. (a) Describe the process of ovulation. (b) What influence, if any, has ovulation on the function of menstruation? What is the source of blood-supply appearing in menstruation? 3. Describe the process of gestation from conception to parturition. 4. What is the cause of pernicious vomiting in pregnancy? Give treatment. 5. Define hourglass contraction of the uterus. (b) What is the danger to the mother in this complication? (c) Give treatment. 6. (a) In case of laceration of the perineum in labor, when and how would you repair it? (b) Describe after-treatment. 7. Describe the change taking place in the circulation of the child coincident with birth. 8. Describe your management of a case of ante-partum eclampsia at full term.

DIAGNOSIS

1. Give diagnosis of both acute and chronic appendicitis. 2. Diagnose hepatic colic. 3. Give differential diagnosis of diphtheria and acute follicular tonsillitis. 4. Diagnose acute inflammatory rheumatism. 5. Diagnose cirrhosis or chronic atrophy of the liver. 6. Give diagnosis of cerebrospinal neurasthenia. 7. Diagnosticate diabetes mellitus. 8. Diagnose anterior poliomyelitis.

GYNECOLOGY

1. Give etiology and symptoms of obstructive dysmenorrhea. 2. What are the (non-surgical) methods of replacing a retroverted or retroflexed uterus when fixed by adhesions? 3. What is the treatment—(a) prophylactic and (b) curative—of chronic metritis? 4. Give symptoms and diagnosis of ectopic gestation. 5. Describe the method and principal points to be noted in performing bimanual examination per vaginam. 6. What are the causes and treatment of pelvic peritonitis? 7. How does gonorrhoeal vaginitis differ from the simple catarrhal? 8. What are the principal displacements of the uterus? Describe two of them.

PRACTICE OF MEDICINE

1. Differentiate the crepitant rale and the subcrepitant rale, and give the clinical significance of each. 2. Describe the natural heart-sounds. 3. Give the physical signs of pleuritic effusion. 4. What are the physical signs of aortic regurgitation? 5. Give the period of incubation and of eruption of the exanthemata. 6. Give the symptoms and treatment of tetanus. 7. Give the etiology, symptoms and treatment of gastrointestinal catarrh of infancy and childhood. 8. What are the symptoms of acute parenchymatous nephritis?

EYE AND EAR

1. What are the causes of ptosis and the remedial measures employed? 2. What are the pathologic conditions in gonorrhoeal ophthalmia and give the treatment of gonorrhoeal ophthalmia? 3. Where should the opening be made in order to reach the antrum in a case of abscess of the middle ear? 4. Give the etiology, diagnosis and treatment of acute otitis media.

SURGERY

1. What arteries, muscles and nerves would be severed in amputation at the middle third of the humerus? 2. Describe the symptoms and give the treatment of hemorrhage from the middle meningeal artery. 3. Name and describe the different varieties of fracture. 4. Describe the several varieties of club-foot. 5. Relate the causes of intestinal obstruction. 6. Describe hypospadias, epispadias, phimosis and paraphimosis. 7. Name the different varieties of benign tumors. 8. What are the causes and the treatment of pelvic peritonitis?

DISEASES OF CHILDREN

1. Describe the symptoms of empyema and give treatment. 2. Describe intussusception and volvulus; give treatment of both conditions. 3. Name the different varieties of stomatitis. 4. Describe chorea and give treatment of chorea minor. 5. Give symptoms of otitis media and treatment of same. 6. Describe the eruption of scarlet fever, measles and syphilis, and give the diagnostic points of each. 7. Write a prescription for a child 5 years old suffering from *tania solium*. 8. Give symptoms of acute anterior poliomyelitis.

MATERIA MEDICA AND THERAPEUTICS (HOMEOPATHIC)

1. Name three remedies useful in suppurative processes, with indications for the use of each. 2. Name the so-called "twelve tissue remedies." 3. Name the tissue remedies most useful in mental states and affections. 4. Name the tissue remedies most useful in simple fevers. 5. Compare respiratory symptoms of bryonia, phosphorus and antimonium tartaricum. 6. Give the mental symptoms of cannabis indica and ignatia. 7. Cinchona: give its common

name; form of preparation used; sphere of action. 8. Arsenicum album: write as much as you can about this drug and its action, using not more than twenty lines, or 100 to 125 words.

MATERIA MEDICA AND THERAPEUTICS

1. Define: (a) materia medica, (b) therapeutics, (c) minimum dose, (d) maximum dose, (e) toxic dose, (f) lethal dose. 2. How much silver nitrate would you use to make 2 ounces of 10 per cent. solution of the same in water and show your mathematical work? 3. How would you diagnose and state briefly how you would treat poisoning by: (a) hydrocyanic acid, (b) arsenic, (c) strychnin, (d) belladonna, (e) carbolic acid? 4. Iodine: (a) give chief source and brief description of same; (b) name five preparations used in medicine, containing iodine free or in combination; (c) name three conditions in which iodine or its salts are indicated. 5. Salol: (a) give official name; (b) give dose; (c) describe briefly its action on the stomach and small intestines. 6. Give the physiologic action of veratrum and aconite and name diseases in which they are useful, stating dose. 7. Name two of the most important remedies used in the treatment of syphilis, the stages in which indicated and give method of administration. 8. Describe the treatment of gonorrhoea in the female.

Louisiana October Report

Dr. A. B. Brown, secretary of the Louisiana State Board of Medical Examiners, reports the written examination held at New Orleans, October 18-19, 1910. The number of subjects examined in was 10; total number of questions asked, 59; percentage required to pass, 75. The total number of candidates examined was 31, of whom 11 passed and 20 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Alabama	(1910)	75
University of Louisville	(1910)	78.1, 80.1, 87.8
Tulane University of Louisiana	(1910)	76.9, 79.3, 85.9
Baltimore Medical College	(1907)	80.2
Cornell University Medical College	(1910)	95
University of Nashville	(1910)	75
Memphis Hospital Medical College	(1903)	77
FAILED			
University of Alabama	(1902)	63.8
University of Arkansas	(1909)	66.2
University of Louisville	(1910)	55, 60.2
Maryland Medical College	(1910)	54.8
Flint Medical College	(1910)	63.1
Memphis Hospital Medical College	(1901) 66.6; (1907) 60.9; (1910) 59.4, 62.7, 63.6, 63.7, 66.1, 68.5, 68.5.	
Chattanooga Medical College	(1909)	61.9
McBarry Medical College	(1909) 66.1, 67.3; (1910)	58.5
Baylor University	(1905)	73.7

Minnesota October Report

Dr. W. S. Fullerton, Secretary of the Minnesota State Board of Medical Examiners, reports the written examination held at Minneapolis, October 4-7, 1910. The number of subjects examined in was ten; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 21, of whom 17 passed and 4 failed. Eleven candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Northwestern University Medical School	(1910)	77.8, 79.6
Rush Medical College	(1910)	79.7
Chicago College of Medicine and Surgery	(1910)	82.6
Univ. of Michigan, Coll. of Medicine and Surgery	(1910)	80.8
University of Minnesota, College of Med. and Surg.	(1910) 76.9, 80.8, 82.9.	
St. Louis University	(1908)	78.1
Long Island College Hospital	(1899)	85.2
Columbia University, Coll. of Phys. and Surg.	(1910)	88.3
Jefferson Medical College	(1910)	83.8
Hahnemann Medical College of Philadelphia	(1910)	83.3
Marquette University	(1910)	77.7
University of Toronto, Ontario	(1910)	86
University of Marburg, Prussia	(1878)*	

FAILED

Northwestern University Medical School	.....	(1910)	72.9
Marquette University	.....	(1909) 63.6; (1910)	73.3
Laval University, Quebec	.....	(1910)	68.9

LICENSED THROUGH RECIPROCIITY

College.	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago	..... (1907)	Iowa
Northwestern University Medical School	..... (2, 1909)	Illinois
Rush Medical College	..... (1892) Iowa; (1903) (1909)	Illinois
College of Medicine and Surgery, Chicago	..... (1909)	Illinois
College of Physicians and Surgeons, Baltimore	..... (1903)	New Jersey
Johns Hopkins University	..... (1906)	Maryland
Hamline University	..... (1909)	N. Dakota
Creighton Medical College	..... (1910)	Nebraska

* No percentage given.

Book Notices

THE PRACTICE OF MEDICINE. A Guide to the Nature, Discrimination and Management of Disease. By A. O. J. Kelly, M. D., Assistant Professor of Medicine in the University of Pennsylvania and Assistant Physician to the University Hospital, Philadelphia. Cloth. Price, \$4.75 net. Pp. 945, with illustrations. Philadelphia: Lea & Febiger, 1910.

The tremendous changes in our conceptions of pathologic as well as physiologic processes, and consequently in treatment, are reflected in this new book. In the first chapter, on infectious diseases, is condensed in a brief space reference to all the work of the last ten or fifteen years in the blood and secretions—everything from antigens, antibodies and agglutinins, hormones and internal secretions to lysins and the toxins of the zooparasites. The student and the junior practitioner, for whom this work is intended, unless exceptionally well taught and attentive in his college course, and unless conversant with current medical literature, must indeed be bewildered by all this wealth of reference to the "newer pathology," but it illustrates the increasing complexity of medicine.

In looking over the classification of diseases one is impressed with the increased number of and the increased space given to the zooparasitic infections—the protozoan and metazoan infections—by the formidable list of thirty-seven diseases which the author has classified under the head of "Infections of Unknown or Doubtful Etiology," and by the list of twelve "Nervous Diseases of Functional or Unknown Nature." So that with all the advance that has been made, the ground seems merely scratched and the investigator still has an immense and rich field before him for cultivation.

Noteworthy also is the increasing number of diseases or conditions described under new separate heads, or described under new designations, in connection with certain systems. Under diseases of the circulatory system, for instance, we have weak or insufficient heart, overstrained or irritable heart, the infectious febrile heart, the fibroid heart and tumors and parasites of the heart; multiple serositis under diseases of the peritoneum, perinephritis and paranephritis under diseases of the urinary system, etc. And it may be added that there are quite a number of conditions described at length, with a lengthy probable symptomatology, which the author admits can be diagnosed only at autopsy. The discussion of pathologic physiology at the beginning of each new section is a good feature of the book.

The author advocates the tub bath and milk diet in typhoid fever, and says that he has never seen good results from a generous diet. Preventive inoculation in typhoid, he believes, is of doubtful value, and the serum treatment has not commended itself to the profession. The treatment of bacterial infections by bacterin is approved, and pneumonia patients should have open air or at least fresh-air treatment throughout in preference to "canned" oxygen *in extremis*. He calls attention to the revised conception of diphtheria, to the effect that it is often more than an infection by the Klebs-Loeffer bacillus, and calls the microorganism of cholera by the rather unusual designation of *Microrospira comma*. Uncinariasis, he states, exists in Florida in 90 per cent. of the population, and in subtropical countries and in Germany, but he says nothing about its prevalence in other parts of the United States. The lavish use of parentheses throughout the text is jarring on the reader, and detracts from an easy, readable style. The foundation of a good, modern work is here, and when it has passed through the refining fire of a revision, it will take its place among the standard works on the practice of medicine.

CLINICAL OBSTETRICS. By Robert Jardine, M.D., Edin., Professor of Midwifery in St. Mungo's College, Glasgow. Third Edition. Cloth. Price, \$6.50 net. Pp. 716, with 112 illustrations. New York: William Wood & Co., 1910.

Professor Jardine's book differs from most other books on obstetrics in that a considerable part of the space is given to the relation of cases illustrative of nearly every complication of pregnancy, labor and the puerperium. The term "clinical obstetrics" is therefore appropriate. The descriptions of the normal and pathologic conditions are nevertheless clear and fairly complete although sometimes brief while the symp-

oms, diagnosis and treatment are sufficiently given and make the book a satisfactory text-book for students. In this edition considerable new matter has been added, especially on the subject of neuritis, pyelitis, acute yellow atrophy of the liver, eclampsia, etc., as well as the reports of fifty new cases. There are now thirty-two cases of eclampsia reported, and a number of rare complications. The illustrations are well selected and well made.

This way of writing a book on obstetrics, which is essentially the same as that followed by Smellie, the great pioneer English obstetrician, has distinct advantages. First, it assures the reader that the author knows whereof he speaks. One may know at the beginning that the book is not simply another compilation. Then the conclusions reached by the writer can be judged, for the material on which they are based is presented with the conclusions. The chief criticism of Jardine's method of presenting his cases is that when a number are reported to illustrate a complication, as in eclampsia, he does not classify the cases and compare them in a brief and clear summary. This makes it difficult for the reader to obtain a comprehensive view of the cases and form a judgment of the results without a considerable amount of work that might have been avoided had the author followed the method of study and comparison that is adopted by the directors of clinics.

Some objections might be raised to certain points in the technic of management and operation. For example, the management of mammary complications is not in accord with the present state of our knowledge of the physiology of the breast and of the way to treat infections. The differentiation between engorgement and infection is not clearly made, and the statement that the temperature will usually be raised a degree or two while the milk is appearing is distinctly a mistake. The application of belladonna, hot fomentations and boric poultices in case a breast becomes hardened and inflamed will favor suppuration that could be avoided by the opposite line of treatment.

The statement that shaving the parts in serious operations is undesirable in private practice gives a doubtful impression of the general aseptic management.

The amount of space given to spinal anesthesia is astonishing; so is the statement that this method of anesthesia is suitable for forceps operation.

The reason for the continued employment of the side position in forceps operation is not understood by us. The results of the induction of premature labor in the six cases given were not very satisfactory, as four of the children were lost. Either the operation should be condemned or the cases should be criticized to show how the result can be improved. The extraperitoneal Cesarean section is not mentioned, while vaginal Cesarean section, with which the author has had no experience, is very briefly described.

The book is a successful attempt to present the conclusions of a teacher of much experience and illustrates the subject with frank unvarnished records of cases that reinforce the teaching and furnish a basis for the conclusions. Such a book cannot be other than a valuable addition to obstetric literature. The work is beautifully printed and illustrated.

DIFFICULT LABOR. A Guide to its Management for Students and Practitioners. By G. Ernest Herman, F.R.C.S., Consulting Obstetric Physician to the London Hospital. Cloth. Price, \$2.50 net. Pp. 547, with 180 illustrations. New York: William Wood and Co., 1910.

This fifth edition of Herman's popular book on the management of difficult labor has been thoroughly revised and considerably enlarged, new illustrations having been added, together with a chapter on retroversion of the gravid uterus and puerperal eclampsia. The book is characterized by a clear dogmatic style, suitable for a manual designed for the practical use of students and practitioners. The heavy type headings of chapters and paragraphs and the clear arrangement of matter make the book easy to use in reference. It is evidently the work of an experienced teacher who knows what is needed by his readers.

In general the work is in accord with modern American obstetric practice. It would have been desirable, however, to add the metric measurements as many have learned these

measurements instead of the English inches. One is surprised to find little description of the aseptic technic of operation. The use of gloves is not recommended, and the illustration of forceps operation shows bare hands and likewise no protection of the patient. The operation is done on the bed with the patient in the side position. Greasing the perineum is allowed, although the author doubts that it can help much in preventing lacerations.

With these exceptions, the book is eminently practical. The author has in mind the needs of the busy practitioner who will not remember too much of his theoretical training but needs clear and definite rules for action. If these rules are not all in accord with the most modern trend of practice they represent at least the results of much experience and are perhaps as safe as the more radical methods of procedure that in some clinics have become popular in recent years. The book is worthy of the careful study of all.

LEHRBUCH DER OHRENHEILKUNDE. Von Dr. Victor Urbantschitsch, O.O. Professor der Ohrenheilkunde an der Wiener Universität und Vorstand der K. K. Universitätsklinik für Ohrenkranke. Fifth Edition. Paper. Price, 18 marks. Pp. 623, with 156 illustrations. Vienna: Urban & Schwarzenberg, 1910.

This is the fifth edition, "completely revised and enlarged," of Urbantschitsch's comprehensive work. The author takes up the anatomy and physiology of the organ to be discussed, following this with the clinical side of the subject. There are many interesting illustrations throughout the book.

In the study of the symptomatology and pathology of the various ear affections the author treats of a number of new matters in more detail than is found in most similar books. Despite the fact that Bezold, Politzer and others have long ago and repeatedly denied that hearing exercises can be of any value in cases of deafness, Urbantschitsch still maintains his faith in them and describes his methods in detail.

The Leidler and Schüler method of x-ray examination of the mastoid is referred to and it would seem that skiagrams are of some assistance in the diagnosis of certain mastoid conditions. The details of Bárány's modification of the Rinne test are given. With reference to the physiology and pathology of the labyrinth, the author has drawn from and quoted the work done by Bárány and Ruttin. Nystagmus is dealt with in detail. Bárány's work on the physiology and pathology of the semicircular canals (1907) is quoted, and one who has previously read but little regarding nystagmus can obtain a very good working knowledge of the condition. Quite an interesting section is that dealing with the medicolegal status of injuries to the ear.

All in all, the present edition is a very readable, clear, authoritative and valuable production.

INSECTS AND DISEASE. A Popular Account of the Way in Which Insects May Spread or Cause Some of Our Common Diseases. By Renée W. Doane, A.B., Assistant Professor of Entomology, Leland Stanford Junior University. Cloth. Price, \$1.50 net. Pp. 221, with 112 illustrations. New York: Henry Holt & Co., 1910.

This book gives, in untechnical language, an interesting account of the part insects play in the dissemination of disease. The relation of house-flies to typhoid, of mosquitoes to malaria, yellow-fever and elephantiasis, of fleas to plague, of tsetse-flies to sleeping-sickness, and the suspected relation of insects to several other diseases are explained. Some directions are given for destroying or expelling insect pests; and an excellent, though not exhaustive, classified critical bibliography, completes the book.

A few typographical errors unfortunately tend to impair the reader's confidence in the carefulness of the proofreading and hence in the accuracy of the spellings used. *Musca domestica*, for instance, on page 201 hides behind the alias of *Musca domestica*; M. J. Rosenau is referred to once as "Roseman" and twice as "Rosenan;" Finlay and Ricketts are fellow-sufferers.

Apparently out of a laudable (but, we believe, mistaken) desire to spare the average reader, the legends for the illustrations which give magnified views contain no indication of the scale of enlargement. In the case of the less familiar insects especially, it would have been desirable to indicate the scale of magnification, and perhaps to give a macroscopic picture by the side of the microscopic to aid in the recognition of the insect.

THE EXAMINATION OF THE FUNCTION OF THE INTESTINES BY MEANS OF THE TEST DIET. Its Application in Medical Practice and Its Diagnostic and Therapeutic Value. By Dr. Adolf Schmidt, Halle, A.S. Authorized Translation from the Second Revised and Enlarged German Edition by Charles D. Aaron, M.D., Professor of Diseases of the Stomach and Intestines in the Detroit Post-Graduate School of Medicine. Price, \$1.50 net. Cloth. Pp. 126, with illustrations. Philadelphia: F. A. Davis Co., 1909.

While not comparable with the examination of stomach contents, the examination of the feces after a test diet gives reasonable hope of greatly advancing our knowledge of functional disorders of the intestines. The method of Schmidt has been somewhat simplified since the publication of the first edition, and may now be carried out by any practitioner with a minimum of technical skill and of laboratory equipment. This method has stood the test of time, and is destined to outlive its competitors such as the desmoid test, the bead test, etc. In the present edition Professor Schmidt has developed more fully the relations of the stomach, liver and pancreas to intestinal diseases and this chapter forms a valuable contribution to a neglected field of gastrointestinal pathology. The last chapter, dealing with chronic constipation, presents the author's theory that in constipation digestion is too good and presents the reasons for the agar-agar treatment which, unfortunately, has been appropriated by the proprietary interests. The book is tastefully bound and well illustrated.

APPLIED ANATOMY. The Construction of the Human Body Considered in Relation to Its Functions, Diseases and Injuries. By Gwilym G. Davis, M.D., Associate Professor of Applied Anatomy, University of Pennsylvania. Cloth. Price, \$6. Pp. 630, with 630 illustrations by E. F. Faber. Philadelphia: J. B. Lippincott Co., 1910.

On account of the great mass of facts to be learned, the college course in anatomy is confined almost entirely to the descriptive work of the large anatomies. Only meager and superficial attention is given to applied anatomy in the teaching of surgery and physical diagnosis. With a fairly good grounding in descriptive anatomy, a year devoted to the study of applied anatomy would give a student an invaluable knowledge of the subject that would prove useful not only in his subsequent study of diagnosis and all the surgical branches, but would give him something that he could apply with immense advantage daily after entering on general practice. This book with its numerous splendid illustrations of normal and pathologic anatomy and anatomic relations, and its practical text, should prove of great usefulness, to student, general practitioner and surgeon, in their daily work.

VII. BERICHT DER DEUTSCHEN GESELLSCHAFT FÜR SAMARITER- UND RETTUNGSWESEN FÜR DIE JAHRE 1908 UND 1909. Herausgegeben vom Vorstand. Paper. Pp. 171. Leipzig: Nikolaikirchhof.

First-aid and life-saving institutions and societies scarcely have an independent existence in the United States; the combination of such societies into a national association originated in Germany. The present volume is the seventh report of the German Association, which is now in the fifteenth year of its active existence. It was formerly known as the Deutscher Samariter-Bund, but with the natural development and expansion of its work, two years ago took the present title. The report includes, in addition to the ordinary proceedings of the society, reports on the progress of life-saving work in various occupations and localities. The articles are illustrated and afford useful hints to those interested in such work. An extension of such associations is indicated as affording a preparation for emergencies in which life is liable to be sacrificed because the necessary men and materials for first aid are not at hand.

THE DISEASES OF WOMEN. A Handbook for Students and Practitioners. By J. Bland-Sutton, F.R.C.S., Edg., Surgeon to the Middlesex Hospital, and Arthur E. Giles, M.D., B.Sc. Lond., F.R.C.S., Edin., Surgeon to the Chelsea Hospital for Women. Cloth. Price, \$3.25. Pp. 554, with 127 illustrations. New York: Rehnman Company, 1910.

In the latest edition of this well-known work on gynecology, the authors have elaborated certain subjects such as fibrosis and adenomyoma of the uterus and generally have brought the book up to date. The pathologic classification of endometritis has been changed to correspond to the recognized nomenclature, and attention is called to the difficulties of differentiation between appendicitis and pelvic inflammation. A description of the technic of Wertheim's operation for carcinoma of the uterus has also been added.

Medicolegal

Liability for Gauze Left in Abdomen in Gonorrhoeal Suppuration—Custom of Dressing Wounds and Keeping Track of Gauze—Expert Testimony

The Supreme Court of Iowa approves of a judgment in favor of the plaintiff in the malpractice case of Reynolds vs. Smith and another (127 N. W. R., 192). It says that an abdominal operation for the removal of a cyst or tumor was performed on the plaintiff January 16 by Dr. Schooler, a partner of Dr. Smith. Dr. Smith attended the patient until the 19th, when Dr. Schooler, who had been temporarily absent, resumed charge, and attended the patient until her return to her home in Minnesota February 23. The wound had not entirely healed, and, on her arrival in Minnesota, a Dr. Schmitt dressed it. On the 27th he made an examination, and, according to his testimony, found a piece of surgeon's gauze about 16 inches square in the abdominal cavity, and, after enlarging the opening, removed it. Though the wound then healed, the plaintiff continued to be weak and suffered from melancholia for some time, and, in April of the following year, was operated on by Dr. Schmitt for hernia. This suit was brought to recover damages for that, as was alleged, the defendants were negligent in failing to discover and remove the gauze, subsequently extracted by Dr. Schmitt.

Counsel for the defendants contended that the record as a whole did not show that the defendants failed to exercise the degree of skill and care exacted in such cases. But that both were eminent in their profession alone could not exonerate them from the charge of negligence. The most proficient are subject to the infirmities of human nature, and, as the books demonstrate, sometimes may lapse below the standard by which their conduct is to be measured. The history of the patient was such as permitted of no relaxation in attention at and after the operation. At an operation five years before, Dr. Schooler had removed her ovaries and Fallopian tubes, and at another operation had removed her womb. If she was afflicted with a gonorrhoeal affection, this may have exacted greater caution, or might have been thought to account for the delay in healing after the operation was performed.

Dr. Schooler testified that two gauze pads were left in the patient, and Dr. Smith, that he removed those pieces three days later. It was the habit of Dr. Schooler to knot the second piece of gauze inserted, and Dr. Smith found one of those removed in that condition. He then inserted another piece of gauze several yards long to prevent bleeding and to act as a drain, leaving the end protruding through the wound. On Dr. Schooler's return on the second day thereafter he resumed charge and inserted a drainage tube and was of opinion that had there been gauze in the body he would have discovered it. Before the patient left for home he testified to having again examined her without discovering anything abnormal save the continued suppuration.

On the other hand, Mrs. Reynolds related that Dr. Smith removed some of the gauze on Thursday, after the operation had been performed on the Monday previous, cutting it off with scissors, and some more in the same way on the following day; and that she did not remember that any more had been inserted. Her husband's testimony was corroborative, and to the effect that Dr. Smith removed the last of the gauze on Sunday.

It will be noted that none of the witnesses pretended to account for the gauze inserted by Dr. Smith after removing the pads put in by Dr. Schooler, but it appeared to have been several times longer than that extracted by Dr. Smith. Of course neither of the defendants intentionally allowed any foreign substance to remain in the abdomen. No one so claimed. But the jury might have found that the gauze was taken therefrom as testified by Dr. Schmitt; that it should have been removed within a few days after the operation; that the failure of the wound to heal indicated an abnormal condition, and that, even though the patient had suffered from specific infection, this exacted careful examination as to the cause; and that, all this being so, the issue as to whether had the defendants exercised that degree of skill and care required

of them, the gauze would have been discovered and removed before the plaintiff left the hospital, was for the jury to determine.

The defendants requested several instructions to the effect that all exacted of them was that they follow the custom and usages of physicians in the performing of such operations in the vicinity where they practiced. These were rightly refused, for no evidence was adduced that any particular custom or usage in the matter of avoiding leaving the gauze in the plaintiff was actually followed. Moreover, if there had been such evidence, those instructions ought not to have been given, for, in view of the failure of the wound to heal, the continuance of suppuration, together with the significance of leaving such a substance in the body, the issue of negligence must have been submitted to the jury.

The evidence disclosed that nurses and the intern sometimes dressed the wound. They were not employees or agents of the defendants, and, unless the defendants were negligent in permitting this to be done by them, they were not responsible for their acts save in so far as their duty exacted examination of the wound and proper treatment. Had there been evidence tending to show that from the acts or omissions of the nurses and intern a gauze became lost and was allowed to remain in the plaintiff's abdomen, the jury must have been instructed as above; but, in the absence of such evidence, and especially in view of explicit instructions as to the necessity of an affirmative finding of negligence on the part of the defendants, there was no error in refusing to give an instruction of the character requested.

The intern was asked to explain the practice which obtained at the hospital in determining whether all gauze pads used in operations were accounted for. An objection to the inquiry was sustained. The ruling was correct, for there was no evidence that any precaution had been taken in operating on the plaintiff save by tying a knot in the second piece of gauze inserted. True, Dr. Schooler testified that "we have a way or method by which to keep track of the various pieces put in there. * * * The nurses count the pieces of gauze pads that are used." But the record did not indicate whether such way or method was followed in performing the operation on the plaintiff. Had there been evidence of how track of the gauze was actually kept, doubtless, as bearing on the issue of negligence, testimony that this was in accord with custom would have been competent. In the absence of such evidence, the rule is otherwise.

The jury were instructed, in part: "Though it is with a view of aiding you in determining the questions submitted to you that expert testimony has been admitted, you should bear in mind that the opinions of experts may be correct or incorrect, and that such testimony, depending on whether it tends to reveal the truth or otherwise, may or may not aid you in arriving at a correct conclusion, and that on you rests the responsibility of a true verdict. The expert testimony should be weighed and considered by you as you weigh and consider the other testimony, and taking into consideration the amount of skill and knowledge possessed by the witnesses giving expert testimony, the matters testified to by them, the other evidence and facts and circumstances of the case, you should give to expert testimony such weight and credit, and only such weight and credit, as you deem it justly entitled to receive. It is your duty to give to the evidence, and all of the evidence in this case, full and fair consideration, and draw therefrom the conclusion which your judgment and consciences approve as just and right. When expert witnesses testify to matter of fact, from personal knowledge, their testimony, as to facts within their personal knowledge, should be considered the same as that of any other witnesses who testify from personal knowledge." The court does not think the instruction, when fairly construed, disparaged expert testimony or indicated that it might be rejected because such was its import. Like other testimony, it must reveal the truth in order to be of aid to the jury. That it may or may not be correct is also true. The manifest design of the instruction was to caution the jury against blindly accepting what experts on either side had said, as is often likely to be done, owing to the expert's knowledge and the jury's ignorance of the subject of inquiry, and to

emphasize their duty to apply the same rules in weighing and testing expert as is applied to other testimony. The instruction is not open for fair criticism.

The jury allowed damages in the sum of \$2,000, but the court thinks that excessive when it is considered that the operation was performed January 16 and that the gauze, which might properly have been allowed to remain for about a week, was removed February 27. The circumstance that the wound healed within a few days thereafter tended strongly to show that the consequences were not serious. That the patient recovered immediately after the operation for hernia in April of the following year tended to prove that the suffering from melancholia, headache, and insomnia were due to the hernia, rather than to other conditions produced by leaving the gauze pad in the abdomen. Dr. Schmitt thought the hernia due to the last-mentioned cause, but it was exceedingly doubtful as to the record warranting such inference. Wherefore, a remission of \$800 from the judgment is made the condition for its affirmance.

Society Proceedings

COMING MEETINGS

Southern Surg. and Gyn. Assn., Nashville, Dec. 13-15
Western Surg. and Gyn. Assn., Chicago, Dec. 19-20.

AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY

First Annual Meeting, held in Baltimore, Nov. 9-11, 1910

The President, DR. J. H. MASON KNOX, JR., in the Chair

A summary of this meeting was given, with the election of officers, in THE JOURNAL, November 26, page 1903, and one of the reports was summarized and discussed December 3, page 1999.

The Duty of a Nation to Its Potential Citizens

DR. J. H. MASON KNOX, JR., Baltimore: One baby out of every five born dies before it is a year old. It is conservatively estimated that at least one-half of this infantile death rate is a toll paid to parental ignorance and indifference and can largely be averted. The best means of prevention is through an educational campaign, with the mother as the pivotal point. Among matters of fundamental importance are the prompt and accurate registration of births; maternal nursing, and the extension of the educational curricula in the high and normal schools to include better preparation for motherhood. This organization was formed as the result of a conference called by the American Academy of Medicine at Yale University, November, 1909. Permanent headquarters were opened in the Medical and Chirurgical Faculty Building, Baltimore, Jan. 1, 1910; 500 active members have been enrolled. Thirty-two states, the District of Columbia and Canada are represented. Thirty-three organizations, including nurses associations, milk dispensaries, child-helping societies, social settlements, health departments, etc., have become affiliated. The work of the year was devoted principally to educational propaganda. More than 8,000 pieces of mail were sent out from headquarters, and 22,000 circulars and leaflets were distributed. The headquarters have served also as a clearing house for information on matters pertaining to the reduction of infant mortality, and have brought many activities in various parts of the country in touch with each other.

M. JUSSELAND, the French Ambassador, described some of the preventive undertakings carried on in France, which have served as models for those in other lands, especially the Consultations for Nurslings established by Professor Budin. Twenty years ago, when the first of these was founded, a man of 90 had a better chance to live one week than a child one day old. Dr. Budin especially taught that thing which is so obvious, which like so many obvious things, had been lost sight of, for when a thing is obvious no one deems it worth while to think of and it soon becomes forgotten and has to be discovered again. The great discovery was that children

are meant to be nursed by their mothers; that the best cow's milk cannot compare with the mother's milk. Nevertheless, there are cases in which recourse has to be had to cow's milk and mothers are taught what sort of sterilized milk they should employ. Along that line many children are saved. This invention is really a very simple one, but it has had such an effect that it is imitated throughout the country. Restaurants have been established at which food is provided free of cost to nursing mothers. Another feature of the French campaign against infant mortality is the teaching of hygiene in the elementary schools. An appropriate motto for the American Association for Study and Prevention of Infant Mortality is the three words: "Learn. Teach. Live."

PROF. IRVING FISHER, New Haven, Conn.: Evidences of the fact that interest in the problem of conserving our national vitality is greater to-day than ever before, are: the campaign against tuberculosis, the study of the pollution of streams, the campaign against the social evil, and finally the campaign directed toward the reduction of infant mortality. The latter has, perhaps, a wider popular appeal than any other. It is beginning, also, to appeal to the statesman and to some extent to the ordinary politician. Carefully gathered statistics which are published in the report to the government on national vitality, show that at least 125,000 of the 300,000 deaths among infants, which occur annually, could be prevented, if modern hygiene were universally practiced. No one who could realize the immense number of needless deaths, would need further argument as to the importance of this movement for the study and prevention of infant mortality. But the public, on the whole is apathetic and needs to be aroused. The assertion has been made in some quarters that effort directed toward the prevention of infant mortality interferes with the operation of the law of natural selection, that the results of such effort would be to prolong the lives of the weak, to increase the miseries of the poor and to reduce the average vitality of the next generation. A careful study of the situation shows that the argument is fallacious, that instead of interfering with natural selection the movement aims to remove the interferences with natural selection which modern civilization has created. It is not a feature of natural selection that babies' milk should be adulterated or contaminated with germs. The movement for the prevention of infant mortality amounts in the end simply to this—to give back to the baby what is the baby's natural birthright, namely, pure milk and pure air. The elimination of disease acts both directly and indirectly toward the improvement in health and vitality not only of the present but of the succeeding generations. Instead of going back to primitive conditions we ought to go forward. The cure for the evils of civilization is more civilization. In accordance with what seems to be biologic law, a lowered birth rate accompanied by a reduced death rate characterize the progress of animal organisms. Applied to mankind, the process makes for economy; the birth of a human being becomes a more important event; and it makes for the conservation of the life that is born. The conservation of infant lives is but part of the problem of the conservation of all human life. While more has been done by governments in other countries toward the conservation of national vitality than in our own land, the movement directed toward the establishment of a federal department of health has made steady progress. It has the endorsement of the President of the United States; of a number of far-sighted and patriotic congressmen, as well as of a large number of the medical and hygienic organizations of the United States. Opposition to the movement comes from special interests actuated by commercial motives. It remains for the people of the United States to say whether the commercial interests of those who produce the food for babies are to be put above the valuation of the babies themselves. And if the department of health, when established, shall have had the effect of restricting the freedom of those who would like to put into the stomachs of babies what is bad for the babies, it will have had for one of its results the reduction of infant mortality.

DR. ABRAHAM JACOB, New York: The highest infant mortality occurs during the first few weeks of life; inheritance is a powerful factor in the formation and the health of the baby; the diseases and frailties of the parents will be repro-

duced, actually or potentially, in the offspring. Parents with hysteria, or epilepsy or other nervous diseases, with diabetes, alcoholism, criminal instincts or other forms of insanity, insure dispositions to kindred, if not the same affections. Syphilis is fatal to the embryo or fetus, dangerous to the baby, who frequently succumbs to its ravages within a few days or weeks. Tuberculosis in the mother will only predispose the baby; open tuberculosis will directly infect the nursing—it may be, the first day or week. So individual caution of the present generation will or may, and must, safeguard the existence of the child that is to be. Marriages are not permitted between the immature even now; they should be prohibited among the advanced tuberculous, the insane, the incurable epileptic, the hopeless criminal.

Our young doctors, unless they have had the great luck of being taught in obstetric wards and practice, learn, if at all, at the expense of the women who bear children and of the infants that are borne by them. Our medical schools do not begin to convey adequate obstetric knowledge and practice to the students. The number of poor who suffer for want of the safety vouchsafed by knowledge and by means, increases every year. Only a part of the deaths due to puerperal fever are attributed to it, other causes such as acute Bright's disease, peritonitis, pneumonia, being inscribed on the death certificates. Puerperal fever is avoidable; its occurrence is a scandal and a shame in the community—like small-pox or typhoid fever; and no actual precaution is taken to avoid it. Poor agricultural Prussia had its well-informed and trained and supervised midwives a century ago. There was and is no village in that country without one. We, however, have none that compare with them. We cling to our prejudices and our indolence. Forty years ago, the midwife question was discussed in a large New York medical society. One per cent. of the members present voted for instructing, and licensing and supervising them. And this very day the system under which they practice is slovenly and shiftless; no instruction is held out, no examination is held and the infant mortality of all classes, which you are bound to combat, is increased.

DR. WILLIAM H. WELCH, Baltimore: I believe this movement initiates one of the most important campaigns in preventive medicine in this country. In spite of the triteness of statistics, it is enough to arrest one's attention when one learns that in the state of Maryland over one-fifth of all the deaths of all ages occur under one year of age; that one-third of all the deaths occur under five years of age, the negro death rate making the percentage higher than in some other places. In the registration area of the country, the deaths under one year of age are a little less than one-fifth of all deaths of all ages, and about one-third under five years of age. One-ninth of all the deaths occur in the first three months of life. The crusade directed toward the prevention of infant mortality will yield the quickest results if waged against the so-called diarrheal and intestinal disorders, the acute respiratory diseases, bronchitis and pneumonia and the infections. Nurslings are better protected against infections than children who are artificially fed.

One of the most important functions of the association is the enlightenment of the public. Such education of the public is required to secure the enactment of the necessary laws from the legislatures and the appropriation of the funds needed to carry out preventive measures. Another function should be to stimulate better sanitary organization and administration throughout the country. With this end in view it should lend its whole force toward the organization of a national department of health and should stand for a strengthening of the activities of the federal government in public health work. A bureau of child hygiene would be an essential feature of such a federal department of health. A campaign in the interest of the better registration of births; the correlation of existing agencies now acting separately for the reduction of infant mortality; the stimulation of investigation; the formulation of a definite program of prevention, are also among the functions of the association. The direct benefits to be derived from the application of such measures would, of course, justify all efforts. The indirect benefits would be equally great.

(To be continued)

TRI-STATE MEDICAL ASSOCIATION OF MISSISSIPPI, ARKANSAS AND TENNESSEE

*Twenty-Seventh Annual Meeting, held at Memphis, Tenn.,
Nov. 15-17, 1916*

(Concluded from page 2068)

Diagnosis and Treatment of Kidney Calculi

DR. W. S. ANDERSON, Memphis: The Roentgen ray as a means of diagnosis marks the most important advance made in kidney and ureteral stone surgery in modern times. The clinical picture of a renal calculus often resembles very closely that observed in other pelvic and abdominal troubles. A careful study of the urine is of the greatest importance in cases of suspected stones. Among some of the commoner conditions liable to be mistaken for stones are: (1) tumors and tuberculosis of the kidney, ureter and bladder; (2) acute or chronic appendicitis; (3) movable or floating kidney, with kinking of the ureter; (4) pain on the right side caused by biliary and pancreatic calculi and intestinal obstruction; (5) psosas or perinephritic abscess.

If the kidney is found much diseased it is best to remove it at the time of the first operation rather than to attempt it later, for this is usually a difficult as well as a dangerous operation on account of many adhesions.

DISCUSSION

DR. E. M. HOLDER, Memphis: By means of the Roentgen ray with modern focusing devices one is able to get a clear-cut, clear, precise, well-defined picture of stone in the kidney or bladder. It is easier to take an x-ray of the kidney than of the bladder, for the reason that it is not surrounded by a bony wall.

DR. FRANK D. SMYTHE, Memphis: One condition has prevented me from making a correct diagnosis of stone in the kidney, and that is acute torsion of the pedicle of an ovarian cyst. A physician treated a case for days and regarded it as one of stone in the kidney. Examination of the urine revealed a stone in the kidney or ureter, and I was called to perform the operation. I regarded it as a case of peritonitis due to rupture of some organ producing infection, and advised immediate operation. On making an opening I found an ovarian cyst as large as a fetal head, with two or two and a half twists in the pedicle, with rupture of the blood-vessels, the cyst undergoing gangrene.

Pistol-Shot Wound Through the Head

DR. JOSEPH T. SEYMOUR, Whiteville, Tenn.: The patient was a boy, 15 years of age, who accidentally shot himself through the head while examining a pistol. The ball entered the head on the right side near the external angular process of the frontal bone, just above the supra-orbital ridge, passing through the skull and brain on a straight line, making its exit at the junction of the parietal, occipital and mastoid portions of the temporal bone. The opening at the point of exit was about the size of a nickel, being much larger than that at the point of entrance. Free drainage was established, and the patient made a good recovery.

DISCUSSION

DR. J. W. BARNSDALE, Winona, Miss.: Six or seven years ago, a man was shot with a 44-caliber Smith and Wesson pistol. The bullet passed through the right eye and through the entire thickness of the frontal lobe of the brain, emerging just anterior to the outer central fissure. I saw the man three minutes after the reception of the injury. There was no loss of consciousness, no paralysis; there was never any symptom suggestive of brain injury during the entire time, other than the physical fact of the injury. After recovery, which was uneventful, the patient had several convulsive seizures in the succeeding two or three years, dying four years later of tuberculosis.

DR. J. R. NELSON, Whiteville, Tenn.: One singular feature in connection with the case reported by Dr. Seymour is that the boy was rational all the time.

DR. JOHN DARRINGTON, Yazoo City, Miss.: It is the general practitioner who is called on to treat cases similar to the

one reported. Dr. Seymour's patient would have recovered without any complication whatever, except that the external opening was not sufficiently large in the first place to allow free drainage, but had to be enlarged later. It is remarkable how much traumatism the brain can stand. I saw a case in which the skull was crushed over an area an inch and a half in diameter, with pressure on the brain. The pressure was relieved, and the man recovered.

DR. J. N. MURRAY, Ripley, Miss.: A negro was kicked on the side of the head by a mule. Two or three tablespoonfuls of brain substance escaped. The boy had had epileptic convulsions previous to the injury. I trephined, removing a spicule of bone from the inner table an inch and a half long. The boy recovered from the operation and has not had an epileptic convulsion since.

Benign Tumors of the Uterus

DR. E. M. HOLDER, Memphis: It is conservatively estimated that over two-thirds of women having fibroid tumors of the uterus will die if not subjected to operation. The mortality of myomectomy and hysterectomy is between 2 and 10 per cent., depending on the gravity of the case, on the operator, and on the environment in which the operation is done. It seems a fair conclusion that the resort to early operation will effect a saving of 25 to 30 per cent. in mortality. The rule of practice should be to remove all fibroids which come under observation, unless there seems to be some good reason for temporizing, due either to the small size of the tumor, or to the advanced age or poor general health of the patient. Whenever the disease causes displacement, hemorrhage, pain or pressure sufficient to threaten damage to the general health, to the nervous system, or to the pelvic organs, an operation should be advised. When pregnancy is found to be complicated by a fibroid tumor, it is best to allow pregnancy to go to term as long as the mother's health is not seriously in danger. If, at the onset of labor, or shortly before, it seems certain that the tumor will cause obstruction to the birth of the child, Cesarean section, possibly followed by hysterectomy, should be performed. In cases in which the death of the child makes it necessary to interfere in the earlier months, abdominal section should be performed and an attempt made to enucleate the tumor. If under these circumstances myomectomy is found to be dangerous, hysterectomy should be performed.

DISCUSSION

DR. WILLIAM KRAUSS, Memphis: The terms "benign" and "malignant" are entirely clinical conceptions. They do not carry with them any distinct line of demarcation with reference to the histology or histogenesis of the neoplasm. Sometimes it is extremely difficult for the laboratory man to decide whether a given histologic structure is compatible with a benign clinical course, or whether it is going to mean that the course will be seriously malignant. What are the data for clinical malignancy? The tumor must show evidences of a tendency to spread into the surrounding tissues. There must be a tendency to local recurrence. There must be a tendency to metastasis. It must produce cachexia. These tumors are said to undergo sarcomatous or carcinomatous degeneration. The pathologist knows of no such degeneration. A fibroid tumor being mesoblastic, it can only undergo metaplastic changes. It is not a degeneration.

DR. FRANK D. SMYTHE, Memphis: As the result of my observation and study of hundreds of cases of fibroid tumor I cannot regard a fibroid tumor or myoma of the uterus as a simple tumor. The location of a fibroid tumor rather than the size is the one thing that demands immediate operation. These tumors are of slow growth, but they grow steadily, and in the long-standing cases they are likely to produce serious remote disturbances. There should be little or no mortality attending the operation for the removal of fibroid tumors in the hands of good surgeons. The unavoidable deaths which occur in those cases following operation are always in patients who have had these tumors for a long time, whether they be large or not. Our object is to do the best we can for the patient, and from my own experience I believe the interests of the patient are best served in the main by hysterectomy,

and hysterio-salpingo-oöphorectomy when the tubes and ovaries are implicated, and these organs are implicated in 50 per cent. of the cases.

DR. W. T. BLACK, Memphis: In a woman approaching the menopause hysterectomy should be done in the class of cases under discussion because in 4 per cent. of the cases these tumors undergo malignancy. In a woman already pregnant myomectomy is indicated.

Prevention of Infantile Diarrhea

DR. A. G. JACOBS, Memphis: The prevention of diarrhea in babies depends on three factors: 1. Proper care should be taken of mother's milk. 2. If this fails, a wet-nurse should be procured. 3. If human milk cannot be secured, properly modified, pure uncontaminated cow's milk should be given. If this method of proceeding is followed, the death-rate from infantile diarrhea will dwindle down to one-fifth of its present proportions.

DISCUSSION

DR. WILLIAM KRAUSS, Memphis: If we are informed as to the methods of keeping the mother up to standard and supplying the infant, the problem is solved without going any further. It is not only a question of getting pure cow's milk as a substitute. The recognition of the proper proportion of the approximate principles in the milk is only one part of the problem. One-half of the protein of mothers' milk is in the form of a soluble albumin. The cow's protein is nearly all casein. This soluble albumin further has the advantage of having been prepared by the mother for emergencies further than the mere preservation of nutrition. Commercial milk, the best that is obtainable, produced in as clean a way as possible, and delivered within three hours, after being obtained under the most favorable circumstances, will contain probably fifty thousand bacteria per cubic centimeter. Grocery milk contains about ten times as many bacteria, and that is what we feed babies. Unless provision can be made whereby milk is delivered at the house containing a minimum number of bacteria, we are bound to have a high mortality among infants in the summer months, aside from the failure to protect the infant against the accidents which may occur in the household from disease and against which it would be protected by the normal protective bodies present in the mother's milk.

Treatment of Acute Middle-Ear Suppuration

DR. W. L. SIMPSON, Memphis: Early free antiseptic opening of the drum is to be recommended in acute middle-ear suppuration. If adenoids are present, do not wait until the suppuration has become chronic, hearing bad, etc., before their removal, but operate as soon as diagnosed. The mastoid operation in acute middle-ear suppuration is not to be a life-saving procedure, but should be done early to save hearing, prevent chronic suppuration, brain or labyrinthine complications, etc.

DISCUSSION

DR. EUGENE ROSAMOND, Memphis: I would like to emphasize the importance of the general practitioner being equipped so as to be able to do paracentesis of the drum membrane in acute suppuration of the middle-ear. There is no excuse for a doctor not having a head-mirror, with a set of speculums. With an ordinary electric light, even with the bright light of a window in the daytime, with a good head-mirror, there is no trouble in seeing the ear-drum, if we are patient and careful enough and take time enough to cleanse the canal.

DR. W. S. ANDERSON, Memphis: I wish to emphasize the advantage of paracentesis of the drum membrane in cases of acute suppuration of the middle ear.

DR. B. L. BRANCH, Collierville, Tenn.: I use an ordinary pipette instead of an ear syringe, for the purpose of cleansing the ear, as one can control the force which is used in throwing the water into the ear to greater advantage than with the ordinary ear syringe, and it does not cause any pain.

Buboes and Their Treatment

DR. GEORGE R. LIVERMORE, Memphis: I prefer the Hayden operation for the relief of buboes. A man had had several incisions made on either side, was confined to bed for months

with suppurating inguinal adenitis, and yet following the Hayden operation he was able to be up in a week or ten days, the result being very gratifying.

DISCUSSION

DR. WILLIAM KRAUSS, Memphis: A patient with bubo had been under the care of a number of specialists without relief. The patient had induration and softening of the skin over the bubo, with a little reddening, and from time to time it became very painful. I thought it would be a good case for vaccine treatment. The patient received five injections of the combined vaccines, and he is now entirely well. It took this man just two weeks to get over a condition that had lasted for eight years.

Plaster of Paris as a Primary Dressing for Fractures

DR. J. W. BARKSDALE, Winona, Miss.: In using plaster as a primary dressing, a strip of ordinary bandage should be laid lengthwise along the limb, preferably along the front, between the padding and the plaster. Before hardening is complete, the plaster should be cut completely through over its entire length, this being rendered easy of accomplishment by cutting down on the roller bandage, which is pulled up into the cut plaster, thereby facilitating the maneuver. After being cut the roller bandage should be run firmly around the limb so as to keep the plaster snug and prevent splitting. The ends of the fingers and toes should be left exposed so as to permit of frequent inspection, and should the swelling create discomfort, or threaten gangrene, the roller is to be taken off and the plaster sprung so as to accommodate the increased bulk. As the swelling subsides the bandage can be drawn as tightly as desired, so that the enveloping material at all times keeps up an even pressure and secures coaptation. If the use of this material as a primary dressing has a drawback, I have thus far failed to discover it.

DISCUSSION

DR. JOHN L. JELKS, Memphis: When I put a plaster-of-Paris bandage as a primary dressing on a limb that has been fractured, I am very anxious about that ease after the first day, or until I cut the bandage and inspect the limb. Plaster of Paris can be adjusted to the contour of the limb better than any other splint we employ.

DR. BATTLE MALONE, Memphis: The best results I have obtained is in cases in which the plaster splint has been put on at the earliest possible time after the accident. I do not agree to the use of plaster of Paris in fractures of the upper extremity. In fractures about the elbow-joint it is essential that we should have a dressing that can be removed, and the dressing should be put on in such a way that we can use passive motion, beginning it early, and keeping it up every day with massage.

Treatment of Failing Compensation in Cardiovascular Disease

DR. BRYCE W. FONTAINE, Memphis: To relieve the distressing symptoms we must decrease the work of the heart and increase its strength and restore to proper working order its functions. There is no single measure so important in the treatment of some patients as a temporary venesection. The presence of hydrothorax must never be overlooked. Paracentesis in this condition will give immediate relief. The specific effect of digitalis in the stimulation and restoration of tone to the heart-muscle has yet to be approached by any other drug. Its action is remarkable in that it stimulates specifically several different functions of the heart-muscle. It is indicated in every case of failing compensation, except, perhaps, a few cases of extreme mitral stenosis, and in cases of marked arteriosclerosis. It should be given in doses of one grain, every two hours, until its physiologic effect is noted, then discontinued and resumed in five to seven days, if dyspnea and edema are not diminished. In cases due to arteriosclerosis, and accompanied with high blood-pressure, vasodilators are necessary, and are often very efficiently used in conjunction with heart stimulants. Carefully regulated exercises and carbonated baths aid in the peripheral circulation and markedly increase the tone of the heart muscle. In our efforts to reduce

the anasarca and to relieve dyspnea, we must not forget the beneficial effect of restful sleep.

DISCUSSION

DR. FRANK A. JONES, Memphis: With reference to the treatment of renal, cardiac, or cardiorenal lesions, the time has come when we are not so prone to administer too large quantities of digitalis and the large doses of salines as we formerly were, but I have come to realize in my individual work that we have no better agent than the Nauheim baths. The Nauheim bath can be improvised in any home where there is a bath-tub. As to the use of digitalis, there is but one valve lesion on which it has any marked effect, and that is mitral insufficiency, when failing compensation takes place.

A Form of Primary Nasal Diphtheria

DR. E. C. ELLETT, Memphis: In twelve years I have seen about two cases a year. The cases have all occurred in children, from 4 to 10 years of age. The children were not apparently sick, and were thought to be suffering from a cold. There is no elevation of temperature, no glandular involvement. Nosebleed is frequent from detachment of the membrane by blowing and picking, and excoriations of the upper lip and nostril are the rule. Inspection of the nostril shows a membrane, adherent to the septum most often and completely stopping the nose. At times the attempt to dislodge this will cause bleeding. It looks like a plug of mucus, but can be made out to be a membrane attached to the mucous membrane of the nose. Culture shows the characteristic bacilli. The treatment by antitoxin, even at the end of two or three weeks, is very effective. All my patients have recovered, and in no case has any postdiphtheritic paralysis occurred. If antitoxin is given at once in suspicious cases, the patient is well before the culture can be made, and I think that we should follow this plan and not wait.

DISCUSSION

DR. RICHMOND MCKINNEY, Memphis: I should like to emphasize the fact that this disease is mildly contagious. I have seen two or three of these cases a year. In no case did the disease extend to the fauces. One patient with a malignant type was cured in forty-eight hours after the use of antitoxin. In this case we obtained pure cultures of the Klebs-Loeffler bacillus.

DR. WILLIAM KRAUSS, Memphis: Because the little patient is not very ill the condition is overlooked, but as soon as the organisms are transplanted into another soil, they may give rise to more virulent diphtheria and an outbreak in the family.

DR. W. L. SIMPSON, Memphis: The cases of diphtheria of the nose I have seen have tallied with the description given. The patient's nose is stopped up either on one side or both, and there is usually some bleeding from the nose, although the child is up and around the house and able to play. I think smaller doses of antitoxin than those usually given in the ordinary case of diphtheria of the throat would be followed by equally as good results as the larger doses.

DR. W. F. CLARY, Memphis: The first case of purely nasal diphtheria I ever saw was about four years ago. I investigated that case very carefully and had cultures made immediately, which showed the Klebs-Loeffler bacillus, and the use of antitoxin cleared up the case in twenty-four or forty-eight hours. In this case I noticed a free, ichorous discharge and excoriation of the upper lip. Since then I have seen about one case a year.

The following papers were also read: "The Trials and Tribulations of Skin-Grafting," Dr. R. F. Mason, Memphis; "Gall-Stones with the Complication of Pancreatitis," Dr. W. F. Clary, Memphis; "Report of a Case of Typhoid Fever with Cholecystitis and Cholangitis," Dr. John O. Gurney, Tupelo, Miss.; "Treatment of Typhoid," Dr. M. S. Pollard, Thornton, Miss.; "Was Hysterectomy Indicated?" Drs. W. D. Ray and S. A. Brevard, Memphis; "A Case Having Symptoms of Abscess of the Temporal Lobe of the Brain," Dr. J. R. Nelson, Whiteville, Tenn.; "The Doctor's Privilege and His Justification," Dr. W. L. Howard, Greenville, Miss.; "Aneurisms of Abdominal Aorta," Dr. W. T. Price, Memphis.

COLLEGE OF PHYSICIANS OF PHILADELPHIA

Regular Meeting, Held Nov. 2, 1910

DISCUSSION

The President, DR. GEORGE E. DESCHWEINITZ, in the Chair

Nervous Disturbances Following Surgical Operations and Anesthesias

DR. S. WEIR MITCHELL: In a case of grave hysteria following operation we must consider the patient as a loaded gun, and that the surgeon merely pulls the trigger. The proper man might know that the gun is loaded. This raises the question whether it is not desirable in many cases to prepare the patient for the operation more often than our surgical brothers seem to think is needed. Not only the risks of death are to be considered, but the possibility of increasing a preceding condition of disease. Many physicians have felt that there is necessity for more strictly dealing with the before and after of surgical cases. Sir James Paget never did a grave operation on the bladder without putting the patient under a fortnight of milk treatment. I am tempted to say that no operation ought to be done without obedience to the rule in St. Bartholomew's Hospital in London, that no surgeon should ever dare to operate on a patient except after consultation with two physicians.

Postoperative Psychoses

DR. JAMES G. MUMFORD, Boston: The frequency of postoperative psychoses is shown by the careful study of cases seven and nine years after operation, taken from consecutive reports in hospital records. Long-continued mental and psychic disturbances following operations are due to demonstrable microscopic changes in certain nerve cells of the brain.

The Diagnosis of the Postoperative Psychoses

DR. J. CHALMERS D'ACOSTA: All sorts of mental disturbances may follow a surgical operation. It is certain that genuine insanity may arise after an operation, though it is rare. Postoperative insanity is more common in women than in men and less common in children than in adults. Contributory causes are pain, insomnia and shock. In all cases of postoperative insanity there is predisposition, hereditary or acquired. A normal, stable brain will probably never go insane after operation unless that operation attack the brain, testicles, or ovaries. The anesthetic is usually the exciting cause in insanity coming on immediately after the operation. The commonest type of postoperative insanity is confusional insanity. Fear and worry are two important causal factors. Antepreparation fear may become a postoperative phobia; yet, I do not believe that fear or sudden fright is usually responsible for postoperative insanity. Most people go to the operating room with reasonable calmness; many with heroic courage, and some with satisfaction at the prospect. Delirium may be mistaken for insanity, and is far more common, from intoxication or infection, than organic brain disease. The entire subject of postoperative psychoses is one of extreme interest and importance.

Postoperative Insanities

DR. EDWARD N. BRUSH, Towson, Md.: It may be assumed that there is no such thing as postoperative insanity *per se*. Insanity follows operations sometimes, but it manifests itself in various forms. The personal and family history in a given case are so difficult to obtain that we are not at all sure how far mental instability plays a part. This naturally arises from the lack of clinical experience in psychiatry on the part of many observers of these cases. Quite a large proportion of postoperative insanities are due to sepsis, not necessarily from faulty technique on the part of the surgeon. I have knowledge of a woman of unstable mental equilibrium who became insane after the administration of gas for the extraction of teeth and who remained insane for several months. Before we can study intelligently postoperative mental disturbances we must have the histories of our patients carefully recorded. From the lack of this knowledge the post-operative insanity is often erroneously attributed to the operation when in reality the condition may have been present preceding operation.

DR. HOWARD A. KELLY, Baltimore: Postoperative psychoses I believe are due to the mental shock of the operation *per se* and not necessarily to any particular kind of operation. The duration and severity of the procedure are minor factors. The condition is due rather to the attitude of intense expectancy, even of dread, inspired by a new and untried force with which the patient feels she has to cope. It is important that the physician should be able to inspire the patient with confidence sufficiently to enable her to feel that he is a moral support. The conditions after operation should be as natural as possible and the patient should be out in the sunlight upon the porch when practicable. Treatment should be prophylactic in determining the predisposing factors. The utmost care should be taken to minimize the unpleasantness of the operation.

DR. EDWARD MARTIN: I think every surgeon feels that when Dr. Mitchell said "the surgeon pulled the trigger" he practically covered the whole subject. We do not recognize that a perfectly healthy individual in good mental health can be made insane by any form of surgical intervention practiced at the present day. We do recognize certain postoperative mental disturbances as rather common. We see the type of depression which we call "hospitalism" of which the patient is cured by being sent out of the hospital. We see the type of homesickness and again the patient is cured by being sent home. We do not see the type in which the patient is depressed by the thought of loss of organs, and broods on a physical deformity.

DR. FRANCIS X. DERCUM: The great rôle played by neuropathy in postoperative mental disturbances should discourage operation in such subjects, except under circumstances of grave necessity.

DR. JOHN K. MITCHELL: Of 344 cases of general mental or nervous disturbances there were only thirty-one cases which could be called postoperative. There seemed to be no relation between the severity of the operation and the severity of the mental disturbance. Fright, I feel sure, plays a larger part than is generally attributed to it. There are good surgical reasons for getting a patient out of bed as soon as possible, but these troubles would be less frequent if the period of rest in bed were increased and general treatment instituted. Should the question of surgical treatment of a neurasthenic patient arise, much more than ordinary care must be observed in deciding on operation.

DR. CHARLES K. MILLS: Of many serious cranial operations under my observation I can recall perhaps only two or three in which insanity has followed the procedure. There have been very few also following operations on the spinal cord. In my experience these insanities have occurred in women of a certain temperament and of a certain predisposition rather than in the neurasthenic type.

DR. S. WEIR MITCHELL: The question arises concerning the result of the use of local anesthesia which has become so fashionable in some circles. I hear of abdominal operations done under local anesthesia. I think to have the interior of one's abdomen exposed to one's own view would tend as much as possible to produce some of the insanities of which we have been speaking. It is a fact that occasionally insanities have been cured by grave operations. One such case was an amputation. Another was an attempt on a man's part to cut his throat. The man bled almost to the point of death, but his life was saved, and he recovered from his insanity. I do not recommend the method. I have seen many cases in which sudden delirium or sudden delusion followed instantly on a gunshot wound. One case was that of a colonel who, after being shot, cried to his men to run, that the rebels were on them. He fell on his face, was delirious for some time, but after amputation of his arm, he returned to the regiment that evening. Another case was that of an officer in the Mexican War, a man of well-known courage. A ball struck his heel; he limped up and down the line calling to his men to run, that everybody was going to die, and for hours he was in a condition of the wildest maniacal excitement. This passed away within forty-eight hours. He asked for a court of inquiry which, of course, was denied a man so well known for courage.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Boston Medical and Surgical Journal

November 24

- 1 Technic of Operations for Stone in the Ureter. H. Cabot, Boston.
- 2 *Staining Capsulated Bacteria in Body Fluids. W. H. Smith, Boston.
- 3 Cancer of the Serotum. R. M. Green, Boston.
- 4 Technic of Arthrotomy. C. F. Painter and A. P. Cornwall, Boston.

2. Staining Capsulated Bacteria.—The following method of staining capsulated bacteria in body fluids has been found during the past two years, in Smith's hands, to yield more uniform results than any other:

1. Make a thin smear from fresh sputum, lung, pleural or pericardial exudate.

2. Pass through flame.

3. Cover with 10 per cent. aqueous solution of phosphomolybdic acid.

4. Wash in water.

If the microorganism is Gram-staining like the pneumococcus or streptococcus mucosus capsulatus, stain with:

5. Aniline oil gentian violet, steaming one-quarter to one-half minute.

6. Wash in water.

7. Treat with Gram's solution of iodine, steam one-quarter to one-half minute.

8. Decolorize with 95 per cent. alcohol.

9. Wash in water.

10. Stain with 6 per cent. aqueous solution of eosin (Grübler's w. g.) one-half to one minute, warming gently.

11. Wash in water.

12. Wash in absolute alcohol.

13. Clear in xylol and mount in Canada balsam. The capsule will be found to be distinct, clear cut, eosin-stained, about the Gram-stained microorganism.

If the microorganism is Gram-decolorizing, after covering the smear with phosphomolybdic acid and washing.

1. Stain with 6 per cent. aqueous solution of eosin from one-half to one minute, warming gently.

2. Wash in water.

3. Counter stain with Loeffler's methylene blue from one-quarter to one-half minute, warming gently.

4. Wash in absolute alcohol.

5. Clear in xylol and mount in Canada balsam.

The capsule will appear eosin-stained about the blue-stained microorganism.

Medical Record, New York

November 26

- 5 The United States Naval Medical School. H. G. Beyer, United States Navy.
- 6 Philosophic Anatomy of the Liver. E. Souchon, New Orleans.
- 7 Chemical Problems in Diabetes. A. Magnus-Levy, Berlin.
- 8 Tuberculin Treatment in Advanced Tuberculosis. F. A. Deal, New York.
- 9 *Preliminary Examination of Children at Dispensary as Means of Protection Against Contagious Diseases. S. Welt-Kakels, New York.
- 10 Practical Value of Positive Complement-Fixation Test in Syphilis. G. W. Vandegrift, New York.

9. Examination of Children at the Dispensary.—Kakels describes the method of preliminary examination of patients at the Mount Sinai Hospital which has been in use for two and a half years past. This is the first dispensary in the city which has initiated such a system, and the number of its patients is very large, indeed. As the patients pass in they go between rails and are sent by the orderly to a physician who examines the throat and skin of each child. If a contagious disease is detected the child is taken to an isolation room. Non-contagious diseases that need immediate treatment may also be detected. There is at present in all dispensaries a great lack of care in handling contagious diseases, and as at present conducted they aid in disseminating them. The dangers would be much lessened by a preliminary examination of all attending children, and as a sanitary safeguard it should be established in all institutions. Kakels concludes by stating:

1. There is at the present time an evident lack of prophylaxis in handling contagious cases at the dispensary.

2. As at present conducted, dispensaries contribute to the dissemination of infectious diseases among the poor by contact infection in the common waiting-room.

3. If not entirely eliminated, the danger of exposure is lessened by the preliminary inspection of children, a prophylactic measure which aims at an early detection and exclusion of contagious cases and "suspects" before entering the common waiting-room.

4. Preliminary examination of children has been conducted at the Mount Sinai Dispensary since April, 1907, with satisfactory results.

5. Its establishment in similar institutions is required as a sanitary safeguard and on the ground of public economy.

New York Medical Journal

November 26

- 11 Carbon Compounds of Arsenic in Treatment of Syphilis. S. C. Runnels, Indianapolis.
- 12 Chemistry of Cancer. S. P. Beebe, New York.
- 13 Hot-Air Treatment of Phagedenic Chancroid and Chancre. E. W. Ruggles, Rochester, N. Y.
- 14 *Introduction of Large Quantities of Gases Into the Circulatory Apparatus. C. B. Fitzpatrick and J. P. Atkinson, New York.
- 15 Clinical Statistics. I. S. Wile, New York.
- 16 Treatment of Symptoms in Hospitals. B. Robinson, New York.
- 17 An Improved Operating and Observation Endoscope for the Anterior Urethra. J. F. McCarthy, New York.
- 18 Acute Myelogenic Leukemia. J. A. Wolfer, Chicago.
- 19 Steps Toward the Prevention of Postoperative Exudates. W. E. Dicken, Oklahoma City.

14. Introduction of Gas Into Blood.—According to the general experience of investigators on this subject, a dose (from 60 to 100 c.c.) of air given at one time, constitutes the usual fatal dose, causing death almost instantly. Ninety-five cubic centimeters intrajugularly in Fitzpatrick's and Atkinson's experiments in untreated normal dogs always caused death instantly. After a number of experiments with the previous introduction of glycerin or olive oil into the femoral vein, to prevent foaming or churning after introduction of large quantities of air, they have found that the use of these substances is not necessary and they have obtained as good results without the use of olive oil or glycerin. The intravenous administration of 3.5 c.c. of a 50 per cent. solution of glycerin in normal salt solution in a 35-pound dog was followed by the rapid introduction of 28 c.c. of air (femoral) without any harmful symptoms or any trace of a kymographic disturbance. The next experiment, the dog weighing 10 pounds, was made to determine the toxic dose of glycerin when injected intravenously. The introduction of 7 c.c. of a 50 per cent. solution of glycerin in normal salt solution caused an immediate and marked drop followed by a slight rise in the arterial pressure. This was followed by another equally short drop in pressure, with heart paralysis. Respiration continued for a time and quite suddenly ceased. They believed at first that these experiments would be explained by supposing that an increased viscosity of the blood was acquired through the introduction of glycerin and olive oil, that these substances gave an increased tolerance for the presence of air in the blood-stream or that the oil acted on the blood mixed with air as oil on the breaking waves of the stormy sea, in that it prevented the bubbles or waves from breaking, and thus gave the heart a solid medium to compress on. But the experiments on the untreated dogs show these previous injections of glycerin or oil to be unnecessary. It would, moreover, appear to be probable that small amounts of air are absorbed in the blood-stream before it reaches the heart. The authors believe that they have found evidence that the adrenals play a very important rôle in enabling the lungs and the circulatory apparatus to eliminate the air introduced. It is apparent, moreover, that if the air is eliminated by this means it is possible that it is carried in by the same means.

Lancet-Clinic, Cincinnati

November 26

- 20 Surgery of Musculospiral Paralysis. A. H. Barkley, Lexington, Ky.
- 21 Thoracic Surgery. B. M. Ricketts, Cincinnati.

Virginia Medical Semi-Monthly, Richmond

November 11

- 22 Man's Inhumanity to Man. E. T. Brady, Abingdon, Va.
- 23 Diet in Tuberculosis. L. S. Peters, Silver City, N. M.
- 24 Diagnosis of Tubal Abortion and Rupture. C. E. Congdon, Buffalo, N. Y.
- 25 Tumors of the Serotum. O. L. Suggett, St. Louis.
- 26 Treatment of Wounds—Surgical Dressings and Applications. I. Sexton, New Orleans.
- 27 History of Electrocution in the State of Virginia. C. V. Carrington, Richmond.

Denver Medical Times and Utah Medical Journal, Denver

November

- 28 Studies of Feces. The Use of Carmin as an Indicator in Test-Meals. C. D. Spivak, Denver.
 29 The Owen Bill and Its Opponents. S. A. Knopf, New York.
 30 Bryonin. H. H. Redfield, Chicago.
 31 Stammering and Its Cure. E. D. Feldman, New York.
 32 Life of Jenner and His Work in Relation to the Public and the Physician. W. T. Hasler, Lehi, Utah.
 33 Rocky-Mountain Spotted Fever. W. Waugh.

University of Pennsylvania Medical Bulletin

November

- 34 *Sphygmographic Studies from a Case of Valvular Heart Disease. G. W. Norris, Philadelphia.
 35 *New Operation for Adolescent Hallux Valgus. J. K. Young, Philadelphia.
 36 *Auscultatory Method of Determining Blood Pressure. E. H. Goodman and A. A. Howell, Philadelphia.
 37 Experimental Investigation on the Inter-Relation of Some Bacterial and Body Enzymes, as Well as of Their Respective Antibodies. W. L. Croll, Philadelphia.
 38 New Filarial Species Found in *Heterodermia Suspectum*, and Its Larva in a Tick Parasite on the Gila Monster. A. J. Smith, Philadelphia.
 39 The Medical Side of Benjamin Franklin. W. Pepper, Philadelphia.

34. **Valvular Heart Disease.**—This was an ordinary case of double mitral disease of many years' duration, in an individual who subsequently became inane, with numerous attacks of broken compensation, but there are a number of interesting facts connected with the case. First, it was rather curious to note the way in which insanity returned and became progressively worse hand in hand with a most remarkable improvement of the patient's cardiac action and general physical condition. Secondly, the pulse tracings demonstrate graphically the manner in which digitalis slows the pulse and increases the pulse volume, and how it changes the hopeless irregular pulse of a nodal rhythm into an orderly, regular, and continuous bigemini form; and how, when it is pushed still further, it causes the second beat of each bigemini to drop out in the peripheral arteries entirely, thus producing a false bradycardia. When, however, the drug is continued beyond this point its effects are not so good. A tracing taken five days after digitalis had been withdrawn, shows the persistent effect of the drug in the latter two-thirds of the tracing, in which the heart has suddenly and without apparent cause changed to the bigeminal rhythm. This is also shown in a later tracing in which a bigemini which was still present six days after the withdrawal of digitalis suddenly disappeared during a period of voluntary apnea. The effect of digitalis in increasing tonicities—diminishing dilatation—is shown in a tracing in which the hitherto systolic retraction of the apex beat is changed into a systolic elevation. This change went hand in hand with a marked amelioration in the patient's condition. The action of the digitalis in producing bigemini is not an accidental one. It occurred in the present case on each occasion when this drug was administered in sufficiently long and large dosage; and disappeared each time that digitalis was withdrawn long enough to allow its physiologic effect to pass off.

35. **Adolescent Hallux Valgus.**—In the preparation of this paper 134 fresh skeletons of feet were examined by Young, to determine the relative frequency of this affection, as well as its etiology. The condition was found to exist in seven feet, and in these was found a peculiar change in the articular surfaces of the first tarso-metatarsal joint, which appears to be characteristic, and in some degree causative. It was also noted that there is often present in the first tarso-metatarsal joint in subjects afflicted with this deformity, a wedge-shaped supernumerary bone similar to, or related to, the inter-metatarsium described by Dwight. Young proposes an operation for its relief. The foot having been carefully prepared and rendered aseptic, a curvilinear incision, 3 inches long from the in-strap, the center of which is over the first metatarsal phalangeal articulation; the flexor hallucis tendon is retracted to the inner side, the joint is exposed by a Farrabouf periosteotome, and the triangular piece of bone is removed by means of a chisel. As there is one difficulty in recognizing the articulation, this is best accomplished by using a steel meter measure or a wooden tongue compressor which has been marked from the x-rays, the distance being taken from the distal end of the first metatarsal bone to the joint.

The removal of this triangular piece of bone leaves a space, which is corrected by placing the foot in a marked equinovarus position. A triangular piece of gauze is placed between the first and second toes and a pad is placed beneath the arch of the foot and a small straight wooden splint is placed along the inner side of the foot over the metatarsal phalangeal joint. The foot is secured in this position in plaster-of-Paris dressing and maintained for three months. In adults, the writer recommends the Wilson, Riverden, or Riedl's operation, according to the severity of the cases.

36. Abstracted in THE JOURNAL, Oct. 29, 1910, p. 1581.

Dominion Medical Monthly, Toronto

November

- 40 Colon Bacillus Infection of Genito-Urinary Tract in Infancy. A. L. Kendall, Vancouver, B. C.
 41 Tumor of the Brain. G. Chambers and G. A. Bingham, Toronto.
 42 Medical Thoughts, Fads, Fancies and Foibles. J. S. Sprague, Perth, Ont.

Journal of the Delaware State Medical Society, Wilmington

November

- 43 General Treatment of Tuberculosis. P. R. Smith, Wilmington.

Cleveland Medical Journal

November

- 44 *Special Field of Neurologic Surgery; Five Years Later. II. Cushing, Baltimore.
 45 *Epidemic of Diphtheria in a Convalescent Home for Children. R. G. Perkins and A. F. Furrer, Cleveland.
 46 Cerebrospinal Meningitis, Especially Diagnosis and Treatment. L. W. Ladd, Cleveland.
 47 Sero-Cyto-Diagnosis and Its Importance in Diagnosis of the Various Insanities. J. D. O'Brien and O. D. Tatje, Massillon, Ohio.
 48 *Malaria in Early Infancy. F. Beekel, Cleveland.

44. Also published in the *Bulletin of the Johns Hopkins Hospital*, November, 1910.

45. **Diphtheria Epidemic.**—The study of this epidemic by Perkins and Furrer emphasizes the importance of administering a prophylactic dose of antitoxin to all children on admission to a hospital; the necessity and value of taking cultures and making bacteriologic examinations; and the advisability of taking cultures from the nose as well as from the throat before discharging patients from quarantine. The nurse in attendance on a diphtheria case should not be discharged from quarantine until negative cultures have been obtained. Isolation, quarantine, disinfection and fumigation are found to be of little or no value in controlling an epidemic until a systematic search is made for latent infections among inmates.

48. **Malaria in Early Infancy.**—Beekel's patient was only 10 weeks old. He was a first-born child, had been breast-fed entirely and had been well except for the present illness. This began three weeks before, and had been marked by symptoms of feverishness, restlessness, quickened breathing, lessened desire for food, occasional vomiting and increased frequency of bowel movements. The infant was well-developed and well-nourished. His appearance was remarkable because of the extreme pallor; the normal skin tint was replaced by a lemon-yellow color and the visible mucous membranes were almost white. The breathing was from 50 to 60 times a minute with slight expiratory grunting and some movement of the ala nasi. There was no skin rash. The throat and mouth were negative. The chest examination was negative. The spleen was easily palpable and hard, and extended 3 cm. below the edge of the ribs. The liver was 3 cm. below the costal margin. There was no visible peristalsis, and the abdomen was not distended. Two small glands were felt in the posterior cervical region and one in the left axilla. The stool was of an orange-yellow color. The blood examination showed: hemoglobin, 30 per cent.; white blood-cells, 14,800; red cells, 1,600,000. Examination of stained specimens showed a very noticeable variation of size of the red corpuscles with poikilocytosis and polychromatophilia and nucleated red cells in large numbers, while the presence in many corpuscles of bluish-gray, pigmented, slightly irregular bodies solved at once the question of diagnosis. Hyaline forms of the parasite, early pigmented forms, a few filling from one-third to three-quarters of the infected red cell, pre-segmenting and segmenting forms numerous enough to be easily found were all present. Both father and mother of

the infant were found to have suffered from malaria, the father at the age of 15, the mother when 12 years old, but to have been free from symptoms for some years. The spleen in each of the parents was just palpable on deep inspiration. The child received quinin bisulphate in solution, 1½ grains, three times a day; syrup of the iodid of iron in 2-drop doses, three times a day, was prescribed at the second visit, and was continued to the end of the second month. The child recovered.

Journal of the Minnesota State Medical Association and the Northwestern Lancet, Minneapolis

November 15

- 49 Transactions of the Forty-Second Annual Meeting of the Minnesota State Medical Association.

Colorado Medicine, Denver

November

- 50 *Diccephalus Dibrachius*. W. W. Reed, Boulder, Colo.
51 Medical Nihilism. J. E. Peairs, Pueblo, Colo.
52 Atrophy of the Liver, Atrophic Cirrhosis of Spleen and Pancreas, and Fatty Degeneration of the Kidneys. H. G. Garwood, Denver.

Vermont Medical Monthly, Burlington

November

- 53 General Principles of Serotherapy. D. Marvin, Essex Junction.
54 Lumbar Puncture. C. H. Beecher, Burlington.

Archives of Pediatrics, New York

November

- 55 *Pyelocystitis in Infancy. E. B. Friedenwald, Baltimore.
56 Colon Infections of the Urinary Tract in Children. L. Porter and E. C. Fleischner, San Francisco.
57 *Orthopedic Treatment of Spinal Paralysis. F. Lange, Munich, Germany.
58 Clinical Significance of Lack of Development of the Pyramidal Tract in Early Infancy. B. K. Rachford, Cincinnati.
59 *Nitrogen Metabolism in Healthy (Artificially-Fed) Infants. B. B. Hoobler, New York.

55. **Pyelocystitis in Infancy.**—Friedenwald's study is based on a series of eighty cases, derived from a large foundling hospital; it is made up largely of young infants, many of whom suffer from nutritional disorders, and among whom infections, particularly influenza, are very common. In this series he found fifty-eight females and twenty-two males, tending to show that the disease is much more common among males than previously believed. The youngest child was 11 days, the oldest 22 months. Under one month there were three; from one to three months, twenty-five; from three to six months, twenty-two; from six to nine months, fourteen; from nine to twelve months, ten; and over one year, six patients. Fifty-four cases occurred between the first of December and the first of June. The months of May, February and March had respectively thirteen, eleven and ten patients, while June had none and October and November each three. The colon bacillus was demonstrated in a number of this series. The proteus bacillus was found twice, the *B. lactis aerogenes* once. During the year ending Feb. 1, 1910, there were twenty-two cases of pyelocystitis; one-half of these occurred in the months of November, December and January, during a severe epidemic of gripe. Fifty-nine of the cases were directly preceded by either some infection or an acute nutritional disorder, while only seven occurred under observation which were not preceded by a previous serious disorder. The fourteen remaining patients entered with this condition. Twenty-one cases were preceded by some infection of the respiratory apparatus, of which seven were influenza and two diphtheria; twelve others by otitis media, seven by alimentary intoxication, six by septic conditions, five by enteritis follicularis, four by stomatitis, two by active syphilis with profuse eruption, and one each by tuberculosis and vaginitis. Of twenty necropsies the kidney pelvices and bladder both showed pathologic changes in fifteen instances; three times the pelvices were alone involved, once the bladder alone, and in one instance there were no pathologic findings in the urinary apparatus, although the child had had pyuria six weeks previous to death. That the lesion can be a simple catarrhal inflammation which quickly heals was shown in a case in which the patient, developing a pyelocystitis after an alimentary intoxication and dying seven weeks later of acute tuberculosis, gave no pathologic findings in either pelvices or bladder.

57. Abstracted in THE JOURNAL, July 2, 1910, p. 48.

59. **Nitrogen Metabolism in Healthy Infants.**—The study of nitrogen metabolism, which Hoobler presents, is a portion of a larger metabolism problem which involved the determination of the nitrogen, fat, sulphur, magnesium and calcium in the food, urine and feces covering a nine-day period, divided into three periods of three days each. The child used for this study was a healthy, robust, vigorous infant of nine months, fed from birth on modified cow's milk, who was admitted to the hospital for operation for the closure of harelip. The child was fed on three different cow's milk mixtures. These involved the use of (certified) whole milk, fat-free milk and 16 per cent. cream, all of which were secured from the Walker-Gordon milk laboratory, and when modified represented a low fat, medium fat and a high fat formula. Specimens of each of the three types of milk were carefully analyzed. The child was kept on a definite formula at least two days before being put in the metabolic frame, and was kept three days continuously in the frame and given the same formula, so that the feedings were of five days' duration, while the metabolism experiment covered the last three days of the period. After each three-day period in the frame the child was given a rest for about ten days before being put into the frame again, during which time he was fed on Walker-Gordon certified whole milk. This period of rest gave the child ample time to recover his normal activities before going into the frame again. The urine was collected daily and the total nitrogen, urea, ammonia and kreatinin determinations were made the same day, as were also the tests for acetone, diacetic acid and beta-oxybutyric acid and total acidity. The urine was then placed on ice until the salts were analyzed. The feces were collected in daily quantities, except in two instances, when forty-eight-hour periods were collected, were dried over water bath, pulverized and passed twice through a No. 40 sieve and stored in glass containers until examined. The methods used for the nitrogen determinations with which this paper deals were the Kjeldahl method for total nitrogen, Folin's method for ammonia, Folin's method for kreatinin and Folin's method for urea. Controls were made and repeated when necessary. It was found that nitrogen is absorbed exceedingly well by healthy infants fed on cow's milk mixtures. The per cent. of absorption at varying ages is about the same, even though the intake of nitrogen per kilo differs greatly. Nitrogen absorption is carried on equally well under low, medium and high-fat feeding. The percentage of absorption varies little from day to day. The proportion of the food nitrogen which is retained is about one-third. The percentage retained is about the same for the three ages discussed. Retention takes place in about the same percentage, whether fed on low, medium or high fat. Percentage nitrogen retained remains about the same, whether fed on low, medium or high proteid. In high proteid feeding a larger amount of nitrogen is absorbed and eliminated, thus causing more "work" to be performed by the infant than on a lower proteid feeding. Body weight may diminish under a fair nitrogen retention. Nitrogen is largely eliminated through the urine. Considerably more than half of the nitrogen ingested is excreted in the urine. A very small quantity is found in the feces. The excretion of ammonia nitrogen was higher on "high-fat" mixtures than on "low-fat" mixtures.

Therapeutic Gazette, Detroit

November

- 60 Congenital Dislocation of the Hip. H. A. Wilson, Philadelphia.
61 Treatment of Typhoid Fever. B. N. Ghosh, Calcutta.
62 Effects of Hashish Not Due to Cannabis Indica. M. V. Ball, Warren, Va.
63 Rational Treatment of Acute Glaucoma—Iridectomy Empirical. A. Bray, Philadelphia.
64 Treatment of Fractures of the Shaft of the Femur—End Results. W. L. Estes, South Bethlehem, Pa.

West Virginia Medical Journal, Wheeling

November

- 65 The Betterment of the Medical Profession. T. W. Moore, Huntington.
66 Transverse Presentations. G. B. Miller, Washington, D. C.
67 Membranous Croup or Laryngeal Diphteria. R. U. Drinkard, Wheeling.
68 Typhoid. G. C. Rodgers, Elkins.

Iowa Medical Journal, Des Moines

November

- 69 Cerebral Decompression. L. W. Littig, Davenport.
70 Extra-Gastric Conditions Producing Gastric Symptoms. D. S. Fairchild, Clinton.
71 Differential Diagnosis of Pathologic Conditions in the Upper Abdomen. A. L. Wright, Carroll.
72 Surgical Conditions of the Right Lower Quadrant. G. E. Decker, Davenport.
73 *Acute Epidemic Poliomyelitis. C. E. Dakin, Mason City.

73. **Acute Epidemic Poliomyelitis.**—The author discusses in detail the symptomatology, diagnosis and treatment of acute epidemic poliomyelitis, including abortive measures. There is no apparent reason, he says, why inflammation should not yield to local depletent measures here as well as elsewhere. This can be accomplished in several ways, the first and most obvious being by thorough catharsis. This is best done with calomel and castor oil. Castor oil is the most efficient agent, aided by enemas containing glycerin and turpentine. Local counter-irritation may have some effect on the congestion and in connection with hot or cold packs should not be neglected. Among the drugs which act to reduce the spinal circulation the most efficient is gelseminum, which should be given in small but frequent doses, until the effect is marked, and continued until the motor excitation is controlled; in severe cases it may even be given until the eyelids droop and sight is perceptibly affected. The fact that after the administration of hexamethylenamin it may be demonstrated in the spinal fluid has led to its use in this disease. The only patient in this series who received it died within a few hours after its first administration and there has been no opportunity since to test it, but on theoretical grounds it would seem to be valuable.

Journal of the Tennessee State Medical Association, Nashville

November

- 74 A Leaf from the Catechism of Pediatrics. H. Hawkins, Jackson.
75 Ophthalmia Neonatorum, or Inflammation of the Eyes of the New-Born Infant. J. L. Minor, Memphis.
76 Purulent Ophthalmia. O. Dulaney, Dyersburg.
77 Transduodenal Cholecholestomy for Removal of Stones from the Duodenum and Distal Extremity of the Common Duct. F. D. Smythe, Memphis.
78 Suggested Changes in Standards in Medical Education. B. F. Turner, Memphis.
79 Treatment of Bronchopneumonia. E. W. Mabry, Meigsville.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

November

- 80 Present Status of Abdominal Cesarean Section. G. B. Johnston, Richmond.
81 Intrathoracic Tumor. W. S. Thayer, Baltimore.
82 Diagnosis of Duodenal Ulcer with Indications for Operative Treatment. J. H. Gibbon, Philadelphia.
83 Poliomyelitis from the Orthopedic Viewpoint. W. P. Mathews, Richmond.
84 The Problem of Visceroptosis. G. Baughman, Richmond.

Northwest Medicine, Seattle, Wash.

November

- 85 Principles in the Etiology and Treatment of Disease. J. M. Taylor, Boise, Idaho.
86 Spinal Anesthesia. C. C. Snyder, Salt Lake City.
87 Anterior Poliomyelitis in Idaho. G. E. Hyde, Rexburg, Idaho.
88 Diagnosis and Treatment of Hip-Joint Conditions. C. F. Eikenbary, Spokane, Wash.
89 *Treatment of Lateral and Posterior Curvatures of the Spine by Graded Forceful Correction. E. A. Rich, Tacoma, Wash.
90 Some Mistaken Diagnoses. N. W. Jones, Portland, Ore.
91 Tuberculosis of the Larynx. A. E. Burns, Seattle, Wash.

89. **Curvatures of the Spine.**—Seeking a means of lateral suspension Rich constructed a frame, in which he can suspend a patient in a horizontal position, and is enabled to apply a plaster corset. The main upper shaft of the frame is provided with several sliding collars, each bearing pulleys and rope. A platform is provided for preparation at a lower level. Anyone could extemporize the affair with several pulleys attached to the ceiling. The patient when stripped in preparation is laced on the platform on his side, having the side of the greatest convexity down. With a piece of canvas four or five inches wide the body is raised from the platform with the pull against the main spinal curve. With the body weight thus suspended on a fixed point, that part above the fulcrum and that below have enough potential from their own weight more or less to correct the deformity. The point of the maximum curve is marked and the body suspended from that point. When the spinal curve is low dorsal, the

head will have to be likewise supported. Thus, when all is in readiness and the suspension is enacted, most of the body weight will be pendant laterally at the maximum point of the curve. By thus supporting the weight of the torso in these hammocks the following things are accomplished: 1. There is correction of rotation from pressure on the ribs. 2. The wide diameter of the chest on the side of the curve, known as the "rotation," is narrowed by being compressed into the angle and two sides of V-sling. 3. After one or two hours of suspension, while the muscles are being overcome, there is evolved enough potential from the weight of the parts of the torso above and below the point of suspension to enforce powerful correction of the deviation of the spinal column. 4. The torso, without hampering appliances, is forced into a position of correction suitable for the application of a retentive apparatus. For several days Rich suspends the patient for an hour or two to accustom him to the correction before splints are applied continuously. He has been substituting for the cast a plaster "figure-of-eight," which maintains pressure on the great dorsal curve by counter pressure on the compensatory cervical curve and on the pelvis. This splint might accomplish its purpose by encircling the one side of the pelvis, but it is borne much better if both hips are included. When putting these casts on, Rich applies the plaster bandages liberally about the body as we used to in putting on the old jackets, taking pains to reinforce well over the track of the figure eight. When the plaster sets all the unnecessary areas are trimmed off. This splint gives a means of very good retention and allows free respiration and suggests further correction. In posterior curvatures the patients are suspended at the point of the greatest deflection, lying on their backs, allowing, however, several hours to elapse before applying the corset to insure muscular relaxation and consequent correction.

Ophthalmic Record, Chicago

November

- 92 Sporotrichosis of the Eyeball and Eyelids. H. Gifford, Omaha, Neb.
93 Education of Marie Heurtin, Deaf, Dumb and Blind from Infancy. S. H. Brown, Philadelphia.
94 A Hookfront Binocular Magnifier. W. Reber, Philadelphia.
95 Long-Continued Use of Strychain in Toxic Amblyopia. E. M. Blake, New Haven, Conn.
96 A Simple Device for Pneumomassage of the Eye. J. W. Dunn, Cairo, Ill.
97 Anisometropia. C. W. Kollock, Charleston, S. C.

Medical Herald, St. Joseph, Mo.

November

- 98 Terminology and Significance of Arthritis. G. H. Hoxie, Kansas City, Mo.
99 *Plaster of Paris as a Universal Dressing in Fractures of the Lower Extremity. H. W. Orr, Lincoln, Neb.
100 Tumor of the Temporoparietal Lobe. G. A. Young, Omaha, Neb.
101 A Day's Medical Practice in Egypt. D. L. Askren, Fayum, Egypt.
102 Early Diagnosis of Tuberculosis in Children. B. W. Toothaker, St. Joseph.

99. **Plaster of Paris as a Universal Dressing.**—Orr has been using a modified method of applying plaster of Paris which he believes fulfills all the requirements of successful fracture treatment. The results in his own cases have been such as to justify a recommendation of its wider use. The method consists of applying plaster to the fractured extremity in the following manner. Plaster bandages are first applied over a suitable protective dressing like sheet wadding to include the foot and extend up to within a few inches of the point of fracture, whether in the leg, thigh or hip. When this is well set, firm traction is made on the finished portion of the cast; if there is a tendency of the upper portion to sag, it can be supported at the point of fracture, while the upper end of the cast is applied, beginning within a few inches above the point of fracture and extending to the hip in case of leg fracture or up to the thorax in case of any fracture of the femur. This upper portion of the cast is now also allowed to set and the cast is complete except at the point of fracture. The relation of the fragments of bone can now be determined and the third part of the cast applied. When this has set, immobilization is perfect and the traction which has been kept during the application of the last section of the cast is maintained as permanent traction. Any degree of traction can be obtained in applying plaster in this way. The objection

usually urged to the application of this form of cast is that allowance must be made for swelling of the parts; if such allowance must be made, it can be accomplished by the use of sheet wadding or some other material under the plaster. Orr believes that when good traction and immobilization are obtained so much allowance need not be made for swelling. Most of the swelling which follows an injury of this character is the result, not of the injury itself, but of failure to secure fixation of the injured part. When there is failure to secure immobilization, there is continued irritation and continued pain and also constant swelling. If the injured extremity is put entirely at rest there is little or no pain and but little swelling. Of course certain injuries are associated with fractures which produce a considerable reaction, but fractures of the hip, thigh and leg, unless accompanied by severe injuries of the soft parts, seldom produce severe swelling. He firmly believes that plaster of Paris combined with a reasonable degree of professional care and skill can be used in any fracture or injury of the lower extremity, and that nothing can be accomplished with any of the usual mechanical appliances or splints recommended for this purpose, but that can be obtained more easily and more satisfactorily with plaster of Paris.

Journal of Ophthalmology and Oto-Laryngology, Chicago

November

- 103 Anatomically Misplaced Puncta. C. W. Hawley, Chicago.
104 Prevention and Treatment of Sympathetic Ophthalmia. M. R. Dinkelspiel, Wilkesbarre, Pa.
105 Malignant Tumors of the Throat Arising from Syphilitic Cicatrices. C. M. Robertson, Chicago.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Practitioner, London

November

- 1 Pyometra. H. Croom.
2 Use of Plates and Screws in the Operative Treatment of Fractures. W. A. Lane.
3 Modern Treatment of Rheumatism. W. Murrell.
4 Congenital Hypertrophic Stenosis of the Pylorus. J. H. Nicoll.
5 *Etiology, Treatment and Pathology of Venereal Diseases. J. E. R. McDonagh.
6 Clinical Aspect of Intussusception. J. E. Adams.
7 Vicious Circles in Diseases of the Eyes. J. B. Hurry.
8 *Treatment of Vomiting Following Chloroform Anesthesia, Including the Use of Adrenalin. J. W. Keay.
9 *Open Method of Liber Administration. G. A. H. Barton.
10 State Prevention of Tuberculosis. D. Mulloy.
11 Primary Diptheria of External Urinary Meatus. A. Howell.
12 Pulmonary Edema and Death. H. Matthews.

5. Venereal Diseases.—Of twenty patients treated by McDonagh with Ehrlich's "606," in only one was there albuminuria, which appeared a few days after the injection but did not last longer than twenty-four hours. Two individuals had a localized toxic edema of one buttock, which quickly resolved under frequent applications of lead lotion.

8. Treatment of Vomiting After Chloroform Anesthesia.—In Keay's opinion the cause of this vomiting varies in almost every case, and generally both the central nervous system and the stomach are at fault. The derangement may be chiefly central or chiefly local, but there is always some combination of the two. In very severe cases interference with the functions of the liver and general metabolism may be the cause. A nervous patient who has had a minor operation with short anesthesia feels violently sick, and the strenuous efforts to vomit can be distinctly heard through a closed door. A little mucus is the result. If an enema of bromid and chloral be given the violent retching ceases as the feeling of nausea disappears. If the patient has not been properly prepared for the anesthetic by low diet and tonic treatment, nausea and vomiting come on early, usually during the administering of the chloroform, and ceases, or are lessened in severity, when the stomach is emptied. This proves that with chloroform anesthesia the stomach is made irritable and wants rest. The rational treatment, therefore, for ordinary cases is: give nothing by the mouth for twenty-four hours till Nature has reasserted herself. Any foodstuff, however readily digested, if introduced into the stomach, will further

irritate that organ. Thirst, which may be complained of, can be assuaged by saline enemata. When the tongue and mouth feel dry, rinsing out the mouth with aerated soda-water or lemon-water, either hot or cold, will relieve the condition.

The vomiting tends to be more severe when the anesthesia has been prolonged. The treatment for such cases is long draughts of strongly alkaline solutions aided by counter-irritation over the epigastrium. Bicarbonate of soda dissolved in hot water may be given by the tumblerful. Hot fomentations, poultices with or without mustard, blisters, or an ice-bag are all efficient counter-irritants for the epigastrium. Of these, hot fomentations or a light poultice are the best. It is often found necessary to use some medicinal means to cure the gastritis. Keay has found that a mixture of dilute hydrocyanic acid, bismuth and soda acts very well, and in some patients with a foul tongue, powders of rhubarb, bismuth and soda are useful. In all major gynecologic operations, attended with some degree of shock, whether due to excessive exposure of the abdominal contents, to great loss of blood, or to sepsis, the complicating effects of the anesthetic are more pronounced. After most abdominal operations flatulence is relieved by giving salines by rectum, from one pint to one quart every four hours, a rectal tube being left *in situ* for an hour or so between times. Rubbing the abdomen adds to the comfort of the patient; more vigorous treatment may be required, such as turpentine enemata. If the violent sickness still persists on the second day, castor oil or magnesium sulphate should be given by the mouth. Although these drugs are most often rejected a certain quantity stays down and will do good. If the bowels do not act in six hours an enema of soap and water will prove effectual. Peristalsis, which is failing under the stress of the constant sickness, can be sustained by rectal enemata of brandy and water and sips of brandy by the mouth.

When the vomited matter is hemorrhagic and resembles beef-tea dregs or coffee grounds, the patient should be stimulated by copious draughts of hot soda solution, and in addition a solution of adrenalin chlorid, m v to m x, in a teaspoonful of water, should be given by mouth. It stimulates the muscles of the stomach walls, blanches the dilated capillaries, and sets up regular rhythmical contractions of the stomach, which causes its contents to follow their natural course and to flow on into the duodenum. For the collapse accompanied by an exceedingly rapid pulse which sometimes ensues in cases of protracted and exhausting vomiting salines and general stimulants are much more effectual than cardiac stimulants even in very large doses.

9. Open Method of Ether Administration.—Barton has devised an inhaler which does away with the drop bottle and only permits the passage of air over the ether during inspiration. It is made of metal and consists of a chamber with an attachable face-piece. The chamber is cylindrical, being open at the top and having another opening about the junction of the middle and lower third communicating with the face-piece. It is lined with lint which is held in place by a clip. The lint dips down into the ether contained in the well at the bottom of the chamber; the amount of ether capable of being conveniently held in the well is about 2 ounces. This is continuously soaked up by the lint, which presents an evaporating surface of twenty or more square inches. The face-piece is of the Roth-Drager type and is fitted with an expiratory valve. This may be dispensed with in cases where valves are deemed inadvisable, or may be fixed in one of two positions, either between the chamber and face-piece, or into a metal cap which is made to fit the opening at the top of the chamber. The latter position gives a stronger vapor. As designed, the apparatus is intended for use with the patient's face turned to one side. Owing to the rotation of the face-piece on its attachment to the chamber it is equally available for a right or left position of the face. For the few cases in which an upturned face is necessary, Barton has added an angle-piece for joining the chamber and face-piece. Another accessory is a pneumatic pad for use with the face-piece on patients on whom it will not otherwise fit accurately.

Australasian Medical Gazette, Sydney

October

- 13 Prevention of Tuberculosis. D. A. Welsh.
- 14 Cause, Effect, Incidence and Prevention of the Pneumokoniosis of Quartz-Miners. J. S. Purdy.
- 15 Medical Inspection of Schools. J. S. C. Elkington.
- 16 Paraplegia. W. Love and C. Butler.
- 17 Radium. L. H. Harris.
- 18 Congenital Cystic Lamphangioma of the Neck in a Child. T. Flaschi.
- 19 Vaccine Therapy of Diphtheria. P. E. W. Smith.
- 20 Repeated Prolonged Apnea in an Infant, Without Apparent Cause. E. S. Littlejohn.
- 21 Pregnancy in Uterus Bicornis Unicollis. H. H. Marshall.

Glasgow Medical Journal

November

- 22 Diagnosis and Treatment of Syphilis. R. Muir.
- 23 Three Modern Poisons: Atoxy, Veronal and Bismuth Subnitrate. F. Kaungrasser.
- 24 *Treatment of the Insane. H. F. Watson.

24. **Treatment of the Insane.**—During thirteen and a half months, treatment of the insane without the use of sedatives has been tried at the Renfrew District Asylum, Dykebar, near Paisley. The number of patients admitted during the thirteen and a half months was 304, of whom 148 were men and 156 women. There were eleven deaths (six men and five women); a necropsy was obtained in every instance. An unusually large number of cases of dementia were admitted. This is due to the fact that 66 per cent. of the admissions were of patients transferred from other asylums; the remaining patients were direct admissions. Since the opening of the asylum on April 8, 1909, no sedative of any sort has been given, no form of restraint has been employed, no patient has been under seclusion, no case of suicide has occurred; there was but one major accident, and when it occurred two attendants who were suspected of negligence were summarily dismissed. The results have been sufficiently satisfactory without sedatives, and this method of treatment has afforded an opportunity of seeing cases under circumstances different from the usual in an asylum. Watson condemns the habit of giving sedatives in quantity and over prolonged periods to patients who evidently are able to do quite well without.

On admission to Dykebar Asylum, the usual treatment in every acute case, unless contraindicated, is the following: Hydrargyri chloridum mitis—calomel—(6 grs.), followed in four hours by magnesium sulphate (6 drs.). Afterward such patients get a mixture containing pulvis rhei, sodium bicarbonate and hydrargyri chloridum mitis. This is made up in bulk and 1 teaspoonful given thrice daily, the dose of calomel being 3 grains a day. Every morning the patient gets a soap and water enema, which is made up with soft soap, as this is considered less likely to produce a rash. This treatment is carried out till all signs of gastritis, intestinal disturbance (even constipation), with toxic absorption have disappeared.

In certain cases the patient seems to approach a comatose condition after an enema; this is due to the fact that the enema washes away adherent mucus (often in catarrhal layers) from the intestinal wall, and allows more free absorption of the toxins which are present. To prevent this, oleum eucalypti, 5 minims, added to the enema has been found to lead to rapid improvement. Bleeding has been found of use in acute conditions of insanity. A needle is inserted into the median basilic vein, and 10 c.c. of blood are drawn off, 20 c.c. of a 0.85 per cent. saline solution being then injected, this treatment being repeated every second day. This seems to be much more effective than administration of diuretics, and has the advantage of acting at once. When there is atony of the intestine it is well to give tincture of nux vomica, 5 minims, thrice daily, and to keep this up for from four to six weeks. When a sedative has been continued over a period of years the resistance of all the tissues is lowered.

Journal of Laryngology, Rhinology and Otology, London

November

- 25 Anatomy of the Capsule of the Tonsil, and Its Significance in Treatment of Diseases of the Tonsil. G. S. Hett.

Annales de Médecine et Chirurgie Infantiles, Paris

November I, XIV, No. 21, pp. 653-688

- 26 *Infantile Scorbutus. (Maladie de Barlow.) A. B. Marfan.
- 27 *Non-Tuberculous Pyosalpinx in Virgins. P. Bégonin.
- 28 *Eczema in Infants. C. Rocaz.

27. **Non-Tuberculous Pyosalpinx in Virgins.**—Bégonin has encountered a number of cases of inflammation of the Fallopian tubes consecutive to appendicitis in virgins, but an actual pus-tube from this cause is comparatively rare. The suppurating appendix was in contact with the right tube in one girl of 16, and he removed both together. In two patients, virgins of 16 and 32, he found actual pus-tubes, bilateral and closed, non-tuberculous, and resembling in every respect those found in married women. An ovarian cyst had been diagnosed in one of the cases and in the other there were evidences of recurring appendicitis. Microscopic examination excluded tuberculosis and only anaerobic germs were found. He has been unable to find any record in the literature of such closed bilateral pus-tubes in virgins, but he has found records of peritonitis consecutive to pyosalpinx in little girls and older virgins. Riedel reported that in nine out of forty-nine cases he found a pyosalpinx instead of the anticipated appendicitis as the cause of the peritonitis requiring operative treatment in little girls under the age of 10 and in two virgins, out of 348 laparotomies for peritonitis in women. The infection occurred probably by way of the vagina and uterus in Bégonin's cases at least, both the patients having noticed leukorrhœa for some time, the secretions being brownish and malodorous in one case.

28. **Eczema in Infants.**—Rocaz does not attempt local treatment of eczema in infants unless the child is vigorous and healthy. But dietetic and other measures to reduce production of toxins and to facilitate their elimination, and organotherapy to supplement insufficiency of certain glands with an internal secretion, benefit the general health and the eczema frequently subsides under them alone. External measures should be applied very cautiously, especially if the eczema is of large extent. Only a small area should be treated at one time and very mild applications should be used at first, the general health being watched all the time. It is important to cure the eczema, he adds, on account of its injurious influence on the nervous system and general health, and the way the skin lesions invite infection. The first indication is to get rid of all scabs and they can be softened with sterilized oil or with potato poultices applied for two or three days; the poultices are soothing in the very irritable forms. The same results may be obtained with gauze compresses under rubber tissue. Simple eczema does not require antiseptic dressings but in the impetiginous form very mild antiseptics may prove useful, mercury bichlorid 1 per 10,000 or per 5,000 or a mixture of 2 parts each of zinc and copper sulphate in 900 parts water. Phenol, he states, should never be used; infants seem particularly sensitive to its toxic action. The surface once cleansed, a mild, soothing salve is needed, vaselin with zinc oxid or lard with benzoin or, if there is much secretion, a dry dressing with a powder made of 30 parts talcum, 10 parts bismuth subnitrate and 5 parts zinc oxid. With this the lesion is kept constantly covered until the scab becomes too thick, when it is softened anew with a potato cataplasm and the dry treatment then recommenced. To keep the children from scratching face and head, he slips a pasteboard cuff over each arm, with the cuff wide enough to let the children bend their elbows sufficient to play with their toys, but the elbows cannot be bent enough to reach the face. Bathing does more harm than good, he continues, as it exaggerates the skin trouble, and is liable to spread the infection to points still free from lesions. Baths should be given very cautiously and briefly. The same dietetic and hygienic measures should be enforced for the woman nursing the child as for the child itself. A change of wet-nurse seldom does any good after the eczema is once well established. The food should be supervised with special care to reduce all chances of infection or intoxication. The substitution of asses' milk for cow's milk was followed by the subsidence of very extensive eczema in one case in his experience, and it has often aided in the cure in other cases. Thyroid treatment has proved effectual in a number of cases in the last two years, while in other cases no effect was apparent. In the cases benefited there was usually a history of a digestive intoxication or some cachexia. Under the thyroid treatment there is usually an acute exacerbation which gradually subsides and by the

end of a fortnight the skin begins to look normal and a week or so later, the eczema is cured or much attenuated. In a few cases the eczema seemed to be aggravated by the thyroid treatment; it should certainly be reserved for the torpid cases, Rocaaz declares, but when the eczema has resisted all ordinary measures, including the dietetic and hygienic, a trial of thyroid treatment is justified and benefit may result. It is harmless, he states; he gives the thyroid in substance and he has never witnessed any mishaps although he has applied it in a very large number of cases and over long periods in some of them. This thyroid organotherapy has proved useful for fat babies with an inherited rheumatic taint, as this "arthritic diathesis" is liable to be accompanied by thyroid insufficiency.

Presse Médicale, Paris

November 2, XVIII, No. 88, pp. 817-824

29 *Efficiency of Roentgen-Ray Treatment of Uterine Fibroma. II. Bordier.

November 5, No. 89, pp. 825-830

30 Treatment of Simple Hare-Lip. V. Veau.

31 Persistence of Protozoan Infection in the Nerve Centers. A. Thiroux.

29. Radiotherapy of Uterine Fibroma.—Bordier gives illustrations of the findings in three cases in his extensive experience in which uterine fibroma shrunk under the influence of Roentgen-ray exposures. The best results were obtained with fibromas of comparatively recent development, irrespective of the age of the patient, especially large fibromas extending to the umbilicus and not over five or seven years' growth, and with small fibromas causing considerable hemorrhage. He uses an aluminum filter and exposes the region of the ovaries and also the median line, in turn, with an interval of a day's rest. The total dose for each of the three regions is about 4.5 units under the filters; a three weeks' rest is then imposed. The menopause follows after two or three series of this kind.

Semaine Médicale, Paris

November 9, XXX, No. 45, pp. 529-530

32 *Clinical Diagnosis of Tuberculous Appendicitis. F. Lejars.

32. Tuberculous Appendicitis.—Lejars reports several cases of acute tuberculous processes in the appendix with or without tuberculous or ordinary peritonitis. The patients were between 20 and 32 and the feature common to all was the distention of the abdomen ushering in and persisting after the acute symptoms. In other cases the appendicitis was an ordinary inflammation but was embedded in a focus of tuberculous peritonitis. In another group of cases an acute tuberculous peritonitis simulated ordinary appendicitis. In one such case the incision in the iliac fossa showed that the omentum, cecum and appendix were studded with milium granulations, but there was no ascites or abscess, and he sutured the abdomen without removing anything but a scrap of omentum for microscopic examination. Contrary to expectations, this exploratory laparotomy seemed to usher in a turn for the better. In this tuberculous peritonitis with localization mainly in the iliac fossa the acute phase is often brief, the pulse remains good and the temperature drops soon, in marked contrast to the great distention of the abdomen suggesting diffuse peritonitis. Evacuation of the ascites and removal of the appendix at need will generally arrest the acute phase while exerting a beneficial influence on the tuberculous peritonitis as a whole. Chronic tuberculosis in this region should be suggested by the contrast between the size and extent of the non-limited tumor in the iliac region and the absence of fever and of any noticeable reaction. As ites should also suggest a tuberculous process, especially if persisting. Differentiation is important on account of the prognosis.

Beiträge zur Klinik der Tuberkulose, Würzburg

XIII, No. 3, pp. 281-386. Last entered Nov. 5, p. 1688

33 *Experimental Research on Tuberculous Immunity and Prophylaxis. P. H. Römer and K. Joseph.

33. Experimental Research on Tuberculosis.—This entire issue of the *Beiträge* is devoted to the report of years of research at the Institute for Hygiene and Experimental Therapy at Marburg, bearing on the questions of reinfection with

tuberculosis, experimental infection of suckling animals with tuberculosis and resulting immunity, the nature of immunity to tuberculosis and studies of antibodies, the etiology of pulmonary phthisis and the practical means to combat the spread of tuberculosis, and research on the various tuberculin reactions and on hypersusceptibility to tuberculin. These questions have been studied in experiments with guinea-pigs and sheep; the latter were found peculiarly adapted for the research. The main fact which Römer and Joseph were trying to establish and which they now affirm has been demonstrated beyond question, is that one infection with tuberculosis confers a certain protection against further infection from the tubercle bacillus. Among their other conclusions is one to the effect that in the circles where tuberculosis is most prevalent scarcely any child escapes the infection. Consequently pulmonary tuberculosis in the adult develops in the overwhelming majority of cases in an organism already infected since childhood. There is every reason to assume, they say, that the law which governs tuberculosis in animals applies also to man, namely, that infection with tuberculosis confers immunity to further tuberculous infection to the extent that small amounts of the infecting virus have no action on the already tuberculized system but rebound, making no impression. When large amounts of the infecting virus come into play this protection is inadequate to save the individual completely, but the superposed infection is modified so that it does not assume the form of galloping consumption as in the previously non-infected but runs its course as chronic pulmonary tuberculous disease. One of the practical consequences of this view is that it is important to distinguish between tuberculous infection and actual tuberculosis. Much would be gained, they declare, if efforts were directed more to prevention of phthisis rather than prevention of tuberculous infection. To combat consumption effectually requires prevention of infection in children or prevention of the possibility of massive reinfection, additional infection. Efforts to combat the spread of tuberculosis should be concentrated more on the children to save them from the threatening infection against which they have as yet no specific means of defense. The "inherited taint" is nothing, the authors declare, but the severe infection acquired in the tuberculous family during early childhood. As no source of tuberculous infection could be discovered for half of the children who gave a positive response to the tuberculin test in Hillenberg's research, it seems evident that the tuberculous virus exists in some mild permanent form in countries where tuberculosis has long been endemic, and permits what Andvord calls a beneficent vaccination against the disease. Experiences with cattle have shown that the strictest hygiene has no influence in preventing the spread of tuberculosis among them. There is only one thing that will do this, namely, the separation of the diseased from the well animals. Everything points to the importance of concentrating our efforts on the child, keeping it away from all contact with tubercle bacilli-sowing consumptives either by removing the child from contact with the consumptive, or by isolating the consumptive, or maintaining at least a relative isolation. Römer and Joseph suggest the possibility of conferring immunity on children by appropriate vaccination and thus arming them directly against the bacillus. This protective vaccination has been successfully worked out for guinea-pigs but it is another question whether it would prove equally harmless and equally effectual for human beings, and whether its application would ever be practicable.

Correspondenz-Blatt für Schweizer Aerzte, Basel

November 1, XI, No. 31, pp. 1025-1064

34 *The v. Pirquet Tuberculin Reaction in the Non-Tuberculous. F. Dumont.

34. Cutaneous Tuberculin Reaction in the Non-Tuberculous.—Infants with eczema seem to respond to the v. Pirquet skin tuberculin test, even when they are apparently free from tuberculosis, and this excessive sensitiveness to the test is sometimes encountered under other conditions. A second inoculation will generally clear up the diagnosis, as the really tuberculous are liable to give a stronger reaction the second time, while in the non-tuberculous the second attempt elicits

a much weaker response, if any. The skin is sometimes found insensible to the action of the tuberculin; this is encountered most frequently in young infants. In a few cases on record the child responded with such intensity to the skin test that ulceration followed, and Karrer reports a case of this kind from his own experience. The patient was a boy of 13 who had lost his appetite, looked bad and tired easily but there were no local findings in the lungs or glands and no cough. The inflammatory reaction to the v. Pirquet inoculation of tuberculin was unusually intense, the arm swelled and ulcerated, the nostrils showed eczematous infiltration and the eyes were inflamed for a few days. By the end of three weeks a diffuse itching erythema developed, soon followed by more papulo-necrotic processes. The new papules that formed looked like the primary Pirquet papules, and the whole syndrome was evidently the result of a specific hypersusceptibility on the part of the skin. This case resembles the two reported by Bruck in lupus patients who developed a morbilliform eruption a few hours after the v. Pirquet test had been applied. The eruption recurred again after a second inoculation a week later. In the second case the reaction to the test in a boy of 8 was the ordinary positive response, but a second injection a week later elicited an eruption resembling that of scarlet fever, with conjunctivitis and swelling of glands. The exanthem gradually subsided with desquamation. Animals injected with the blood of these patients, followed by injection of tuberculin, rapidly succumbed, confirming the assumption that the explosive reaction was due to a specially large proportion of anaphylactic antibodies in the blood of these two patients.

Deutsche medizinische Wochenschrift, Berlin

November 3, XXVI, No. 31, pp. 2033-2089

- 35 Goiter. (Diagnose und Therapie des Kropfs.) E. Enderlen.
- 36 Quinquaud's Sign. (Zur Würdigung der Quinquaudschen Fingerkrepitation.) P. W. Fürbringer.
- 37 *Ehrlich's "606" in Syphilis. K. Zieler.
- 38 Continuous Intravenous Infusion of Adrenalin. E. Koll.
- 39 Colon Bacilli on Food, Etc. (Nachweis des Bacterium coli in der Aussenswelt, besonders auf Nahrungsmitteln.) G. Neumann.
- 40 Dysentery Y Bacillus in Intestines and Liver of Former Bacillus-Carrier. G. Brückner.
- 41 Symphysis Clamp for Symphysiotomy. E. Frommberger.

37. Ehrlich's "606" in Syphilis.—Zieler mentions that hemoptysis seemed to have been brought on by the injection of "606" in a case of secondary syphilis with concomitant apical tuberculosis, and he warns that this possibility should be borne in mind. In tertiary syphilis the action of the new remedy did not seem to surpass that of mercury, and in some cases was distinctly inferior. Its special field, he thinks, will be in cases refractory to mercury, but here the "606" is liable to fail also. With recent syphilis the "606" seems to act more rapidly and with greater intensity than mercury, he says, and the fact that it is impossible to kill all the spirochetes at one stroke is of minor importance. Ehrlich's hope that this might be accomplished has already been realized with relapsing fever.

Medizinische Klinik, Berlin

November 6, VI, No. 45, pp. 1767-1806

- 42 Practical Importance of Manic-Depressive Insanity. R. Thomson. Concluded in No. 46.
- 43 *Operative Treatment of Constipation. R. Goebell.
- 44 *Closed Tuberculous Hydronephrosis. F. Kroiss.
- 45 *Ehrlich's "606" in Syphilis. W. Fischer.
- 46 Benzidin Test for Blood. (Zum Nachweis geringer Blutmengen mit der Benzidinprobe.) J. H. Greeff.

43. Operative Treatment of Constipation.—Goebell states that he at first regarded valvotomy in treatment of constipation as another example of "American humbug," but has since found that this operation has a logical basis, and during the last two years has applied the method in six cases, slightly modifying Gant's valve-clamps, so that they can be held better by the rear and can be applied slanting at need. In his first five cases the abnormal development of the rectal valves readily explained the difficulty in rectal functioning and the division of the valves put an end to the chronic constipation. The patients were three men between the ages of 20 and 47 and two women between 21 and 27. In another case, in a woman of 26, four valves were seen in the rectum. A movable cecum was first corrected and then one of the

four valves in the rectum was divided with the actual cautery. The constipation is much improved but there is still an occasional tendency in this direction. He advocates operative treatment of anomalies in the position, length and size of the large intestine, as all such anomalies are fraught with grave dangers, volvulus being liable to develop at any moment with a movable ascending colon or unusually large colon. He recently had to operate on a woman of 75 for torsion of an abnormally long sigmoid flexure, showing that age is no protection against this eventuality. In two cases he corrected an abnormally movable ascending colon and right flexure by fastening the posterior wall of the bowel to the parietal peritoneum. In three other cases he corrected conditions merely by dividing congenital peritoneal cords binding down the flexure. In one case the intestines became occluded from adherence of the omentum to the spleen after typhoid; in another case adhesion of the omentum to the spleen and diaphragm caused a train of symptoms diagnosed as cancer. The defect left by releasing the omentum was remedied by suturing the gastrocolic ligament over the defect and suturing the appendiceal epiploica to the stomach in place of the gastrocolic ligament. There has been no recurrence of the previous chronic syndrome which included alternating constipation and fetid diarrhea and colic. Reoccurring colic-like pains or local tenderness relieved by defecation point to some hindrance to the permeability of the bowel, and the favorable results reported above encourage, he thinks, exploratory laparotomy when nothing can be found otherwise to explain the chronic constipation. He is inclined to advise appendicectomy in every case of constipation with pains in the ileocecal region, even when the appendix is apparently sound; any tendency to undue movability on the part of the colon or abnormal size of the sigmoid flexure is revealed by the incision.

44. Tuberculous Hydronephrosis.—In the case reported by Kroiss a young woman complained of pain in the right knee radiating to the groin but seemed otherwise in good health; the urine was normal. The physician examining her discovered a large tumor in the right side of the abdomen of whose presence the patient was entirely unaware. Operation revealed a closed right hydronephrosis with tenacious adhesions; in removing the kidney it tore, flooding the wound with nearly two liters of fluid. The microscope revealed signs of tuberculosis in the kidney, and generalized miliary tuberculosis soon developed, proving fatal in two months after the operation. There had been nothing to indicate tuberculosis in this case before the operation, everything indicating a closed aseptic hydronephrosis. If the possibility of tuberculosis had been thought of, the sac might have been drained by puncture before the nephrectomy was attempted, and thus the wound would not have become contaminated with the infectious fluid. Krauss has reported a similar case but no general infection resulted; Rochet has recently reported three cases of tuberculous wound infection during nephrectomy, but the ultimate outcome was favorable. Kroiss adds that in another case in his own experience a teaspoonful of urine from the kidney pelvis escaped into the wound as the ureter was divided, and miliary tuberculosis followed in this case also. Kocher has informed him of a similar experience, the infection in this case proceeding from the cauterized stump of the ureter. The data related emphasize the necessity for bearing tuberculosis in mind in all operations on the kidney, even when there is nothing to suggest its presence. The findings suggested that the closed hydronephrosis was only secondarily infected with tuberculosis.

45. Ehrlich's "606" in Syphilis.—Fischer states that Buschke, to whom he is assistant, declares that his extensive experience with the new remedy in the dermatologic department of the Rudolf Virchow hospital at Berlin has convinced him that it should be reserved exclusively for patients refractory to mercury. He has also encountered a few patients refractory to "606," and prolonged observation is showing that even when the primary manifestations have subsided under its influence, general symptoms are liable to develop later. The lesions which subside so rapidly under the "606," he continues, are the kinds which promptly subside under any

method of treatment or without it, the indurated chancres being more slowly influenced. In one such case the chancre was found nearly the same size and swarming with spirochetes two months after the injection of the usual dose of "606," while the patient has been tormented since with extremely frequent and severe colic pains, never observed before, and which Buschke ascribes to the arsenic. He says that no one seems to appreciate how rapidly syphilids may subside under ordinary treatment; clinicians are surprised by the rapidity of the action of the "606" when, if they will keep records of the cases in which mercury alone was used, they will frequently find that the syphilids disappear as fast or even faster under mercury. In a recent case a much debilitated man had numerous syphilitic ulcerations over his body, especially on the legs, with papulous syphilids on the back, and positive Wassermann reaction. Under salves and baths the ulcerations all healed over in twelve days and then mercury was commenced, under which the papulous syphilids soon healed. The man gained six pounds in the three weeks. The tonic effects of the care and food in the hospitals have often an amazingly favorable action on the general health without any drugs or under mercurial treatment. But the "606" has displayed great efficacy in the severe and extensive syphilis refractory to mercury, and this seems to be the special field of the new drug, although it may fail even here, as in a case Fischer has previously reported.

Syphilis of the central nervous system also seems in certain cases to be amenable to the new drug, but special caution is required here as cases have been reported in which no benefit or actual harm has followed its use; even fatalities have been reported. On the other hand, calomel renders good service in these cases, especially in the recent cases. Recurrences after "606" have been frequently reported but the question now is as to whether the recurrences are exceptionally mild or not. In four cases in Fischer's experience the recurrences were unusually early and unusually intense; in one case the symptoms indicated meningeal irritation. In a fifth case the symptoms suggested arsenic intoxication but they might have been explained by some incipient syphilitic cerebrospinal trouble, but other symptoms suggested hysteria and an epileptiform seizure and weakness of the right leg further complicated matters in respect to the share of the "606" in the syndrome. No methyl alcohol had been used in injecting the "606;" Rille and Spiethoff have also reported epileptiform seizures after its injection. In five other cases in which "606" had been injected on account of skin lesions, recurrence was observed taking the form of serious specific iritis in four and of neurochorioretinitis in the other. He knows of a number of similar cases observed by others, the recurring manifestations developing in the eyes. There was no predisposition on the part of the eyes in any of these five cases, ophthalmologic examination before the injection of "606" having shown normal conditions. He thinks that the new remedy probably has a special affinity for nerve tissue, and although it does not directly injure the nerve, like atoxyl and arsacetin, yet it provides a place of lessened resistance and here the syphilitic virus preferably locates a syphilis *ex trauma*.

Rille and Pinkus have recently reported three cases of jaundice following administration of "606." The local necrosis sometimes observed is evidently of purely chemical nature; it is exceptionally torpid, and operative removal of the necrotic tissue is practically impossible as the necrosis goes very deep, the chemical action extending far into the interstices in the tissues. The breast is a particularly unfavorable point for the injection on this account; in one patient the necrosis in the breast extends down and into the ribs and there is danger of perforation of the pleura. Only a part of the arsenic seems to be taken up into the tissues; the rest is slowly, possibly intermittently eliminated, and these factors vary in different individuals so that it is unusually difficult to determine the tolerated dose. Fully as good therapeutic results have been observed with small as with large doses. Alt and Hoffmann have reported severe symptoms on the part of the heart after the injection of the new drug, and Fischer reports another grave case of the kind. The patient was a young man, healthy until infected with syphilis early in 1910.

Münchener medizinische Wochenschrift

November 1, LVII, No. 44, pp. 2273-2328

- 47 *Varying Resisting Powers of Bacteria. R. Stern.
48 *Influence of Various Diseases on the v. Pirquet Tuberculin Reaction. P. Rolly.
49 *Action of Lime. (Wirkung des Kalkes.) H. H. Meyer.
50 *Abrupt Fluctuations in Blood Pressure and Their Causes. Zabel.
51 *Transverse Laparotomy Incision. (Anwendungsgebiet des Pfannenstielschen Faszienschnittes.) R. T. Jaschke.
52 Hemochromogen Crystals in Forensic Tests for Blood. Methling.
53 Experimental Research on Orogenous Premia. L. Haymann.
54 Ehrlich's "606" in Filariasis. V. Reichmann.
55 Fracture of Epicondyle of the Humerus. P. Glaessner and Milavec.
56 Supernumerary Mammary. (Polythelic und Achselhöhlenmilchdrüsen.) R. Hofstätter.
57 Cure of Exophthalmic Goiter Syndrome by Cauterizing Points in Nasal Mucosa. R. Hoffmann.
58 Pathogenicity of Ameba of Dysentery. Y. Tanaka.
59 *Suicide Under Influence of Paratyphoid Infection. (Selbstmord durch Halsschnittwunde bei Paratyphus.) M. Mayer.

47. **Fluctuations in the Resisting Power of Bacteria.**—Stern remarks that the changes in the body during the course of an infection have been well studied, but not much is known of the changes which the invading bacteria themselves undergo in the course of the infection. His research seems to show that the ability of the bacteria to withstand the defensive reactions of the body varies widely at different times and under different conditions. Typhoid bacilli, for example, cultivated directly from the blood of a typhoid patient are sometimes unaffected by the usually bactericidal blood-serum, while the same strain cultivated through a few generations outside of the body is rapidly destroyed by the serum. This fact explains the varying action of different bactericidal serums; they prove effectual on animals—the animals being inoculated with artificially cultivated bacteria—while in man the same serum is liable to prove inactive against the invading bacteria as they have acquired resisting powers in the course of the disease process they have set up in their host. For example, if 30 grains of hexamethylenamin are given in one dose to a healthy individual, his urine kills in a few hours typhoid bacilli added to it outside. This also occurs with urine from certain persons with bacteriuria, cystitis or pyelitis, but in other cases in this same category the urine does not acquire any bactericidal property even under a prolonged course of large doses of the drug. This occurred in three out of eleven cases of cystitis and pyelitis in his experience. It is possible that the diseased mucosa secretes some substance which acts on the bacteria, rendering them harder.

48. **Influencing of the v. Pirquet Tuberculin Reaction by Various Diseases.**—Rolly reports experiences showing that in the course of various infectious diseases the tuberculin skin test may elicit a negative changing to a positive reaction during convalescence even in the absence of tuberculosis. He presents arguments to show that this is due not to some general immunity process but rather to local modifications in the skin itself.

49. **Clinical Importance of Lime.**—Meyer has been studying in various ways the action of lime in the organism, and states that one of the best ways to obtain an insight into the action of a certain element in the protoplasm is to study what happens when this element is rendered inactive. This can be done in respect to lime by giving oxalic acid, which seems to draw the lime out of the tissues or else to bind it or in some other way to render it inactive or nullify its action. Januschke has found that experimental oxalate intoxication—not only the toxic paralysis of the heart but also general intoxication—can be arrested by administration of lime or strontium salts. This does not occur when barium salts are given although the latter are able to bind the oxalates *in vitro* as effectually as the lime salts. The effect is due not to the binding of the oxalate but to the supplying of the tissues anew with lime to replace that which has been drawn out of them by the oxalic acid. In every intoxication from an acid the lime is drawn out of the tissues, he asserts, and the lime content of the blood increases. Among the symptoms of oxalic acid intoxication are salivation, alternate maximal dilatation and contraction of the pupil and alternations of a very high and very low blood-pressure—all suggesting increased irritability on the part of the nervous system from partial loss of the

lime content of the nerve tissue. This assumption is confirmed by the increased sensitiveness to suprarenal extract of the organs innervated by the sympathetic system, as well as by the subsidence of the symptoms under administration of lime. Another phase of the physiologic action of lime has been shown by the different behavior in respect to exudates and transudates when animals are given lime. The effusions and edematous transudates observed in animals after inoculation with diphtheria toxin, mustard oil, etc., do not occur in animals previously treated with lime salts. This suggests that the increased proportion of lime in the body has rendered the vessel walls less permeable. This assumption is further confirmed by the experiences with experimental exanthems with effusion, easily induced in the non-treated animals but failing to develop in the animals previously given lime. Wright ascribes this to increased coagulability of the blood under the influence of the lime salt, but Meyer thinks that it is much more likely to be the result of changes in the walls of the vessels of the skin. The same explanation applies also to diarrhea, the result of abnormal permeability of the intestinal vessels. The research reported supplies a physiologic foundation for the sedative action of lime on the organic nervous system and for the correction of the tendency to effusions and transudates by lime salts rendering the vessel walls less permeable.

50. **Fluctuations in the Blood-Pressure.**—Zabel has found that the blood-pressure even in the healthy fluctuates within a wide range from apparently insignificant causes. Stimuli of all kinds are liable to raise or depress the blood-pressure temporarily. Certain persons are more instable in this respect than others, and the variations in the blood-pressure are liable to mislead in diagnosing unless the possibility of these fluctuations is borne in mind. The lowest average pressure in fifty measurements on the same individual under like conditions supplies a reliable standard—the pressure measurements taken first vary widely.

51. **Advantages of the Transverse Laparotomy Incision.**—Jaschke concludes from experience with the Pfannenstiel transverse incision in over 1,000 cases that the ultimate outcome is much better with this than with the longitudinal incision, even in cases with dubious asepsis. The tendency to postoperative hernia is less, the patients are able to be up earlier and the scar is less prominent. Button sutures are preferable as infection, if it occurs, remains localized to the one suture instead of running along the continuous suture. It should be fine and the superficial sutures or clips should be removed early; when the lips are not adhering by the fourth or sixth day, primary healing need not be anticipated and clips too close together and left too long may impede the escape of secretions.

52. **Paratyphoid Simulating Criminal Poisoning.**—Mayer reports a case in which a man cut his throat after a brief period of vomiting and diarrhea, and the family circumstances, involving property, suggested criminal poisoning that had induced mania. Necropsy revealed merely an early stage of paratyphoid infection. He has encountered three other cases of incessant cholera-like vomiting and diarrhea fatal in two days for which paratyphoid infection was responsible. A small epidemic of similar cases occurred at Kolbus in 1905. The enormous loss of fluids exhausts the patients to such an extent that the assumption of acute poisoning is almost inevitable, especially as the mind is not affected as with typhoid.

Wiener klinische Wochenschrift, Vienna

November 3, XXXIII, No. 44, pp. 1547-1582

- 60 Anatomy and Clinic. J. Tandler.
- 61 Cultivation and Agglutination of and Toxin Formation by Cholera Vibrios. R. Kraus and P. Müller.
- 62 *Ehrlich's "606" in Syphilis. F. Bardachzi and E. Klausner
- 63 The Meiotagmin Reaction. F. Micheli and F. Cattorotti.
- 64 Histochemical Determination of Peroxydase. R. Fischei

62. **Action of Ehrlich's "606" on the Blood.**—Bardachzi and Klausner found an increased proportion of urobilin in the urine after injection of the "606" in a number of patients, but the most striking effect was a remarkable transient increase or decrease in the red blood-corpuscles which was regularly observed in the patients whose blood was examined.

The number of reds varied by nearly or over 1,000,000 in the seven cases cited, running from 5,750,000 up to 7,300,000 in one case in twenty-four hours and dropping from 4,800,000 to 3,800,000 by the evening of the day of the injection in another case.

Zentralblatt für Chirurgie, Leipsic

November 5, XXXVII, No. 45, pp. 1441-1464

- 65 *Plastic Operation for Cure of Trapezius Paralysis. (Funktionelle Heilung der Cucullarislähmung mittels freier Fascienplastik.) O. Rothschild.
- 66 *Resection of Stomach and Colon. (Zur Magen-Kolonresektion.) R. Goebell.

65. **Fascia Transplantation in Treatment of Paralysis of the Trapezius.** Rothschild reports a case in which he realized a complete functional cure of severe paralysis of the right trapezius by a free plastic operation. The paralysis was the result of injury six months before and the patient was unable to use the arm at all, but in ten days after the operation neither the patient nor the physician was able to detect any functional difference between the use of the injured and the sound arm and the cosmetic result was equally good. The scapula is a little farther from the spine than its mate, but the two are level and the inner margin is parallel to the spine. This was accomplished by cutting a flap from the wide dense sheath of the chief muscle of the thigh, about 20 cm. long by 4 or 5 cm. wide, and suturing the narrower end to the inner margin of the scapula above its spine, and then, as the scapula was forced towards the spine and downward by an assistant, the other end of the flap of fascia, drawn taut, was fastened to the latissimus dorsi and the lower longissimus, close to the spine. The fascia pulled on the scapula with such force that the latter was drawn up to a level with its mate, and its inner margin ran parallel with the spine. In order to leave the scapula some freedom of motion, the flap was sutured to the muscles which yield a little, rather than to the vertebrae, for the inner point of fixation. The end sutured to the scapula was made purposely narrow so as not to interfere with the normal twisting of the scapula in certain movements. In order to prevent the growing of the fascia to the skin, he passed the flap through a slit in the trapezius and let it run under the longissimus dorsi. The strong traction and the eccentric insertion of the flap of fascia leave the scapula practically as free as when it was under the control of the trapezius.

66. **Resection of Stomach and Colon.**—In the case reported, the caecum, ascending colon and its flexure were totally excluded after resection of the stomach and appendicostomy. The operation was done for carcinoma and the patient left the hospital in good condition.

Zentralblatt für Gynäkologie, Leipsic

November 5, VXXIV, No. 45, pp. 1441-1480

- 67 Obstetric Nomenclature. (Zur Nomenklatur in der G.-burts-hilfe.) M. Nea.
- 68 Operative Treatment and Prophylaxis of Genital Prolapse. (Einiges über den Gewinn für die gewöhnliche Plastik aus der modernen Gestaltung der Prolapsoperationen.) H. Sellheim.

Gazzetta degli Ospedali e delle Cliniche, Milan

October 30, XXXI, No. 130, pp. 1369-1384

- 69 Typhoid Bacilli as Antigen in Experimental Research. (Comportarsi del potere agglutinante e del potere battericida del siero di sangue in seguito ad iniezioni di germi tifici vivi, attenuati ed uccisi.) C. Quadroni.
- 70 Two Cases of Small-Pox Simulating Measles. (Esantema vaiolososo simulante il morbillo.) A. Montefusco.

Hygiea, Stockholm

October, LXXII, No. 10, pp. 1041-1148

- 71 Infection-Promoting Action of Lens Substance. (Om ögats skydd mot infektion i främre kammaren och om infektions-befordrande verkningsar hos linssubstansen.) C. Lindbal.
- 72 Modification of Almén's Qualitative Test for Sugar in the Urine. (Om kvalitativ bestämning af socker i urin.) G. Bohmanson.

Ugeskrift for Læger, Copenhagen

October 13, LXXVII, No. 41, pp. 1219-1268

- 73 Multiple Mucocoele. (Mucocoele af Pandehulen og Sibeiseel-lerne.) E. Schmieglow.
- 74 *Diagnosis of Tuberculosis in Infants. (Bidrag til Lungetuber-kuløsens tidlige Klinik. II.) C. A. Blume. Commenced in No. 40.

October 20, No. 42, pp. 1269-1298

75 Alleged Remedies for Diabetes. (Undersøgelse af et Arkanum mod Sukkersyge.) M. Lauritzen.

October 27, No. 43, pp. 1299-1332

76 Passage of Drugs, etc., into the Cerebrospinal Fluid. (Overgang af Medikamenter og andre Stoffer i Cerebrospinalvædsken.) P. T. Hald.

77 *Therapeutic Inhalation of Oxygen. (Iltinhalation.) Tøndering. Commenced in No. 42.

74. **Tubercle Bacilli in Mucus from Infants' Larynx.**—Blume's method of obtaining mucus from the larynx as an aid to the diagnosis of tuberculosis was mentioned in THE JOURNAL, Aug. 21, 1909, page 664, with instances of valuable information thus obtained which had escaped all other means of investigation. He here reports the application of the method to very young infants long before any of the tuberculin skin reactions could be elicited and before expectoration was possible. It is easier to obtain the mucus from the larynx of an infant than from an adult. The child gags as the index finger of the gloved left hand is introduced far back into the mouth; it is then easy to wipe up cautiously a scrap of mucus from the larynx with the cotton swab. In six cases reported in detail in hygienic, wealthy homes or in an institution, the suspicion of possible contact infection was confirmed by the finding of tubercle bacilli in the mucus, in one case only twenty-eight days after birth. He expatiates on the importance of an early diagnosis, citing Neisser's practice of testing with tuberculin all his lupus patients since he witnessed extensive tissue destruction and blindness in a mother and daughter in the course of supposed lupus, which later proved to be of syphilitic origin. Pontoppidan has also published cases of tuberculous meningitis in adults which were incorrectly treated on the assumption of delirium tremens. Liebermeister also obtained positive results in inoculation of guinea-pigs in three out of five cases of supposed alcoholic neuritis. Blume also reaffirms the extreme importance of the amount of tuberculous virus with which the individual is infected, suggesting that infants alone are able to contract infection from the mild cases, while adults escape. He also discusses further Nature's "beneficent vaccination," to which some ascribe the modification of the course of tuberculosis in recent decades, as in Denmark, where tuberculosis is far more prevalent now than it was up to 1870, while the mortality has reached the lowest recorded percentage, pulmonary phthisis growing rarer every year. He does not believe that we have Nature to thank for this. "Nature," he says, "is a poor vaccinator; her vaccine-virus is more virus than vaccine." If it were otherwise, and if all were properly vaccinated by Nature in early childhood, then the tuberculin reactions would be growing less frequent among adults, while in reality the opposite is the case.

77. **Therapeutic Inhalation of Oxygen.**—Tøndering tabulates the details of forty-five cases of asthma with or without pulmonary emphysema, of chronic bronchitis, neurasthenia with insomnia or simple anemia, in which marked improvement was realized under treatment by inhalation of oxygen in all but two instances, and no harm resulted in any case. The oxygen was inhaled at first for twenty minutes a day and after a week or so was combined in some cases with instrumental artificial respiration.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

TIFO EXPERIMENTAL EN LOS MONOS INFERIORES (CUARTA NOTA): Inmunidad Conferida por Inyección de Sangre Calentada a 55° Centígrados. Sensibilidad al Tifo, de los Monos de la Especie *Myrcetes villosus*. **TIFO EXPERIMENTAL EN LOS MONOS INFERIORES (TERCERA NOTA):** Ineficacia del Atóxil. Destrucción del Virus por Calificación a 55° Centígrados. By A. Gavilón and Girard, del Instituto Bacteriológico Nacional de México. Publicaciones del Instituto Bacteriológico Nacional. Paper, Pp. 7 each. Mexico: Imprenta de Ignacio Escalante, 1910.

NOTA PRELIMINAR SOBRE EL TIFO EXPERIMENTAL EN LOS MONOS INFERIORES (NUM. 1): Nota Preliminar sobre Ciertos Cuerpos Encontrados en la Sangre de los Individuos Atacados de Tifo. Tabardillo (NUM. 2): Segunda Nota sobre el Tifo Exantemático en los Monos Inferiores, Ateles-Velleiros, Inmunidad Conferida por un Primer Ataque.—Resistencia del Virus a la calefacción (NUM. 3). By A. Gavilón and J. Girard, del Instituto Bacteriológico Nacional de México. Publicaciones del Instituto Bacteriológico Nacional. Paper. Pp. 36. 1910.

ANEMIA. By Obermedizinalrat Professor Dr. P. Ehrlich, Director of the Königl. Institut für Experimentelle Therapie, Frankfurt a.-M., and Dr. A. Lazarus, Professor of the University of Berlin, Charlottenburg. Part I. Vol. 1. Normal and Pathologic Histology of the Blood. Second Edition, Revised by Dr. A. Lazarus, and Dr. O. Naegeli, Privatdozent, Zurich. Translated from the German by H. W. Armit, M.R.C.S. Cloth. Price, \$4. Pp. 218, with illustrations. New York: Rebman Co., 1910.

MANUAL OF CLINICAL PATHOLOGY. For the General Medical Practitioner. Comprising the Examination of Urine, Stomach Contents, Feces, Blood, and the Serum Diagnosis of Syphilis, Tuberculosis, Typhoid Fever, etc. By Richard Weiss, Ph.D. In Collaboration with George Herschell, M.D., London, and Andrew Charles, F.R.C.S., Dublin. Paper. Price, 2 shillings. Pp. 72, with illustrations. London: J. & A. Churchill, 7 Great Marlborough St., 1910.

URGENT SURGERY. By Félix Lejars, *Professeur Agrégé à la Faculté de Médecine de Paris*. Translated from the Sixth French Edition by William S. Dickie, F.R.C.S., Surgeon North Riding Infirmary, Middlesbrough. Vol. II. The Genito-Urinary Organs—the Rectum and Anus—the Strangulated Hernias—the Extremities. Cloth. Price, \$7 net. Pp. 580, with 536 illustrations. New York: William Wood & Co., 1910.

HINTS FOR THE GENERAL PRACTITIONER IN RHINOLOGY AND LARYNGOLOGY. By Dr. Johann Fein, Privatdozent at the University of Vienna. Translated by J. Bowring Horgan, M.B., Late House Surgeon at the Hospital for Diseases of the Throat, Golden Square, London, W. Cloth. Price, \$1.50. Pp. 223, with 42 illustrations. New York: Rebman Co., 1910.

BACON IS SHAKE-SPEARE. By Sir Edwin Durning-Lawrence, B.A. Together with a Reprint of Bacon's Promus of Formularies and Elegancies Collated, with the Original MS. by the late F. B. Bickley, and Revised by F. A. Herbert, of the British Museum. Cloth. Price, \$1 net. Pp. 286, with illustrations. New York: The John McBride Co., 1910.

THE MENTAL SYMPTOMS OF BRAIN DISEASE. An Aid to the Surgical Treatment of Insanity, Due to Injury, Hemorrhage, Tumors and Other Circumscribed Lesions of the Brain. By Bernard Hollander, M.D. With Preface by Dr. Jul. Morel, Late Belgian State Commissioner in Lunacy. Cloth. Price, \$2. Pp. 237. New York: Lehman Co., 1910.

GEBIERN UND RÜCKENMARK. Leitfaden für das Studium der Morphologie und des Faserverlaufs. Von Dr. med. Emil Villiger, Privatdozent für Neurologie und Neuropathologie an der Universität Basel. Second Edition. Cloth. Price, 12.80 marks. Pp. 278, with 224 illustrations. Leipzig: Wilhelm Engelmann, 1910.

FREQUENCE DE LA TUBERCULOSE PARMI LA POPULATION DE KIRUNA (Lapland). Par Gustaf Neander. Questions Sociales Hygiéniques. Examens Scientifiques et Pratiques en Laponie, Organisés par la Société Luossavaara-Kirunaavaara. Paper. Pp. 38, with illustrations. Stockholm: Nordiska Bokhandeln.

PHYSICAL CHEMISTRY: ITS BEARING ON BIOLOGY AND MEDICINE. By James C. Phillip, Ph.D., Assistant Professor in the Department of Chemistry, Imperial College of Science and Technology, London. Cloth. Price, \$2.10 net. Pp. 312, with 23 illustrations. New York: Longmans, Green & Co., 1910.

LE TRONC CŒLIAQUE. Par Pierre Descomps, *Prosecteur des Hôpitaux*. Travail de l'Amphithéâtre d'Anatomie des Hôpitaux. Recherches d'Anatomie Chirurgicale sur les Artères de l'Abdomen. Cloth. Price, 10 francs. Pp. 205, with 97 illustrations. Paris: G. Steinhell, 1910.

A MANUAL OF DISEASES OF THE NOSE, THROAT AND EAR. By E. B. Gleason, M.D., Clinical Professor of Otolaryngology in the Medico-Chirurgical College. Second Edition. Leather. Price, \$2.50 net. Pp. 563, with 228 illustrations. Philadelphia: W. B. Saunders Co., 1910.

THE HYGIENE OF INFANCY AND CHILDHOOD AND THE UNDERLYING FACTORS OF DISEASE. By A. Dingwall Fordyce, M.D., Extra Physician, Royal Hospital for Sick Children, Edinburgh. Cloth. Price, \$2.50 net. Pp. 289. New York: William Wood & Co., 1910.

THE PREVENTION OF SEXUAL DISEASES. By Victor G. Veckl, M.D., ex-President San Francisco German Medical Society. With Introduction by William J. Robinson, M.D. Cloth. Price, \$1.50. Pp. 132. New York: The Critic and Guide Co., 1910.

THE PRESCRIBING OF SPECTACLES. By Archibald Stanley Percival, M.B., Senior Surgeon Northumberland and Durham Eye Infirmary. Cloth. Price, \$2 net. Pp. 159, with 24 illustrations. New York: William Wood & Co., 1910.

PHASES OF EVOLUTION AND HEREDITY. By David B. Hart, M.D., Lecturer on Midwifery and Diseases of Women, School of the Royal College, Edinburgh. Cloth. Price, \$2. Pp. 259. New York: Rebman Co., 1910.

A PRACTICAL GUIDE TO THE NEWER REMEDIES. By J. M. Fortescue-Brickdale, M.D., Physician to Clifton College. Cloth. Price, \$2 net. Pp. 273. New York: William Wood & Co., 1910.

FOURTH BIENNIAL REPORT OF THE STATE HOSPITAL FOR EPILEPTICS, PARSONS, KAN. For the Two Years Ending June 30, 1910. Paper. Pp. 49, with illustrations. 1910.

THE MODERN TREATMENT OF ALCOHOLISM AND DRUG NARCOTISM. By C. A. McBride, M.D. Cloth. Price, \$2. Pp. 376. New York: Rebman Co., 1910.

THE WELLCOME PHOTOGRAPHIC EXPOSURE RECORD AND DIARY. 1911. Cloth. Pp. 271. Price, 50 cents. New York: Butterfuchs Wellcome & Co.

The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOL. LV, No. 25

CHICAGO, ILLINOIS

DECEMBER 17, 1910

METABOLISM IN DIABETES*

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NEW YORK

"When Bernard had completed his lectures in the winter term of 1854-55, few questions in physiology were apparently more completely settled than that of the glycogenic function of the liver. The consequences of this doctrine were of the utmost importance, for, once settled that sugar is the product of animal as well as vegetable organisms and that an organ can be found which is singly concerned in its production, we would have at once in the exaggerated performance of a normal function, the proximate cause of diabetes. There had been from the first no lack of opposition to Bernard's views, but so skilfully had he defended his position that, at the time of which we make mention the very objections of his critics had only served to increase, in the eyes of the candid, the magnitude of his triumph."

These were the opening words of an article on "The Origin of Diabetes with Some New Experiments Regarding the Glycogenic Function of the Liver," read before the Medical Society of the County of New York forty years ago by my father,¹ then professor of physiology at the Long Island Medical College. The paper controverted the stand taken by Pavy, and held by him to this day—that the conversion of glycogen into sugar is a post-mortem phenomenon. The paper showed that blood drawn by a catheter from the right heart of a resting dog which had been fed on meat was four times richer in blood-sugar than that contained in the jugular vein, and from this it was inferred that the hepatic vein was carrying sugar into the venous system. The discussion which followed the reading of the paper was opened by Dr. Austin Flint, Sr., who stated that he had two diabetic patients in whom regulation of the diet had been the only and successful treatment. Dr. Austin Flint, Jr., then described experiments he had made on the glycogenic function of the liver and gave a lucid interpretation of them.

I have made mention of this scene to illustrate how forty years ago in New York City the spirit of research was active in the lives of two young men then about thirty years old, while the older master of medicine stood by in sympathetic encouragement. It is thus that the science of medicine is developed, and that young men who subject themselves to like discipline become powerful.

* Read in the joint meeting of the Section on Pharmacology and Therapeutics and the Section on Pathology and Physiology of the American Medical Association, at the Sixty-First Annual Session, at St. Louis, June, 1910.

1. Lusk, W. T.: *New York Med. Jour.*, 1870, xi, 506; discussion on p. 565.

In this paper of my father is noted the fact that other organs besides the liver might be involved in diabetes, and indeed in one case which he had examined the only lesion he could discover was calcareous degeneration of the pancreas.

In 1889 von Mering and Minkowski extirpated the pancreas of dogs and produced in them a so-called "total diabetes" which bears striking resemblance to human diabetes. Dogs with pancreas diabetes cannot oxidize dextrose when given; dextrose is produced from protein so that 2.8 gm. of dextrose appear in the urine for each gram of nitrogen; there is acidosis with the appearance of beta-oxybutyric acid in the urine; there is emaciation and finally death in coma. Minkowski maintains that disease of the pancreas is the cause of diabetes mellitus. Lépine's suggestion that the pancreas manufactures a ferment which, passing to the blood-stream, effects the oxidation of dextrose within the cells of the normal organism, gave a simple though by no means proved explanation of the influence of the pancreas over carbohydrate metabolism. Cohnheim's explanation that the pancreas furnishes a "kinase" or activator which influences a second glycolytic ferment, is an elaboration of Lépine's idea.

The influence on diabetes of glands other than the pancreas has recently attracted considerable attention, but the results obtained by different experimenters have been so conflicting that considerable doubt exists as to whether they have any action at all.

In work on a diabetic patient, a medical student under strict control, Arthur Mandel and I found on a meat-fat diet that 3.65 gm. of dextrose appeared in the urine for every gram of nitrogen present there, and this was a relationship which I had for many years obtained in phlorhizin-glycosuria in dogs. This relationship between the dextrose and the nitrogen in the urine, the so-called D:N ratio, is a matter of considerable importance in the modern literature of diabetes. All those present remember from their early instruction in physiology that the appearance of 1 gm. of nitrogen in the urine corresponds to a destruction of 6.25 gm. of protein in the organism. On the basis of the experiments on the diabetic medical student we can therefore establish the following equation:

$$6.25 \text{ gm. protein} = 3.65 \text{ gm. dextrose} = 1 \text{ gm. nitrogen.}$$

In other words, protein yields nearly 60 per cent. of itself as sugar. This relationship was constant, no matter how much protein was given, and was in no way dependent on variations in the amount of fat ingested. I am fully aware that authorities for whom I have a profound respect proclaim that fat may be converted into sugar in the metabolism of the diabetic, and to such

assertions I can only reply that I have never seen any evidence of it.

Regarding the origin of sugar from protein, it is certain that it does not arise from sugar pre-existing in the protein molecule. Protein is made up of many nitrogen-containing organic acids. When these are broken up in metabolism they yield ammonia, which unites with carbon dioxide to form ammonium carbonate and is carried by the blood to the liver and there converted into urea. Some of the organic acids which have lost their nitrogen are carried to the liver and are there converted wholly or in part into dextrose. Such an organic acid which arises from protein after this fashion is lactic acid, which when carried to the liver is synthesized to dextrose. This illustrates the principle of sugar production from protein.

Our patient, the medical student previously referred to, had no tolerance for carbohydrate. His sugar output approximated N grams in urine $\times 3.65 +$ carbohydrate ingested. That is to say, the urine of one day during which he had received a diet of meat and fat and 185 gm. carbohydrates amounted to 2,870 c.c., containing 217 gm. or 7.5 per cent. of sugar derived as follows:

17.8 gm. N $\times 3.65$ gm. = 65 gm. dextrose from protein + 152 gm. extra dextrose.

And then two days later on a diet of meat and fat and only 5.5 gm. of carbohydrate, the urine amounted to 2,275 c.c., containing 92.6 gm. or $\frac{1}{4}$ per cent. of dextrose derived as follows:

24 gm. N $\times 3.65$ = 87.6 gm. dextrose from protein + 5 gm. extra dextrose.

The condition of the patient was the same on both of these days and yet how different the quantity of dextrose voided, and how different the percentage of sugar!

The figures show how utterly fallacious is the customary habit of the clinician in estimating the intensity of diabetes in accordance with the percentage of sugar contained in a twenty-four-hour sample of urine. And yet my own students, who should know better talk to me about a "2-per-cent. urine," and then suddenly realizing the situation look at me with a sheepish countenance. There are others who draw conclusions of disturbed protein metabolism from a knowledge of the number of grains of urea in an ounce of urine, without realizing that this is of no more importance than a knowledge of the number of ten-penny nails to the ounce of nails.

No, the intensity of diabetes should not be determined by the percentage of sugar in the urine, but by the relationship between the in-go of sugar plus the possible maximum of sugar production from protein as compared with the total output of sugar. This may be illustrated in the following formula modified from that given by Falta.²

$$\frac{\text{Output of dextrose}}{\text{Urine N} \times 3.65 + \text{food-dextrose}}$$

This multiplied by 100 gives Falta's "coefficient of excretion," or the per cent. of sugar eliminated.

In other words, recognition must be given to the fact that the output of dextrose is dependent on the amount of carbohydrate ingested and also on the height of the protein metabolism.

In diabetes the protein metabolism is higher than under normal conditions. This is because the oxidation

of carbohydrates normally reduces the quantity of protein metabolized in the body. This is generally recognized as a fundamental fact of nutrition. The recent literature has contained examples of nitrogen equilibrium maintained on diets containing only 8 and 10 gm. of nitrogen, and such a low protein diet has found its advocates.

It may well be that 10 gm. of protein in the diet of an already emaciated diabetic may be sufficient to maintain him in nitrogen equilibrium in the reduced protein condition in which he finds himself, but this does not by any means invalidate the general principle that the diabetic organism cut off from the ability to oxidize carbohydrates requires more protein food than the normal organism.

There is a second phase of disturbance in the metabolism of the diabetic, and this is an imperfect oxidation of fat. Theoretically each fatty acid contained in fat and some of the oxy-acids produced when protein breaks up may yield a molecule of beta-oxylbutyric acid. The diabetic organism thrown as it is on its fat-burning ability to support its life may find its capacity in this direction also curtailed. Under these circumstances beta-oxylbutyric acid, acetone and aceto-acetic acid appear in the urine. This is the cause of diabetic acidosis. The urine runs high in ammonia, withdrawn to neutralize the acids formed. Alkali may also be taken from the body for the same purpose. It was Friedrich Müller who first drew attention to the fact that the percentage of ammonia in the urine had little significance, whereas the number of grams eliminated daily was an approximate measure of the intensity of the acidosis. He stated that the normal elimination of ammonia varied between 0.3 to 1.0 gm., but in diabetes reached 2.6 and even 12 gm. in twenty-four hours. Klein and Moritz³ have recently shown that ammonia and fixed alkali normally serve one and the same purpose, i. e., the neutralization of acids which are being eliminated. These acids are organic acids and inorganic phosphates. They find that large amounts of sodium bicarbonate given to normal persons may reduce the quantity of ammonia in the urine to almost nothing. Such a urine, while alkaline to litmus, is acid to phenolphthalein, the excess of alkali appearing as sodium bicarbonate and as secondary phosphate. They also find that increased ingestion of fat results in the elimination of alkali from the body on the day following the fat administration, a result they explain as being due to the necessities of fat metabolism. From this it may be concluded that administration of sodium bicarbonate in diabetes prevents the withdrawal of alkali from the body in the preliminary formation of soaps in the intestine, and secondly, promotes the elimination of the acids formed in metabolism.

Reviewing the ground traversed, one appreciates that one is dealing in total diabetes with an organism with no carbohydrate metabolism, with a high protein metabolism, with a more or less pathologic fat metabolism, with an organism requiring sodium bicarbonate and also abnormal quantities of water in order to dissolve the unoxidized products formed.

It seems passing strange that with all the wealth of modern chemistry no compound is known which will replace dextrose in metabolism.

A final question is whether the heat production is less in diabetes than in health. It can now be positively

2. Falta, W.: The Therapy of Diabetes Mellitus, Arch. Int. Med., 1909, p. 159.

3. Klein and Moritz: Deutsch. Arch. f. Klin. Med., 1910, xcix, 162.

stated that there is no diminution in the total energy production of the diabetic as compared with the normal man. The diabetic obtains his calorific energy from fat instead of from carbohydrates, and if fat is not given him in sufficient quantity to maintain his requirement he uses his own body fat.

Pettenkofer and Voit in early experiments on a diabetic found no change in the metabolism from the normal. Rubner, using a phlorhizinized dog, found that the heat production was increased by 7 per cent. when glycosuria was induced. The protein metabolism was increased more than threefold, and he attributed the rise in energy production to the increased protein destruction (specific dynamic action of protein). Falta,⁴ working with Benedict in Boston, could find no evidence of an increased metabolism in diabetes mellitus. Du Bois and Veeder⁵ report a comparison between the metabolism of a normal man and two men suffering from diabetes. One case, which was of the most severe type of diabetes, showed an increase in metabolism of 5 per cent. above the normal. Finally, a preliminary report by F. G. Benedict and E. P. Joslin of work on the metabolism of thirteen patients representing various types of diabetes, declares that the heat production of the diabetic may be 15 per cent. above the normal. Zuntz attributes this rise in metabolism to increased renal activity.

One must take to heart these lessons. The physician can be sure that he is treating his patient properly only when he knows that he is giving him at least the thirty-five calories per kilogram required normally, and these must be contained in materials which the patient can oxidize. Protein will not give more than 10 or 15 per cent. of this requirement of energy. To give fat in sufficient quantity requires all the arts of cookery. Here, as always, when the appetite is no longer a proper guide the physician's knowledge of the patient's requirement is the only possible resource. When instinct fails science must be invoked.

RECENT ADVANCES IN THE TREATMENT OF DIABETES MELLITUS*

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NEW YORK

In spite of all the experimental and clinical work on diabetes which has been done in the past years, a specific or etiologic treatment has not been attained. A striking advance has been made in dietetic treatment, however, and, with the clearer and more detailed knowledge of the metabolic derangement present, gained in the past few years, the general principles of dietetic therapy have undergone considerable modification and have been placed on a firmer foundation. Much yet remains unknown or obscure, but in no disease of metabolism can truly scientific dietetic treatment be more successfully carried out than in diabetes. It has been made clear, however, that no routine line of treatment, however sound it may be in principle, can be applied to all cases and that the treatment of one individual case may differ quite markedly from that of another. The

future will undoubtedly show a more definite classification into groups or types than is at present possible.

Numerous attempts have been and are still being made to discover a specific for diabetes. Naturally this work centers in the preparation of glandular extracts, and although so far no success has been attained, some of the work may be briefly mentioned.

In 1907 Rennie and Fraser¹ prepared an extract of the islands of Langerhans of the pancreas of a certain genus of fish, the Teleosts. In these pancreas there is a chief island, large enough to be seen macroscopically. Five diabetic patients were treated with the extract and some improvement seemed to follow. The results have not been confirmed nor have additional cases been since reported by these authors. In the following year a paper by Zuelzer² appeared in which were reported six cases treated with pancreas extract. The extract was made from dog's pancreas removed during the height of digestion. It was injected intravenously and the glycosuria diminished perceptibly during the two or three succeeding days. A decrease in the acetonuria was also observed. As a result of the injection fever usually occurred. The figures given by Zuelzer are not very convincing, however, and unfortunately the treatment in the hands of others has been disappointing.

Another line of treatment which attracted some attention was introduced by Moore and Abram³ in 1906. These investigators failed to find prosecretin in the duodenum of diabetics, and on this basis and the assumption that secretin might increase the internal secretion of the pancreas, employed an acid extract of the duodenal mucous membrane (secretin) in the treatment of a few cases of diabetes. Good results were recorded. Their conclusions were shortly afterwards attacked by Bainbridge⁴ who found that prosecretin was usually present in diabetics and that the administration of secretin failed to produce any effect on glycosuria. Bainbridge's work has been confirmed by Foster and others in this country.

In 1908 Minkowski⁵ again reported the effects of grafting pancreatic tissue in dogs. The graft, if it secures a sufficient blood-supply, grows and functions to such an extent that the animal's own pancreas can be completely removed without the occurrence of diabetes. Here would seem to be a great therapeutic possibility. But in animal experiments the transplantation must be made before diabetes has been induced, otherwise healing will not take place.

The interesting work of Cohnheim⁶ may be mentioned here. Cohnheim found that the glycolysis occurring when an extract of muscle was added to sugar was increased if the further addition of an extract of pancreas be made. The extract of pancreas, he assumes, contains a substance of the nature of a hormone. The objection to his work, on the ground of bacterial contamination, seems to have been successfully met, and Hall,⁷ repeating his work, has obtained rather striking results. No attempt has been made by these investigators to apply their work to therapeutics, although it might appear to warrant such application.

1. Rennie and Fraser: *Biochem. Journ.*, 1907, ii, 7.
2. Zuelzer: *Ztschr. f. exper. Path. u. Therap.*, 1908, v, 306.
3. Moore and Abram: *Biochem. Journ.*, 1906, i, 28.
4. Bainbridge: *Biochem. Journ.*, 1908, iii, 82.
5. Minkowski: *Arch. f. exper. Path. u. Pharmakol. (Schmiedeberg Festschr.)*, 1908, p. 395.
6. Cohnheim: *Ztschr. f. physiol. Chem.*, 1903, xxxix, 336; xlii, 401.
7. Hall: *Am. Jour. Physiol.*, 1907, xviii, 283.

4. Falta: *Wien. klin. Wchnschr.*, 1909, xxii, No. 16.
5. DuBois, E. F., and Veeder, B. S.: *Arch. Int. Med.*, 1910, v, 37.
* Read in the joint meeting of the Section on Pharmacology and Therapeutics and the Section on Pathology and Physiology of the American Medical Association, at the Sixty First Annual Session, at St. Louis, June, 1910.

A relationship between the function of the pancreas and other glands furnishing an internal secretion, especially the adrenals, has recently been demonstrated, and Eppinger, Falta and Rudinger⁸ have assumed that the secretions of the thyroid and adrenals are of mutual aid in affecting metabolic processes, while each of these inhibits the pancreatic function and is in turn inhibited by it. On the basis of this assumption, Bruck⁹ has suggested that the serum of an animal deprived of its adrenals will have a beneficial effect in diabetes through lessening the adrenal action, which is excessive on account of the removal or diminution of the pancreatic secretion. Such a line of treatment seems absurd. However interesting and important the knowledge of the relationship between the various internal secretions may be, it offers at present no therapeutic application in diabetes.

There has come a tendency in recent years to a less frequent employment of drugs in diabetes therapy. Alcohol is still used to a large extent in the von Noorden clinic and elsewhere, but von Noorden himself has pointed out that amounts larger than 50 c.c. a day are not to be used. Its food value is of no great importance when taken in this quantity, and it is to be recommended chiefly as an aid to digestion, especially of fat. It would seem here that it is as a rule unnecessary, and while there may be some disadvantage in withdrawing it from those who are accustomed to its use, it must be remembered that diabetics seem especially susceptible to its injurious effects on the various organs of the body. It has been shown too that in some cases, at least, the tolerance for sugar is distinctly lessened by a too free use of alcohol. Neubauer¹⁰ has recently recommended alcohol as a means of warding off diabetic coma and reports cases in which the administration of fairly large doses, up to 135 c.c., has given good results. These doses are too large to be used for any length of time with safety, and, in fact, some other observers have failed to obtain any beneficial effects in this direction.

Considerable interest was aroused in this country by Rudisch's¹¹ paper on the use of atropin in diabetes. Rudisch finds that atropin, when given in fairly large amounts and in conjunction with dietetic treatment, is of great aid in lessening or preventing glycosuria. In the hands of others, however, it has not been so beneficial, and in a series of experiments I have carried out on depancreatized dogs it produced no effect whatever.

Thus it may be seen that little has been accomplished toward an etiologic or specific therapy and to find any actual progress we must turn to dietetic treatment.

There may be first considered here the question of the energy requirement in diabetes. With the great appetite and marked loss in weight and strength so frequently seen in severe cases it is hardly surprising that the taking of large quantities of food should have seemed a necessity. And in spite of the teaching of those having the largest experience, the idea is still somewhat prevalent that diabetics have a much greater energy requirement and accordingly need a much greater supply of food than normal persons. The following out of this idea has undoubtedly led to considerable injury. The experiments of several investigators have shown that an increased energy requirement does not exist in diabetics. Quite recently a series of experiments carried

out in accordance with most approved modern methods has been reported by DuBois and Veeder.¹² They show that the energy requirement in diabetes is approximately 34 calories pro kilogram of body weight per day, which is no greater than that in a healthy man. Diets are generally arranged quantitatively, therefore, with the idea of supplying this amount of energy, due allowance being made for the loss through non-utilization of sugar. Over this point a controversy has arisen. Von Noorden¹³ states explicitly that the food-supply of a diabetic must at least be equal to that of a healthy man of the same weight and under the same conditions. If less is taken a loss in weight is sure to occur. On the other hand, the opinion is often expressed that severe cases of diabetes may show a lowered level of energy requirement. Kolisch¹⁴ especially has stated that 25 calories pro kilogram weight may lead to an actual increase in body weight, and that in some cases as little as 20 calories may be taken with no loss in weight. He strongly advises the use of a minimum quantity of food, and claims that this offers the best success in the treatment of severe cases.

In practice it is of course out of the question to determine what is the minimal energy requirement for each case, and the work done in this direction serves chiefly in establishing a principle of treatment. The conclusions which may be safely drawn are that high feeding is injurious, that in some cases of severe diabetes the minimal amount of food which will maintain the body weight brings about the best results, and that an amount equal to that required for a healthy man is generally to be recommended. Starvation days and prolonged periods of low diet are not unattended with danger and are to be prescribed only with due consideration of this.

Another subject of importance concerns the quality or class of food comprising the diet. In mild diabetes certain general principles may be laid down for practically all cases. First, the limit of tolerance for sugar is determined. This is done most easily by gradually increasing the daily amount of bread in the test¹⁵ diet until glycosuria reappears. The patient is then placed on a carbohydrate-free diet for at least two weeks. During this time the sugar tolerance will gradually increase and the hyperglycemia, which very frequently persists for some time after the urine is free of sugar, disappears. It is very rarely that acidosis of any dangerous degree occurs during this period. A mixed diet is now given and the new degree of sugar tolerance determined as before. In many cases it will be found that the tolerance approaches the normal; in others it may show only a slight increase, if any. In all cases, however, the subsequent diet should be such that the urine remains sugar-free and there should come at least once in three months a period of carbohydrate-free diet lasting one or two weeks. This treatment may seem quite unnecessary to a patient whose tolerance for sugar has become well-marked, but it should always be enforced.

In severe cases the qualitative arrangement of the diet is of greater importance. It has long been recog-

12. DuBois, E. F., and Veeder, B. S.: The Total Energy Requirement in Diabetes Mellitus, *Arch. Int. Med.*, 1910, v. 37.

13. Von Noorden: *Handbuch d. Path. d. Stoffwechsels*, 1907, II, 46.

14. Kolisch: *Ztschr. f. phys. u. diätet. Therap.*, 1908, xii.

15. I employ the standard test diet used in the von Noorden clinic for the determination of the severity of the case. This diet contains 75 grams of white bread. The detailed diet and the method of classifying diabetes into mild and severe forms are described by von Noorden in *Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition*, E. B. Treat & Co., N. Y., 1905, part 7, p. 175.

8. Eppinger, Falta and Rudinger: *Ztschr. f. Klin. Med.*, 1908, lxxv, 1.

9. Bruck: *Med. Klin.*, 1908, 1760.

10. Neubauer: *München. med. Wchnschr.*, 1906, lxxiii, 791.

11. Rudisch, J.: The Treatment of Diabetes Mellitus, *THE JOURNAL A. M. A.*, Oct. 29, 1909, p. 1366.

nized that a glycosuria persisting under a carbohydrate-free diet may be made to disappear if the protein of the food is cut down. Falta, Gigon¹⁶ and others have shown that some patients may have a marked susceptibility to protein; more so, in fact, than to carbohydrate; so that glycosuria may be lessened or at least not increased by cutting down the protein and at the same time adding carbohydrate. The fact is certainly now well established that high protein feeding is not desirable in severe cases. Two hundred grams of cooked meat per day is the maximum allowed by von Noorden and not more than 12 to 15 gm. of nitrogen should appear in the urine. The proteins of eggs and especially of vegetables, are to be preferred to those of meat since they affect the glycosuria less. It is on this account that periods of vegetable feeding are so beneficial.

With regard to carbohydrate feeding in severe cases it is well known that most patients do better when one kind of starch is given alone than when several kinds are taken together. This is the basis for the rice, potato and oatmeal treatments. Of these the oatmeal treatment is of greatest importance. The manner of its action is not understood, but the beneficial effects following its use are at times remarkable. All patients are not by any means, however, equally affected. Although it often brings about a decrease in glycosuria and an increase in sugar tolerance, its chief effect is in lessening acidosis. It is to be given alone, i. e., with no other carbohydrate, and in amounts of 250 gm. a day.¹⁷

Finally with regard to fat feeding, it is known that although the acetone bodies are formed chiefly from fats, their amount is uninfluenced by the amount of fat in the diet unless in enormous quantities. The lower fatty acids in butter should preferably be removed by washing.

Our knowledge concerning acidosis is as yet very incomplete. In a case in which complete sugar intolerance is present, acidosis may be slight. In another with slight glycosuria the acidosis may be marked. Allard¹⁸ has pointed out that in diabetic dogs the acidosis is not due to a non-utilization of carbohydrate, but probably to a pathologic state of the liver function. It seems established that the condition is not an acidosis in the strict sense, but rather an intoxication due to specific poisons. Of these one at least we know—oxybutyric acid—and we know too that its salts are poisonous. Our efforts in treatment are directed toward preventing the excessive formation of these substances and in hastening their excretion. A strict protein diet increases the acetonuria, but if it can be persisted in an ultimate decrease may often be obtained. So also the addition of carbohydrates to the diet lessens markedly the acidosis, although the glycosuria at once increases. Where coma is threatening, the glycosuria is of course of less importance than the diminution in acidosis. The introduction of periods of vegetable days,¹⁹ and of oatmeal feeding is especially beneficial in persistent acidosis. The action of sodium bicarbonate is chiefly that of increasing the excretion of oxybutyric acid, and one must not be misled by the presence of larger amounts of oxybutyric acid in the urine after its administration. To get the best effects from this salt in severe acidosis it must be given in large amounts, 100 gm. or more a day. Where coma is present it should be given by intravenous injection.

In general the treatment of severe diabetes may be carried out along the following lines. It is as a rule practically impossible to keep the patient's urine sugar-free, and one should early give up the attempt. Since the main danger lies in the acidosis it is unwise to put the patient on a strict diet for any length of time. In the preliminary treatment there comes first a period of strict diet with 75 to 100 gm. of bread; then follows one of a low protein diet, consisting chiefly of vegetables, and finally one consisting of oatmeal. Each of these is of two or three days' duration. By repeating this procedure for two or three weeks there may be obtained a lowering of acidosis to such an extent that it ceases to be an immediate danger, and there may be obtained also a clear conception of the degree of sugar tolerance. The subsequent treatment is based on the results obtained. A carbohydrate-free diet can often be given for a week or so with marked general improvement. The patient is then allowed a small amount of carbohydrate, or a more prolonged oatmeal or vegetable diet may be given. Every few weeks a period of strict protein-fat feeding of two or three days may be ordered, and once or twice a year a longer period, two or three weeks, should be tried. In conclusion it must be emphasized that no general rule can apply to all cases. Each case must be studied individually and only by such study can the proper line of treatment for any particular case be determined.

THE ACTION OF GLYCOL ALDEHYD AND GLYCERIN ALDEHYD IN DIABETES MEL- LITUS AND THE NATURE OF ANTI-KETOGENESIS *

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It is generally known that the acetone bodies (acetone, aceto-acetic acid and beta-oxybutyric acid) have their origin in butyric acid, which in turn comes from the fats and to a lesser extent from the proteins, and that the main prerequisite for development of acidosis is a diminution in sugar oxidation. When for any reason the daily oxidation of sugar in the body falls below a certain minimum (say 50 to 75 gm. per day for a man weighing 75 kilograms) then some degree of acidosis supervenes. In the acidosis of starvation, in which lowered sugar combustion is the result of a diminished intake of carbohydrate food, the mere administration of sugar serves to stop the accumulation of acetone bodies. In diabetes, in which the lessened oxidation of sugar is due to the inability on the part of the body to attack the glucose molecule, even when present in abundance, the administration of sugar has less effect than in other acidoses. But, though a diabetic cannot oxidize glucose, he may be able to oxidize other substances chemically allied thereto, such as gluconic acid, saccharic acid, alcohol, etc., and thus lower the existing acidosis. Sugars and allied substances which in oxidizing in the body have the power to lower acidosis are known as anti-ketogenic substances.

* Read in the joint meeting of the Section on Pharmacology and Therapeutics and the Section on Pathology and Physiology, at the First Annual Session, held at St. Louis, June, 1910.

* The original incentive to do this work was received in Munich. When working on the oxidation of glycerin in the second medical clinic of the university, some glycerin aldehyd was prepared, which, at the suggestion of Dr. Otto Neubauer, assistant to Prof. F. Müller, was fed to a diabetic patient then under observation. Later development of the work was done in Chicago in the Medical Department of Rush Medical College (Professor Billings).

16. Gigon: München. med. Wehnschr., 1909, lvi, 907.

17. The oatmeal is given as gruel; 200-300 gm. butter is usually taken also, and there may be added a few eggs and vegetables.

18. Allard: Arch. f. exper. Path. u. Pharmacol., 1908, lix, 338.

19. The following vegetables may be used: asparagus, cauliflower, string beans, Brussel sprouts, cabbage, sauerkraut, spinach, lettuce, endives, olives. In addition 4 to 6 eggs are taken daily.

How do antiketogenic substances in oxidizing so influence the oxidation of butyric acid that acetone bodies do not accumulate in the body fluids? That they do it is generally recognized. How they do it is an open problem. Nor is it unimportant that we know what the mechanism of the reaction is, for there is little doubt that antiketogenesis is but one manifestation of a more general physiologic principle. Cathcart, for example, has recently shown that oxidizing sugars have a modifying influence on certain aspects of protein metabolism. A study of antiketogenesis furthermore holds out a reasonable hope that among the many substances whose chemical formulas indicate that they possess antiketogenic properties there may be some which will not have the injurious by-effects of the antiketogens now known, and which will find a practical application in the clinic. Finally an elucidation of this mechanism should put into our hands a means for illuminating some of the darkness which now covers the subject of the breakdown of glucose in the body. For, if antiketogenesis is an effect due to certain products which occur in the oxidation of glucose, an interaction between these products on the one hand and one or more of the acetone bodies on the other, as seems highly probable, then, *vice versa*, any substance which is antiketogenic has a certain claim to recognition as a possible breakdown product of glucose in the body. If the substance prove relatively non-toxic and completely oxidizable in the body its claim is strengthened; and if in addition to these qualifications it is known to be one of the substances which occur outside the body when glucose is oxidized under such conditions as most closely simulate those of the body, then its qualifications are strong. With these three considerations in view a systematic study of the whole problem was planned along the following general lines:

First, to tabulate those substances which as the result of later chemical investigations appear to be important as intermediate steps in the laboratory oxidation of glucose under such conditions as have been mentioned. In this class belong the oxidations of sugar in alkaline media by means of hydrogen peroxid, or the air stream, as elaborately worked out by Nef and his pupils. Secondly, to prepare, whenever feasible, sufficient quantities of these substances for use in metabolism experiments in cases of severe human diabetes in which the ability to utilize glucose has so far disappeared that any substance passing into that hexose in the body will be almost quantitatively excreted as such, whereas a high acidosis will always exist and by its fluctuations give an index of the combustion of the antiketogen in the body.

EXPERIMENTAL ANTI-KETOGENESIS

In this place the purpose is to mention briefly the results of experiments in which two of the substances which belong in the above-mentioned tabulation were employed, and, in addition, to draw attention to what is believed to be a plausible explanation, in purely chemical terms, of the phenomenon of antiketogenesis. This process appears to be the expression of a simultaneous oxidation and reduction reaction in which aceto-acetic acid, by virtue of its ketone group, acts as the oxidizing agent and hence undergoes reduction, while any substance containing alcohol groups, or the dissociation of which yields the same unsaturated molecules as do alcohols, acts as the reducing agent and hence becomes oxidized.

The first substance to be considered is glycol aldehyd or diose, the simplest possible sugar, of which there is only one. Its formula is $\text{CH}_2\text{OH}\cdot\text{COH}$. This was fed

as a single 20-gm. dose to a patient with severe diabetes, a young man who had been under close observation for a period of two weeks prior to the giving of the experimental substance. Daily determinations were made of the body weight, the amount and specific gravity of the urine, the amount of sugar (by polarization and reduction controlled at intervals by fermentation), the combined acetone and aceto-acetic acid, beta-oxybutyric acid, ammonia and total nitrogen. In addition to these figures accurate observations were made on the ether-soluble acids, both volatile and non-volatile. The patient was kept in bed and all necessary precautions taken with regard to diet and the collection of excretions to insure a consistent metabolism experiment. There was no increase in urinary reducing substances, no appearance of glycol aldehyd in the urine, and no significant change in the total acetone bodies or ammonium. The patient, however, experienced some nausea and a loosening of the bowels. In view of the fact that Paul Meyer saw toxic effects when he administered an impure glycol aldehyd to rabbits, and since two of the oxidation products of glycol aldehyd, namely oxalic acid and glyoxal, are toxic, it seemed likely that these gastrointestinal symptoms were not merely incidental to the existing acidosis. Accordingly no further use was made of this substance in diabetes mellitus. From animal experiments, however, it is evident that glycol aldehyd can pass over into glucose in the body and that in oxidizing it can act as an antiketogenic body. Owing to its toxicity, glycol aldehyd can hardly be looked on as one of the main splitting products of glucose in the body.

When glucose is placed in an alkaline solution there probably occurs, among other changes, a partial splitting into two molecules of glycerin aldehyd. This aldehyd by intramolecular rearrangement is responsible for formation of lactic acid when the solution contains deficient oxygen, or for glycerinic acid and oxidation products thereof when air or peroxid are present beside alkali (Nef¹). Glycerin aldehyd is therefore, *in vitro*, an important intermediate product in the breakdown of the hexose molecule by such methods as we are here discussing. Since lactic acid occurs in the body and, furthermore, as is well known, under conditions which make for a deficiency of oxygen in the tissues, *e. g.*, epileptic fits, strychnin convulsions and cyanosis, it would seem highly probable that glycerin aldehyd also plays a part in the bodily dissociation of hexose. So far as I know we have no data on the biologic behavior of this substance except an unsupported statement by Neuberger that in the animal body and in the diabetic organism it is completely oxidized, a statement not entirely accurate.

The glycerin aldehyd used in the experiments to be reported was made by oxidizing glycerin with hydrogen peroxid, using ferrous sulphate as a catalytic agent, by a slight modification of the method of Fenton and Jackson.² As so prepared, glycerin aldehyd is a syrup having a sweet, pleasant taste. It contains about 2 per cent. of water, traces of free acid and glycerin, possibly also some glycol aldehyd. It rapidly polymerizes in the presence of alkalis, even traces being sufficient. It gives a vivid aldehyd reaction with Schiff's reagent, reduces Fehling's solution at room temperature, and silvers the wall of test-tubes containing ammoniacal silver oxid solution.

When given to a healthy individual large doses are tolerated without any apparent effect. In cases of diabetes in which 20 gm. of glucose caused appearance of sugar in the urine as high as 50 gm. of glycerin aldehyd were given without causing glycosuria, or the appearance

1. Nef: Ann. d. Chem., (Liebig's) cccvii.

2. Fenton and Jackson: Roy. Chem. Soc., lxxv, 4.

of any reducing substance in the urine. But it is to be distinctly stated that continued dosages of this kind have not yet been given, and the results, such as already obtained, are no more striking than were originally obtained and falsely interpreted when levulose was exploited as a sugar which could be used by diabetics. Its effect when given in single large doses to severe diabetic cases has been shown in four separate experiments, all of which yielded essentially the same results. When glycerin aldehyd is administered by mouth in single 50 to 75 gm. doses two things are constantly noticeable if the case is ultra-severe: first, an increase in the urinary glucose in an amount approximately equivalent to 25 per cent. of the total triose administered; second, a marked reduction of acidosis as evidenced by a fall in the figures representing the excretion of acetone, aceto-acetic acid and beta-oxybutyric acids, and by a corresponding fall in the figures for ammonia. The total nitrogen also falls a little, as is to be expected when a sugar oxidizes. Little or no glycerin aldehyd goes into the urine as such. There is a relative increase of the ether-soluble urinary acids. There is never diarrhea, but rather more gastric disturbance than may occur when large doses of an ordinary sugar are given at once. The substance is in moderate doses non-toxic. In dogs and rabbits diarrhea is caused by doses of 3 gm. per kilo of body weight.

There are two ways to explain how glycerin aldehyd passes over into glucose. 1. The glycerin aldehyd may be in part built up in the intestinal wall into an assimilation product of sugar; such a protein compound, perhaps, as Pavy proposes, which later on breaking down yields only glucose regardless of what sugar originally went into its composition. 2. The glycerin aldehyd may be simply polymerized into a hexose in the alkaline media of the intestine (or after absorption therefrom) as it is outside the body in the presence of alkali. Under these conditions it yields beta-acrose. Its further conversion into glucose would then be analogous to that which occurs when any hexose is administered by mouth.

If the latter explanation is correct, then a gradual administration of dilute doses of glycerin aldehyd, which would allow the least chance for accumulation of an excess in the bowel or in the blood, and which would therefore limit the time during which the triose would be exposed to the action of alkali, should avoid condensation and result in more complete oxidation. If the conversion into glucose is an expression of the fact that glycerin aldehyd has been built up into something else by cell action, and that it oxidizes directly only when it is given in such inundating excess that much free glycerin aldehyd passes over into the blood unchanged, then gradual doses should cause greater conversion into glucose, and consequently less oxidation.

A case which had already shown 75 per cent. oxidation of glycerin aldehyd and 25 per cent. excretion as glucose when a single 75-gm. dose of the former had been given showed different effects when the triose was given in small repeated doses. For three consecutive days, 40 gm. per day were administered, the doses being a tablespoonful of a dilute solution every few minutes all day.

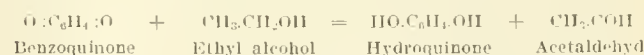
The average excretion of glucose for five days prior to the experiment was 68 gm.; for the three days of the experiment the average was 105, a difference of 37 gm.; *i. e.*, about 92 per cent. reappeared in the urine as glucose, and in corroboration of this appearance there was no appreciable reduction in acidosis to indicate that any considerable amount had oxidized. From this striking

difference in the behavior of gradual and acute dosages it would seem likely that the conversion of glycerin aldehyd into glucose is the work of a bodily assimilative process which requires time and limited concentration for its fulfillment. However, since single heavy doses of glucose cause a higher percentage of oxidation than gradual ones, the difference might be simply an effect of concentration of sugar in general in the blood. All of these findings support the idea that glycerin aldehyd may well be a normal intermediate product in the bodily oxidation of sugar.

MECHANISM OF ANTI-KETOGENESIS

It now remains to be shown what the mechanism of the reaction is, whereby sugars and such substances as alcohol, glycerin, glycerin aldehyd, gluconic acid, etc., in the course of their oxidation depress acidosis. As already stated, this is an open problem and one for the solution of which there is no good hypothesis. Nasse's "secondary oxidation" and Naunyn's suggestion that the burning sugar ignites the acetone bodies as a conflagration sets fire to objects in its neighborhood, are really more graphic than chemical. In this communication a suggestion will be made as to the possible nature of this phenomenon, to which Satta gave the name antiketogenesis.

In a long series of contributions to our knowledge of the chemistry of light Ciamician and Silber³ showed that when ketones, diketones, keto-acids and nitro-bodies are mixed with alcohols (monatomic or polyatomic) and exposed for varying periods to the Italian sunlight, reactions occur in which the alcohols are oxidized and the nitro-bodies, ketones, etc., are reduced. The following serves to illustrate a reaction of this type: In this



instance the two CO or ketone groups of the benzoquinone have each taken up one H atom to give the reduction product hydroquinone, whereas the alcohol group of the ethyl alcohol has lost two H atoms and been converted into the oxidation product, acetaldehyd. One of the substances with which these authors worked was levulinic acid, $\text{CH}_3\text{-CO-CH}_2\text{-CH}_2\text{-COOH}$, which, like aceto-acetic acid contains a CO group—is, in other words, a keto-acid. Levulinic acid when mixed with alcohol and exposed to the sunlight undergoes reductions to the corresponding oxyacid, gamma-oxy-valerianic acid, $\text{CH}_3\text{-CHOH-CH}_2\text{-CH}_2\text{-COOH}$, the alcohol going, as in the above instance, to acetaldehyd. Here then is a chemical reaction capable of fulfillment without the use of strong reagents or extraordinary physical conditions, in which a ketone outside the body may be destroyed by such substances as are known to be "antiketogenic" in the body. And the destruction of the ketone in these instances is simultaneous with oxidation of the alcohol, glycerin or sugar, as the case may be; in fact, the doubly-bound oxygen actually serves as the oxidizing agent.

Now, since aceto-acetic acid, $\text{CH}_3\text{-CO-CH}_2\text{-COOH}$, like levulinic, a keto-acid, may actually be reduced by means of sodium amalgam to beta-oxybutyric acid, $\text{CH}_3\text{-CHOH-CH}_2\text{-COOH}$, it would seem likely that aceto-acetic acid would behave with alcohols and sunlight in the same way as the other substances investigated by Ciamician and Silber. As a matter of fact, it has been possible to show that aceto-acetic acid, when mixed with

3. Ber. d. deutsch. chem. Gesellsch., xxxiv, 530, 2040; xxxv, 1992, 3593, 4128; xxxvi, 1575.

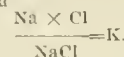
absolute alcohol and long exposed to the action of light, does undergo a reduction to beta-oxybutyric acid, while the alcohol burns to acetaldehyd. Magnus-Levy and others have leaned to the view that aceto-acetic acid, when formed in the body, is destroyed by a direct acid splitting into two molecules of acetic acid, which then oxidize further: whereas, if we assumed that the bodily destruction of aceto-acetic acid produced in accordance with the mechanism of Ciamician and Silber's reaction, we would then have to consider that aceto-acetic acid is destroyed by reduction, not splitting followed by oxidation. Is there any evidence to support such a conception?

As already stated, the Italian writers found that nitro-bodies, like ketones, underwent reduction under the conditions in question. Nitrobenzol, for example, is reduced by alcohol to anilin, according to the general rule. Now, nitrobenzol, when ingested by men or animals, undergoes in the body reduction to para-amino-phenol, a near derivation of anilin and one which occurs in the urine when anilin itself is ingested. Outside the body the reduction depends on simultaneous oxidation of alcohol groups. Is it so dependent in the body? If so, animals in which sugar oxidation is virtually eliminated by the use of phlorhizin and abstinence from food should be unable to reduce nitrobenzol to para-amino-phenol. This appears to be the case. Recently Dakin,⁴ Freedmann and Masse Blum⁵ have shown that aceto-acetic acid when intravenously injected (as a solution of the sodium salt) into dogs and cats is actually reduced to beta-oxybutyric acid, whereas it is well known that in acidosis very considerable amounts of aceto-acetic acid may be spontaneously introduced into the bloodstream without the appearance of beta-oxybutyric acid in the urine. In favor of the idea that aceto-acetic acid is normally destroyed by reduction in the course of a simultaneous oxidation and reductive reaction like those exploited by Ciamician and Silber, there is the following condensed evidence: Aceto-acetic acid in the presence of an alcohol outside the body is reduced, the alcohol undergoing simultaneous oxidation. Aceto-acetic acid is reduced in the body when sugar (alcohol) oxidation is going on (Dakin et al.). When sugar oxidation fails aceto-acetic acid is spontaneously excreted in large amounts, and moderate amounts of aceto-acetic acid may exist prior to the appearance of any beta-oxybutyric acid in the urine. Nitro-bodies, which act outside the body in the same general way as aceto-acetic acid and other ketones, are also reduced in the healthy body, but when sugar oxidation is eliminated they, too, apparently fail to be reduced. In every case the substances which destroy acidosis in the body also reduce ketones, nitro-bodies, etc., in the sunlight.

Reduction of aceto-acetic acid will account for the disappearance of this substance and its splitting product acetone, *i. e.*, two of the acetone bodies. It must now be asked what becomes of the beta-oxybutyric acid which is formed in the process. There is always the possibility that beta-oxybutyric acid can be oxidized in the body in two different ways. If so, then in health one would conceive of a double oxidation of beta-oxybutyric acid, two products being formed, aceto-acetic acid on the one hand and a dioxybutyric acid on the other. The latter substance, being easily oxidizable, would rapidly burn further. The aceto-acetic acid as fast as formed would

be reduced back again into beta-oxybutyric acid. In this way all beta-oxybutyric acid would eventually have to oxidize over the dioxybutyric route, this being the only way in which it could oxidize and stay oxidized.

NOTE.—One might think here of a sort of organic chemical equilibrium between molecules of, say, beta-oxybutyric acid and those dissociation products thereof whose existence is the prelude to formation of alpha and alpha-beta oxyacids respectively, such equilibrium being comparable to that which exists in a solution of an electrolyte between the molecules of the electrolyte and its ions as expressed for NaCl by the familiar formula



If the proportionate concentrations of beta particles becomes lessened by a rapid excretion of aceto-acetic acid instead of being maintained by constant reductions of the same the equilibrium would become disturbed and in the attempt to maintain it a very high aggregate amount of beta products would be formed and a very low aggregate of alpha-beta products. Normally the entire balance may be reversed in simple accordance with the laws of mass action.

THE RELATION OF THE PANCREAS TO DIABETES *

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Over two hundred years ago Conrad Brunner¹ showed by experiments on dogs that a large portion of the pancreas could be removed without affecting the health of the animals. Progress in the physiology of the pancreas was slow and as late as 1888 the conclusions reached by Martinotti² in his experimental studies published that year were those generally accepted. Martinotti asserted that after the complete extirpation of the pancreas no disturbance resulted either in the general condition or in the digestive functions. The dogs in fact gained in weight. Claude Bernard³ had asserted that shutting off the pancreatic juice by injecting oil into the ducts under considerable pressure, caused a serious disturbance in the absorption of fat, but subsequent investigators were unable to confirm his observations.

The idea that there was some relation between diabetes and disease of the pancreas was entertained by a number of clinicians, including Ferriehs,⁴ Bouchardat,⁵ Lancereaux,⁶ Popper,⁷ Lapiere,⁸ and Baumel,⁹ who were impressed with the frequent association of the two conditions. They thought that diabetes was the result of a disturbance in the composition of the pancreatic juice so that it acted abnormally on the sugar-producing foods in the intestine, or that the juice deficient in some particular was absorbed from the intestine and interfered with carbohydrate metabolism in the tissues of the body.

In 1889 von Mering and Minkowski¹⁰ made the important discovery that after complete extirpation of the

* Read in the joint meeting of the Section on Pharmacology and Therapeutics and the Section on Pathology and Physiology of the American Medical Association, at the Sixty-First Annual Session, held at St. Louis, June, 1910.

1. Brunner, Conrad: *Experimenta nova circa Pancreas*, Amstelred, 1682; *Miscellanea nat. curios.*, Dec. 11, 1688; cited by von Mering and Minkowski.

2. Martinotti, G.: *Glor. d. r. Accad. di med. dei Torino*, 1888, pp. 348, 383.

3. Bernard, Claude: *Leçons de physiologie expérimentale*, Paris, 1856, II, 274.

4. Ferriehs: *Ueber den Diabetes*, Berlin, 1884; cited by Lombroso.

5. Bouchardat: *De la glycosurie ou diabète sucré*, Paris, 1875, p. 108.

6. Lancereaux: *Bull. de l'Acad. de méd.*, 1877, series 2, VI, 1215.

7. Popper: *Oesterr. Ztschr. f. prakt. Heilk.*, 1868, xiv, 194.

8. Lapiere: *Thèse de Paris*, 1879; abstracted by Sauerbeck.

9. Baumel: *Montpellier méd.*, 1881, I, 105; II, 406; 1882, I, 31, 442; 1886, I, 213; cited by von Mering and Minkowski.

10. Von Mering and Minkowski: *Zentralbl. f. Inn. Med.*, 1889, xxiii, 393; *Arch. f. exper. Path. u. Pharmacol.*, 1889, xxvi, 371

4. Dakin, H. D.: A New Mode for the Formation of Beta-Oxybutyric Acid in the Animal Organism, *THE JOURNAL A. M. A.*, April 30, 1910, p. 1141.

5. *Munchen. med. Wehnschr.*, lvi, 1796.

pancreas in dogs a severe and rapidly fatal diabetes always developed. The secretion of the sugar began usually on the day following the operation, but occasionally within five or six hours. The failure of the earlier experimenters to produce diabetes by extirpation of the pancreas was readily explained, as none of them had succeeded in removing all the pancreatic tissue. Von Mering and Minkowski found that the diabetes developed in dogs that had been kept fasting for a long time and in which the intestines were empty. This showed that the diabetes could not be due to the cessation of some hypothetic action which the pancreatic juice has on the ingested food, for the diabetes developed promptly although there was no food in the intestine. Hence they concluded that extirpation of the pancreas produced some disturbance in the intermediate metabolism. There are two possibilities, they said: 1. There is an accumulation of some substance in the body, possibly a ferment or a poison, which is normally destroyed by the pancreas. After the pancreas has been removed this substance causes the elimination of the sugar. 2. The destruction of sugar in the organism is a normal function of the pancreas.

The experiments of von Mering and Minkowski have been repeated and confirmed by many investigators. The total removal of the pancreas in the dog, cat and other mammals always produces a severe and rapidly fatal diabetes.

At the time of the discovery of pancreatic diabetes little was known of the internal secretion of ductless glands. Brown-Séguard's¹¹ views on the internal secretion of the testes were not published until 1889. Claude Bernard¹² as early as 1855 had used the expression *secretion interne* in describing the glycogenic function of the liver, but that term is not used by von Mering and Minkowski in their first papers. They did conclude, however, that the experimental diabetes produced by removal of the pancreas was due to the cessation of a "specific, hitherto unknown function of the pancreas." Lépine¹³ a little later asserted that the pancreas furnished an internal secretion, and he attempted to prove by experiments that this secretion contained a ferment with glycolytic power which passed from the pancreas into the blood, and was taken up by the leukocytes. Lépine supported his theory by the demonstration that the sugar-destroying power of the blood was diminished in experimental pancreatic diabetes as well as in human diabetes. The extirpation of the pancreas removed the chief source of production of this ferment and thereby the glycolytic power of the blood was diminished. This work seemed to furnish strong evidence that the pancreas produced an internal secretion, but his claims were quickly disproved by a number of investigators (Arthus,¹⁴ Kraus,¹⁵ Minkowski¹⁶ and others). It was shown that the glycolysis observed by Lépine was probably due to post-mortem changes in the blood. His methods were called in question and his statement that the glycolysis in normal blood was greater than in diabetic blood could not be verified. Even if Lépine's observations had been correct the ferment content of the blood alone would not have been sufficient to produce the normal destruction of sugar in the body.

Years later when O. Cohnheim's¹⁷ studies appeared it seemed as if the long-sought-for internal secretion of the pancreas was at last discovered. Cohnheim found that a fresh extract of the pancreas does not destroy sugar and that muscle juice has only slight action; but when the two are combined the mixture acquires marked glycolytic power. The substance furnished by the pancreas is not destroyed by heat. It is supposed to activate the ferment of the muscle which then is able to cause the combustion of sugar. The muscle ferment is thermolabile and readily destroyed by any adverse condition. An excess of the pancreatic excitor has an inhibitory action. Cohnheim's observations have been supported by Arnheim and Rosenbaum,¹⁸ Hirsch,¹⁹ De Witt²⁰ and Hall,²¹ but the later studies of Simpson²² as well as the work of Claus and Embden,²³ have thrown doubts on their value. Vahlen²⁴ believes that he has obtained a product of the pancreas which produces the vital destruction of sugar in a purely catalytic manner.

Chauveaux and Kaufmann,²⁵ mindful of the teachings of Claude Bernard,²⁶ attempted to modify his hepato-neurogenic theory of diabetes to accord with the discovery of pancreatic diabetes. The source of the sugar according to their views is the liver. The normal production of sugar in the liver is under the regulating influence of the nervous system and the pancreas. The nerves passing to the liver carry stimulating impulses, while the pancreas has an inhibitory action on the formation of sugar. Although at first they held to the view that this influence of the pancreas on the sugar-forming function of the liver was through the nervous system, they later, as a result of experimental study, supported the view that the pancreas furnished an internal secretion which was carried by the blood to the liver. When the pancreas is extirpated the inhibitory influences cease. Pancreatic diabetes would thus be the result of an increased production of sugar, and not of diminished destruction. No recent writers have accepted the theory of Chauveaux and Kaufmann.

The theory that the experimental diabetes produced by von Mering and Minkowski is due to lack of the internal secretion of the pancreas has been accepted by most physiologists and pathologists. It has had its opponents, however, chief of whom has been Pflüger.²⁷

This investigator contended that the antidiabetic power of the pancreas is under the control of the nervous system, and he actively opposed the theory that the pancreas furnished an internal secretion. He asserted that there was in the wall of the duodenum an "antidiabetic" central organ rich in ganglion cells, which by means of nerves passing to the pancreas governed the antidiabetic power of that gland. Pflüger supported his position by experiments on frogs. After extirpation of a portion of the duodenum in contact with the pancreas the frogs developed as severe a diabetes as was ever observed after total extirpation of the pancreas. If

17. Cohnheim, O.: *Ztschr. f. physiol. Chem.*, 1903, xxxiv, 336; 1904, xlii, 401; 1905, xliii, 547; 1906, xlvii, 253.

18. Arnheim and Rosenbaum: *Ztschr. f. physiol. Chem.*, 1904, xi, 220.

19. Hirsch: *Beitr. z. chem., Physiol. u. Path.*, 1904, iv, 535.

20. De Witt: *Jour. Exper. Med.*, 1906, viii, 193.

21. Hall: *Am. J. Physiol.*, 1907, xviii, 283.

22. Simpson: *Bio-Chemical Jour.*, 1910, v, 126.

23. Claus and Embden: *Beitr. z. chem., Physiol. u. Path.*, 1905, vi, 214-243.

24. Vahlen: *Zentralbl. f. Physiol.*, 1908, xxii, 201.

25. Chauveaux and Kaufmann: *Compt. rend. Soc. biol., Paris*, 1893, xiv, 17, 29; Kaufmann: *Compt. rend. Soc. biol., Paris*, 1894, pp. 254, 284, 669.

26. Bernard: *Leçons sur le diabète et la glycogénèse animale*, Paris, 1877.

27. Pflüger: *Arch. f. d. ges. Physiol.*, 1907, cxviii, 265, 267; 1907, cxix, 227, 297; 1908, cxxii, 267; 1908, cxxiii, 323; 1908, cxxiv, 633.

11. Brown-Séguard: *Arch. de physiol.*, 1889, xxi, 651; *Compt. rend. Soc. biol.*, 1889, pp. 415, 420, 454.

12. Bernard, Claude: *Leçons de physiol. expér.*, Paris, 1855, I, 96.

13. Lépine: *Lyon méd.*, 1889, lxii, 619; *Arch. méd. expér.*, 1891, p. 222.

14. Arthus: *Arch. de physiol.*, 1890, p. 425.

15. Kraus: *Ztschr. f. klin. Med.*, 1892, xxi, 315.

16. Minkowski: *Arch. f. exper. Path. u. Pharmakol.*, 1893, xxxi, 85.

this view was correct, said Pflüger, then cutting the nerves which pass from the duodenum to the pancreas would produce diabetes with the intestine and pancreas uninjured. As he expected, this simple procedure produced as marked a diabetes as when the pancreas or duodenum was extirpated. Only a few experiments were performed on dogs, but Pflüger asserted that removal of the duodenum produced glycosuria, although he emphasized the difficulty of the operation. The speedy death of the animals rendered his experiments on dogs unsatisfactory. Pflüger concluded on the basis of his experimental work that the pancreatic diabetes of von Mering and Minkowski was really duodenal diabetes, and was due to the destruction of nerves passing from the antidiabetic centers in the duodenum.

Pflüger's study of "duodenal diabetes" and his theory of the nervous origin of diabetes attracted much attention. It was not long before Ehrmann,²⁸ Lauwens,²⁹ Rosenberg,³⁰ and Minkowski³¹ showed the error of Pflüger's conclusions, at least so far as dogs and other mammals were concerned. They found that the total removal of the duodenum in the dog was not followed by diabetes.

In six dogs and two cats Dr. Murphy and I have dissected the pancreas free from the duodenum, leaving only a few branches of the pancreatico-duodenal artery and vein connecting the two. In none of the experiments did glycosuria result, although the nerves passing from the duodenum were cut and a new nervous connection was prevented by drawing the omentum between the duodenum and the corpus pancreatis.

Recent publications by Rosenberg³² and Löwit³³ give satisfactory evidence that "duodenal diabetes" does not exist in frogs. There is then no justification for the use of the term. The glycosuria observed by Pflüger was a *Kaltdiabetes* produced by keeping his frogs on ice.

Transplantation experiments support the theory that the pancreas furnishes an internal secretion. Minkowski³⁴ and later Hédon³⁵ and Thiroloix³⁶ drew a portion of the pancreas out of the peritoneal cavity and placed it beneath the skin of the anterior abdominal wall. The remainder of the gland was extirpated, but sugar did not appear in the urine. When the graft of transplanted pancreas was removed severe diabetes developed. Pflüger³⁷ and Hédon³⁸ were not convinced that this experiment excluded the nervous origin of diabetes, for the stalk of mesentery which furnished the blood-supply to the transplanted portion of pancreas also conveyed nerves which connected the graft with the central nervous system. Hédon³⁸ found that in a large series of experiments cutting of this mesenteric pedicle was followed by diabetes except in three animals. Pflüger's explanation of these exceptions is that the nerves were not severed when the pedicle was cut. But, as Minkowski³¹ points out, Pflüger brought forward no evidence in support of his statement. There is really no doubt that necrosis of the transplanted glandular tissue, due to an insufficient blood-supply, is the cause of the dia-

betes that follows section of the vascular pedicle. Lombroso³⁹ working with Minkowski recently repeated this experiment of Hédon. After the vascular stalk supplying the transplanted piece of gland was cut there was only a slight glycosuria lasting but three days. Removal of the pancreatic graft was followed by a fatal diabetes. Success in this experiment was probably due to a good-sized artery of the skin that had grown into the pancreatic tissue, and which nourished the graft after the former blood-supply was shut off.

An experiment by Martina⁴⁰ furnishes equally strong evidence against Pflüger's neurogenic theory of pancreatic diabetes. The method that Payr employed with success in implanting pieces of thyroid into the spleen was used by Martina, who took a portion of the pancreas wholly free from its vessels and nerves and imbedded it into the spleen of a dog. The animal survived the extirpation of the remainder of the gland the unusually long time of three months, although diabetes of no slight intensity developed.

Forschbach⁴¹ effected the union of two animals according to the method devised by Sauerbruck and Heyde for producing parabiosis. The abdominal walls of two animals were united in adjacent flanks and the peritoneal cavities were brought into communication. There was an exchange of blood and lymph, but certainly no transfer of nervous impulses from one dog to the other. It was found that the parabiosis of a depancreatized dog with a normal animal either prevented diabetes or reduced the glycosuria to one of slight degree. The most plausible explanation of this is that the pancreas of the normal dog furnished some substance to the blood which was carried in the circulation to the depancreatized dog and enabled it to assimilate sugar. Probably some of the sugar passed from the depancreatized dog into the blood-stream of the normal animal and was consumed in its tissues, but Forschbach presents experimental evidence that this was not the only cause of the diminished glycosuria in the dog from which the pancreas had been removed.

There is no proof that the pancreas produces an internal secretion, although the theory is more probable than any other that has been advanced. Pflüger deserves credit for showing how little actual evidence has been brought forward in its support, and his criticism has been a stimulus to many investigators. In his last communication on the subject published in 1909 he said:⁴²

I am, indeed, still of the opinion that the internal secretion has not been demonstrated to be the cause of pancreatic diabetes. What is not proved, however, may nevertheless be true. That is my point of view.

The strongest argument against the theory is the failure to cure pancreatic diabetes or to diminish the glycosuria by the injection of pancreatic extracts or by feeding the fresh gland. Hédon has asserted that the internal secretion of the pancreas will remain a hypothesis until it is possible to isolate from the gland a substance, the injection of which will check completely the diabetes of a depancreatized dog. This investigator performed a large series of experiments with aqueous and glycerin extracts of the pancreas. Even with strict attention to asepsis, abscesses formed at the site of injec-

39. Lombroso: *Ergebn. d. Physiol.*, Wiesbaden, 1910, ix, 11.
40. Martina: *Deutsch. med. Wchnschr.*, 1908, No. 1, p. 45.
41. Forschbach: *Arch. f. exper. Path. u. Pharmakol.*, 19:9, ix, 131.
42. "Ich bin aber allerdings auch heute noch der Ansicht dass die innere Secretion als Ursache des Pankreasdiabetes nicht bewiesen ist. Das nicht Bewiesen kann aber noch wahr sein. Das ist mein Standpunkt." Pflüger: *Arch. f. d. ges. Physiol.*, 1909, cxxviii, 125.

28. Ehrmann: *Arch. f. d. ges. Physiol.*, 1907, cxix, 295.
29. Lauwens: *Arch. f. d. ges. Physiol.*, 1907, cxx, 623.
30. Rosenberg: *Arch. f. d. ges. Physiol.*, 1908, cxxi, 358.
31. Minkowski: *Arch. f. exper. Path. u. Pharm.*, 1908, iviii, 395.
32. Rosenberg: *Biochem. Ztschr.*, 1909, xviii, 95.
33. Löwit: *Arch. f. exper. Path. u. Pharm.*, 1909, ix, 427; 1909, ix, 47.
34. Minkowski: *Berl. Klin. Wchnschr.*, 1892, p. 90; *Arch. f. exper. Path. u. Pharmakol.*, 1893, xxii, 271.
35. Hédon: *Arch. d. Physiol.*, 1892, iv, 617.
36. Thiroloix: *Compt. rend. Soc. biol.*, Paris, 1892, p. 966.
37. Pflüger: *Arch. f. d. ges. Physiol.*, 1907, cxviii, 267.
38. Hédon: *Travaux de la physiologie*, 1898; cited by Pflüger.

tion unless the extract was passed through a porcelain filter. He was unable to diminish by the use of any pancreatic preparation the intensity of the experimental diabetes. He suggested the possibility that the negative results were due to the presence of antagonistic substances in the pancreatic extract which neutralized each other in the organism.

Many attempts have been made to treat diabetes in man by feeding the fresh pancreas or by administering pancreatic preparations, but without success. Recently Spooner and I⁴³ fed the fresh gland to a man known to have pancreatic diabetes. This patient had had suppurative pancreatitis in 1903, and at operation a large amount of necrotic pancreatic tissue was removed. Three years later diabetes developed. He ate two or three raw pancreases daily for a month, but the glycosuria was not diminished.

Starling⁴⁴ stated that if the internal secretion of the pancreas is of the same nature as the other bodies which he grouped together under the name of hormones, it should be possible to isolate the active principle from the gland and by introducing it into the circulation to influence favorably cases of diabetes due to pancreatic disease.

Zuelzer⁴⁵ in 1907 found that he could prevent adrenalin diabetes by the injection of a pancreatic extract. He later⁴⁶ reported that he had used this preparation with success in human diabetes. In preparing the active principle he removed the pancreas, which he had previously rendered hyperemic, at the height of digestion. The juice of the gland was expressed and the protein removed with alcohol. An examination of his report of seven cases shows that the diminution of the glycosuria was only transitory, and that the injection produced a severe febrile toxic condition. Forschbach⁴⁷ tried the effect of Zuelzer's "hormone" in two cases of diabetes, but owing to the serious symptoms which resulted its use was abandoned. Probably the decrease in the glycosuria was due largely, if not entirely, to the toxic action of the extract, as instances have been observed, both in man and animals, in which the glycosuria diminished in consequence of a febrile infection.

Pflüger³⁷ pointed out that the living pancreas may possibly supply the circulating blood with an active internal secretion as rapidly as it is formed, so that there is never more than a trace of the secretion present in the gland. If this be so an extract of the pancreas would not be expected to produce any decrease of the glycosuria.

It is necessary to remove four-fifths or more of the pancreas in order to produce diabetes. Sandmeyer⁴⁸ found that if the ducts were tied and partial extirpation of the pancreas performed diabetes developed after a time. Gradual degeneration of the gland followed obstruction of the outflow of the external secretion produced by tying the ducts. Even Pflüger³⁷ admitted that Sandmeyer's work was evidence in favor of the theory that the pancreas plays a part in the production of diabetes, for even small remains of pancreatic tissue prevented the development of glycosuria which first appeared when they were degenerated. According to Pflüger this fact is the only one that favors the theory that the pancreas furnishes an internal secretion. I have

found in my experimental study additional evidence of a similar nature. If all the pancreatic juice is excluded from the intestine rapid atrophy of the gland takes place and the limit of assimilation for glucose drops quickly. In one dog it fell from 121 gm. to 65 gm. within three weeks. In two other dogs it dropped to 35 gm. in from two to three months.

Spooner and I found that the limit of assimilation was raised in an animal with atrophy of the pancreas, by feeding the fresh gland. In a dog with the pancreas entirely separated from the duodenum the limit of assimilation was determined at frequent intervals for a year and it was never more than 35 gm. This animal was then given three sheep's pancreases a day for six weeks and the limit of assimilation rose to 80 gm. It continued to rise for a short time after the administration of fresh pancreas was discontinued and the maximum reached was 100 gm.

The most reasonable explanation for this remarkable increase in the animal's ability to assimilate carbohydrates is that the pancreas fed to the dog contained some substance that passed from the digestive tract into the blood and aided in the metabolism of glucose. It certainly supports the theory of the pancreatic origin of diabetes rather than the neurogenic hypothesis.

Evidence gained from histologic study indicates that there is a close connection between lesions of the pancreas and diabetes. The areas described by Langerhans⁴⁹ in 1869 and which bear his name have been thought by many investigators to have as their function the production of an internal secretion. This conception of their nature was first put forward by Laguesse⁵⁰ in 1893.

The islands of Langerhans are of irregular outline, as De Witt⁵⁰ has shown in her reconstruction models. They are composed of solid columns of polygonal cells with round or oval vesicular nuclei and with a very finely granular protoplasm that does not stain well with eosin. Lane⁵¹ has described two types of cells containing granules of different character, both of which differ in chemical nature from the zymogen granules of the cells of the acini. The islands are highly vascular, the veins and capillaries forming a rich plexus of thin-walled blood-vessels (sinusoids) in intimate relation with the epithelial cells. Flint⁵² has shown by means of the digestion method that the connective tissue of the islands is characteristically arranged and differs from that of the rest of the lobule. There is a delicate fibrous capsule which often covers only a portion of the island. It is generally held that these structures are not connected with the excretory ducts, but in pathologic conditions communications with the ducts have occasionally been found.

Histologically there is close resemblance between the islands of Langerhans and the parathyroid and others of the ductless glands. It was on the structural peculiarities of the islands that Laguesse based his view that these bodies are concerned solely with the internal secretion of the pancreas.

Lewaschew,⁵³ Laguesse,^{50, 54} and others regard the islands as acini that have undergone temporary alterations, and they hold that they may change back into secreting acini. It was maintained by Lewaschew on the basis of an experimental investigation that stimulation of

43. Pratt and Spooner: Unpolished observations.

44. Starling: *Zentralbl. f. d. ges. Physiol. u. Path. d. Stoffwechs.*, 1907, ii, 209.

45. Zuelzer: *Berl. Klin. Wechnschr.*, 1907, p. 474.

46. Zuelzer: *Ztschr. f. exper. Path. u. Therap.*, 1908, v, 307.

47. Forschbach: *Deutsch. klin. Wechnschr.*, 1909, p. 2053.

48. Sandmeyer: *Ztschr. f. Biol.*, 1894, xxxi, 12.

49. Langerhans: *Inaug.-Dis.*, Berlin, 1869; abstracted by Sauerbeck.

50. Laguesse: *Compt. rend. Soc. Biol.*, Paris, 1893, p. 819; *Jour. de l'anat. et physiol.*, 1894, xxx, 79, 591, 731.

51. Lane: *Am. Jour. Anat.*, 1907, vii, 409.

52. Flint: *Arch. f. Anat. u. Entwicklungsgesch.*, 1903, p. 61.

53. Lewaschew: *Arch. f. mikrosk. Anat.*, 1886, xxiv, 452.

54. Laguesse: *Compt. rend. Soc. Biol.*, 1908, lxx, 139.

the pancreas increased the number of islands. Dale⁵⁵ and more recently Laguesse⁵⁶ claim to have demonstrated that starvation has the same effect. Dale found that injections of secretin exhausted the acini, thereby converting many of them into islands. Opie⁵⁷ in a careful study was unable to confirm Lewaschew's observations. Vincent and Thompson⁵⁸ have repeated Dale's experiments and agree with his conclusions.

The theory that the islands are under normal conditions anatomically independent of the rest of the pancreas has stronger evidence for its support. The studies of Pearce⁵⁹ and Helly⁶⁰ show the early differentiation of these structures in the embryo. The observations of Flint,⁵² De Witt²⁰ and Lane⁵¹ do not accord with the *balancement* theory of Laguesse, but favor the view that the islands of Langerhans are independent structures. The evidence from histologic investigations supports the theory that the pancreas produces an internal secretion.

Schaefer⁶¹ in 1895 was the first to suggest that pathologic alterations of the islands of Langerhans might be the cause of diabetes. Ssobolew⁶² announced in 1900 that the islands were absent in two diabetic subjects examined by him. Opie⁶³ in the same year described marked lesions of the islands of Langerhans in diabetes. His admirable papers aroused great interest and gave a new impetus to the histologic study of the pancreas. Excellent critical reviews of the literature of the subject have been published by Sauerbeck⁶⁴ in 1904 and Lombroso³⁹ in 1910. There is quite general agreement as to the pathologic findings, but much dispute as to their interpretation. As a result of the investigations of the past decade it can be definitely stated that pathologic changes in the pancreas occur in the majority of cases of diabetes. Occasionally the lesions are limited to the islands of Langerhans and occasionally to the acini, but usually both are involved in varying degree.

Most investigators of the subject hold one of two views. The "acinar theory," as it may be called, which was advanced by Hansemann⁶⁵ in 1894 has among its other supporters Gutmann,⁶⁶ Karakaschew,⁶⁷ Herxheimer⁶⁸ and Schmidt.⁶⁹ They believe that the internal secretion is furnished by the acini, and that pancreatic diabetes is due to disease of the acini.

The theory that the islands of Langerhans alone are concerned with the internal secretion of the pancreas, and that diabetes is due to disease of these structures and not of the acini, is held by Ssobolew,⁷⁰ Opie⁷¹ Sauerbeck,⁶⁴ De Witt,²⁰ MacCallum,⁷² Cecil⁷³ and others.

From the literature Sauerbeck⁶⁴ collected reports of 116 cases of diabetes in which the pancreas had been

examined histologically. In fifteen the gland was normal, in six the lesions were confined to the islands, in twenty-seven to the acini. This would indicate that pathologic alterations are more frequently limited to the acini than to the islands, but Cecil,⁷³ in ninety cases of diabetes in which he examined the pancreas, found the islands affected in every case in which the acini were involved.

Ssobolew,⁷⁰ De Witt²⁰ and Visentini⁷⁴ tied the ducts or placed ligatures about the gland in dogs or cats and found that the acini degenerated, but that the islands were left intact. MacCallum⁷² separated one of the two branches of the pancreas from the remainder of the gland. At the end of seven months the atrophied portion contained only the remnants of ducts and masses of cells, which he regarded as the islands of Langerhans.

I have found in a series of experiments on dogs and cats that when all the pancreatic juice is excluded from the intestine there is degeneration and destruction of both the acini and the islands, associated with a great and diffuse development of connective tissue. This has been a constant finding and is a striking contrast to the results obtained by other investigators.

Lombroso,^{39, 75} for example, 140 days after ligation of the "pancreatic duct" in a dog found that "not only the islands, but many large groups of acini, preserved a completely normal appearance." Zunz and Mayer⁷⁶ confirmed these results. Other investigators as cited above found the islands preserved, but the acini sclerosed or destroyed.

Failure to occlude permanently all the ducts is the explanation of these findings. In Lombroso's experiments and in those of Zunz and Mayer we have evidence that the pancreas was still producing its external secretion and furnishing it to the intestine, for metabolism experiments conducted on their animals showed that the absorption of fats and proteins was normal. The fact that a part of the gland was functioning explains the preservation of the secreting tissue. Hess⁷⁷ was the first to point out an error into which experimenters have stumbled. He discovered that there were usually more than two excretory ducts in the dogs; hence when only two were tied the pancreatic juice entered the intestine through the accessory channel. Even when all the ducts are tied, necrosis may occur and sinuses carry the secretion into the duodenum, as I discovered early in my experimental work.

Before Minkowski performed his skilful operations it was held that total removal of the pancreas was not followed by any symptoms. It is now known that the failure of the early experimenters to produce diabetes was due to the fact that they did not succeed in removing all the pancreatic tissue. So to-day it is generally held that there is no disturbance in the digestion and absorption of food when the pancreatic juice is excluded from the intestine. This belief is based on the work of Lombroso and others who did not succeed in keeping all of the pancreatic secretion out of the intestine. Lamson, Marks, and I⁷⁸ showed conclusively in a recent study that if all the pancreatic secretion is excluded there is always a great decrease in the amount of fat and proteins assimilated. There is marked loss in weight and

55. Dale: Proc. Roy. Soc., London, 1904, lxxiii, 84.
56. Laguesse: Compt. rend. Soc. biol., 1910, p. 369.
57. Opie: Bull. Johns Hopkins Hosp., 1900, xi, 205.
58. Vincent and Thompson: Internat. Monatschr. f. Anat. u. Physiol., 1907, xxiv, 91.
59. Pearce: Am. Jour. Anat., 1903, ii, 445.
60. Helly: Arch. f. mikrosk. Anat., 1905, lxxvii, 124.
61. Schaefer: Lancet, London, 1895, ii, 321.
62. Ssobolew: Centralbl. f. allg. path. u. path. Anat., 1900, xi, 202; Arch. f. path. Anat., 1902, clxviii, 91.
63. Opie: Jour. Boston Soc. Med. Sc., 1900, iv, 251; Jour. Exper. Med., 1901, v, 397.
64. Sauerbeck: Ergebn. d. allg. path. u. path. Anat., Wiesbaden, 1904, viii, 538.
65. Hansemann: Ztschr. f. klin. Med., 1894, xxvi, 191; Verhandl. d. Deutsch. path. Gesellsch. in Hamburg, 1901, p. 187.
66. Gutmann: Arch. f. path. Anat., 1903, clxxiii, 493.
67. Karakaschew: Deutsch. Arch. f. klin. Med., 1907, lxxxii, 60.
68. Herxheimer: Arch. f. path. Anat., 1906, clxxxiii, 228; Orth's Festschr., 1903, p. 228; Deutsch. med. Wechschr., 1906, p. 829.
69. Schmidt: München. med. Wechschr., 1902, p. 51.
70. Ssobolew: Arch. f. path. Anat., 1902, clxviii, 91.
71. Opie: Disease of the Pancreas, Philadelphia, 1903.
72. MacCallum: Bull. Johns Hopkins Hosp., 1904, ix, 265.
73. Cecil: Jour. Exper. Med., 1909, xi, 266.

74. Visentini: Arch. f. Anat. u. Physiol., Physiol. Abteilung, 1908, Suppl. Band, p. 23.

75. Lombroso: Jour. de physiol. et de path. gén., 1905, vii, 3.

76. Zunz and Mayer: Mém. de l'Acad. roy. d. méd. d. Belgique, 1906, xviii, 7; cited by Hess.

77. Hess: Arch. f. d. ges. Physiol., 1907, cxviii, 536; Medizinisch-Naturwissenschaftl. Arch., 1908, i, 161.

78. Pratt, Lamson and Marks: Tr. Assn. Am. Phys., 1909, xlv, 266.

strength and the animals sometimes die of inanition. Our constant results are due to the skill with which the operation of completely separating the pancreas from the duodenum was performed by Dr. F. T. Murphy. It is a more difficult procedure than total extirpation of the pancreas, as is shown by the failures of many experimenters.

In a dog killed two months after the operation the pancreas was shrunken to a hard mass about 3 cm. long which consisted almost entirely of dense connective tissue. The remains of dilated ducts and acini in scattered areas were present, but no islands of Langerhans remained. The dog did not develop diabetes and hence the internal secretion, if produced at all, must have had its origin in the acini. In a cat which died fifty-three days after the ducts were occluded no islands could be demonstrated, but the protoplasm of many of the acinar cells had lost their characteristic staining properties and the cells resembled in appearance those of the islands in a normal gland. The altered acini, rich in vessels and surrounded by connective tissue, might easily have been mistaken for islands of Langerhans if all transitions from normal acini were not present in the same section. In a dog which died between five and six months after the operation the entire gland, except a small portion near the duodenum, was converted into fibrous tissue with acini and islands entirely destroyed. The dog did not develop diabetes, although the bit of pancreatic tissue remaining contained no islands of Langerhans.

These observations seem to be irreconcilable with the island theory. How can its supporters explain the absence of diabetes when all the islands are destroyed?

If the conclusions of Ssobolew, De Witt and MacCallum were correct and the islands remain intact after tying the ducts it would be difficult for the advocates of the island theory to explain the rapid fall in the limit of assimilation for glucose, which within three weeks in one of our experiments⁴³ was from 125 gm. to 65 gm. Furthermore, as the marked changes described occur in animals without diabetes it is improbable that slight lesions in the acini, islands, and blood-vessels interfere seriously with the internal function of the pancreas. The severe alterations in the islands found in many cases of diabetes are probably of etiologic importance, although they may be secondary to unknown changes in the metabolism. There is no proof that severe lesions in the acini may not be of equal significance. The islands may be anatomically independent of the acini and yet not physiologically independent. No facts have yet been brought forward to make untenable the hypothesis that the acini as well as the islands of Langerhans may under normal or pathologic conditions produce the pancreatic internal secretion. Neither the island theory nor the acinar theory, nor yet the theory that diabetes may be due to lesions in either acini or islands, explains the many cases of diabetes in which no change occurs in the pancreas. As is well known, diabetes in early life is especially severe, yet in 50 per cent. of the cases in individuals under 30 years of age Cecil⁷³ found the pancreas normal. It is possible that diabetes without lesions of the pancreas is due to functional changes in the organ, but such a conclusion is pure conjecture, and savors of "learned ignorance."

If the views of Cohnheim¹⁷ and Taylor⁷² are correct it may be that the cause of the disease in these cases is not in the pancreas, but is due to a loss in the mass of

the muscular ferment, or some disturbance in the relation between the pancreatic "activator" or "zymoexcitor" and the muscular ferment. It is probable that the disturbance in metabolism that occurs in pancreatic diabetes is more complex than present-day theories indicate.

SUMMARY

Despite opposing theories and conflicting observations in regard to the relation of the pancreas to diabetes some facts have been definitely ascertained.

The total removal of the pancreas always leads to a fatal diabetes.

Atrophy of the pancreas produced by excluding all the pancreatic juice from the intestine is associated with a marked decrease in the limit of assimilation for sugar.

Transplantation of a portion of the pancreas prevents the development of diabetes when the rest of the gland is extirpated.

Lesions of the islands of Langerhans are found in most cases of diabetes. They are usually associated with changes in the acini.

In the progressive atrophy which follows the occlusion of all the pancreatic ducts in dogs and cats both islands and acini are gradually destroyed.

All the islands may disappear without diabetes resulting.

The conclusion is justified that the pancreas has an internal function concerned with the metabolism of sugar.

The nature of this function, the relation of the islands of Langerhans to the acini, the significance of histologic changes in both structures, these and other problems still await solution.

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[THE PRECEDING ARTICLES ARE PART OF A SYMPOSIUM ON DIABETES WHICH IS CONCLUDED FURTHER ON IN THIS ISSUE.]

HAIRY OR BLACK TONGUE *

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The subject of hairy or black tongue has engrossed a varied degree of attention in dermatologic literature. A comparatively large number of the cases, chiefly from French and English sources, were reported at the time of the discovery and early mention of the affection. Brosin¹ recorded some forty odd cases reported prior to 1888. The next large increment of cases occurred when investigators first took issue in regard to its parasitic or non-parasitic nature, which has remained a more or less unsettled point of contention to the present day. Relatively few cases have been reported in recent years, not so much because the affection is possibly more rare or exceedingly infrequent as because little additional information could be offered regarding its etiology, pathology and treatment. There are scarcely a hundred cases recorded in the literature at the present time, and if the spurious and unauthenticated cases were eliminated the remainder would probably not total much more than half that number. The earliest report of the affection

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-First Annual Session, held at St. Louis, June, 1910.

1. Brosin: *Monatsh. f. prakt. Dermat.*, 1888, vii, No. 1, *Ergänzh.*, p. 5.

79. Taylor; Author's abstract of paper read before Assn. Am. Phys., May, 1910.

probably emanates from Rayer,² who in 1835 described, under the name *discolorations pigmentaires*, several cases of black discoloration of the dorsal surface of the tongue. Eulenberg³ in 1853 described a black-coated tongue (*eine schwarze Zungenbelag*) in a 2-year-old child affected with diarrhea, which persisted for several months. He first called attention to involvement of the filiform papilla, a feature more carefully elaborated later by Gubler.⁴ St. Germain⁵ in 1855 reported some transient cases of short duration in debilitated individuals, under the name *nigrité de la langue*. Raynaud⁶ in 1869 independently described several cases as a new affection, and first ascribed to the condition a parasitic cause. He pictured mycelia and spores, unlike any previously described. As soon as Raynaud attributed a parasitic etiology interest in the affection materially increased; Gallois⁷ was unable to confirm Raynaud's observations, and Richter⁸ states that he had observed the tongue epithelium to develop into thick, black, cylindrical "turt" (*Rasen*) without ever being able to discover Raynaud's fungus. Féréol⁹ likewise found no evidence of spores in his case, and stated that their presence in hairy tongue must be of accidental rather than etiologic character. He considered the hypertrophy of the filiform papillæ the essential pathologic feature, and called the affection *l'hypertrophie épithéliale filiforme*. Within a few years Laveau,¹⁰ Lancereaux,¹¹ and Dessois¹² reported some cases with which they confirmed Raynaud's parasitic etiology. Dessois attempted to confirm the parasitic nature of the affection by inoculation experiments on his own tongue, which, however, proved negative in character. He named the affection *glossophytic*. Rayer reported that not only were inoculation experiments negative, but morphologically similar spores were present on normal tongues. Pellarex,¹³ a Spaniard, erroneously regarded the condition as a vegetating growth and Salter¹⁴ ascribed the discoloration to an anomaly of pigmentation. Butlin¹⁵ believed the fungi normally found in the mouth could, under special conditions, impart a black discoloration to the coating of a tongue. Schech¹⁶ described the discoloration under the microscope as light to dark brown and diffusely distributed over the hairs, without being interspersed with sharp, distinct accumulations of pigment or areas free from pigment. The hairs consisted of thickly crowded masses of long, thin epidermic cells, with a marked tendency to bristle and branch at the borders. They set forth the greatly enlarged, cornified and pigmented filiform papillæ. A remarkable feature was the absence of fine granular masses of cocci, bacilli and leptothrix, which are a part of the normal coating of the tongue. Schech found no evidence of fungi in support of Dessois and Sell and was obliged to retract his former expressed views regarding its mycotic character. Brosin¹ regarded

the affection as a hypertrophy of the papillæ filiformes, with abnormal pigmentation and keratosis of the affected tissue. This view was supported by Rosenberg,¹⁷ Rydygier,¹⁸ Wolleraud,¹⁹ Surmond,²⁰ and others, and their studies revealed the presence of many forms of micro-organisms of incidental and non-pathogenic significance.

Those who have confirmed the parasitic nature of the affection in more recent years are Roth,²¹ who found a micro-organism abundantly present in two cases, to which he attributed the discoloration, and called the affection a keratomycesis. Dinkler²² disclosed the presence of a filiform bacillus, but was unable to cultivate it. Lake²³ detected the presence of round spores. Ciaglinski and Hawelke²⁴ and Senziak²⁵ were able to cultivate a black fungus to which they attributed etiologic importance, but only at room—not at body—temperature. Rostowjew²⁶ describes in his two cases, in addition to the ordinary mouth bacteria, a peculiar cladotrix, the cultures of which were black. Much infectious significance is attributed by Rostowjew to the occurrence of the affection in husband and wife. Gottheil²⁷ illustrates the spores in his case, which showed only a black discoloration of the tongue, without a coat of hairlike prolongations. Lucet²⁸ describes the presence of small round or oval double contoured, highly refractive bodies, with hyaline or finely granular contents. They stained with compound solution of iodine and grew luxuriantly on 5 per cent. glucose agar at 37° C. Inoculation experiments on rabbit tongues were negative. Gottheil named the fungus *Saccharomyces lingue pilosa*. Gaston and Laselet²⁹ believed that the cause of the black discoloration was a fungus which they successfully cultivated. Guéguen³⁰ is the latest observer to attribute this affection to a hitherto undescribed organism, the *Oospora lingualis*. Equally large is the number of present-day observers and investigators, who either ignore or regard as untenable the theory of the parasitic origin of the affection and attribute it to other causes. Levisseur³¹ attributed the cause in his case to use of silver nitrate and chromic acid in the treatment of syphilitic plaques. Schnabel³² and Schourp³³ regard the affection as a common one among syphilitics, dyspeptics and tobacco users. Audry and Dalous³⁴ and Hallopeau³⁵ have observed the affection in cases of Darier's disease. Mourek,³⁶ in his carefully reported and investigated case, states that micro-organisms were found sparingly and gave no evidence of anything of characteristic significance. The bacteriologic investigation was of negative character. He be-

17. Rosenberg: Quoted by Mourek; Arch. f. Dermat. u. Syph., 1894, xxix, 369.

18. Rydygier: Beitrag zur selteneren Erkrankung der Zunge, Arch. f. klin. Chir., 1891, No. 41, p. 767.

19. Wolleraud: Sur la langue noire papillaire, Virchow's Arch. f. path. Anat., xxv.

20. Surmond: La langue noire, Gaz. d. hôp., 1891.

21. Roth: Wien. med. Presse, 1887, p. 935.

22. Dinkler: Ein Beitrag zur Pathologie der sogenannten Schwarzen Haar-Zunge, Virchow's Arch. f. path. Anat., cxviii.

23. Lake: Black Tongue, Brit. Med. Jour., 1891, p. 546.

24. Ciaglinski and Hawelke: Beitrag zu einer seltenen Erkrankung der Zunge, Ztschr. f. klin. med., 1893, xxii, 626.

25. Senziak: Beitrag zur Etiologie der sogenannten Schwarzen-Zunge, Monatsh. f. Ohrenh., 1894, xxviii, 112.

26. Rostowjew: Hospitalz. Botkin, 1896, No. 8.

27. Gottheil: Arch. f. Dermat., 1889, p. 255.

28. Lucet: Arch. de parasitol., May 29, 1901.

29. Gaston and Laselet: Tr. de Soc. Franç. de dermat. et de syph., March 18, 1909, xx, No. 5.

30. Guéguen: Arch. de parasitol., 1909, xii, No. 8.

31. Levisseur: New York State Jour. Med., 1899, xlix, 42.

32. Schnabel: Haar-Zunge, Inaug. Dissert., Leipzig, 1904.

33. Schourp: Monatsh. f. Harnkr. u. sex. Hyg., III, No. 2.

34. Audry and Dalous: Jour. de mal. cutan., 1904, xvi, 801.

35. Hallopeau: Ann. de dermat. et. de syph., 1896, series 3, vii, 744.

36. Mourek: Arch. f. Dermat. u. Syph., 1894, xxix, 369.

2. Rayer: Traité théorique et pratique des maladies de la peau, 1835, III, 573, article Nigrité.

3. Eulenberg: Arch. physiol. Heilk., 1853, xvi, 490.

4. Gubler: Bouche (Séméiologie) Dict. de Dechambre, 1869; quoted by Brosin: Note 1.

5. St. Germain: Compt. rend. Acad. d. Sc., 1855, March 28.

6. Raynaud: Séance de la Soc. méd. d. hôp., Feb. 26, 1869.

7. Gallois: Séance de la Soc. de Biologie, Aug. 7, 1869.

8. Richter: Krankengeschichte Schmarotzpilze, Schmidt's

Jahrb., 1871, cII.

9. Féréol: Séance de la Soc. méd. d. hôp., June 25, 1875.

10. Laveau: De la langue noire, Thèse de doctorat, Paris, 1876; quoted by Brosin: Note 1.

11. Lancereaux: Séance de la Soc. méd. d. hôp., Dec. 8, 1876.

12. Dessois: De la langue noire, Thèse de doctorat, Paris, 1878; quoted by Brosin: Note 1.

13. Pellarex: Gaz. méd. de Paris, 1879, No. 52 (abst.).

14. Salter: Todd's Encyclopedia of Anatomy and Physiology, 1852,

No. 6.

15. Butlin: Diseases of the Tongue, 1885, p. 31.

16. Schech: München med. Wehnschr., 1887, No. 14, April 5

lied the process is a hyperkeratosis and the discoloration the result of contact with food and other extraneous products. The epithelial cells cohered and became mechanically discolored, as in other keratotic affections of the skin. Vollmer³⁷ states that though the etiology and mode of production is obscure, he is of the opinion that syphilis, mercurialization, strong disinfectants, tobacco, etc., are predisposing factors. He regards the parasitic etiology as untenable.

REPORT OF CASES

CASE 1.—On May 25, 1909, Mr. A. D., aged 85, was referred to my attention for a peculiar discoloration of the tongue, which was the site of severe subjective pain and discomfort. Examination revealed a brownish-black discoloration extending anteriorly from the circumvallate papillæ to within almost one inch of its tip, and one-half inch of the right lateral border. The affected area was irregularly elliptical in outline, situated for the most part on the right side of the tongue, but slightly transgressed the median line at its middle third. The patch was black at its center with borders that gradually faded from brownish-black to yellowish-brown. The remainder of the tongue and the mucous membranes of the mouth were bright red and normal in appearance. Salivation was very marked, and the patient complained severely of intense pain in the tongue, which was also referred to the ears. The patch was thickly covered with a soft, felt-like coating of hair-like processes, which on more careful examination and inspection were found to be inextricably interwoven and matted together, in the manner of "a field of grain laid low by storm and wind" as previously described by Gubler, Raynaud, Stokes and Lake. An abundance of long hairy filaments, some of which measured $\frac{3}{4}$ of an inch in length, could be readily removed with thumb forceps. The patient, an intelligent German, stated that his personal attention was first directed to his tongue, some two months prior to the time of the examination, by pain and a sense of soreness in the tongue, and the black discoloration was then in evidence in its present unchanged form. No history of its incipency or probable duration was obtainable.

Biopsy.—On May 28 a biopsy was made for histologic study. Patient was observed daily. The pain became more intense and salivation more marked. On June 3 a marked swelling manifested itself at the left lateral border of the tongue near its middle third and remote from the hairy involvement; the mass, which was deep-seated in origin, was firm and hard in consistence, irregular in outline. The lesion was diagnosed as an epithelioma and the case referred to a surgeon. The subsequent history confirmed this diagnosis. As soon as ulceration took place the patient experienced some sense of relief from his distressing pain. On Feb. 15, 1910, the bed-ridden patient was still alive, although the disease had made great inroads on his previous fairly robust constitution; death eventually took place March 5, 1910. The complicating malignant growth in this case was, without question, a mere coincidence, and has its analogue in a case of a 49-year-old brickmaker, reported by Lediard, who had an epithelioma at the tip of the tongue remote from the pathologic hairy area.

CASE 2.—R. K., aged 19, was first seen in consultation April 6, 1905. Patient stated that three months previously he noted an abnormal sensation in the tongue, resembling the presence of a foreign body on the surface which could not be dislodged. On looking into a mirror he noted for the first time the black discoloration, became alarmed and forthwith brought the condition to the attention of his physician. The examination revealed an intense blackish discoloration of the tongue, with borders imperceptibly fading to brownish-yellow, occupying a triangular area, extending from the circumvallate papillæ anteriorly along the median dorsal surface of the tongue almost to its tip and lateral borders. The same soft felt-like coating of matted hair-like processes was observed as in the previous case, and a specimen was removed and preserved in alcohol for histologic examination. Pain and distress were entirely absent, and there were no subjective symptoms except as

already noted. Patient was last observed in Jan. 15, 1910, and during the intervening five years no appreciable change was detected in the clinical appearance of the tongue. Patient persistently refused a biopsy, but readily permitted the removal of large numbers of hairy processes, some of which measured fully $\frac{3}{4}$ of an inch in length. Syphilis was absent and there was no history of drug-taking, or the use of caustic or astringent applications.

In addition to these two well-defined clinical cases it has been my privilege to observe several cases of less marked character in connection with conditions of general dermatologic interest. The patients were, almost without exception, unaware of or at least indifferent to the manifestations on the part of the tongue, which were revealed merely by process of routine examination, and doubtless would have been dismissed with passing notice had not the unusual interest of the condition been understood. In most cases there was at least a moderate amount of felt-like covering, of hairy growth, in addition to the brownish or blackish discoloration, and hairs from $\frac{1}{8}$ to $\frac{1}{4}$ of an inch could be readily removed and floated in water or alcohol. In some cases there was mere discoloration without an associated hairy growth, as reported by Gottheil, Stokes, Ciaglinski and Hewelke and Sendziak. This discoloration was soft, mushy in character, and could be freely but somewhat incompletely removed by light scraping. The cases occurred for the most part in early syphilitics and were observed in the process of the examination of the tongue for the presence or absence of mucous plaques, or the coated or non-coated state of the tongue in non-syphilitics. All of the cases occurred in males. Most, but not all, of the syphilitics were using at the time astringent and antiseptic mouth lotions. The patches disappeared, however, in some of these cases, in spite of the persistent use of the astringent antiseptic mouth lotions.

One patient, affected with gonorrhœa but not with syphilis, was taking sandalwood oil internally, but the patch persisted for some time after the internal administration of the oil was withdrawn. It disappeared entirely after a lapse of several months.

In two cases syphilitic infection was of long standing; one patient had an extensive leucoplakia of the tongue and these areas were free from the yellowish-brown discoloration, which occupied an irregularly oval area near the center, anterior to the circumvallate papillæ. Most, but not all, of the cases occurred in patients who used tobacco immoderately. Dietary indiscretions and gastrointestinal disturbances were in evidence in the majority but not in all of the cases. The patches were evanescent and transient in all the cases, fading or disappearing without treatment and attention, and occasionally relapsing from untoward local or general influences. These cases lacked the clean-cut clinical characteristics of the first two well-defined cases, in which the color was more intense, the hairs longer, more numerous and interwoven, the patches thicker, more fur-like and sharply defined and more persistent and stable in character. I am inclined to believe that several of the cases reported in the literature belong to this second class of—if I may be pardoned the term—spurious or pseudo cases.

Microscopic Examination.—The microscopic appearance of the hairy-like filaments was fairly constant, when compared with each other and with those described in the literature. Specimens from the pseudo—or spurious—cases could not be differentiated microscopically, except for length and thickness, from those of the two well-defined ones. Specimens unstained and stained by various methods were examined; the unstained specimens, for the most part, showed a more regular and bet-

37. Vollmer: *Arch. f. Dermat. u. Syph.*, 1898, xlv, 13.

ter preserved outline. The color of the unstained specimens is a diffuse yellowish-brown—as already noted by Schech, Mourek, and others.

The outline is an elongated cylinder, hair-like in general appearance. The resemblance to a hair is accentuated in many instances by the presence of a zone analogous to the medullary canal. In many there are several of these zones of varying color intensity, and on close examination they are found to owe their presence to the fact that a single filament is often composed of two or more closely united shafts. These shafts are united the greater part of their entire length: they become separate and distinct from each other a short distance from the distal extremity, imparting a peculiar tuft-like appearance, not altogether unlike that observed in a pineapple (Fig. 1, A). Occasionally one of the united shafts will become dissociated at some more median point, and impart an appearance not altogether unlike that of the leaf to a stalk of Indian corn (Fig. 1, D). The resemblance to Indian corn becomes more marked if there are several lateral dissociations.

Lateral deviations have been noted by Schech and other early observers. On closer examination under higher magnification the filaments are observed to be composed of thin, non-nucleated, stratified, closely superimposed epithelial cells. Their cornified, non-nucleated character can be confirmed if the filaments are macerated with gentle heat in a solution of potassium hydroxid. The individual cells are superimposed in such a way as to produce serrated borders; the serrations are constantly directed downward, producing a peculiar tessellated effect, which can be compared to the scales on the surface of a pineapple. This imbricated character has been frequently noted in the literature; it is not marked enough to conjure up the resemblance of a row of inverted funnels, as described by Brosin, nor is their order, as he states, ever reversed, so that they partake of the appearance of a harpoon or trident. For similar reasons the spike-like appearance or resemblance to the head of a wheat-stalk described by Mourek, is not to be discerned; surface indentations were not observed to recall the "corn-cob" effect described by Levisseur. The serrations at the border are directed toward the base, and away from the rounded and cleft extremities constantly enough to permit a ready differentiation of the distal from the proximal extremity.

In well-stained specimens the filaments were observed under oil-immersion to be thickly studded with masses of cocci, which morphologically resembled the common pus germs. They were present in exceedingly large numbers, were intracellular and extracellular, and often in such density as to resemble pure cultures of the common staphylococci. Larger and more deeply stained cocci and diplococci were interspersed here and there together with bacilli, leptothrix, and various forms of organisms commonly found in the mouth. In addition to the various stained micro-organisms, a few large round, highly refractive, double contoured bodies, some larger, some smaller, often in such proximity as to impart a budding character, were observed here and there in most of the specimens examined. They were not numerous enough to assume pathogenic importance, and to all appearances their presence partook of a coincidental character. Some unrecognizable fungi and micro-organisms were also observed; the micrococci, however, predominated greatly over all other forms.

Culture Experiments.—Culture experiments were attempted in both genuine and spurious cases. The affected surfaces were carefully sponged with ether and 5 per cent. glucose agar; nutrient agar and blood serum were carefully inoculated with removed filaments and platinum loop inoculations from the affected area. Some of the cultures were kept at 38 C.; others at room temperature.

The cultures uniformly remained sterile or became the seat of innumerable, small, glistening, white, superficial colonies, which morphologically and microscopically resembled in every particular *Staphylococcus albus*. No fungus was evident even on prolonged standing in any of the cultures examined.

Histology.—A biopsy was obtained only in Case 1, and the histologic report with accompanying illustrations, is the first, to my personal knowledge, to be recorded for the affection. Under low power the filaments when cut vertically and longitudinally to their long axis, are observed to reach upward

and forward in irregular parallels (Fig. 2). Many of the intertwined filaments are cut transversely and obliquely. The filaments preserve for themselves a feather-like appearance. When cut transversely to their long axis their continuity is preserved only a short distance and most of them appear as small, round or oblique fragments. The filaments can often be directly traced to their origin from papilla-like projections of the stratum corneum. The stratum corneum elongations promptly take on a fringe of serrated, more loosely arranged and deeper staining cells: they often coalesce within a short distance of their proximal extremities with one or more adjacent filaments, to form double, triple, or quadruple filaments. Acanthosis is another marked pathologic feature. The rete and the papillae are considerably hypertrophied, and there is a very extensive downward prolongation of almost every fourth, fifth or sixth interpapillary process of the rete Malpighii. The lower layer of columnar cells is sharply defined, well preserved and in a state of active proliferation. The pars papillaris and subjacent tissue, are entirely devoid of any marked pathologic change save a diffused, mild infiltration of inflammatory products, the distribution of which is limited almost exclusively to the pars papillaris.

One of the most striking pathologic changes, and possibly second in importance only to the filaments, is the formation of papilla-like bodies within the rete Malpighii (Fig. 3). They are differentiated from the rete, in which they are situated, by a well-defined layer of more deeply stained columnar basal cells. Their well-defined interpapillary spaces are devoid of fibro-connective tissue and filled with epithelial cells of the rete. They are further differentiated from normal papillae by their diminutive type. If cut obliquely or on cross section they partake of the appearance of epithelial nests (Fig. 4); and it is not unusual to note six to twelve or more of such nests clustered in a circle. If cut longitudinally they can be traced directly to the surface to points where the filaments take their origin (Fig. 5). Having assumed that these intra-epithelium-placed papillae are the origin of the hairs, I have termed them "epithelial founts."

The stratum corneum is more or less imperfectly preserved. In some places it is of normal thickness, structure and staining properties and covers a fair extent of surface. In places it is almost entirely lacking, and, when present, rises perpendicularly from the surface to form the proximal extremities of the hair-like filaments. Where it is preserved, it is often covered or partially covered with a thick layer of partially stratified, nucleated epithelial cells. Groups of degenerated cells are occasionally observed at the tips of the papillae, or in the epidermis near the papillary border (Fig. 6). These cells are often surrounded by a single layer of endothelial cells; their yellowish color, small homogeneous appearance, angular outline, with interspersed darkly-stained lymphocytes, indicate that they are blood accumulations. Inasmuch as such accumulations have been observed and recorded in the corneous substance of cutaneous horns by Joseph and others, the analogy is plausible. These "blood cavities" and the rete-papillary border occasionally contain large rounded, hyaline or faintly granular, double culture bodies, which are apparently cell degenerations, rather than pathogenic spores, although they bear a morphologic resemblance to spores to which pathogenic importance has been attributed (Fig. 7). They are often embedded in a mass of large, edematous, vacuolated cells situated at the papillary border of the epidermis, which resemble the degenerative cell changes in Paget's disease.

The pathology cannot be dismissed without a brief comparative reference to cutaneous horns, ichthyosis hystrix, leptothrix and hair. The histopathologic similarity which some of these affections bear to hairy tongue is remarkable to the degree with which their clinical characteristics are dissimilar; and *vice versa*, the affections which preserve the greatest degree of clinical resemblance show the least histopathologic resemblance. Cutaneous horns, which have clinically little or nothing in common with hairy tongue, have much in common pathologically. They are composed of masses of corni-

fied, or at least partially stratified, epithelial cells, arranged with wonderful cohesion into dense elongated columns, row after row separated by valley-like clefts, resembling the medullated canals of hair. Intra-epithelial spaces containing blood are also observed. The origin is purely epidermal, and the base rests on and apparently is developed from intra-epithelially placed papillae and interpapillary processes resting above the area of the true papillae, and true interpapillary processes, unless the latter, have disappeared from pressure atrophy. The former papillae and inter-papillary proc-

parallel rather than perpendicular to the surface and the spinous processes are the result of keratotic accumulations, spread irregularly over the surface of four or five hypertrophied papillae. The inflammatory exudate is more perivascular, less diffused in character and more circumscribed to the capillary vessels of the pars papillaris.

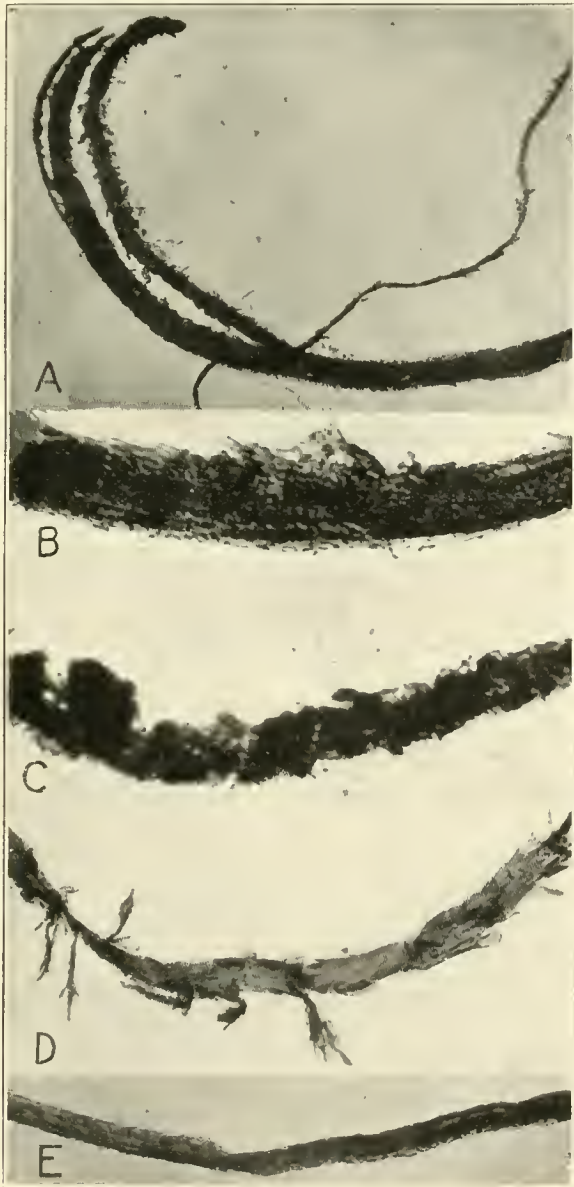


Fig. 1. Specimens from patient with hairy or black tongue: A, separated from each other at the extremity; appearance, tuft-like; a single hair composed of several closely united shafts; B, stained hair of considerable size; C, unstained filament coated with loose masses, composed largely of micro-organisms; D, hair resembling in appearance a stalk of Indian corn; E, one-half of hair measuring $\frac{3}{4}$ inch; tenfold magnification.

esses correspond to the intra-epithelially placed "epithelial founts" of hairy tongue.

Ichthyosis hystrix, which preserves possibly more clinical than histopathologic resemblance to hairy tongue, preserves little histologic similarity except a marked hyperkeratosis. The hyperkeratosis, however, is arranged

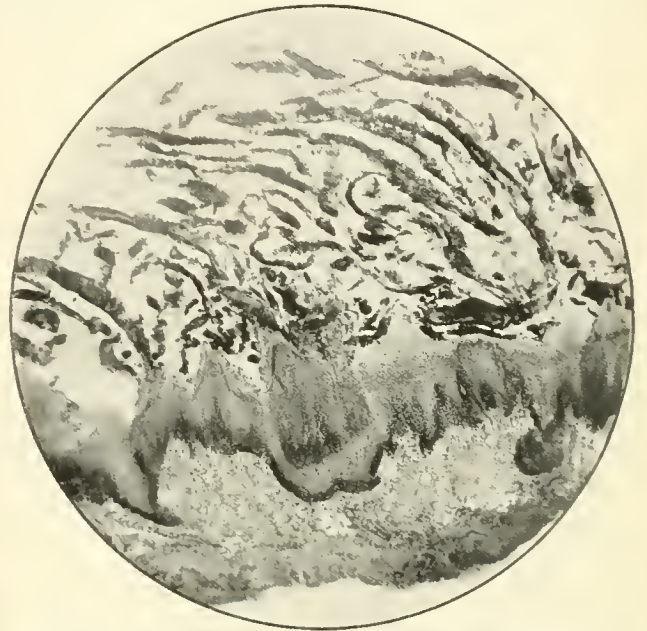


Fig. 2.—Hair-like filaments cut vertically and longitudinally to their long axis. Many intertwined filaments cut obliquely and transversely. Filaments reach upward and forward in irregular parallels.



Fig. 3.—Papilla-like bodies within the rete Malpighii; probable origin of hair-like filaments.

Leptothrix, which has little or nothing clinically in common with hairy tongue, shows a striking resemblance under the microscope, in that the affected hairs are coated with an accumulation of loosely adherent cells and detritus, containing myriads of micrococci and other micro-organisms. The morphologic resemblance, under the microscope, of hair affected with leptothrix to the filaments of hairy tongue is very striking. An additional point of resemblance is the discoloration, which

in lepto-thrix is often yellow or red, and in hairy tongue, black, to brownish-yellow. Pathogenically there can be little in common in the two affections. The gross clinical resemblance which filaments bear to hair is striking enough and gives the affection a misnomer. Remarkable in many of its microscopic features, the resemblance is microscopically and histopathogenically a paradox that requires no comment. In origin, development, essentials

low-brown, thick, soft, fur-like patches covered with densely intertwined hair-like filaments, easily measuring from $\frac{1}{4}$ to $\frac{1}{2}$ inches in length; and (2) false, pseudo or spurious cases, characterized by thickish, yellow-brown or greenish discolorations, of unstable evanescent character, covered with a soft mushy detritus, occasionally containing short filaments measuring $\frac{1}{8}$ to $\frac{1}{4}$ of



Fig. 4.—The same papilla-like bodies cut transversely and imparting the appearance of epithelial nests clustered in circles.

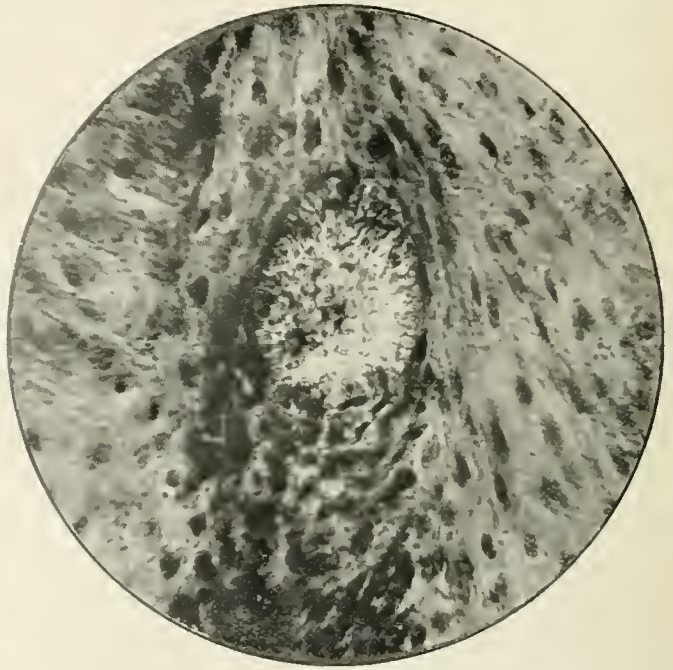


Fig. 6.—Blood cavity strongly magnified, showing its intra-epithelial position. Cavity is lined with a layer of endothelial cells.



Fig. 5.—Superficial origin of the hair-like filaments.

of structure and pathogenesis they naturally share nothing in common with hair.

GENERAL DEDUCTIONS

Hairy tongue can be conveniently divided into two general classes: (1) true, idiopathic, or genuine cases, characterized by well-defined stable, black-brown or yel-



Fig. 7.—Small blood cavity within the epidermis with areas of edematous and degenerated epithelial cells at the rete papillary border.

low-brown patches. The true cases owe their origin to some anomaly of development, probably of congenital nature, in the sense that the germinal products from which they are developed are present from birth, but do not undergo growth and developmental changes until early adolescence or some later period in life. Such an

origin is assumed and very generally conceded for moles, vascular, pigmented papillomatous and unilateral nevi, cutaneous horns,³⁸ etc., and can be extended with equal propriety to this affection, all the more since the histopathology reveals an anomaly of development (whose striking similarity to cutaneous horns has already been alluded to) rather than any evidence of an infectious or inflammatory nature. An anomalous development and congenital origin is further evidenced by the fact that the true, idiopathic or genuine cases are of stable character, and remain unchanged in size and form for indefinite periods, and localized to definite areas. Such would not likely be the case if they were of infectious origin or of inflammatory character resulting from local or general causes.

The pseudo or spurious cases are unstable and evanescent and probably owe their origin to such local or general irritating and infectious causes as tobacco, antiseptics, astringents, syphilis, etc. The presence of the filaments is probably due to an inflammatory hypertrophy of the papillae filiformes. These cases in varying degree of intensity can be frequently noted, particularly in the early stages of syphilis, and constitute no uncommon affection. The diagnosis can be easily confirmed by removing some of the grumous coating of discolored tongues by means of fine forceps, and floating it in clear water or alcohol. The hair-like filaments can then be readily seen with the naked eye. The majority of cases recorded in literature probably belong to this group. A parasitic origin for the affection could not be established on either clinical, histopathologic or bacteriologic grounds; it does not develop or spread clinically like a parasitic affection. Inoculation experiments were negative in the sense that the affections could not be distributed to other unaffected parts of the tongue. It failed to spread to the abrasions and excoriations of an intercurrent cancer of the tongue. The histopathology reveals chiefly anomalous structural changes, and the absence of the marked inflammatory changes generally incident to chronic and acute infectious and localized irritations. The fundamental abnormality is the presence of abnormal papillae, and interpapillary processes or "filament founts" situated within the epidermis, from which the abnormally elongated, stratified and keratosed filaments trace their direct origin. Some of the basal cells at the papillary-rete border showed vacuolated and edematous change, to which, however, no special significance could be attributed. The filaments were freely studded with micro-organisms which resembled *Staphylococcus albus* morphologically, to which likewise no special significance could be attached. A few double-contoured bodies were occasionally observed among the filaments and in the deeper structures, to which no important significance was attributed. The bacteriologic findings were, as already stated, sufficiently negative in character to preclude, in my opinion, a parasitic etiology for the affection.

19 West Seventh Street.

Ocular Chancre.—Chancres of the eyelids may be palpebral or conjunctival. A chancre situated on the ciliary border of the eyelid may be mistaken for a sty. Conjunctival chancre is more often situated on the palpebral than on the ocular conjunctiva, and generally causes conjunctivitis, chemosis, and eversion of the eyelid. Chancres situated at the outer angle of the eye cause enlargement of the preauricular gland; chancres of the inner angle of the eye cause enlargement of the submaxillary glands.—C. F. Marshall, in the *Practitioner*.

THE COMPARATIVE PATHOLOGY OF HYPERPLASTIC AND SUPPURATIVE ETHMOIDITIS *

ROSS HALL SKILLERN, M.D.
PHILADELPHIA

Last year, when the subject of hyperplastic ethmoiditis, in contradistinction to the suppurative type, was presented before one of our laryngologic societies, the question was raised as to whether these conditions were not



Fig. 1.—Chronic hyperplastic ethmoiditis; processus uncinatus, early stage; beginning polypoid hypertrophy on free border which forms portion of hiatus semilunaris; internal or nasal portion not yet affected.

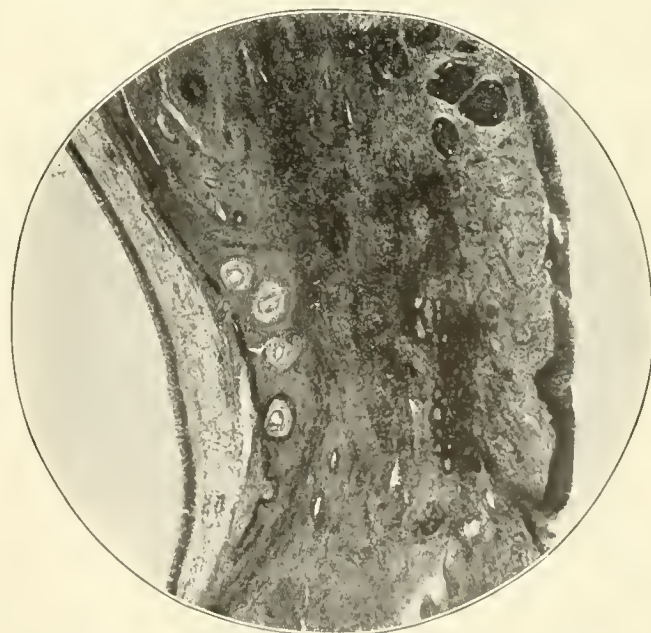


Fig. 2.—Chronic hyperplastic ethmoiditis, later stage. Considerable round-cell infiltration through the polypoid hypertrophy; great infiltration around the glands and blood vessels; medullary spaces infiltrated.

* Read in the Section on Laryngology and Otology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

* From the McManes Laboratory of Pathology, University of Pennsylvania.

identical, or that one was merely a sequela or a complication of the other, as the case might be. It is my intention to bring before you to-day the microscopic pathology of these two conditions and show that the ethmoidal structures and their components are, under certain conditions, dissimilarly affected, and, indeed, often in dia-

polyps of the secretion is, of course, clear in these cases. That the polyp formation in hyperplastic ethmoiditis may occur entirely dissociated from any purulent secretion, past or present, can only be substantiated by the veracity of the patients who have come under observation presenting this form of disease.

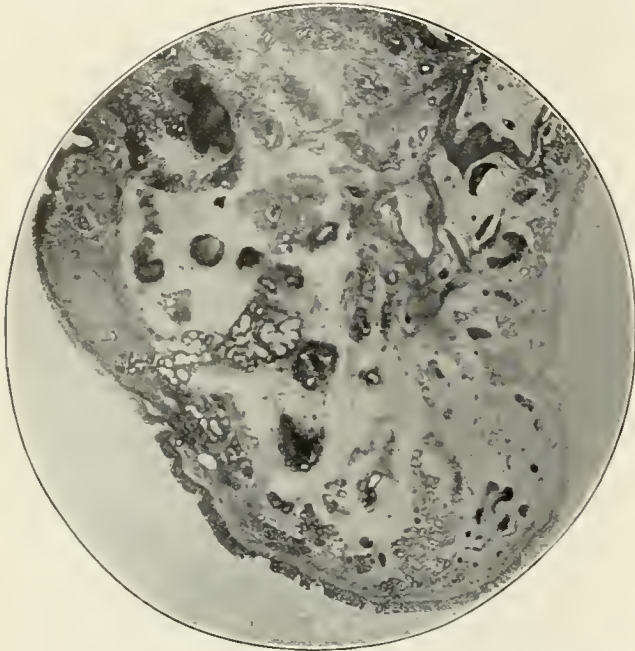


Fig. 3.—Chronic hyperplastic ethmoiditis (end of middle turbinate). Beginning polypoid hypertrophy at extreme end; round-cell infiltration practically absent; ciliated epithelium not affected.

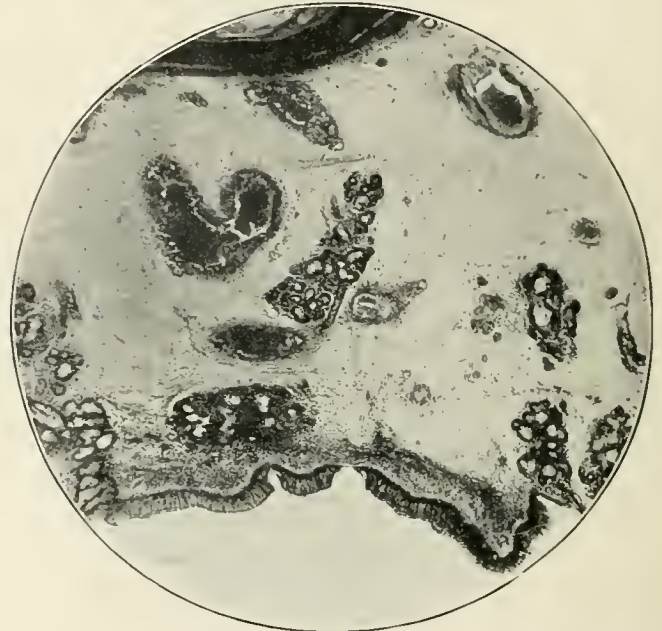


Fig. 4.—Chronic hyperplastic ethmoiditis (base of ethmoidal capsule). Advanced changes; intense round-cell infiltration in basement layers and around glands and blood vessels; periosteum also affected.

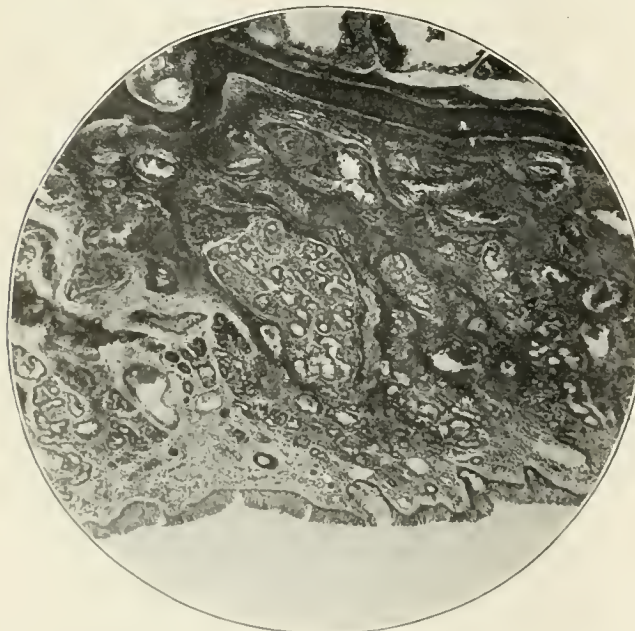


Fig. 5.—Chronic suppurative ethmoiditis (base of ethmoidal capsule). Advanced changes; intense fibrous tissue formation extending from periosteum outward enclosing vessels and glands and reaching almost to basement membrane; moderate round-cell infiltration in outer layers; beginning atrophy of glands.

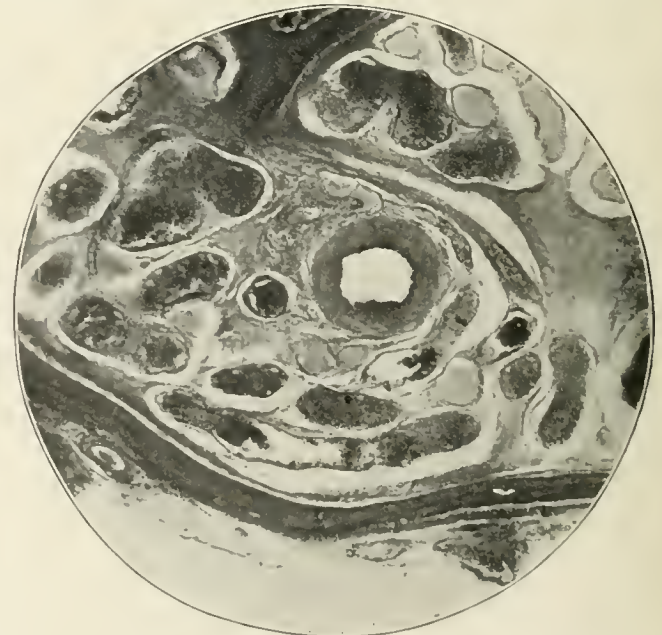


Fig. 6.—Chronic hyperplastic ethmoiditis (medullary spaces, base of ethmoid), hyperemia of entire contents of medullary spaces; proliferation of endosteum; veins distended with blood; lymphatic vessels distended; fibrous tissue formation around arteries.

metrically opposite ways pathologically. Unfortunately for the argument of our contentions these two conditions can and often do occur simultaneously; i. e., a chronic hyperplastic ethmoiditis may become infected, thus giving us the picture of suppurative ethmoiditis with polypus. The old question as to the precedence of the

The discussion as to the relation of polyp formation to empyema, particularly that of precedence, can only be referred to at this place; however, we have all seen empyemas without a vestige of polyp formation, and, on the other hand, polyps springing from the ethmoid region with no traces of pus. The latter class is the one

to which objections seem to have been raised as to the presence of previous suppuration, and on this point we must of necessity rely on the veracity and understanding of our patients.

Briefly reviewing the macroscopic pathology of hyperplastic ethmoiditis, it may be defined as a polypoid inflammation of both the lining and external mucous

Empyema of the ethmoid cells is characterized by a more or less profuse, constant, purulent secretion, often accompanied by crust formation.

There is no question that many cases of chronic empyema occur without a vestige of polyp formation, and *vice versa*. One can go still further and state that typical empyema of the ethmoid labyrinth runs its course

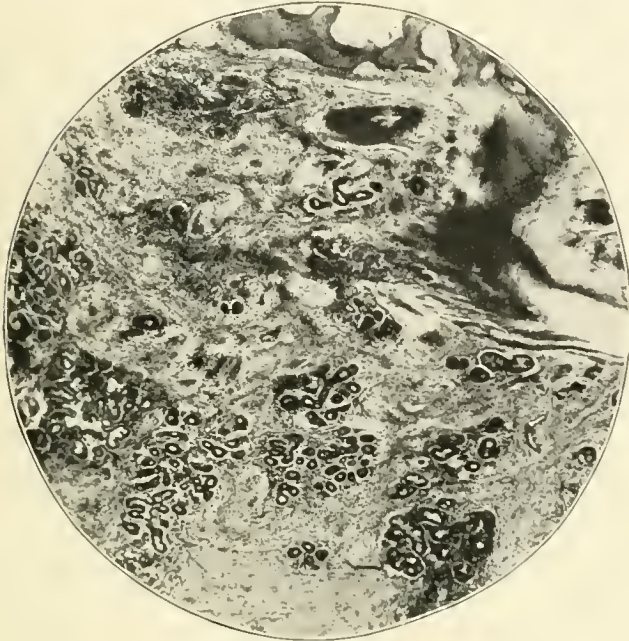


Fig. 7.—Chronic suppurative ethmoiditis. Changes in submucous tissue; considerable round-cell infiltration; marked atrophy of glands; beginning fibrous tissue formation.

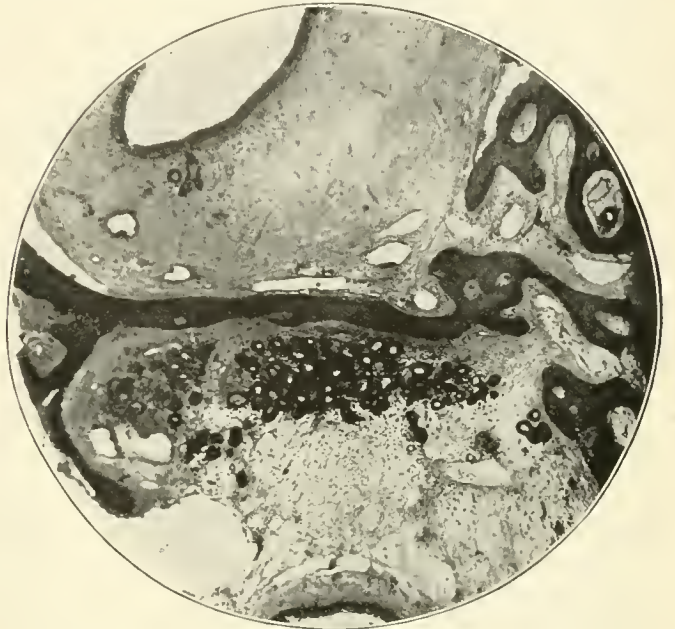


Fig. 8.—Chronic hyperplastic ethmoiditis. Polypoid formation in two separate and distinct cells; beginning atrophy of glands in one cell; blood vessels dilated but empty; medullary spaces and bone apparently normal.

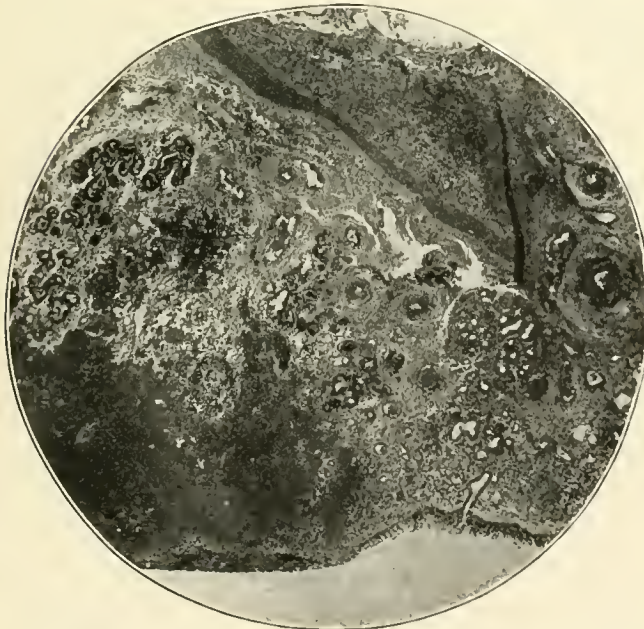


Fig. 9.—Chronic suppurative ethmoiditis. Marked fibrous tissue formation with obliteration of vessels and glands; apposition or new bone formation clearly marked around old bone.

membrane of the ethmoid cells, which may or may not present free polyps hanging from the ethmoid capsule. It is primarily never associated with a purulent secretion, but rather one of a thin, watery consistency, its profuseness being in direct relation to the severity of the disease (area of tissue involved).



Fig. 10.—Chronic hyperplastic ethmoiditis with secondary empyema. Constriction of a polyp at its neck; below constriction round-cell infiltration and polypoid hypertrophy, glands dilated, blood-vessels obliterated; ciliated epithelium unchanged. Above constriction, fibrous tissue formation, glands atrophied; metamorphosis of ciliated epithelium into squamous.

without polyp formation and that simple hyperplastic inflammation runs its course without the formation of purulent secretion. There then remains the combined process, polyp formation with empyema. According to

Uffenorde the formation of purulent secretion is the result of secondary infection and should be viewed as such, being accessory to the hyperplastic condition. The microscopic differences are not so clearly marked, although certain individual peculiarities may always be noted.



Fig. 11.—Chronic hyperplastic ethmoiditis with secondary empyema. Base of polyp, intense fibrous tissue formation; glands and vessels atrophied; peculiar new bone formation forming finger-like projections from the old bone.

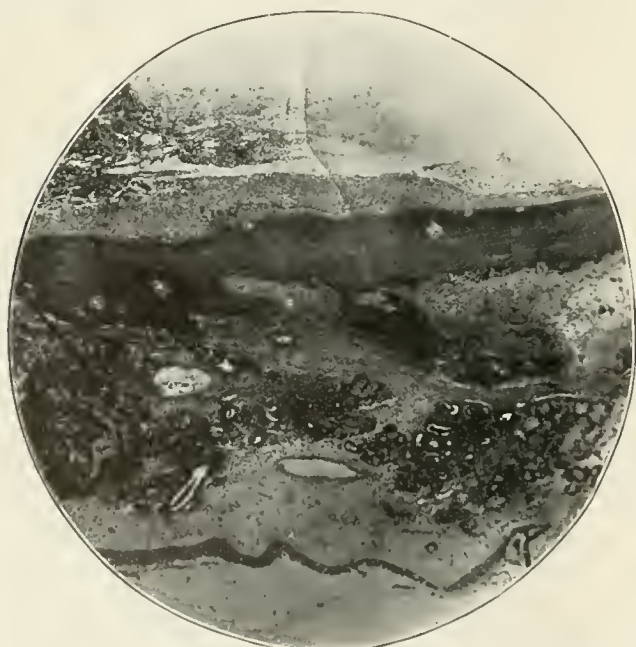


Fig. 12.—Chronic hyperplastic ethmoiditis. Advanced bone changes, marked osteoporosis or erosion of bone in conjunction with previously mentioned advanced changes in surrounding tissues.

These pictures are naturally not absolutely complete, as it requires a large number of microscopic fields to demonstrate every condition which is present in these affections. Combination processes have been omitted (with the exception of Nos. 10 and 11), as they would only tend to cause confusion among the few fields repro-

duced. The main purpose of this demonstration has been to prove that chronic hyperplastic ethmoiditis and chronic suppurative ethmoiditis are, at least primarily, two separate and distinct pathologic processes.

DIFFERENTIAL DIAGNOSIS

CHRONIC HYPERPLASTIC ETHMOIDITIS	CHRONIC PURULENT ETHMOIDITIS
Secretion clear and watery	Secretion purulent.
Inferior turbinate hypertrophied.	Inferior turbinate atrophied.
Never crust formation.	Always crust formation.
Headache most prominent symptom.	Headache often light or absent.
Ophthalmic manifestations due to pressure of hypertrophic mucous membrane on vessels.	Ophthalmic manifestations due to infection from purulent secretion.
Gastric disturbances absent.	Gastric disturbances frequent.
Neurasthenic symptoms predominate.	Neurasthenic symptoms not marked if flow of secretion be free.

HYPERPLASTIC TYPE

Metaplasia of ciliated epithelium into squamous only where parts have come into contact with other structures.
Meshes of subepithelial connective tissue dilated.
Round cell infiltration scanty.
Glands hypertrophied primarily.
Reabsorptive changes in bone predominate.

SUPPURATIVE TYPE

General metaplasia where secretion comes into contact with mucosa
Subepithelial connective tissue shows fibrous formation.
Round-cell infiltration well marked.
Glands primarily atrophied
Apposition of bone predominates.

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ABSTRACT OF DISCUSSION

DR. W. E. CASSELBERRY, Chicago: The research and deductions embodied in this excellent paper explain histologically familiar clinical observations, but do not account for certain of the variations in both types of ethmoiditis with which we are impressed in our operations. Non-suppurative or hyperplastic ethmoiditis, which followed exactly the course described by the essayist, I have watched develop and progress in the same patient at periods separated by an interval of ten years. At first there was hypertrophy of both middle and inferior turbinates, the only symptom at that time being nasal stenosis. At the second period, when he applied again for treatment, he was complaining of a sense of pressure far back between the eyes, of a watery nasal discharge, certain neurasthenic symptoms, and it was evident that the bridge of the nose had broadened, which is an important indication of ethmoidal disease. The inferior turbinates were still simply hypertrophied, but the middle turbinates were hypertrophied and polypoid. No real polyps were visible until the middle turbinate was removed, when a flattish polyp was exposed which had been hidden by the turbinate. Doubtless the disease was ethmoiditis from the beginning, but can the deduction be drawn that all cases of hypertrophic rhinitis are to be ascribed in origin to ethmoidal disease? I do not think so, but would value the essayist's full meaning in this respect.

A few years ago, before this Section, I presented a series of illustrations pertaining to atrophic ethmo-rhinitis, so named because I believed that many cases of atrophic rhinitis originated as a suppurative process in the ethmoid bone. Atrophy limited to the inferior turbinal, while the middle turbinal was considerably swollen, had a glistening aspect, and was filmed over by a viscid odorous secretion, represented the first degree. In the second degree, the atrophic process had caused some shrinkage of the enlarged middle turbinal, as shown by lessened breadth and a concave absorption of its under surface, which exposed to view the underlying bulla cell leading to a false bilid aspect. In the third degree, atrophy of the middle turbinals was complete, drainage from the ethmoid cells was thus promoted and Nature's belated

amelioration manifest. It is a suppurative ethmoiditis, but it differs from the ordinary focal suppuration of one or more cells or sinuses. In atrophic ethmo-rhinitis I have often everted up into these cells, but did not find one or two cells with a focus of "laudable" pus, but found there the same character of secretion as in the middle turbinate region, a thick, glairy, sticky, semi-purulent secretion. Evidently there is more than one type of suppurative ethmoiditis; I should like to hear Dr. Skillern explain the histologic distinction.

DR. GEORGE PAULL MARQUIS, Chicago: I want to emphasize what the essayist has brought out here as to a separate form of ethmoiditis, and I think he has shown, from a pathologic standpoint, what some of us have been observing from a clinical standpoint, that there is a form of ethmoiditis which exists without suppuration. Those who claim that this is simply a manifestation of a chronic suppurative ethmoiditis and that there are periods of quiescence and then an exacerbation with suppuration, lose sight of the fact that in such a case during these periods of remission the symptoms absolutely vanish; the patient is apparently well. In the hyperplastic form we may have an acute mixed infection giving a clinical picture of suppurative ethmoiditis, but as soon as the mixed infection has subsided the symptoms of hyperplastic ethmoiditis continue, with watery discharge from the nose, etc. The headache accompanying this trouble is probably more severe than in any other form of sinus infection. I want to relate a case, that of a clergyman who had had this headache for twenty-two years. He had had any number of examinations and was told that there was no involvement of the sinuses. He had gone to a skillful surgeon and had the supraorbital nerve resected. I diagnosed the condition as a hyperplastic ethmoiditis and on opening the ethmoid I removed probably a teaspoonful of granulation mass from this ethmoid that gave no indication in the nose except one which I am going to call to your attention. Following that there has been no headache and that is a period now of about eight months. This is a typical case in which there was no suppuration in the nose, no polypi, no indication whatever of ethmoidal disease so far as one could observe from our previous methods of diagnosis. What then is the diagnostic sign? I would simply refer you to the remarks of Uffenorde, in which he lays stress on the soft, edematous condition of the mucous membrane on the outer wall of the middle turbinate. Since studying some time with Uffenorde last year, I have been on the lookout for these cases and have been able to find a number. I would lay stress on these signs: severe headache, supraorbital in character, watery discharge, and so-called weakness of the eyes. There may be no sign of pus in the nose, no polypi, and not until we open the ethmoid do we find the seat of the trouble.

DR. O. T. FRER, Chicago: It is only of late that the term ethmoiditis has come into use in the literature, and in a manner which seems based on ill-defined pathologic ideas. Taken literally, it would mean a total inflammation of an ethmoid bone with its coverings. In its present loose employment, however, the designation ethmoiditis is being applied to all chronic inflammations of the ethmoid region, from superficial chronic proliferative catarrhal inflammation, limited to the mucous membrane over the middle turbinate bodies, to an inflammatory degeneration of the ethmoidal turbinated bones and the entire ethmoid labyrinth to the orbit. In fact, everything which in earlier days was defined as nasal mucous polypi is now classed as ethmoiditis, with the wish to convey the idea that these outgrowths are now known to be merely symptomatic of an invariably grave degeneration of the ethmoid bone and its appendages, a condition demanding a radical extirpation of the ethmoidal cells. This view, which I have repeatedly heard expressed, seems to be extreme, and one which has often led to an extensive removal of the ethmoidal turbinated bodies and cells when these structures were quite sound and the true condition merely a polypoid degeneration of the mucous membrane of the middle turbinate body and muciform process. I have often seen a complete cure in such cases after merely a thorough clearing away of the polypi; that is, not merely with the snare, but with the punch forceps.

I think ethmoiditis might be classified as follows: 1. Superficial hyperplastic ethmoiditis. This type is the most frequent. Its main feature is polypoid hyperplasia of the mucous membrane over the middle turbinate body and in the middle meatus, especially in the region of the hiatus semilunaris. While there may be some softening and degeneration of the middle turbinate bone, the bony structures of the ethmoid are not involved to an appreciable extent. The condition may be accompanied by a purulent discharge from the surface of the polypi, but there is no suppuration from the ethmoidal cells.

2. Deep-seated hyperplastic ethmoiditis, non-suppurative. This condition involves the lateral mass of the ethmoid bone to a varying degree, in extreme cases all of the ethmoidal cells being degenerated to the lamina papyracea of the orbit. In operating on such ethmoid bones it is found that the entire middle turbinate body and the walls of the ethmoidal cells have become softened and partly absorbed by rarefying osteitis, so that the punch forceps penetrates with ease into the unresisting body of the ethmoid bone until its arrival on firm bone indicates the proper limit for the extirpation. These are the cases in which the mere removal of polypi is useless and is promptly followed by a new crop, unless the diseased portion of the ethmoid bone furnishing it be cut out, if necessary, to the orbital wall.

3. Deep-seated suppurative ethmoiditis. In this form numerous ethmoidal cells may be found filled with pus. Otherwise, in my experience, the appearance is the same as in the non-suppurative, hyperplastic variety.

I do not find that atrophy is a common accompaniment of ethmoidal suppuration. On the contrary, I often find the hyperplastic type of the disease suppurative, as mentioned. Atrophy of the ethmoid bone and its appendages does occur in the distinct affection called atrophic rhinitis, but atrophic rhinitis causes atrophy of the bony structures of the entire nasal interior as well, and I have not found suppuration of the ethmoidal cells characteristic of atrophic rhinitis. Ethmoiditis usually occurs in adults, while atrophic rhinitis is peculiar to adolescence, and is found especially in young girls. I have found polypoid hyperplasia far more common in suppurative ethmoiditis than atrophy of the ethmoidal structures.

DR. W. L. BALENGER, Chicago: The point of the paper that impresses me is this: The essayist divided ethmoiditis into two types, the hyperplastic and the suppurative. Now then, it seems to me he doesn't make it very clear why he so divides it. As I understand hyperplastic rhinitis, or the polyp type of ethmoiditis, I should say it is due to an infection just as is the suppurative type; the active etiologic cause is infection. Of course, we have all degrees, from the very mild to the very severe infections; in one little or no purulent secretion, and in the other very pronounced secretion. Now hyperplasia is surely due to a mild form of irritation or infection. The suppurative type is due to a more virulent infection. With a very mild infection the pathologic change is one of hyperplasia. In the more active infection hyperplasia does not take place, but there is a sclerotic condition. In the hyperplastic type we have a low grade of inflammation, and the tissue remains loose and is not compact, as in the more active type of inflammation. In the lower grades, however, we may have and do have some purulent secretion; it may at times be purely mucous. I have found that on first examination I may not find pus, but when I ask the patient if he has a yellow discharge from the nose it seems to me I have almost invariably found that he does, especially in the morning when he first gets up, so that I am rather of the opinion that even the hyperplastic type is attended by a mucopurulent secretion almost constantly, although it may not be observable in the nose on examination.

Now both types of ethmoiditis are due to infection; in one instance a very low grade of inflammation and in the other a more active type. With the lower grade we get hyperplasia and with the other we get a more active inflammation, with more secretion and with fibrous tissue formation.

DR. ROSS HALL SKILLERN, Philadelphia: As to Dr. Balenger's remarks, I might state that it was his skepticism that

prompted me to present this paper. I thought it might be a good thing to bring the slides out in this way for his inspection. He seems to be at least half convinced, and I hope that time will further convince him.

The latter part of the paper, which I did not have opportunity to read, answers Dr. Casselberry's remarks in a brief way. These pictures are not complete, as it requires a large number of fields to demonstrate thoroughly every condition. The main purpose of the demonstration is to show that chronic hyperplastic ethmoiditis and chronic suppurative ethmoiditis are two separate and distinct pathologic processes.

TUBERCULOSIS OF THE ANKLE-JOINT AND TARSUS

JAMES WARREN SEVER, M.D.

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BOSTON

According to Thatcher in his "Modern Practice," published in 1826, "tuberculosis, scrofula, or 'the king's evil,'" is in its nature peculiarly inveterate, and



Fig. 1.—Ankle-joint of A. S., aged 1½ years. A, lateral view of ankle, with destruction of upper portion of astragalus. B, antero-posterior view of same foot. The patient had an abscess opened in front of the external malleolus in November, 1908. In May, 1910, there was slight bony thickening about the ankle, and considerable soft part thickening. All motions were normal at the ankle-joint. Patient toes in slightly; no valgus, no pain.

Dr. Ballenger asks how the conclusion is reached that these two conditions are primarily separate and distinct. He speaks about the infection caused by micro-organisms; that I think is questionable. If one takes it that all diseased conditions are due to pathologic organisms he is right. Recently I have had occasion to examine some of the so-called bone-cysts of the middle turbinate and found hyperplastic ethmoiditis just where the mucous membrane came in contact with the inspired air, the anterior end of the middle turbinate. From this fact it appears to me that this hyperplasia may be due to the irritation of the inspired air without regard to germs which may find lodgment on the mucous surface. The bacteriology of sinus disease is, I think, more or less obscure at the present time, although we have had numerous investigators, particularly among our German brethren. I have done some of this work in the past six months, and have in only one instance been able to obtain a pure culture of one particular organism; there were four or five different micro-organisms, some pathologic and some the ordinary non-pathologic bacteria. I think the time will come when the so-called non-pus-producing organisms will be shown to be capable of causing inflammation. It seems to me it may be possible that the bacillus of influenza may produce the inflammation and then when it has disappeared other non-pathogenic organisms keep up the suppuration. If that theory can stand it will explain a great many things regarding suppurative ethmoiditis. Taking into consideration the fact that there is only a difference in degree between polypoid swelling and polyp formation of the nasal mucous membrane, it is not strange that true polyp formation of the ethmoid may be observed without any empyema of the sinuses existing.



Fig. 2.—Ankle-joint of W. M., from x-ray taken March, 1910. Tuberculous astragalus. Excision of astragalus, March 31, 1908. Good motion at ankle. Foot one inch shorter than right. Slight pronation. No marked increase in lateral mobility.

A Social Question. Tuberculosis is no longer a medical problem; it is a great social question. Given public cooperation, in another generation it will pass away and be but a terrible memory—Martin Cooley, *Jour. Outdoor Life*, October.

is most generally handed down by parents to their offspring. Children possessing the most lively disposition and a maturity of understanding superior to others of their age, are those most liable to scrofula. It most commonly affects children of a lax habit, with smooth,

fine skin, fair hair and rosy cheeks. It seldom makes its appearance before the second year of age, generally from the third to the seventh, and rarely makes its first attack after puberty."

In many ways this is to-day a correct picture of a case of bone or joint tuberculosis, varying somewhat, of course, in different cases.

Tuberculosis of the ankle-joint and the bones of the foot is much more frequent in children than in adults, and follows next in frequency tuberculous disease of the spine, hip or knee. Affecting bones and joints which have to bear weight, its treatment and course are necessarily much more difficult and protracted than in joints such as the elbow and shoulder. Also, owing to the superficial position of the bones of the foot, abscess formation is more noticeable and subsequent operation usually more often indicated.

Since 1868 there have been recorded at the Children's Hospital 213 cases of tuberculosis of the ankle-joint and bones of the foot. These cases have occurred in a clinic of 7,474 cases of bone and joint tuberculosis, showing a much larger proportion of cases than was shown in the occurrence of tuberculosis of the shoulder or elbow-joint. The cases of tuberculosis of the shoulder and elbow-joint have been reported by me in two recent papers.

Table 1 gives the data in regard to these cases, with the accompanying complications:

TABLE 1.—GENERAL STATISTICS OF 213 CASES OF ANKLE-JOINT TUBERCULOSIS

Total cases.....	213	Right ankle alone.....	108
Boys.....	122	Left ankle alone.....	90
Girls.....	91	Both ankles.....	15
Family history tuberculous.....	41		
History of trauma.....	27		
Average age at entrance.....	4.8 years		
Average duration of disease at time of appearance at hospital, 9.3 months (197 cases).			
Complications—			
Ankle and hand (wrist and dactylitis).....	15		
Ankle and hip.....	6		
Ankle and both knees.....	1		
Ankle and knee.....	3		
Ankle, knee and elbow.....	1		
Ankle and elbow.....	1		
Ankle and shoulder.....	1		
Ankle and spine.....	9		
Ankle and tuberculous peritonitis.....	1		
Ankle with multiple tuberculosis with skin lesions and glands.....	11		
	49		

As will be seen, there were a few more boys affected than girls, probably owing to their greater exposure to trauma; a tuberculous family history was important; and about a fourth of the patients had other joints involved. Also it should be noted that a long time elapsed from the onset of the disease—that is, the time the parents first noticed that there was something wrong with the foot—until they brought the child to the hospital for treatment. This delay is often due to lack of responsibility on the part of the parents, and again to mistaken diagnosis on the part of the family physician, who believes the condition to be a chronic sprain or a rheumatic condition. It also points forcibly to the insidious and slow nature of the process. The average age in these cases, it will be noticed, was 4.8 years, as compared with the average age of patients with tuberculous shoulder of 4.7 years, and the average age of patients with tuberculous elbow of 5.3 years, which have been previously reported.

From a study of these cases in regard to their complications, and so far as I have been able to tell from their records, there has been about an equal frequency

of the spread of the tuberculous infection from the ankle to the other joints and *vice versa*. The rapidity of the secondary involvement of the other joints has been increased following operation on the original focus, usually a curettage, while on the other hand, without operation, other joints have not become involved until several years have passed, in some instances extending up to five, six and ten years. Trauma to an apparently healthy joint in a child with a pre-existent tuberculous joint often leads to the origin of a tuberculous focus in that joint. It would seem that unless an excision were done with as little mutilation as possible of the parts affected there was great danger of an extension of the tuberculous process to other joints, whereas with conservative treatment such extension is unlikely to occur, except after a long time, and especially in cases which present sinuses.

The onset is usually slow in these cases, and may follow an injury, such as a blow or a sprain. Any sprain which does not clear up promptly under the usual measures should make one most suspicious of some other process going on. Swelling follows about the part involved. If the disease is in the astragalus or the lower end of the tibia or fibula, there is swelling about the ankle-joint, often to such an extent that the outlines of the malleoli are obliterated. Where the tarsal or metatarsal bones are involved the swelling is more defined and localized over that area.

Limp and muscle spasm are noticeable, especially in disease of the ankle-joint. Motion is limited, especially in plantar and dorsal flexion. Where the tarsal bones are involved there is usually very little spasm, and the joint motions are practically normal, unless the process is most extensive. There is, of course, the subsequent atrophy of the leg from disuse.

The swelling is usually not a fluctuating one, but is doughy and gelatinous in feeling.

The most frequent location of the disease is in the astragalus, followed in order of occurrence by the os calcis and lower end of the tibia, lower end of the fibula, scaphoid, cuboid and first metatarsal. These joints are working centers of weight-bearing, and subject to constant friction, strain, over-use and general wear and tear, and joints which transmit weight to the ground are usually more subject to strain, injury and disease than others.

The location of the disease in the different bones is shown by Table 2.

TABLE 2.—LOCATION OF DISEASE (BY OPERATION OR X-RAY)

Astragalus.....	74
Os calcis.....	45
Scaphoid.....	14
Cuboid.....	14
Tibia (lower end).....	42
Fibula (lower end).....	19
Internal cuneiform.....	6
Middle cuneiform.....	6
External cuneiform.....	5
First metatarsal.....	12
Second metatarsal.....	5
Third metatarsal.....	4
Fourth metatarsal.....	2
Fifth metatarsal.....	4
	252
Occurring in more than 1 bone.....	40

When the astragalus is involved it is usually its upper surface, which leads to involvement of the whole joint, including the lower ends of the tibia and fibula. Areas in the os calcis are more usually localized, do not involve the joint, and are as a rule not as serious an affection, unless the disease is virulent and attacks other bones.

Either the lower end of the tibia or fibula, near or at the epiphyseal line, may be the starting point of the disease, which then usually spreads to the whole ankle-joint. Swelling localized about the internal malleolus usually points to a focus in the tibia, and swelling about the external malleolus to a focus in the epiphysis of the lower end of the fibula. Swelling which obliterates both malleoli usually means that the astragalus is involved, or at least the synovia covering it, as well as the lower ends of the tibia and fibula.

Marked swelling over the neck of the astragalus, and most prominent on the dorsum of the foot, usually points to an active process in that region, which later will probably extend and involve the ankle-joint. (See Fig. 1.)

Foci of disease originating in the other tarsal and metatarsal bones of the foot are not frequent, and may often be limited to the bone in which they originate, or, if the virulence of the infection is great, may rapidly spread to the other bones and so involve the whole foot. In children the tarsal and metatarsal bones are largely cartilaginous, and so have slight resisting power and disintegrate rapidly, especially provided no treatment is undertaken from the start.

Abscesses occur frequently, and this is probably explained by the superficial position and small size of the bones involved, which conditions cause an abscess to form and break before the healing process of reabsorption has a chance to take place, as would happen in bones and joints of larger size in which the focus of disease is more deeply situated.

Following the opening of an abscess, a sinus usually persists. Spontaneous rupture of an abscess is not rare, and many cases of this series presented themselves at the hospital following such a rupture, and with a discharging sinus. In these cases a mixed infection is the usual condition to be combated, and adds to the risk of any curetting operation.

Sinuses persisting after operation are not rare, but their presence depends a good deal on the extent of the operative proceedings and the number and area of bones involved. A clean excision of a single bone with a single sinus, even if long-existent, which removes practically all the disease, should lead one to expect a first-intention wound, without subsequent breaking down, provided the after-treatment is carefully and properly carried out. In this series of cases there were forty patients in whom the disease had attacked more than one bone of the foot.

DIAGNOSIS

The diagnosis of tuberculous disease of the ankle-joint or tarsus is usually easily made. The cardinal symptoms are pain, soreness, limp, swelling, muscle spasm. When the ankle-joint is involved, and when the disease has existed for any length of time, the foot is usually held in slight plantar flexion, with obliteration of the outlines of the malleoli, and occasional inversion of the foot. Increased surface temperature is practically always present and redness when the disease is in one of the smaller superficial bones, or when an abscess has formed.

Chronic sprain, irritable flat-foot, syphilis and infectious arthritis are to be ruled out by the history, x-rays and results of treatment. It is usually not difficult for one familiar with these conditions to make a correct diagnosis. Osteomyelitis may be confused with an active tuberculous process, but presents the picture of a much more rapid and virulent infection, which requires immediate operative interference. Disease in the tarsal

bones may be localized to one bone, and may be evident on inspection. Also it may have spread and involved the whole tarsus so that the whole dorsum of the foot is swollen, boggy and hot.

Disease of the lower end of the tibia, fibula or astragalus quickly involves the ankle-joint and causes the characteristic swelling about the malleoli, the outlines of which are obliterated.

PATHOLOGY

The pathology of tuberculous of the bones of the foot is like that of all other bone tuberculosis. Ely states, in defining tuberculosis of the joints, that it is a reaction of the tissues in and about a joint to the presence of the tubercle bacillus or its toxins. He believes strongly in primary infection of the synovia, followed by extension from the synovia to the cartilage and bone. Nichols, on the other hand, believes that all joint tuberculosis is of primary bony origin, starting at the epiphyseal lines in the bone marrow and invading the joint secondarily.

The bacillus usually enters the respiratory tract, or may be in the intestinal tract, when it is usually derived from infected milk. The tonsils are also to be considered as channels of infection. At autopsy the foci are usually found in the lungs, intestines, bronchial and mesenteric lymph-nodes. General tuberculosis may result from a local bone infection, provided the process is active and virulent and the patient's resistance is below par. It may also follow after a curetting operation on the focus, or in a case which has had multiple sinuses of long standing.

Following a mild injury there is an inflammatory exudate which offers the tubercle bacilli a favorable field for growth if it is already present in the body; while if the injury is severe the reparative processes are so active that the bacillus is destroyed even if it does obtain access to the injured part.

When the bones of the foot are affected there is the usual formation of the tubercle, which breaks down and becomes caseous, owing probably to the lack of blood-vessels in the destructive process, and also to the action of the soluble toxins produced by the tubercle bacillus.

As I have noted before, these caseous masses, being in bones which are small and superficial, readily appear under the skin, as abscesses. They may remain single or spread and coalesce, and cause extensive destruction of various adjacent bones of the foot.

Repair is brought about by formation of fibrous tissue which replaces or partly encapsulates the tuberculous tissue. This may become ossified, and so may result in bony ankylosis of the part involved.

In detail the histogenesis of the tuberculous process is as follows, as shown by Kertesz through experiments on rabbits:

Tubercle bacilli introduced into the bone-marrow of rabbits are quickly surrounded by polymorphous leukocytes, and they, as well as a portion of the fixed connective tissue cells situated in the district invaded, are destroyed within two or three days. Another portion of the fixed connective tissue cells, as well as the desquamated endothelial cells of the capillaries, increase amitotically. These cells, as well as the young proliferated elements, group themselves about the tubercle bacilli and form the epithelioidal tubercle, which is completely formed as early as the fourth day. The first tuberculous giant cells appear on the fifth day, originating at this stage through a confluence of the augmented endothelium of the capillaries.

On the seventh day lymphocytes group themselves about the tubercle, which latter at this time already shows signs of cessation in its center. On the eighth day the lymphocytes

penetrate the tubercle. The leucocytes do not reach the neighborhood of the bacilli in their initial accumulation from the blood-vessels, but rather from the septa of the neighboring bone-marrow. The lumina of the capillaries in the neighborhood of the tuberculous tissue are obliterated either through pressure, or they disappear through the desquamation of the endothelium, which then begins to proliferate. The accumulation about, and the migration into the tubercle on the seventh or eighth day, takes place also from the neighboring bone-marrow. The connective tissue elements of this tissue proliferate. It is probable that this increase in connective tissue produces the obliteration in the blood-spaces. Redestruction of the tubercle, its coagulation necrosis, is caused therefore, not considering the toxins of the bacilli, by the obliteration of the capillaries and the blood-spaces in its neighborhood.

TREATMENT

The treatment in this series of cases has been operative and non-operative.

Before taking up the results in these two classes of cases I wish to give the outlines of the routine treatment. Given a case of tuberculosis of the ankle or tarsus, the two most essential things to do are to prevent weight-bearing and to enforce absolute rest. These two conditions are the *sine qua non* in the treatment of any tuberculous joint condition, and without them very little is to be expected either for a cure or for a good satisfactory result.

The general condition is most important also, and a healthy, restful, outdoor life, with plenty of nourishing food, is essential.

With disease in the bones and joints considerable variation occurs in the virulence of the infection and the resistance of the individual, and where in one case acute and destructive disease exists, causing great impairment of function, in another the disease may run a very mild course and leave the patient with nearly a normal joint. There is no way of telling at first, however, which type exists, and so the routine is to be carried out in each case. The use of tuberculin in this series of cases of surgical tuberculosis has not been tried. In view of the experience of others, however, it would seem that it is of use in certain cases, and certainly shortens the convalescent period.

Bier's passive congestion method has also proved to be of use, in the hands of others, who state that the course of the disease is shortened, and that a better functional result is obtained.

In order to get relief from weight-bearing and to insure rest of the part, a plaster cast is applied, with the foot at a right angle to the leg, from the toes to the knee. The child is then fitted to a Thomas knee splint, on which he may walk. He is also provided with a high sole and crutches. This is the routine outfit, and is all that has been used in this series of cases, for protection and fixation of the joint.

As in all tuberculous bone disease in children, the great question arises: Is conservative treatment—that is, absolute rest and fixation—better than operative interference—that is, curettage of the focus, or excision of the whole affected bone or bones?

The only way that this question can be answered is by a study of a large number of cases and statistics, with final results. By presenting figures which cover these points I shall endeavor to show that there is a distinct advantage in children, at least, by pursuing a conservative plan, both as to the result as far as function is concerned, and also in time saved.

Table 3 shows the list of operations performed in this series of cases.

TABLE 3—LIST OF OPERATIONS FOR TUBERCULOUS ANKLE-JOINT

Incision and curettage.....	46
Astragalectomy.....	45
Removal of scaphoid.....	5
Removal of os calcis.....	15
Removal of cuboid.....	6
Removal of lower end of fibula.....	14
Removal of lower end of tibia.....	11
Internal cuneiform excised.....	2
Middle cuneiform excised.....	2
External cuneiform excised.....	2
First metatarsal excised.....	2
Second metatarsal excised.....	0
Third metatarsal excised.....	1
	156

Taking the ankle-joint first, the records show that it was involved by operation seventy times, including the astragalus and lower ends of the tibia and fibula. This total covers operations for purposes of bone excision, of one or more bones, or parts of bones. This leaves a total of only forty for the other cases of bone excisions, not involving the ankle-joint. The opening and curetting of abscesses in this series amounted to a total of forty-six cases. These operations on abscesses were not done until absolutely necessary, and were done simply for drainage purposes. I have not attempted to classify them, as the resultant data would be of no great significance.

In the operative cases, where nearly twice as many operations were done which involved the ankle-joint, the known results are as follows:

TABLE 4.—RESULTS OF OPERATION

Motion—	
Good.....	29
Slight.....	22
None.....	47
	98
Deformity—	
None.....	7
Thickening about malleoli.....	65
Inversion of foot.....	2
Equinovalgus.....	10
Shortening of foot.....	17
Equinovarus.....	5
Calcaneus.....	2
	101

These results include forty-five excisions of the astragalus, fourteen operations for the removal of the lower end of the fibula and eleven operations for the removal of the lower end of the tibia.

In the operative cases the average duration of the disease from its onset until treatment was discontinued was 19.8 months (in 114 cases). The average duration of the treatment was 10.1 months. Of the operative cases there were 72 in which there was 1 operation; 17 in which there were 2 operations; 16 in which there were 3 operations; 8 in which there were 4 operations; 1 in which there were 5 operations.

The necessity of operating on a patient more than once depends wholly on the virulence of the disease, the rapidity of its extension, and the extent of the operation done. A number of cases which have only an abscess opened at one time may need later operations for other abscesses, enlarging a sinus, or the later removal of a sequestrum or an entire bone.

In this operative list is also included the few operations which were done on the bones of the foot which did not involve the ankle-joint.

The non-operative results appear in Table 5.

These are the results in those cases which were treated by fixation, rest and protection only until the process had healed. The average duration of the disease in these cases from onset until cessation of the treatment was 16.1 months in 99 cases. The average duration of

the treatment was 6.8 months, giving an average in favor of the non-operative series of 3.3 months from the beginning of the treatment until it was no longer necessary.

TABLE 5.—RESULTS IN NON-OPERATIVE CASES

Motion—		
Good	.....	32
Slight	.....	23
None	.....	33
		88
Deformity—		
None	.....	4
Plantar flexion	.....	1
Thickening	.....	63
Equinovarus	.....	11
Calcaneovarus	.....	2
Calcaneovalgus	.....	1
Equinovarus	.....	6
		88

From a study of these figures it will be noted that there was a distinct gain in time and also in the function and lack of deformity of the foot in the cases of the non-operative series. It is only natural to expect less deformity in a child's foot in which conservative measures have been followed than after the mutilation of an excision more or less extensive. The time saved is also of importance.

Scudder's conclusions in the series of eighteen cases reported in 1889, which are included in this report, cannot be admitted in view of these later figures. Radical operations on joints and bones in children are not the best methods of treatment, and conservative measures

with phenol, followed by alcohol, or tincture of iodine may be used. Occasionally a first-intention wound is obtained after this procedure.

DEFORMITIES

Following a cure in either an operative or non-operative case there may be deformity which needs correction. This is to be done by appropriate tenotomies or osteotomies, a sufficiently long time having elapsed to avoid any further lighting up of the original disease. The foot is then to be held in the correct weight bearing position. In looking at Tables 4 and 5 one may see the deformities following the two classes of operative and non-operative cases as far as I have been able to collect reports of them. It is to be noted that the most common result was thickening about the malleoli. This thickening is practically always bony in character, and is due to the deposit of new bone laid down in the healing process.

There is usually also some shortening of the foot from atrophy of disuse, which is generally slight, and also from removal of bone. The shortening is usually most marked when the astragalus has been removed. The other deformities noted are due in part to excisions of various bones and contractions of the soft parts, and rarely follow any rule.

The motion noted is to be interpreted as follows: "Good" means normal to one-half normal; "slight" means 10 degrees to 20 degrees normal. In cases in

TABLE 6.—DEATHS IN CASES OF ANKLE-JOINT TUBERCULOSIS

Years of Age.	Time of Death from First Appearance of Disease.	No. of Operations. ¹	Last Operation Before Death.	Condition of Ankle at Death.	Cause of Death.
3	1 year.....	2	Few months.....	Not healed.....	T. B. meningitis.
4	5 months.....	2	2 days.....	Not healed.....	Shock. ¹
2 ¹ / ₄	1 year.....	2	10 days.....	Not healed.....	T. B. meningitis. ²
3	1 ¹ / ₂ to 2 years.....	1	1 year.....	Healed.....	T. B. meningitis.
12	2 ¹ / ₂ years.....	1	2 years.....	Healed.....	T. B. meningitis.
1 ¹ / ₂	Few months.....	1	Few months.....	Not healed.....	T. B. meningitis.
4	11 months.....	0	No operation.....	Healed, swollen.....	T. B. meningitis.
2	16 months.....	0	No operation.....	Not healed.....	T. B. meningitis. ³
3	20 months.....	1	4 months.....	Not healed.....	Gen. T. B. ⁴
1	4 years.....	2	4 years.....	Healed.....	Gen. T. B. ⁵
9	2 years.....	3	6 weeks.....	Not healed.....	Gen. T. B. ⁶

1. First operation astragalus. Part of os calcis, scaphoid and head of ulnar removed. Second operation os calcis curetted.
2. Astragalus and cuboid removed.
3. Eight to ten sinuses about ankle. No operation. Both ankles.

are to be carried out until radical operation is indicated, when all else has failed to stop the progress of the disease.

Operations, then, should be clean. No curetting should be allowed, and any bone or bones involved should be removed *in toto*, with as little mutilation as possible. The increased risk of deformity after an excising operation is, of course, obvious, whereas the non-operative cases which go on to a cure are much less apt to result in deformity, and then not of so serious a nature.

When small foci exist in bones such as the os calcis, the cuboid, the scaphoid and the cuneiform, which are not very active, a conservative course is to be followed. If the process is active and acute, often an incision to establish drainage will prevent extensions, and give the part an opportunity to heal, but removal of the whole bone is not to be practiced unless the destruction is great, the process spreading, or of long duration with a persistent sinus, for the subsequent deformity is of course greater. In some instances subperiosteal excision may be done, which allows the cavity to become filled with new bone in a shorter time than it would otherwise. In other cases the sinus may be probed out, the sequestrum removed, and the bone cavity carefully wiped out

which certain joints are ankylosed, neighboring joints take up their work and increase their range of motion, so that there is always a certain amount of compensation. For instance, if the ankle-joint is ankylosed, the tarsometatarsal joints will increase their range of motion to such an extent that there is considerable freedom in that joint, which condition of course makes for more ease and freedom in walking and a more flexible foot.

CAUSES OF DEATH

Including Dr. Scudder's six cases reported in 1889, in this series I have been able to find but a total of eleven deaths. Nine of this series were operative cases, the deaths occurring from either tuberculous meningitis, shock or a generalized tuberculosis, at varying intervals after the operation. Some could be attributed directly to the operation as a cause, but others were too remote to lead one to suspect that operation was a factor. These cases are shown in detail in Table 6.

CONCLUSIONS

Tuberculosis of the ankle-joint and bones of the foot in children is insidious in its onset, chronic in its course, and attacks usually young children.

The expectant or conservative method of treatment is preferable to the operative one.

Time is saved and deformity less under the conservative plan than by the operative method.

There is also less danger of secondary joint involvement and general tuberculosis by pursuing the non-operative plan.

The disease may be associated with bone and joint tuberculosis in other parts of the body.

The prognosis is fairly good for life, but poor for a good ankle-joint in which there is no disability.

A certain number get a good functional ankle, with but slight deformity.

In regard to the smaller metatarsal bones the results are good for joint motion.

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VARIOUS FORMS OF EXPERIMENTAL DIABETES AND THEIR SIGNIFICANCE FOR DIABETES MELLITUS*

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In the short time allotted in this symposium to the study of experimental diabetes or glycosuria, I shall not of course attempt to give any general review of all the experimental conditions which may cause reducing substances to appear in the urine. It will be more profitable to devote the greater part of my time to a study of the simplest and best-known form of experimental glycosuria, namely, to that which results from stimulation of certain portions of the nervous system.

I shall, then, briefly consider the relationship to this comparatively simple form of glycosuria of some of the other experimental forms, such as those produced by asphyxia and by the influence of certain ductless glands. Its relationship to clinical diabetes I shall, however, omit, for the reason that there is very little definite information on which to base conclusions.

Before going farther, it may be well to call attention to the distinction that must be drawn between the terms "glycosuria" and "diabetes." The former denotes the presence of glucose or dextrose in the urine and is merely a symptom. The latter is the name applied to a group of symptoms of which glycosuria is one; it is the name of a disease. It is with the chemical pathology of the symptom, glycosuria, that we are to occupy our time.

So far as is known at present, there seem to be three distinctly different mechanisms by which dextrose may appear in the urine. In two of these the appearance of dextrose in the urine, the glycosuria, that is to say, is dependent on an increased percentage of dextrose in the blood. This hyperglycemia, as it is called, may be due either to increased production of dextrose by the liver or to diminished utilization of dextrose in the tissues. In the remaining form of experimental diabetes there is no hyperglycemia, the glycosuria being primarily due to a derangement of the renal function of such a nature as to cause the sugar normally present in the blood to be excreted into the urine.

It is, then, to the first of these three forms of experimental glycosuria that I shall devote most of my attention.

When we sift it down to its essentials we see that a study of this form of experimental diabetes means really a study of those conditions which so disturb the glycogenic function of the liver as to bring about an excessive conversion of its glycogen into dextrose. It may well be asked here of what value to the general question of diabetes such investigations can be. The great attention which has recently been given to the study of such forms of experimental diabetes as that which follows pancreatotomy, parathyroidectomy, epinephrin injection, phloridzin poisoning, etc., has drawn attention away from this simpler type defined above, and this, notwithstanding the well-known fact that at the outset of every form of diabetes there exists an excessive hepatic glycogenolysis. It is not far from the truth to state that in every variety of experimental diabetes there is an excessive production of sugar due to hepatic glycogenolysis; in some of them the glycosuria ceases when all the glycogen has disappeared; in others it persists, the dextrose being now derived from other sources than glycogen and being usually accompanied by a depressed glycolysis. Besides glycosuria other symptoms of diabetes make their appearance. In this latter group of cases the independence of the source of the sugar from the glycogenic function of the liver in the later stages has diverted attention from this function with the result that in seeking for the exact cause of the persistent production of dextrose by the organism, it is often lost sight of that the glycogenic function of the liver has been almost, if not entirely, thrown out of commission, as evidenced by the great poverty of glycogen, even after feeding with excess of dextrose-yielding food.¹ Loss of the power on the part of the tissue to destroy dextrose is usually given as the cause of the hyperglycemia, but the possibility that this is associated with a derangement of hepatic function is commonly overlooked. Hyperglycogenolysis is the first outcome of this derangement: may it not be that the subsequent inability to destroy dextrose in the organism, as well as the production of dextrose from glycogen, is also dependent on deranged hepatic function?

These preliminary remarks indicate the importance of a more thorough knowledge of the glycogenic function of the liver, and it is to what is already known of this and of the conditions which (apart from lesions elsewhere in the organism) may throw it out of gear that we shall now confine our attention.

SOURCE OF GLYCOGEN

In the short space of time at my disposal, there are of course several aspects of this glycogenic function which must be very cursorily considered and one of these is the source of the glycogen. There is now no doubt that besides the carbohydrates themselves, proteins may lead to glycogen deposition. The most satisfactory evidence on which this conclusion is based has been derived from metabolism studies in diabetic animals, it having been found in these that when proteins or certain of the degradation products of protein are ingested, an increase in the dextrose excretion occurs. The proteins are thus shown to be convertible in the organism into dextrose which, of course, means that, were the glycogenic function of the liver not deranged, they would have been converted into glycogen.^{2, 3, 4}

1. von Norden: *Handbuch der Pathologie des Stoffwechsels*, Berlin, 1907, ii, 17.

2. Lüthje: *Arch. f. d. ges. Physiol.*, 1904, cvi, 160.

3. Pflüger: *Das Glykogen*, Bonn, 1906.

4. Lusk: *Am. Jour. Physiol.*, 1908, xxii, 174.

*Read in the joint meeting of the Section on Pharmacology and Therapeutics and the Section on Pathology and Physiology of the American Medical Association, at the Sixty-First Annual Session, at St. Louis, June, 1910.

What more particularly concerns us in the present connection is the fate of this glycogen. Following Bernard's teaching,⁵ most authorities believe that glycogen is reconverted into dextrose, and delivered as such into the blood whenever that which is already present therein tends to fall below its normal percentage. When the tissues require more carbohydrate in the performance of their metabolic functions, they derive it from the blood which again replenishes its store from the glycogen of the liver; or, if this be all used up, from that also present in the muscles.

No one denies that before being utilized, the glycogen is reconverted into dextrose, but the English physician Pavy⁶ has advanced the hypothesis that whenever the glycogen molecule becomes broken down into molecules of glucose, the latter, instead of becoming dissolved in the blood plasma, becomes instantly taken on as a "side-chain by a protein constituent of the blood." He was one of the first to demonstrate the existence of carbohydrate molecules among the degradation products of protein, and, disregarding the fact that it is mainly as glycosamin that these are present,⁷ he concludes that they must represent the glucose, which in this form is being transported to the tissues to be utilized as fuel.

Pavy's chief argument against the reconversion of hepatic glycogen into free dextrose seems to be that dextrose could not exist in a free state in the blood on account of its being immediately excreted in the urine. "When circulating through the kidney," so he writes, "it [dextrose] cannot be prevented from escaping like other small molecular bodies and making its appearance in the urine." I have no time at my disposal to discuss this question at any length, and, indeed, it requires little discussion, for it has been unequivocally demonstrated by the recent work of Rona and Michaelis⁸ that all the sugar in the blood exists therein in simple solution, some of it in the corpuscular contents, the remainder in the plasma. These workers have shown that when diluted blood is shaken with certain colloids, such as ferric hydroxid or kaolin, the proteins are all adsorbed (*i. e.*, form a colloidal combination) and can be quantitatively precipitated by the subsequent addition of a trace of electrolyte, but that not a trace of sugar is removed from solution by this treatment. Were the dextrose in any way united with the proteins, it would certainly be carried down along with them. Nor is it possible that there can be a disruption of any such compound by the above treatment, for the reagent employed cannot be imagined to have any disruptive action. Another piece of evidence in support of the free state of dextrose in blood is furnished by the observation that, whereas charcoal adsorbs both sugar and protein from a solution containing these two substances alone (*i. e.*, when it is shaken with a solution of protein and sugar), yet it adsorbs the protein but not the dextrose when acetone is present in the solution. The acetone being more adsorbable than the dextrose prevents the latter being taken up by the charcoal.⁹ Further evidence of the free state of dextrose in the blood was furnished by dialysis experiments to discuss which, however, would occupy too much of our time.¹⁰

Under normal conditions this production of dextrose by the liver is finely adjusted so that the percentage in the blood is kept about the normal level, which is variably given as from 0.1 to 0.15 per cent. What is it, then, that regulates this amount? It cannot be because of a direct influence on the liver cell of the amount of dextrose in the blood, for, with the exception of that circulating in the hepatic artery, this passes to the liver through the portal system, in which it has added to it the dextrose absorbed by the intestine. Only two other possibilities remain open: direct action on the liver cells of some chemical constituents of the blood other than dextrose, or a nervous reflex.

Experimental evidence at present stands in favor of the latter view. The conversion of glycogen into dextrose or glycogenolysis, as we may call it, which is thus held in control during life, becomes very much exaggerated after death. In a few moments after the circulation of blood through the liver has ceased this glycogenolysis sets in and becomes more and more marked until, after about thirty-five to forty-five minutes, in the case of most livers, it has assumed enormous proportions, after which it gradually declines to disappear almost entirely some considerable time before all of the glycogen has been thus transformed.¹¹

During life, an equally active glycogenolysis may be brought about by a variety of causes, but more especially by stimulation of certain portions of the nervous system. This causes an excess of dextrose to accumulate in the blood, hyperglycemia becomes established and as a consequence glycosuria. This is experimental glycosuria or diabetes.

There is nothing to indicate that any essential difference exists between ante-mortem and post-mortem glycogenolysis; in other words, there is a constant tendency for the liver to produce sugar from glycogen. During life this tendency is held in check by some inhibitory mechanism, the break-down or the removal of which is therefore the immediate cause of experimental diabetes. In the further development of the subject, it is from this view-point that I shall proceed, and the first question naturally concerns the cause of the conversion of glycogen into dextrose.

THE CAUSE OF THE GLYCOGENOLYSIS

It has been known for long that the liver tissue contains a diastatic or glycogenolytic ferment. This ferment, which we may call glycogenase,¹² is contained in fairly active form in extracts of blood-free liver, the most satisfactory extract in this regard being that prepared by the well-known Buchner process. It is precipitable in an active state by alcohol, although prolonged contact with this reagent seems to cause a deterioration in its strength. It is extremely difficult to make accurate quantitative estimations of the amount of glycogenase in liver or any other tissue, but, in so far as such estimations have been made, there is no indication that it is any larger in amount sometime after death when post-mortem glycogenolysis is very active, than it is in a liver immediately after death. In the same way, no increase in the amount of glycogenase in the liver seems to occur as a result of those conditions which in the intact animal cause glycosuria.

This statement does not at first sight appear to be in accord with the results recorded by Bang, Lundahl and

5. Bernard: *Leçons sur le Diabète*, 1877, p. 371.

6. Pavy: *Carbohydrate Metabolism and Diabetes*, London, 1906.

7. Macleod: *The Metabolism of the Carbohydrates*; in *Recent Advances in Physiology and Biochemistry*, London, 1906, p. 315.

8. Michaelis and Rona: *Untersuchungen über den Blutzucker*, *Biochem. Ztschr.*, vii, 329; viii, 356; xiv, 476; xvi, 60; xviii, 375.

9. Michaelis and Rona: *Biochem. Ztschr.*, xiv, 489.

10. Michaelis and Rona: *Biochem. Ztschr.*, xiv, 476.

11. Macleod and Pearce: Unpublished experiments.

12. Macleod and Pearce: *Am. Jour. Physiol.*, 1910, v, 255.

Bohm¹³ to the effect that in incubated samples of minced (blood-free) liver of the rabbit there is more rapid glycogenolysis in a given time when, prior to death, there exists some experimental condition causing glycosuria. It is evident, however, that Bang's results instead of indicating an actual increase of glycogenase might be explained as due to influences affecting the inhibitory mechanism. Evidently, then, the production of dextrose by the liver, either ante-mortem or post-mortem is due, not to variable amounts of glycogenase, but to variations in the activity of the inhibitory mechanism which holds it in control.

Glycogenase is by no means confined to the liver tissue; it is present, in at least as great amount, in blood and to a variable degree, apart from the blood which they contain, in the kidneys, muscles, intestines, spleen, etc. The fact that as much, if not more, of it is present in blood as in the liver, as well as the other facts regarding its distribution, indicates that there is no relationship between the amounts of glycogen and of glycogenase in the animal body. Here again, is evidence that it is not the presence or absence of the ferment which determines whether glycogenolysis shall occur, but rather some controlling or inhibitory agency.

The same facts regarding the distribution of glycogenase would further suggest the existence of some definite site for its production. Since of all extracts those of the pancreas exhibit by many times the strongest glycogenolytic activity, it has naturally been thought that this gland is the source of the ferment. Should this be the case, there are two paths by which the glycogenase might gain the general circulation—the blood and the lymph. In the former case, we should expect to find glycogenase present in greater concentration in the blood of the pancreatic veins than in blood from the carotid artery. Such, however, is not the case, for both during ordinary anesthesia and when the nervous system is being stimulated in such a way as to produce hyperglycogenolysis, the amounts of glycogenase in the systemic blood and in that of the pancreatic veins are identical. It is therefore impossible to demonstrate any actual secretion of this ferment by the pancreas into the blood probably because of the great volume of blood. It may be, however, that the remarkable strength of the pancreatic extract is on account of the diastase which would otherwise have been contained in the pancreatic juice.

The large amount of glycogenase in blood as compared with other tissues explains why the glycogen disappears with greater rapidity from the liver after death when the organ is left intact and full of blood than when, just immediately after death, the blood is washed out of it. The much more rapid glycogenolysis which occurs in a mixture of liver and blood-free liver tissue has naturally suggested the possibility that there might be something in the blood exercising an activating influence on the hepatic ferment. No evidence of such an activation can, however, be obtained, the greater glycogenolysis in the mixture of blood and liver being merely an additive function of the ferments present in each.

Regarding the nature of the mechanism by which glycogenolysis is inhibited or held in abeyance during life, we are almost entirely in the dark. In considering this question it has, however, to be borne in mind that the glycogenolysis produced by glycogenase takes place within the hepatic cell; it is an intracellular reaction and consequently is regulated by the vitality of the cell. In other

words, the intracellular glycogenase is prevented from acting on the glycogen during life by forces which are dependent on the vitality of the protoplasm. On the death of the cell, therefore, glycogenolysis sets in. This function of the protoplasm is under control of the nervous system as is illustrated in the various forms of experimental glycosuria about to be described. It is of interest to note that section of all the hepatic nerves does not in itself cause any change in the amount of dextrose in the blood.¹⁴

MECHANISM OF GLYCOGENOLYSIS

We are now in a position to consider a little more fully the various conditions which may bring about glycogenolysis in the liver during life. These, as already mentioned, are the conditions which cause experimental glycosuria. Besides stimulation of certain portions of the nervous system and asphyxia, there are many drugs which have this effect, but since the exact mechanism by which most of these act has not yet been fully worked out, it would profit us but little in the present connection to consider them and we will rather confine our attention to the so-called nervous and asphyxial glycosurias.

The reflex arc through which the nervous control of the glycogenic function is effected has its center located in the fourth ventricle. Mechanical stimulation in this location in rabbits, as by puncturing, is soon followed by the appearance of a large amount of dextrose in the urine, dependent on great increase in the reducing substance in the blood. The glycosuria disappears when all the glycogen in the liver has been used up and it fails to appear when, prior to the puncture, the liver has been rendered glycogen-free by starvation or in some other way.^{5, 15} The efferent path from this center to the liver is by way of the cervical portion of the spinal cord and the great splanchnic nerves.⁷ The actual existence of these fibers in this portion of the cord has, however, never been demonstrated, for electrical stimulation here so interferes with the respiratory movements as to create a condition of partial asphyxia which in itself leads to hyperglycemia, and when this asphyxia is prevented by delivering a constant stream of pure oxygen into the bronchi, then stimulation of the cord does not cause an increase in the reducing power of the blood.^{7, 14} It is possible that the great fall in blood-pressure or the spinal shock may be responsible for this negative result. In the great splanchnic nerves, on the contrary, it is a very easy matter to demonstrate the presence of the fibers;¹⁶ indeed, in my experience, there is no more certain way of bringing about a rise in the reducing power of the blood than by stimulation of these nerves. The nerve fibers involved must of course descend by the cervical portion of the spinal cord, and they leave the cord by the spinal roots in the lower dorsal region.¹⁷

There must also be afferent influences carried to this glycogenic center and it is believed that these are most plentiful in the vagus nerve, but here again the experimental evidence is faulty on account of the fact that electrical stimulation of these nerves affects the respiratory movements and thereby tends to an asphyxial condition. Indeed, I have so far been unable to cause any increase in the reducing power of the blood by stimulation of the vagus nerves, when, by delivering pure oxy-

14. Macleod: *Am. Jour. Physiol.*, 1907, xix, 388.

15. Macleod and Dolley: *Proc. Physiol. Soc.; Jour. Physiol.*, 1906, xxxii, 42.

16. Macleod: *Am. Jour. Physiol.*, 1908, p. 373.

13. Bang, Lungdahl and Bohm: *Beitr. z. chem. Phys. u. Path.*, 1907, ix, 408; 1907, x, 1 and 312.

17. Morat and Dufmont: *Jour. de physiol. norm. et path.*, 1894, Series 5, vi, 370; also Macleod (*Notes* 7, 14, 16 and 19).

gen into the bronchi. I have excluded the possibility of asphyxia.

Splanchnic glycosuria is, I consider, an experimental condition worthy thorough investigation, for in this particular instance, in contrast to practically every other form of experimental glycosuria, we have a simple uncomplicated problem; that is, we are studying the effect on a definite function of a gland produced by stimulation of its nerve. Although, as already explained, the excessive production of dextrose by the liver is not to be considered as the immediate cause of diabetes, yet in every variety of this condition it is the cause of the hyperglycemia in the early stages, and even in the later stages the glycogenic function on which it depends can be shown to be abnormal.

NERVOUS CONTROL OF GLYCOGENIC FUNCTION

In connection with this comparatively simple condition of splanchnic glycogenolysis there are several questions concerning the nervous control of the glycogenic function which are susceptible of tolerably exact investigation. The most important of these concerns the exact nature of the nervous control. Three possibilities exist:

1. The nerve may control the production of the glycogenolytic ferment just as the secretory nerve fibers in the chordi tympani control the secretion of the submaxillary gland.

2. The nerve fibers may have no direct influence on the amount of glycogenolytic ferment, but may exercise a control on those conditions which retard or inhibit its activity.

3. The vasoconstriction produced in the liver by stimulation of the nerve may lead to an asphyxial or anemic condition of the hepatic cells which then permits glycogenolysis to proceed.

In considering these hypotheses it is convenient, first of all, to see whether there is any evidence in favor of the last one. I have attempted to furnish this evidence by making comparison of the rate of glycogenolysis in the liver deprived of its blood-supply (by connecting the portal vein with the vena cava and in some cases also ligating the hepatic artery) with and without stimulation of the splanchnic nerves. In such a case a greater glycogenolysis could not be attributed to changes in blood-supply, and would therefore indicate direct action on the liver cell. Although my first few results in this direction showed a distinctly greater glycogenolysis when the nerve was stimulated, I have been led, by more extended studies on post-mortem glycogenolysis, to conclude that the marked irregularities in the time of onset and in the velocity of this process make it dangerous to depend on such differences as we found for a solution of the problem. It must be remembered that deprivation of its blood-supply in any case brings on a glycogenolysis in the liver which is probably as intense as it can be under *any* circumstances, so that it is scarcely to be expected that an increase in this, due to stimulation of the splanchnic nerve, could make itself felt.¹¹

If it be the case that it is merely by its influence over the blood-vessels of the liver that the nervous system controls the glycogenic function, then surely changes in blood-supply produced in other ways should be expected to have a similar effect. The most important experiment in this connection is clamping of the portal vein. If this be done for short periods of time—two minutes or less—there is no evidence that sugar increases in amount in the blood of the general

circulation; *i. e.*, no hyperglycemia becomes established, although the first blood issuing from the liver after the clamp is removed must of course have contained an excess of sugar. If the portal circulation be blocked for longer than about two minutes, however, then when it is reestablished, it continues to deliver an excess of dextrose into the systemic circulation so that a general hyperglycemia soon becomes established. Portal stasis for more than about two minutes evidently brings on hyperglycogenolysis which lasts at least long enough to cause hyperglycemia. Nor is it possible with certainty to perfuse the liver outside the body with defibrinated blood containing a normal percentage of sugar, without a rapid glycogenolysis occurring. I have repeatedly attempted this with the observance of every possible precaution against any cessation of the circulation (*i. e.*, starting the artificial circulation through a branch of the portal before the ante-mortem circulation has ceased, etc.), but in only one or two cases have I been able to render glycogenolysis any less active than it would have been in a dead liver. Evidently, then, the glycogenic function of the liver is affected by considerable changes in its portal blood-supply.

Less profound changes in the blood-supply, however, are without effect. Thus clamping of the hepatic artery and vasoconstriction in the splanchnic area produced by stimulation of the splanchnic nerves, after sectioning the hepatic branches so that there could be no direct action on the liver, do not cause hyperglycemia.⁷

I believe that it is highly improbable that the changes in blood-supply produced by stimulation of the splanchnic are of sufficient magnitude to excite glycogenolysis.

By exclusion, therefore, one is driven to conclude that the nervous influence must be either on the production of ferment or on the inhibiting mechanism.

Sufficient work has not as yet been done on this phase of the question to warrant any final decision as to which of these two modes of action is actually involved. But everything so far points to the latter as the more probable. Thus we have been unable to find that saline extracts of blood-free liver after stimulation of the splanchnic nerve are any stronger in glycogenase than those from resting liver. The histologic changes observed by Cavazzani in the liver cells before and after stimulation of the celiac plexus may be interpreted in terms of either hypothesis.¹⁸

EXPERIMENTAL DIABETES BY ASPHYXIA

A very common form of experimental diabetes is that produced by asphyxia. Clamping of the trachea and injection of eurare are the means usually employed to bring about this condition. Many hypotheses have been offered of the mechanism thereby involved; that it is due to diminished oxidation of dextrose in the tissues, that it is due to asphyxial stimulation of the glycogenic center, and that it is due to the direct action of venous blood on the liver. The first of these is certainly untenable, for no hyperglycemia follows asphyxia when the liver is removed from the circulation by establishing the Eck fistula.¹⁹ The hyperglycemia is unquestionably due to increased production of dextrose from the liver. The second hypothesis, *i. e.*, that there is asphyxial stimulation of the nerve-centers, is upheld by the observation that after sectioning all the hepatic branches of the celiac plexus hyperglycemia is no longer produced by clamping of the trachea.¹⁷ Hyperglycemia, however, does

18. Cavazzani, P.: *Arch. f. d. ges. Physiol.*, 1894, lvi, 181.

19. Macleod: *Am. Jour. of Physiol.*, 1909, xxii, 278.

occur after such isolation of the liver from the nervous system when the asphyxia is produced by injection of curare, indicating, therefore, that profound venosity of the blood may, besides acting on the nerve centers, also act directly on the hepatic cells.²⁰ This direct action of venous blood in stimulating glycogenolysis might be due either to the increased carbon dioxide content of such blood or to its deficiency in oxygen. By incubation experiments with mixtures of minced liver and blood we have shown that when the glycogenolysis occurring in two hours is compared in atmospheres of oxygen, carbon dioxide and hydrogen the greatest action occurs in an atmosphere of carbon dioxide, there being, however, no difference between that occurring in oxygen and hydrogen. The increased content of carbon dioxide in intensely venous blood may therefore stimulate hepatic glycogenolysis independently of the nervous system, but in ordinary conditions of asphyxia the glycogenolysis is a nervous one.

It is well known that a slight degree of acidity favors the action of all diastatic ferments: the increase in carbonic acid in the blood acts in this regard as any other feeble acid would. This result led me to study the effect on the percentage of reducing substance in the blood of the systemic circulation of injection of small amounts of lactic acid into the blood of the portal vein. I did not, however, obtain any evidence of hyperglycemia, but I do not consider that the experiments are at all conclusive, for it is only with very slight degrees of acidity that diastatic action is accelerated; it is depressed by larger amounts. The amounts of acid injected, though in some cases quite small, were yet probably beyond the optimum.

It has been pointed out that the hyperglycemia following several experimental procedures is in many cases the result of a more or less marked asphyxia coincidentally produced. When oxygen is freely delivered into the alveoli, many of these experimental conditions no longer cause hyperglycemia. We have already referred to this matter in connection with the so-called reflex forms of nervous diabetes, and in that which follows stimulation of the spinal cord. Observations of the same nature have been made by Underhill in the glycosuria-producing effect of certain drugs such as nicotine, morphin, pyridin, anesthetics, etc.²¹ It is probable that the free administration of oxygen prevents glycosuria in the cases by its accelerating the oxidation of lactic acid, etc. The free perfusion of the pulmonary alveoli also removes carbon dioxide from the blood.

INTERNAL SECRETIONS

As a final group of experimental conditions which produce glycosuria, must be mentioned the secretions of certain ductless glands. Besides the pancreas, whose influence in this connection will be discussed separately in the symposium, we have to consider very briefly the adrenal and the thyroid. Injection of epinephrin, especially when it is made subcutaneously, is followed by glycosuria after a latent period which varies considerably in different animals. When the injections are made intravenously, very little glycosuria is produced. Repeated injection ultimately leads to disappearance of the glycosuria although the hyperglycemia persists. This immunity is probably due to diminished permeability of the kidney to sugar.²² When the epinephrin injections

are given to rabbits that have been starved or treated with strychnin so as to render the liver poor in glycogen, the glycosuria still occurs, and, curiously enough, more glycogen comes to be laid down in the liver.²³ Administration of epinephrin to starved dogs which are fully under the effect of phlorhizin does not cause any increase in the elimination of sugar.²⁴

It is sometimes stated that the epinephrin causes glycosuria because it has an inhibitory action on the glycolytic or sugar-destroying influence of the internal secretion of the pancreas: it is supposed to hinder this to such a degree that dextrose accumulates in the blood.²⁵ There is, however, no experimental evidence in support of this hypothesis. It is more reasonable to explain the epinephrin action as being on the nerve control of the glycogenic function of the liver.²³ It is known that epinephrin owes many of its other physiologic activities to its stimulating effect on the sympathetic autonomic nervous system. It seems rational to conclude, therefore, that hyperglycogenolysis which it induces when given to well-fed animals and the evident derangement of hepatic functions which, as above noted, follows its administration to starved animals, is due to the same cause. In this connection, it is important to note that it is only when the dose of epinephrin is sufficient to cause a rise in blood-pressure that it produces glycosuria.²⁷

The parathyroid and probably also the thyroid glands stand in some relationship to carbohydrate metabolism: thus excision of three of the four parathyroids in dogs greatly lowers the tolerance of the animal for sugar and complete thyreoparathyroidectomy, besides causing tetany, etc., causes also glycosuria.²⁸ Some observers believe that the thyroid glands have an opposite influence to that of the parathyroids in their effect on carbohydrate metabolism.²⁹ These influences of the thyroid and parathyroid glands have been noted in clinical practice. In hyperthyroidism (exophthalmic goiter) if glycosuria is not present it is readily induced by feeding with sugars: in hypothyroidism (myxedema) glycosuria is practically never observed even when large amounts of sugar are taken.

In explaining these influences of the thyroid and parathyroid on carbohydrate metabolism, it is customary to assume that it can be only on the glycolytic or sugar-destroying action of the pancreas.^{29, 30} Indeed, this influence of the pancreas is frequently assumed to be the only function which can be abnormal in diabetes, but there is no justification for this belief, and until there is why should we bemuddle the situation by assuming that the other ductless glands retard or increase its action?

CONCLUSION

I would conclude by again urging that in the utilization of carbohydrates in the animal body the glycogenic function of the liver is at least as important as the glycolytic action in the tissues, and since there is plenty

23. Pollak, L.: Arch. f. exper. Path. u. Pharmacol., 1909, lxi, 166.

24. Ringer, A. I.: The Influence of Adrenalin in Phlorhizin Diabetes, Jour. Exper. Med., 1910, xii, 105.

25. Eppinger, Falta and Rudinger: Arch. f. klin. Med., 1908, lxxvi, 1.

26. Underhill, F. P. and Closson: Am. Jour. Physiol., 1907, xvii, 42.

27. Ritzmann: Arch. f. exper. Path. u. Pharmacol., 1909, lxi, 231.

28. Underhill and Hilditch: Am. Jour. Physiol., 1909, xxv, 66.

29. Eppinger, Falta and Rudinger: Ztschr. f. klin. Med., 1909, lxxvii, 380.

30. Grey and Sautelle: Jour. Exper. Med., 1909, xi, 659. Ling: Jour. Exper. Med., 1909, xi, 665. McCurdy: Jour. Exper. Med., xi, 798.

20. Macleod: Proc. Soc. Exper. Biol. and Med., 1909, vi, 95.

21. Underhill, F. P.: Jour. Biol. Chem., 1905-6, i, 113.

22. Pollak, L.: Arch. f. exper. Path. u. Pharmacol., 1909, lxi, 157.

of evidence that this glycogenic function is easily deranged so as to cause diabetes, it should be more carefully investigated as to its participation in the cause of those forms of diabetes which at first sight may seem to be quite independent of it.

ABSTRACT OF DISCUSSION

ON PAPERS OF DES. LUSK,* MACLEOD, PRATT, WOODYATT AND WALLACE, CONSTITUTING A SYMPOSIUM ON DIABETES

DR. GEORGE C. SMITH, Boston: I think we must consider that a functional glycosuria is distinct from the organic glycosuria that we have been discussing to-day. These organic glycosurias are incurable. In other words, the people who contract that form of diabetes due to pancreatic disease under the age of 20 die, no matter what we do for them, dietetically or with drugs. The form of diabetes that occurs after symptoms of organic disease of the intestines is entirely different; also the form of diabetes that occurs in combination with obesity, which most of us have treated, coming on at the age of 40 to 60 years. These are functional. The more we increase the power of the patients to digest carbohydrates, the more quickly they get well. They come to us with a history of disturbed digestion for a long time, and not only because of sugar in the urine. Reduce the patient's fat by diet, and the sugar immediately disappears. Consequently, we should treat the patients because of their inability to digest carbohydrates. When their weight becomes normal, do not stop there but continue the reduction till you reach the point at which they can digest carbohydrates; then you will no longer find sugar in the urine. I feel, therefore, that the most important thing to-day is to treat the class of glycosurias that we can cure. It is, of course, very important to find the cause of the special form of diabetes before us.

DR. J. A. LICHTY, Pittsburg: I am glad that Dr. Lusk has taken the position which he has with reference to fat metabolism. In some of these cases the fats are our main article of food, which allows us to keep up the proper caloric value of the diet, and if we should find that fats in themselves are converted into sugar, it would make our care of these cases all the more discouraging. I can refer to these papers only clinically, and shall, therefore, discuss Dr. Wallace's paper particularly. I wish to add one or two points with reference to increasing the carbohydrate tolerance. In the early part of my clinical experience with these cases, I directed most of my diabetic patients as ambulatory; that is, I allowed them to go about their business and take their usual physical exercise. Within the last few years I have found by restricting the physical and mental exertion I could increase the carbohydrate tolerance. I have had the patients rest in bed and in the open air very much as we at present treat tuberculous patients. In severe cases in which the diet did not seem to free the urine from sugar, such a course of treatment frequently accomplished the desired result.

Dr. Wallace mentioned in his paper that the less food the patient can get along with and maintain his weight, the better it is for him. I find this experience very valuable in these rest-cure cases. Because of the limited exertion the patients need less food. A few years ago I reviewed my cases of diabetes, a hundred or more, with reference to the relation of gall-bladder trouble and glycosuria. In some 250 of gall-bladder and duct diseases I found only two cases of glycosuria. One would expect to find more, since we know the relation of pancreatic disturbance to glycosuria. I have also in recent years taken up the Cammidge reaction in the urine in these cases, and I have been rather gratified to be able to distinguish a certain class of cases in which the Cammidge reaction is usually found. They are patients of rather mature age. They are rather emaciated and their weight can not be easily increased; the amount of sugar in the urine is small, and they find very little inconvenience from their condition. In the young, thin patients I have never found the Cammidge reaction. I have also had experience with several very interesting

cases of diabetes associated with pulmonary tuberculosis. They were usually patients beyond the middle time of life, and belong to the fat, old type. In several I ignored the diabetic condition and fed them as I would a patient with pulmonary tuberculosis. They all promptly lost weight and developed a rather serious condition. As soon as I placed them on a carbohydrate-free diet, even though the caloric value was lower than my former diet, they increased in weight and their condition improved satisfactorily.

DR. J. P. MATTHEWS, Carlinville, Ill.: In my work, I have made a special study of gout and rheumatism. In looking over the literature of these, I found that the idea is that gout and rheumatism are due to a faulty metabolism of the nitrogenous products of our diet. In the oxidation of these nitrogenous products, there is a formation of uric acid and of urea. If urea is not formed by a process of burning up or oxidation, we have these end-products that are a direct cause of gout. Now why could not this reasoning be applied to the subject of diabetes? Why could we not say that there is a suboxidation of the carbohydrates, causing acetonuria, or, as I think the technical term is, the formation of a leukoamin or of a poisonous product due to the suboxidation of the carbohydrates? Why cannot a reasoning be applied to diabetes analogous to that which we have applied to gout?

DR. GRAHAM LUSK, New York: I do not wish to have Dr. Woodyatt's excellent paper go without discussion. In my laboratory, Dr. Ringer and I have lately seen that glycozell, when ingested in plderhizin glycosuria, is converted into sugar, perhaps through glycollic acid, and afterwards glycolaldehyd. We have also found that glyceric acid can be converted into sugar. Possibly glycolaldehyd and glyceric aldehyd as given by Dr. Woodyatt were converted into sugar. If this sugar had been oxidized it might have reduced the quantity of oxybutyric acid in the urine. These experiments might be properly controlled by comparing the action of glycolaldehyd with that of a similar quantity of dextrose itself, to see their relative influence on the diabetic condition. One substance may be named in this connection, that might be of possible benefit, and that is pyroracemic acid. The diabetic may convert lactic acid into dextrose and this is therefore useless. The corresponding ketone pyroracemic acid might possibly be a substance that could be directly burned by the cells in the place of dextrose. If we can by scientific research make such a substitution, we shall arrive at a cure for diabetes.

DR. J. J. R. MACLEOD, Cleveland, O.: I should like to sum up the position with regard to the study of diabetes. I believe that it is wisest to use the most conservative treatment. I think that the conclusions drawn from the recent work done in experimental diabetes have rested on two faulty assumptions. One is that the conversion of glycogen into sugar by the liver is a function variable in amount; and the other is that a large number of the recently discovered instances of this form of diabetes are due to deficient glycolysis. What I should like to bring up is the fact that for neither of these two contentions is there much evidence. The contention that there is a substance in the liver which is susceptible of being secreted in varying amount, there is not a particle of evidence to support. This substance, which we call glycogenase, occurs in rather small amount in the liver. In the case of the dog, there are large quantities of this substance in the blood, and probably relatively not more than 25 per cent. as much in the liver. This being the case, it seems to me that the assumption of the existence of variable amounts is probably faulty and misleading.

DR. R. T. WOODYATT, Chicago: In response to Dr. Lusk's remarks concerning the possibility of getting some antiketogenic substance that will be incapable of being converted into glucose, it seems to me barely possible that such a substance may never be found; for the reason that the conversion of one chemical compound into another is coming more and more to be interpreted as dependent on preliminary chemical dissociation. If lactic acid can go over into sugar, it means that prior to the formation of the sugar the lactic acid must have been in an intermediate, active or dissociated state, susceptible either of transformations, union with other similar molecules or of oxidation. Since the same state is necessary

* See pages 2105 and following.

for oxidation as for condensation, it is possible that to let a substance be dissociated may insure its condensation as well as its oxidation. Therefore, I can conceive that to pursue the search for an antiketogenic substance that will oxidize and not be built up into sugar may be futile. As to the question whether glycerin aldehyd was turned into glucose before oxidizing, I cannot say definitely that it was not, but in the same patient to whom we gave it, larger percentages of sugar were obtained in the urine when glucose itself was given than when glycerin aldehyd was administered. The condition of the patient varied, however, from time to time, in spite of all precautions. The possibility suggested by Dr. Lusk is there, and it would be dogmatic to say that it could not occur. The second chart, in which the glycerin aldehyd was given under conditions that hypothetically favored its condensation into glucose, shows an almost quantitative excretion of the triose as glucose—which is evidence (partly hypothetical, to be sure, but significant) that when glycerin aldehyd did go over into glucose, it then fell out of the body as such.

DEHYDRATION BY DIETETIC MEASURES

AN INTERPRETATION OF THE KARELL, OERTEL AND WIDAL
TREATMENT OF CIRCULATORY AND RENAL DISEASES

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The German word, *Schonungstherapie*, being untranslatable, I have adopted as the nearest English equivalent for it the expression "protective therapy" or "sparing therapy." This means to allow an organ to rest and to strengthen it by temporarily making as little claim on its functions as possible. In contrast to *Schonungstherapie* or "protective therapy" is *Uebungstherapie*, a treatment by which an organ is stimulated to work. These are the ideas and terms first employed by the German physician Albin Hoffmann. What they mean will be readily appreciated when the different forms of therapeutics employed in the treatment of the diseases of the heart are considered. Confining an arteriosclerotic patient to his bed is *Schonungstherapie*—protective treatment. If on the other hand walking and climbing are prescribed for him, which of course must be definitely limited, that would be employing the *Uebungstherapie*—treatment by exercise. Hoffmann has most wisely discussed the problems of general therapeutics from these two standpoints: the treatment which protects and spares an organ, and the treatment by which an organ is stimulated to work or perform its functions. Indeed these two ideas are applicable to the therapeutics of the impaired functions of all organs.

The dietetic treatment of circulatory disorders is essentially one form of protective therapy. The names of three authors demand especial attention in this connection: those of Karell, Oertel and Widal. The best and most widely employed methods of treatment are associated with their names, and these also indicate distinct epochs in the development of therapeutics. There are wide differences in the practical standpoints and underlying theoretical considerations adopted by these authors. The essential feature of the Karell treatment is the exclusive use of milk in relatively small quantities at definitely stated intervals. The idea underlying Oertel's method is a great reduction in the quantity of fluid ingested. The Widal treatment on the other hand, consists in excluding sodium chlorid as much as possible from the food, which in other respects is the ordinary mixed diet

Karell was purely an empiricist; he described his procedure as a milk treatment, *la cure de lait*, and stipulated that its rigid enforcement required six weeks. He began in the first week by giving small quantities of milk, from 60 to 200 c.c., four times a day at intervals of four hours. He then increased these quantities in the course of the second and third week, and finally allowed at the end of the fourth week the addition of small quantities of foods intended to stimulate the appetite, such as salt herring and salt bread, but without any other concessions. Only after the lapse of five to six weeks did he allow the patient daily a single real meal, besides which, three times a day, milk in various forms was to be taken. Karell considered that the chief field for his method lay in the treatment of all sorts of circulatory and renal disorders, especially when combined with edema. But he obtained good results in other conditions as well; for example, in the most varied diseases of the gastro-intestinal tract, in neuralgias, and in functional nervous affections. Karell was an excellent practitioner and paid but little attention to theories. He even deprecated any such attitude on his own part and simply said he believed that the results obtained were referable to one of the components of the milk or to the particularly suitable combination of all its components. It did not occur to him that it was chiefly negative qualities that produced the results; that is, the reduction in the total amount of solids and fluids given, and that the treatment was really an especially marked form of protective treatment.

Oertel started out from a theoretical basis. He assumed, with a certain amount of justice, that after the development of a circulatory disorder it was chiefly the increased amount of fluid in the body that made return to normal conditions difficult. He regarded the daily ingestion of large amounts of fluid as contributing greatly to the work imposed on the heart, and endeavored to correct this factor. The field of his activity explains why he came to devote especial attention to the amount of fluid taken in, for Munich, the city in which he worked, is the city in which the consumption of beer is greatest. He began his investigations and his treatment by allowing his patients to continue their ordinary mode of life, but had them measure the amount of fluid taken in and the quantity of urine voided.

In healthy people the latter usually is several hundred cubic centimeters less than the former, since water is given off also by the skin and lungs. If the amount of water taken in is reduced, in healthy individuals urinary excretion becomes almost correspondingly less; but in subjects suffering from circulatory disorders this decrease is very slight or does not occur at all. That is, by Oertel's plan of treatment an excess of water was removed from the body; circulation was relieved; the amount of circulating blood was reduced; and the restoration of normal conditions was favored.

Oertel assisted this principle of removing superfluous water not only by restricting the amount of fluids taken in but also by other measures, such as exercise, hot baths, etc. He investigated the effect of his treatment on the various forms of circulatory disorders, employing all the methods then available. Determinations of blood-pressure, hemoglobin, of the concentration of the blood, and its amount, appear prominently in his reports. In addition he also devoted much attention to nutrition in general. In obesity, the removal of water was combined with measures for reduction of the amount of body fat, a principle that he carried out in a

more rational manner than did Ebstein. If the patients were emaciated he endeavored to produce an increase in their weight and so on. As far as the quantitative composition of the diet was concerned, he based his mode of procedure on the observations of Pettenkofer and Voit; that is to say, he had already adopted practically our modern point of view. But I might mention that his principle, the prescription of much protein in the food, is at variance with the restriction of fluid taken in, as I will point out later. When the disturbance of circulation was associated with edema he regarded the condition as lying outside of the scope of his specific treatment. This he considered as especially applicable in the moderate circulatory disturbances attending arteriosclerosis, cardiac weakness, and obesity.

Oertel must be regarded as the father of the scientific dietetic treatment of circulatory disorders as founded on theoretical considerations and the rational application. At present, we do not agree with many of his conceptions; but the principles on which his method was founded are still in many respects remarkable.

Science achieved the most admirable triumph when it recognized the significance of the relation of sodium chlorid to the circulation and the development of edema. It is to Widal that this conception is chiefly due. He started from theoretical considerations, and also from experiments at the bedside. After it had been established by various observations that sodium chlorid was poorly excreted by the diseased kidney, he and Strauss simultaneously hit on the idea that it was precisely the retention of this substance which was the crucial factor in the production of edema and that gave rise to its appearance. We are all familiar with the brilliant experiments by which Widal furnished irrefutable proof of this conception.

I know of few observations in the whole history of metabolic treatment that can be compared to this for simplicity, clearness, and ease of demonstration. It is a classic experiment. With this single experiment, the result of which has frequently been corroborated, the predominant part which sodium chlorid plays in the retention of water was definitely proved.

The important part played by this substance in the water content of the diseased body can also be demonstrated for the healthy individual. Permit me to make a few observations in this connection. The various organs possess a definite content of sodium chlorid which is much less than that of the blood. The muscles are poorest in sodium chlorid, containing only 0.1 per cent., while the connective tissue, with 0.3 to 0.4 per cent., is richest. According to my analyses the total amount of salt in the body of a healthy man may be estimated as 130 gm. Owing to the fact that we take in a considerable amount of table salt, about 15 to 20 gm. a day, the body always contains an excess of sodium chlorid above the minimum. When a healthy person fasts absolutely or takes his ordinary diet without the addition of any salt, he gives up 10 to 20 gm. of sodium chlorid. At the same time, he loses 1 to 2 kilograms in weight, without, however, sacrificing protein and fat. He gives up 1.5 liters of fluid, i. e., lymph. If now 15 to 20 gm. a day of salt are added to the salt-free diet, the healthy body does not during the first days excrete this amount completely, but retains the 15 to 20 gm. originally lost and at the same time corresponding quantities of water, 1 to 2 kilograms, are again stored up; in other words, the excess of sodium chlorid which is retained by the body on a normal diet and under normal

conditions does not contribute to an increased concentration of the juices in this substance, but demands its own amount of water for solution, and in this way augments the quantity of fluid circulating in the body.

This fact having been established, Oertel's conception of restriction in the ingestion of fluid must be subordinated to the task of reducing the sodium chlorid. Whenever this is cut down, thirst becomes less and the amount of water taken is decreased in the natural course of events, without imposing on the patients the restriction of fluids.

In general it may be said that the salt-free treatment has only seldom been carried out in its most radical form, as it had been applied by Widal in his famous experiment. This is due to several facts: in the first place to the lack of persistence of physicians and patient. While the principle of the salt-free diet appears simple enough to apply, practically it requires thorough knowledge on the part of the physician and much energy on the part of the patient. The physician will always be more inclined to reduce the edema by stimulating renal activity with drugs rather than by the principle of protective therapy.

In a large number of cases the desired effect may be obtained with theocin, diuretin, digitalis, and so on. When this is not the case, the physician sometimes prescribes a salt-free diet, but promptly abandons this if it is not quickly effective. I should like to give an example of the amount of persistence and care required, and of what excellent results may then be obtained even in desperate cases. Last winter I found in the Friedrichshain Hospital two patients with severe parenchymatous nephritis and enormous edema. Both of these had been treated for five or six months with all sorts of remedies. Digitalis and digalen, theocin, diuretin, theobromin, potassium acetate, calomel, purgatives, hot packs, and scarification, had all been systematically resorted to in the course of half a year without leading to any permanent improvement. I now gave both patients a full mixed diet with meat, eggs, potatoes, vegetables, milk, bread, zwiebach, and fruit, without excluding any article of diet, but without the addition of the least traces of salt. The bread, zwiebach, and butter also were made without the addition of any salt. In the case of one patient, a boy of 14, the weight in the course of three weeks fell from 55 to 40 kilograms, but that of the other changed but little. My colleague, Stadelmann, who knew the patients of old, expressed the opinion that but little result was to be expected. In the next four weeks, however, the patient lost 30 kilograms in weight, and the last trace of his edema disappeared. During these four weeks he had excreted about 300 gm. of sodium chlorid. In the first three weeks the kidney had been only slightly permeable for the salt, and therefore but little water could be removed from the body. After the excretory power of the kidney had been spared (*geschont*) during the first weeks a period of greater activity followed which quickly brought about the complete removal of the edema. In such difficult and desperate cases not only persistency and stern determination are necessary, but also the strongest restriction of sodium chlorid. The patient received about 2 to 3 gm. of sodium chlorid a day in his food. If he had been treated a little more laxly and had been allowed even 5 to 6 gm. only, he would never have been freed from his edema.

The importance of this observation lies in two facts, namely, (1) that the salt-free diet had proved efficacious

after all other therapeutic measures had failed; and (2) that it required fully seven weeks, in the first of which no distinct improvement seemed to be obtained.

The salt-free diet is most efficacious in parenchymatous nephritis. In this condition, in which the salt does not pass through the diseased kidney, its significance is perfectly evident, and the immediate therapeutic effect is most striking. But also in other forms of passive congestion, as in cardiac insufficiency and cirrhosis of the liver, the removal of salt from the food is often followed by surprising results. The mechanism is a little different from that in renal disease. In these conditions also a portion of the excess of sodium chlorid is retained in the body, not, it is true, because the excretory power of the kidney is primarily impaired, but because of the circulatory disorder. The salt is retained in the body together with corresponding quantities of water and other components, firstly in the blood-vessels, then either as edema under the skin, or as free fluid in the abdominal cavity. On cutting down the superfluous amount of salt taken in, the increase in the edema and the transudation ceases; this is followed by a certain equilibrium and the mechanics of the circulation become more favorable. Now the kidneys begin to secrete more actively, and this is followed by removal of the edema. In many forms of broken compensation, it is possible to bring about normal conditions solely by removing an excess of sodium chlorid from the food, and without the assistance of any drugs. Even pleural exudates, whose development is less dependent on the quantity of sodium chlorid than that of congestive transudates, are sometimes favorably influenced by a salt-free diet.

Let us now ask, what is the relation between the different so-called treatments of Karell, Oertel, and Widal, and how have we to judge them from a theoretical and from a practical standpoint? The Widal treatment has this in common with the strict milk cure of Karell, namely, the small amount of salt that is allowed the patient. Indeed, it was Widal who explained the well-known efficacy of the milk diet in nephritis by pointing out the small amount of salt present in this fluid. The salutary properties of milk depend, not on any positive characteristics, such as a peculiarity in the nature of the protein molecule, or a specific diuretic action of the milk-sugar, the fine subdivision of the fat in an emulsion, or on any particularly favorable mixture of these substances, but rather on a negative quality, its poverty in sodium chlorid. But even milk may be too rich in salt when given in large amount, and Widal has particularly emphasized this fact. Three liters of milk, which is the minimum amount necessary to maintain equilibrium, contain 5 gm. of sodium chlorid, and this is more than many a diseased kidney can excrete. A mixed diet of meat, eggs, bread, etc., like that referred to above, contains only 1.5 to 2 gm. of salt, if none has been added.

Whereas Karell's diet is similar to that of Widal in the low quantity of salt, it differs from that of Widal in the great reduction in the amount of all foodstuffs. During the first week the patient does not receive even a fifth of his requirements, and during the first five to six weeks the physiologic minimum is never reached. During this time the patient accordingly loses considerably in body protein and fat. The principle of Karell's treatment, therefore, consists in a reduction of the amount of all the foodstuffs allowed. In many cases it is more suitable than the Widal treatment, when this is carried out in the manner in which Widal performed

his celebrated experiments. But it must not be overlooked that Widal in the above instance made use of a full dietary with 120 gm. of albumin, 170 gm. of carbohydrates, and 100 gm. of fat, in order to exclude all other factors, and to demonstrate the predominating rôle of sodium chlorid in water metabolism. In everyday practice not only is it unnecessary to carry out the treatment in this way, but it may even be injurious for the following reasons:

The ingestion of all organic foodstuffs increases the amount of fluid in the body in a manner similar to sodium chlorid, though not to quite so marked a degree and by a somewhat different mechanism. Fat appears to do this least, although for the purposes of its absorption a certain amount of bile, pancreatic juice, and intestinal juice is poured out; but as it does not dissolve in the body juices and is only emulsified by these, its further transportation through the lymph and blood vessels does not require the assistance of water. The absorption of the carbohydrates demands considerable amounts of water, since the glucose content of the blood-serum rises only from 0.1 to 0.3 per cent. at the most. But as soon as the glucose molecule has been deposited as glycogen or has been oxidized, it makes no further demands on the water supply of the body. The water metabolism is most strongly influenced by the protein molecule. Not only does it require for its absorption and its transportation in the body relatively large amounts of water, but its end-products, urea, uric acid, etc., also demand considerable amounts of fluid for their excretion. It is for these reasons that the ingestion of much protein makes greater claims on the water-supply and on the organs of circulation, than do other foodstuffs.

The relationship of the protein metabolism and of sodium chlorid to the water metabolism is particularly well shown in diabetes insipidus. In the true forms of this affection it is impossible to control the increased excretion of urine by applying only Oertel's principle of restricting the ingestion of fluid, but thirst and the amount of urine excreted immediately become less when the amount of salt taken in is reduced from 20 to 5 gm. The same thing happens if the quantity of albumin is cut down from 120 gm. to 60. Instead of 40 gm. of urea produced under the former conditions, now only 20 are excreted and the quantity of urine may be diminished by several liters more. In a similar way the reduction of the amount of protein in the food is of benefit in all circulatory disorders, though the effect is not quite so noticeable as in diabetes insipidus. In each instance the work of the vascular system and of the kidney is lightened.

RECAPITULATION

To recapitulate, we are in possession of three methods of reducing the amount of body fluids, and, in this way, effecting the dehydration of the body: in the first place, by lessening the amount of water ingested (Oertel's treatment); in the second place, by the reduction of the sodium chlorid taken in (the cure of Widal); and in the third place, the use of a restricted dietary, especially poor in protein (Karell's cure).

Besides Oertel, the somewhat unreliable Schweningen and the layman Schroth, Von Noorden has laid emphasis on the reduction of the fluid intake. Von Noorden found this measure particularly efficacious in the polyuria of contracted kidney and in advanced arteriosclerosis. The reduction of the fluid taken in from 3 or 4

liters to 1.5 to 2 liters, was followed by a great improvement in the condition of the patients. In many instances the blood pressure fell 30 to 40 mm., the nocturnal polyuria became less, and the nocturnal attacks of angina and asthma ceased, especially when no fluids were taken in the course of the evening. Von Noorden has demonstrated that 1.5 liters of urinary water suffice in cases of contracted kidney for the removal of all the products of metabolism, and that there is no danger of uremia under these conditions. In such cases in which a great excess of water had previously been taken the effect of reducing its intake is very pronounced, and is readily explicable on theoretical grounds.

It is but rarely, however, that the effect of reducing the amount of water intake depends on this factor alone. As soon as this measure is enforced with some degree of strictness, so that the patient receives less than 1 liter of fluid per day, in most cases he will find it impossible to eat as much as before. This explains the well-recognized value of reducing the consumption of fluids in the various obesity treatments, as in that of Oertel, in that of Schweningen, etc. Schweningen allowed his patients to drink freely between meals, but forbade drinking at meals. The importance of this prescription evidently lies in the fact that, by forbidding drinking at meals the amount of food taken is reduced. The same principle is to be found in the thirst cure of the layman Schroth, in which a further loss of appetite is caused by the monotony of the diet. But I wish to emphasize especially that, contrary to the views of the laity and to the erroneous theoretical considerations of Oertel, Schweningen, etc., lessening the amount of water does not increase the oxidation of fat. This happens only in the most extreme forms of thirst cure, after the method of Schroth, when fever, abnormal decomposition of proteins and other dangerous complications occur. On the contrary, it is possible with proper management to carry out obesity cures not only without cutting down the water ingestion, but even by giving large amounts of fluid, as has been suggested recently by G. Rosenfeld. This clinician favors filling the stomach and intestine as much as possible with water, in order to control the subjective sensation of hunger. It is possible that these large amounts of water may stimulate metabolism and the oxidation of fat. That this is true has apparently been demonstrated by Heyl.

I believe that the effect of reducing the amount of fluid alone is seldom dependent on this factor only, as for example in chronic interstitial nephritis. In general the measure acts indirectly by inducing the patient to become unconsciously more abstemious in eating and usually to avoid strongly salted food which increases thirst.

The reduction of sodium chlorid is indicated especially in the edema of parenchymatous nephritis, but it is also useful in combating some of the symptoms of contracted kidney, such as headache, uremic asthma, angina pectoris, and pulmonary edema. Diabetes insipidus and cirrhosis of the liver also require mention in this connection. It seems to me that it is wrong to allow patients who have been relieved of dropsy and other chief symptoms by a Widal treatment to return to their ordinary salty diet. Although the excretory capacity of the diseased kidney undergoes considerable improvement after a period of functional rest, so that it may at times be rendered capable of excreting 5 to 10 gm. of sodium chlorid instead of only 1 to 2 gm., it would be wrong to impose on it a normal amount of work. In cirrhosis

of the liver I also attach much importance to a long-continued reduction in the salt intake. While the reaccumulation of ascites after aspiration does not depend exclusively on an excess of ingested sodium chlorid, this is none the less an important factor. I would call attention to Achard's instructive case of cirrhosis of the liver in which he succeeded in removing the ascites five different times by enforcing a salt-free diet. Patients with diabetes insipidus must permanently refrain from a salty diet, since it is impossible to improve the capacity of the diseased kidney for excreting concentrated urine.

I now come to the third point, the reduction of the protein intake. I have already indicated that Oertel's two principles of low water and high protein intake—he required up to 200 gm. of protein a day—are at variance with each other. His regulations date back to a time when the study of metabolism was chiefly concerned with the behavior of the proteins, and the maintenance of the nitrogen equilibrium was held to be the most important consideration from a therapeutic standpoint. At that time it was believed that the bodily weakness which sometimes appeared in rapid obesity cures was due to a loss of muscle protein particularly by affecting the heart. But I should like to call attention to the fact that a loss of albumin content and of muscle volume by no means invariably leads to impairment of the capacity for bodily work. (This is plainly evident when persons unused to bodily exercise take up some mild form of sport, especially moderate mountain climbing. In spite of the fact that there is at first a prompt loss, both of fat and of muscle tissue, the cardiac and body musculature improve greatly in functional capacity). Felix Hirschfeld was the first to oppose the theory that a patient with heart disease should be protected against further weakness by abundant food, particularly by the administration of large amounts of protein. His firm stand in this respect was well grounded. He showed that reducing the amount of water alone did not suffice to restore compensation, but that it was necessary at the same time greatly to cut down the food taken as a whole. His opposition to Oertel's teaching is entirely correct on this point, and this has been demonstrated by many clinical observations.

In addition to its immediate effect on water circulation, a diet poor in proteins probably acts favorably in other directions also. Chittenden has called attention to its advantages in healthy persons, without, however, being able to explain this result in detail. In some diseases we can plainly demonstrate the harmfulness of a diet rich in protein, as, for example, in diabetes mellitus. In this condition it impairs the tolerance for carbohydrates, sometimes to a most pronounced degree. In opposition to Oertel's opinion, reduction in the ingestion of protein is particularly to be recommended not only in cases of broken compensation, but also in the case of cardiac patients who were previously high livered and exhibit a certain degree of plethora. It is also particularly indicated in the later stages of chronic interstitial nephritis, when uremic manifestations of greater or less severity appear. These are due largely to the retention of nitrogenous end-products of metabolism. I do not wish by any means to go to extremes and recommend always a minimum of protein in such cases, but I do consider it more advantageous for a nephritic in his last years to sacrifice a few kilograms of weight on a scanty protein diet and feel fairly well, rather than to maintain his weight at the expense of chronic uremic manifestations.

What shall be our attitude in regard to these forms of treatment in an individual case? I think that it is best if we first attempt to carry out each one of the three treatments exactly according to the directions of Karell, Oertel and Widal, in suitable cases. Only in this way can we form a correct opinion of their principles and their utility. Each one of these principles of water removal is attended by certain difficulties in its practical application, and these can best be overcome at first by strict adherence to the rules laid down by the three authors. When we have done this a few times we shall be able to deviate from the regulations and modify them in detail. Then we shall be able to determine whether it is more advantageous in a given case to secure relief for the circulation by restricting the intake of water, by a salt-free diet, or by reducing the amount of albuminous food, which as a matter of fact reduces itself to forbidding or restricting the consumption of meat but sometimes also of milk. In the Karell treatment I consider it particularly important to adhere carefully to the four-hour intervals between the separate portions of milk allowed the patient. It is frequently necessary to use skim milk, as Karell advises, in order to accustom the stomach of the patient to the monotony of the milk diet.

The salt-free diet of Widal is theoretically easy to administer, but one is apt to encounter the opposition or lack of comprehension of the cook. It is hardly necessary to forbid any article of food if only it is given in its natural condition and without any addition of salt on the part of the human hand. Of the fresh articles of food only salt-water fish are to be excluded. The butter should be unsalted and the bread must be specially baked without salt. Of course all forms of preserved meat and fish as well as cheese must be avoided, for these contain a great deal of salt. Milk also can be permitted only in small amounts, for it contains about 2 gm. of sodium chlorid per liter. By giving chiefly cereals, oatmeal, rice, hominy, custards, jellies, puddings, fruit, and desserts, the lack of salt is made more endurable to the patient.

If we wish to allow a patient a certain amount of salt after he has been for some time on a salt-free diet, we should not content ourselves with the general direction that he shall use moderation in salting his food, but prescribe a definite amount that is allowed. The conditions are comparable to those in diabetes mellitus, in which instance it is necessary to give the patient the most precise directions. I, myself, manage in this way. I have the food prepared without salt just as during the strictest period; then I give the patient small, accurately weighed quantities of salt, say 2, 4, or even 6 gm., and permit him to add this salt to his food in whatever way he wishes during the twenty-four hours.

The dietetic measures are just as important in the treatment of circulatory disorders and renal diseases as is the dietetic treatment of the glycosurias. I should feel much gratified if what I have said should enable any to gain a deeper comprehension of the principles involved and to apply them more widely than before.

Berlin, N. W., Karl-Strasse 5b.

Absence of Puncta Lachrymalia (Bilateral).—A child, aged 10, suffered from epiphora since birth. An attempt was made to pick up the opening in the canaliculus in the left lower lid, without success. The right gland was partially removed through an incision at the outer margin of the upper lid. Not succeeding, both lachrymal glands were removed through the conjunctiva at outer angle of the upper lid.—L. Cole-Baker, *Proc. Roy. Soc. Med.*, July, 1910.

HOUSE QUARANTINE *

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It is hard to separate the causation of disease in man from the influence which organized society exercises on him. The relations are many and complex, acting in divers ways, and not always with visible directness. For one thing, if you think of it, the important factor of heredity in the causation of disease is, truly and broadly considered, a social factor. And when we mention environment, the other half of the entire etiologic circle, it is readily seen that that in particular depends on the social aggregate and its intelligence and activities in behalf of the preservation of health for its composition and complexion, for the power of doing good or evil, for its influence on health and disease.

Man probably suffered from certain diseases and accidents in his pre-social days, but that the greatest percentage of man's present ills is socially caused, directly or remotely, is a certainty. Whereas the above applies, more or less, to all diseases, it is particularly applicable to the contagious diseases. Seed, soil and the planting of the seed are the three requirements in the causation of contagious disease; man himself fulfills two of these; he offers the soil and acts as disseminator of the seed through the avenues of social intercourse.

It follows that the control of contagious disease is a proper and necessary function of organized society. The individual is now considered an asset of the state, which would suffer loss by his illness or death, even if the effects were limited to himself. How much greater the mischief and loss is to the community in the case of contagious disease, anyone can readily see. And the community owes each of its citizens protection against contagious disease as well as against fire, against robbery and murder.

THE QUARANTINE PROBLEM

When the prevention of disease first claimed public attention, when it first began to be the concern of organized government, it was readily seen that the gathering of health statistics was of prime importance. And so it is, if properly utilized. Health statistics should furnish a guide as to proper health measures and methods; it should indicate to us the preventable leaks to life and health; it should be an aid, and not an aim. By itself it will accomplish nothing. We must not stop with that. Advanced and aggressive attitude and action is urgently needed in the control of contagious diseases.

In house quarantine, we have an important measure in the safeguarding of the well from the existing foci of infection. It is a truism to say that the essential features of the contagious diseases are their communicability, yet the fact needs emphasizing. There was a time when, owing to the lack of knowledge as to the cause, and by reason of the prevalence of superstition, epidemics of contagious diseases were attributed to visitations from heaven. Those times are, happily, passed. We now have a more exact knowledge of the cause of contagious diseases. We are now better able to cope with them because we more fully understand the actual determining cause, the various pathogenic bacteria, the contributing factors, and the means and modes of how these germs are carried from the sick to the well.

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

But we must make intelligent application of this knowledge if we are to minimize these diseases. We believe that persistent application of the principles of preventive medicine will ultimately lead to the almost total eradication of contagious disease.

A survey of the premises of the quarantine problem brings to the fore the following as the most salient:

1. The patient the only original source of infection.
2. The patient and contacts the most dangerous carriers spreading infection.
3. Houses and objects such as bedding, clothing, toys, etc., harbor and give off infection.

How best to meet and circumvent the difficulties presented by these three factors is the crux of the quarantine question.

Before outlining the measures and methods here advocated and now in force in Chicago, let us dwell for a moment on conditions as they are with respect to the management of contagious disease and the many relations which it has to the public health. The statements here made are chiefly based on experiences in this work gained in Chicago. I am sure that they apply to a greater or lesser extent, to all larger towns and cities.

In our daily work we come in contact with people of all races and nations, people of all degrees of material welfare and educational status. We find the greatest disregard for the proper management of contagious disease, the greatest hindrances, due to the following causes:

1. The thralldom of inhumanizing poverty in which great numbers of the foreign-born population find themselves, with the woeful overcrowding attendant on it.
2. Ignorance and superstition—dense, miry and demoralizing—productive of a stupid disregard for all health regulations.
3. A peculiar nonchalance on the part of the semi-intelligent who think that they know it all and need not be taught how to properly care for a contagious case or themselves be subject to necessary restrictive measures.
4. The outright and outrageous assertion of self-interest against community interest on the part of some of the wealthy families and individuals in the community.

The following concrete instances elicited in a recent series of investigations to determine the exact mode of spread of contagious disease, will illustrate conditions as they are:

Series 1.—Diphtheria, six cases, two deaths. A child took sick with "sore throat." No physician was called in. The child grew worse and died. In the next house lived a relative of the above family whose daughter took sick several days later and also died. Four more cases rapidly developed in the surrounding families. Investigation showed that all had been visiting each other, had traded in the same neighborhood stores and otherwise neglected the most ordinary precautions.

Series 2.—Scarlet fever, four cases. First patient took sick on the eleventh of the month. The family in which the case occurred owned a small store, and through fear that the business might be interfered with, called no doctor. The case was not discovered until the fourth of the following month—nearly a month after it developed. Meanwhile the patient was out playing with other children, three of whom took the disease from her.

Series 3.—Scarlet fever, six cases. A boarder in a poor family returned from the hospital where he said he had a "sore throat" and a "breaking out." Eight days after his return a 19-year-old son of the family, who shared the same bed with the boarder, developed scarlet fever and two days later, two other children of the same family came down with scarlet fever. The three patients were removed to the hospital and the boarder was asked to seek another place. The house

was immediately disinfected. Within a week two more children came down with the disease.

Series 4.—A youngster who was delivering newspapers into a scarlet-fever-infected house, himself came down with scarlet fever. His playmate and companion who went around with him while delivering the newspapers, also took the disease.

Series 5.—A little girl convalescing from scarlet fever met her chum; the usual kissing and embracing ensued. Several days later the other little girl was stricken with scarlet fever.

The instances are innumerable, repeat themselves everywhere, and are well known to you. They go to show that the people are ignorant of the primary laws of contagious disease and of the danger that lurks in them. It proves that we have neither sense enough to protect ourselves, nor conscience enough to protect our neighbors. It indicates a degree of public lethargy toward the existence of preventable disease and death that harks back to the dark ages.

In another series of investigations to determine the source of infection of cases of diphtheria and scarlet fever reported during the period of a week, the following was learned from those whose direct connection with a previously existing case was definitely established.

1. Twenty cases were traced to the association with a patient in the immediate vicinity.
2. Ten cases were due to association at school with children in whom the disease was unrecognized.
3. Four cases were caused by contact at the playgrounds with children in whom the disease was mild or undeclared, or with convalescing patients.
4. Three cases were found to be the result of an unreported case.
5. Two cases owed their existence to previous cases in the family.
6. Many cases were attributed by the family to a "cold"—only a predisposing factor, if true. More likely, the first signs of the illness, particularly in diphtheria, were taken for a cold.

The lesson is the same no matter what superficial cause may be assigned. It is always association with a previous case, in one way or another.

In the poorer sections of the city, it used to be the usual thing to find mothers with diphtheria-sick children in their arms gossiping with neighboring women likewise with babies in their arms and with several older children clinging to their skirts. Tales of woe are exchanged, sympathies are extended, and disease is given in return. Children suffering from scarlet fever in the convalescent stage were almost always found outside when the weather permitted, with hands desquamating, neck perhaps swollen with suppurating glands, surrounded by a crowd of boys all gamboling on a vacant lot, all absorbing the insidious elements of contagion. Visiting and receiving callers during the quarantine period is quite the thing with certain classes of people. Allowing the inmates in contact with the patient, as well as the patient himself, to run loose on the streets and mingle with the well, is an almost universal practice.

When the people shall appreciate the enormity of the crime of throwing a burning fagot of contagion into a mass of disease-inflamable children, such practices as above will be no more. Then the burden of sickness, the host of innocently crippled children and the toll of death will be much less—very much less. That the danger of conditions as they exist has been theoretically recognized is attested by the laws and ordinances everywhere in existence, if not in force. In almost all cities there are adequate laws and ordinances which, if rigidly applied, would meet the problem. The fault lies with the lack of enforcement of the rules. The attempts at

enforcement are spasmodic: It usually takes an epidemic to stir the people into apprehension and the authorities into action. Here, too, in the very field of preventive medicine, that famous "ounce of prevention," has not yet been pounded into consciousness and practice. As a rule, the entire problem of the care and handling of contagious disease, the proper observance of quarantine, is at present left to the good or ill will of the variously constituted communities with their different grades of intelligence, material environment, hygienic knowledge and moral sense.

The practical measures now in use in advanced communities do not adequately take care of the situation.

Placarding premises harboring a contagious disease neither keeps the inmates in nor does it keep visitors out. It is a good measure, but in itself not sufficient.

Initial inspection of cases reported, where in use, establishes a perfunctory quarantine, but does not and cannot maintain it.

Termination by disinfection after the patient and contacts have mingled with the public and spread contagion broadcast is like locking the stable after the horse is stolen.

The needs of the situation are for better laws where the laws are deficient; for action tending toward the rigid enforcement of quarantine by prompt reporting, placarding and establishment of quarantine of infected persons and premises.

The need—the greatest need—is for a stringent thorough-going personal inspection of quarantined premises and cases they hold every day, or at least every other day. The need is absolutely to keep the inmates in and the outsiders out during the quarantine period. Those ordered to live away from home must be made to stay away. The exclusion of those living on the premises in a different and properly separated part of the house, as prescribed, from the rooms occupied by the patient and attendant must be enforced at all times. The need is for supervision of the means of taking in supplies into the infected house and particularly the manner of removal of articles from the premises.

In brief, there is need for personal knowledge of each case, the respective district, its inhabitants and the conditions obtaining there; there is need for bringing this knowledge to bear on each and every phase of the contagious disease situation; there is need for a man to be constantly on the ground to study, observe, teach, watch, correct and enforce the observance of quarantine as above outlined.

THE ENFORCEMENT OF QUARANTINE IN CHICAGO

In the beginning of December, 1908, the contagious disease situation as pertains to scarlet fever and diphtheria, became threatening. Neighborhood epidemics were springing up in every section of the city. It was feared that the experience of 1907, when half of the entire city was enveloped in scarlet fever, would be repeated. One of the worst local outbreaks occurred in the south side of the city and originated from several cases of scarlet fever found in the "peeling" stage, in a parochial school.

From Dec. 15, 1908, to Jan. 26, 1909, thirty-six cases of scarlet fever were reported in rapid succession from an area comprising 144 city blocks. Conditions in other sections of the city were similar. I then proposed the quarantine plan now in force, of which the following are the outlines:

1. The city was to be districted, for purposes of adequate control, into more or less equal divisions, taking into account

the extent of territory and the number and character of the population in the respective districts.

2. A quarantine officer and disinfecter was to be stationed in each district.

3. It was to be this officer's duty to enforce the observance of quarantine, to have an intimate knowledge of every case and its environment, to hem it in and hedge it in so that it would not give rise to other cases, to know when it was ready for disinfection, and to disinfect same when ready.

4. He was to report daily as to the condition of his district, the number of current cases, the number of inspections, the number of disinfections, etc.

This plan was applied to the district above referred to. On Jan. 30, 1909, strict quarantine of all infected persons, premises and contacts, was instituted. House-to-house calls were made by our inspectors each day or every other day, as conditions required. Working members of the family in which contagious disease existed were compelled to stay away from the infected premises; those remaining on the premises were properly kept away from the patient and attendant. The delivery of milk and other supplies to the infected premises and the removal of the necessary waste were regulated in accordance with the quarantine regulations. Semipublic places, such as grocery stores, bakeries, meat markets, candy stores, etc., were warned against admitting any one from infected premises. Visitors were barred and excursions prohibited. Quarantine became a fact.

Where cases were ready for termination, patients and inmates, premises and belongings, were disinfected, and quarantine raised.

The results obtained were very gratifying, in spite of the newness of the task. In the next nineteen days, but one new case appeared, on February 2, and it is probable that the infection dated prior to the beginning of rigid enforcement of quarantine. On February 20 only twelve cases remained in the district.

This experiment was repeated and tried out in two other districts widely different in complexion and distantly separated. One of these was taken under control on February 24 with forty-eight cases of scarlet fever and diphtheria in it at the time. In a month the number of cases were forced down to nineteen, a reduction of nearly 60 per cent.

At the same time we quarantined another district with thirty-three cases in it. At the end of a month the number of cases current were fifteen, a reduction of over 54 per cent.

Following the above experiments and their results, the plan was put into operation over the entire city, and applied to all cases of diphtheria and scarlet fever. This plan will now be described in somewhat greater detail.

It is readily seen that absolute isolation of the patient is the keynote of the entire problem. Not all cases are similarly situated with respect to the immediate surroundings. Some of the cases are located in fine residences, others in flats, still others in hovels. All throughout it is a process of adaptation to environment and all throughout the essential of isolation is kept in mind.

The patient and attendant are put into one or two rooms at one end of the house or flat. This part of the house is separated from the other rooms in the house by having the intervening door locked and sealed, provided there is a separate entrance to them. They should also contain all the necessary household facilities such as water, toilet and cooking facilities. Here the patient and attendant, nurse or mother, as the case may be, are required to remain during the entire quarantine period. No one is allowed to enter their quarters except the

attending physician and the health officer, when necessary for the purposes of control. The body and bed linens are to be disinfected before removed, the garbage and house sweepings are to be burned or disinfected, in fact, all the details of the hygiene of the sick-room are under surveillance of an officer of the health department.

Where such ideal conditions obtain, the workers of the family are allowed to go about their business without any interference, providing however, that at no time is there any direct or indirect contact between them and the patient or attendant. The part of the house which they occupy is, as said above, separated by a locked and sealed door from the patient's quarters. Where the bath-room, cooking and the other facilities of the house are in use by the patient, the workers must arrange for the use of these facilities elsewhere.

But ideal conditions are not found everywhere, as every one knows. In many cases the construction of the flat or house will not permit absolute isolation as above indicated; the family may occupy a four-room flat with only one outside entrance, where such arrangements as above outlined are manifestly impossible. Again there may be other children in the family and the people too poor to employ a nurse. It may be said that the greater the difficulties in the establishment of good quarantine, the greater the necessity for it. It is no dead subject; it is not cut and dried; it requires the exercise of sound hygienic principle, common sense and tact. Where the patient cannot be perfectly isolated, we insist that the working members of the family should live away from home while the case is in progress. If they remain at home, they are not allowed to continue at their occupations. These are essentials that we absolutely insist on.

We not only center our attention and efforts on the persons of the patient and the other members of the family, but we are, in this work, concerned with the innumerable details of human life in so far as they have a bearing on this problem. In flat buildings it frequently happens that there is one toilet for the use of two families living on the same floor. In such cases, the well family is instructed to arrange for toilet facilities elsewhere in the building, and the members of the family under quarantine are to use the nearest toilet.

Another important feature to which I want to call attention is the particular effort that is made to protect the other children in the same family where there is a case in existence from infection. From the health and humanitarian points of view, it makes no difference whether the second patient bears the same patronymic or not—whether it is Smith or Jones. We are, in a way, more responsible for a second or third case in the same family, because we ought to have anticipated and prevented it. In diphtheria, the problem is partially solved by immunization, but in scarlet fever nothing short of removal or rigid separation of the well from the sick in the family proper will save the susceptible.

This is not fully recognized. We owe protection only not to others outside of the family, but also to the members of the afflicted family. To this end mothers are especially warned to beware of the dangers of combining the duties of nurse and housekeeper where there are other children in the family. The families afflicted with contagious disease are guided and helped through the trying period of the illness in every way possible.

We aim to do the work in a scientific and sympathetic way. While it frequently becomes necessary to be insist-

ent and stern in order to protect the public health, no undue intrusion on the rights of the individual is practiced.

We recognize that the best results can be obtained by securing the good will and cooperation of those with whom our task lies. We try to make them conscious of the fact that they owe a duty to the community; to make them see their self-interest in the light of the community interest.

The correlative factors in this work, operating for or against it are the following:

- | | |
|-------------------------|---------------------|
| 1. Economic conditions. | 3. Hospitalization. |
| 2. Education. | 4. Policing. |

Economic conditions, poverty and its congener, ignorance, are by far our greatest opponents in this work. Rigid quarantine no doubt works a hardship on many poor families; it calls for a sacrifice of an altruistic character that many do not understand.

Education is our greatest ally. To bring knowledge to the ignorant and awaken a sense of duty in the careless is the first step. In a task of this kind, we can look for the full fruition of our work only when the poor and ignorant better understand their own interests in these matters and the well-to-do and well-informed have been sufficiently impressed with the necessity of giving thought to the interests of others. In this campaign of education the family physician occupies an important position. His efforts and influence should be freely given to the cause of health.

Hospitalization of contagious cases is, of course, the surest means of securing isolation of the patient. It is, unfortunately, impossible to always do that at present, both on account of the lack of adequate hospitalization facilities for contagious cases, and for the reason of an opposed public opinion to such a measure as universal hospitalization. It has, however, a two-fold bearing on the quarantine situation.

On the one hand, the rigid quarantine regulations induce many families to send the patients to the hospital; on the other hand, the fear of having the patient forcibly removed to the hospital in case quarantine regulations are violated makes them live up to these regulations.

It frequently becomes necessary to police the quarantined premises, when the people are careless and refractory and the danger of the spread of the disease is considerable. This always has a salutary effect. It convinces them that the department means business and they readily fall into line and are willing to learn and observe the regulations.

This system of quarantine enforcement in Chicago, as far as diphtheria and scarlet fever are concerned, has been in existence a year now. One year is a very short period for such an undertaking. The difficulties were many, and the means at hand, as far as money and men are concerned, were inadequate for the task in hand. Yet a considerable improvement in conditions was achieved, both as to the educational influence it had on the public, resulting in a changed attitude towards necessary health measures and a broader knowledge of the same, and also in its direct bearing on the morbidity of scarlet fever and diphtheria. This system of quarantine regulation and surveillance was inaugurated in May, 1909. It did not get well under way until about September. Here is a comparison of the number of cases reported during the twelve months preceding quarantine enforcement, with that following it:

COMPARISON OF NUMBER OF CASES REPORTED BEFORE AND AFTER
QUARANTINE ENFORCEMENT

SCARLET FEVER			
1908 May	301	1909 May	455
June	287	June	382
July	203	July	261
August	173	August	216
September	297	September	342
October	608	October	514
November	841	November	684
December	914	December	686
1909 January	881	1910 January	688
February	590	February	671
March	644	March	692
April	587	April	600
	6,336		6,191

DIPHTHERIA			
1908 May	254	1909 May	378
June	306	June	320
July	255	July	268
August	251	August	223
September	341	September	327
October	788	October	559
November	880	November	719
December	934	December	601
1909 January	745	1910 January	468
February	522	February	443
March	522	March	470
April	483	April	527
	6,281		4,924

As to scarlet fever, we see that from May 1, 1908, to May 1, 1909, 6,336 cases were reported; in the following twelve months 6,191 cases were reported, a saving of 145 cases. This in spite of strongly pronounced epidemic tendencies; this in spite of the fact that a comparison of the cases reported during the calendar years, 1908 and 1909, shows that there were 5,305 cases reported in the former and 6,242 in the latter, showing a preponderance of 937 cases of scarlet fever in 1909.

In the case of diphtheria, the results obtained were still more gratifying. From May, 1908, to May, 1909, 6,281 cases were reported. From May, 1909, to May, 1910, 4,924 were reported, a reduction of 1,357 cases; and here also more cases have been reported during the calendar year 1909, than during 1908.

The proper observance of quarantine has now come to the fore as an efficient means to control the contagious diseases. It does away with the weak points in handling contagion in a large city. It helps do away with the leak and dribble of careless individual negligence which does the community so much harm. As a preventive measure, it has emerged from the realm of theory, and has now firmly established itself by virtue of actual experience, which showed its necessity and practical utility.

1400 West Taylor Street.

ABSTRACT OF DISCUSSION

DR. B. FRANKLIN ROYER, Harrisburg, Pa.: Dr. Cohen has outlined a type of quarantine which is ideal in a large city, but which is applicable only in cities or towns of considerable size. It is not always possible to have the kind of supervision and espionage kept up in the country districts and small towns which is practiced in Chicago. In such places we must rely more on educating the family itself. Too often, I fear, a quarantine officer placards the premises, instructs the people as to what they are to do, and walks away. If he is in a hurry he may not go into great detail; perhaps he may not himself be sufficiently trained, if he is a layman, to go into detail of complete isolation and explain the necessity for keeping up isolation until the termination of the case.

An idea was well brought out this morning in Dr. Hemenway's paper, and perhaps it would make a very strong point in any suit if violation of quarantine comes to that point, to be able to say that the family was fully instructed and that the instructions handed them were printed in full detail. The Pennsylvania Department of Health uses such a circular of instructions for each communicable disease. It includes

details of isolation, describes the method for the disinfection of discharges, and at the conclusion of the leaflet an extract from the law is quoted. A similar extract from the law is printed on the placard. This plan not only instructs the householder, but offsets a plea of ignorance on his part. Physicians know what these circulars of instructions contain. It saves them a great deal of time and helps them in the work, and after all it is to them we must look for keeping up the domestic quarantine.

DR. SENECA EGBERT, Philadelphia: I think Dr. Royer will bear me out that in our great small-pox epidemics the plan of putting either one of the regular policemen or a special man sworn in as a policeman in the house in which the disease is, and keeping one there night and day, is a good one; that is, the plan of keeping the guard there, without allowing ingress or egress to those who might carry infection beyond the premises. Another thing is the necessity of common sense. There are a great many physicians who do not appreciate how valuable this is. You can make the routine disinfection and care of a room in a case of illness lasting two or three weeks very tedious and annoying. Boiling water can be had in almost any household, and most things that come from the room can be boiled with almost no trouble for the thirty minutes or the hour that is necessary for thorough disinfection. With a little bit of bichlorid solution and boiling water any household can accomplish the disinfection of dishes, clothing and the like, and with a little chlorinated lime or ordinary milk of lime in addition for the excreta, one has about all that is necessary. This simplifies the task of regular and persistent disinfection.

DR. I. D. RAWLINGS, Chicago: Dr. Cohen failed to mention a number of things I thought he would bring out. One thing is that the man who makes the first inspection, gives the instruction, gives out important literature (samples of which I supposed would be shown here under this paper), is a thoroughly trained medical health officer, who knows just exactly what instructions to give, exactly what to do, where to place placards, all the detail. He, while there, leaves instructions for the quarantine officer as to exactly what quarantine shall be established, says who shall be in that house, who shall go to work from that house, etc. This is all written down on a special blank and placed back of the red sign on the front door. The quarantine officer comes along the following day, removes this written statement of quarantine requirements, and in this manner knows exactly what instructions have been given the family by the medical inspector—has the full detail, and it is his duty to call every other day and see that the requirements are carried out.

We are living up religiously to our Rule 10, which says: "The members of the family who work out must (1) live in a part of the house remote from the patient and keep away from all persons coming in contact with the patient; or (2) room and board at another house; or (3) stop work and stay in the house.

DR. HYMAN COHEN, Chicago: It was my object in this paper to give a general review of the methods, not so much in detail, as in the broad sense indicating policies and lines of activity, or, rather, to indicate especially detail which I hoped would be brought out in the discussion. I want to answer some of the points made here by the speakers categorically. The statement that it is not possible to manage detail in the small communities is very true. It is not only not possible to do so in the smaller communities, but it is very often almost impossible to do so in the larger communities, where you work under the handicap of a limited appropriation. I have had to skip quite a good deal in order to come within the time limit; and many of the things mentioned as being left out are in the paper.

The repeated visits made and the oversight to see that the orders are followed out are just the points wherein the present system of quarantine inspection differs from the old system, in which the man would put a red card on the door and turn on his heel and walk off.

There are two essentials: information from the family, and then to give the family information as to managing the case; they want that; and the man must not leave the premises

on his initial trip before he imparts that information, and is satisfied that they fully understand the matter; and it frequently is necessary to get an interpreter when one is dealing with Italians and other foreign-born people who do not speak the language.

We have printed instructions. It would be interesting to find out how many of the hundreds given out are read intelligently and carefully. We are doing a great deal in the way of personal instruction of the family directly, or through an interpreter.

As to the physician's duties in case of contagious diseases, there is much to be said. There are all sorts of physicians in Chicago, as elsewhere. Some are antagonistic or careless; some are in sympathy with our work; but there is no one factor that is of as great importance in this entire situation as the physician factor. It is up to the physicians to "get next" to the progressive work that is being done in this line; for if they don't, they will be left behind; progress will be made in spite of their indifference.

We not only put a policeman at the door, but frequently two: one at the front entrance and one at the rear; and two means four, because they work in relays, night and day. It is important; it brings the people to a realization of the fact that we mean business, and it has a salutary effect on them.

Common sense and tact are the greatest factors. You cannot compel the members of a Chicago community, or any large community, to observe strictly any precaution they have never used before and perhaps have never heard of before. Many of these families have had a case of contagious disease for the first time; they do not understand the situation, and if you go at them abruptly you will lose out. This is where experience and tact come in. We try to have inspectors with common sense and education, so far as possible.

We allow nothing to come from the room without being thoroughly disinfected; and we supply bichlorid tablets; we make a solution in a wooden bucket right in the room, and not only are the linen bedding and the nurse's clothes disinfected, but also the bed-clothing, and the floor is mopped daily.

THE TREATMENT OF WOUNDS

A FIRST ARTICLE *

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In the actual condition of therapeutics, aseptic wounds generally heal in a few days. The more ambitious dreams of the surgeons of the pre-Listerian era have been fulfilled. Nevertheless, we have no right to believe that the treatment of wounds has reached its ultimate perfection. We must investigate whether or not it is possible to advance farther. In the treatment of wounds, we content ourselves by protecting the tissues against infection, and we leave to Nature the care of cicatrization. Would it not be feasible to act on the processes of reparation themselves and to activate them? The wounds which now heal in a few days could possibly be caused to heal in a few hours. The treatment of fractures would also be simplified. The development of methods for the stimulation of the growth of epithelial cells, for the inhibition or the activation of the proliferation of connective tissue, for the artificial production of osteogenesis, etc., would greatly improve the therapeutics of the ulcerations of the skin and of the lesions of peripheral nerves, bones and many other tissues or organs. This new evolution of surgery depends on the discovery, partial at least, of the laws of redintegration of tissues of mammals. Cicatrization and regeneration are the expression of the power to persist in its form with which all organisms are

endowed. We are deeply ignorant of the nature of this function of redintegration. It is, as is the function of nutrition, a fundamental property of living matter. To know its nature is as impossible as to know the nature of life. Besides this knowledge would be useless. From a metaphysic standpoint it would be interesting to discover *why* a wound heals. But from a scientific standpoint, it is infinitely more important to know *how* it heals, because it would then be possible to find what stimuli start the complex mechanisms of the regeneration of the tissues. Therefore, the physiologic phenomena of cicatrization must be investigated. It is true that the power of redintegration escapes our methods of research. But the physico-chemical processes which this power, as a directing idea, coordinates and harmonizes in view of the morphologic reparation, can be brought into the field of experiment. We must, therefore, analyze the mechanisms which are instrumental in the cicatrization of a wound, the factors which modify their functions, the stimuli by which they are started, and the causes of their reciprocal cooperation to the common work. Perhaps it will become possible to use some of these agents for the artificial activation of the regeneration of tissues and the treatment of wounds.

MECHANISMS OF THE REPARATION OF A CUTANEOUS WOUND

Since many centuries all surgeons know the anatomic processes of the cicatrization of a wound. On the open surface, granulations appear, and, by their contraction, bring closer to each other the edges of the epidermis. Then the epithelial cells wander on the granulous tissue and a new epidermis is formed. These phenomena can be divided into four periods: quiescent period, period of granulous retraction, period of epidermization and cicatricial period.

The experiments on which this article is based were performed chiefly on dogs. The cicatrization of wounds obtained by resection of a flap of skin was observed. The resected flap was of geometrical form, rectangular, trapezoidal or circular. In order that the edges of the old epidermis might be easily seen, I used black animals or I stained the edges of the wound with India ink. It was then possible always to distinguish the new from the old epidermis, and to follow accurately the variations of the dimensions. The dressing consisted of talcum powder and gauze or warm paraffin. The wounds were kept as nearly aseptic as possible. When they became infected the results were discarded.

1. *Quiescent Period.*—The quiescent period extends from the time of the resection to the time of the beginning of the granulous retraction. During the first days the dimensions of the wound do not vary. If we represent graphically by a tracing the time of healing the successive distances between two points A and B taken on the opposite sides of a rectangular wound, the tracing during the quiescent period is horizontal. Suddenly it inclines downward. It is the beginning of the granulous retraction. Often the immobility of the edges of the wound during the quiescent period ceases rather suddenly; there is no period of transition and the active period of reparation starts immediately. The main characteristic of the quiescent period is the great variability of its duration. In some cases it lasts only one or two days, while in others it lasts four or five days.

2. *Period of Granulous Retraction.*—At the end of the quiescent period the edges of the wound begin to advance toward each other. The tracing of the con-

* From the laboratories of the Rockefeller Institute for Medical Research.

sensitive distances between the points A and B, taken on the opposite sides of a rectangular wound, shows a sudden inclination downward. Progressively, the inclination of the curve diminishes and, after a few days, it is almost horizontal. The reduction in size of the wound is very active during the first days of the period of granulous retraction. Then it becomes progressively slower until it comes to a standstill. This fact was observed long ago. It was believed that the activity of the granulations depended on their age, while it depends really on the dimensions of the wound.

By measuring the rate of reparation of a rectangular wound, I found that it diminishes progressively from the beginning to the end of the period of granulous retraction. The rate when the wound is 60 or 70 mm. is about 9 or 10 mm. for twenty-four hours. When the wound is one of 40 mm. the rate is about 3 mm. When the dimensions of the wound are only 20 mm. the rate becomes very slow. In all wounds the rate becomes about zero when the edges have reached a distance of about 10 or 15 mm. from each other. It is therefore certain that these differences in the rate of reparation are functions of the size of the wound.

By observing on the same animals large and small wounds, I could see during the same period the larger wound diminishing with a much greater speed than the smaller wound. For instance, two rectangular wounds (Experiment 176) were made on the same animal. The transverse dimension of the one was 66 mm. and of the other 26 mm. During the first forty-eight hours of the period of granulous retraction, the larger wound diminished 20 mm. and the smaller 4 mm. On trapezoidal wounds, it was observed also that the reduction in size of the smaller side is very much slower than the reduction undergone by the larger side. On circular wounds, made on the same animals with cutting tubes 1 and 2 cm. in diameter, the same phenomena were observed. Many other experiments have been performed. It is certain that the *rate of reparation* of the granulous period is *directly proportional to the size of the wound*; that is, to the effort to be accomplished in order to bring about the redintegration of the parts. It must be noticed that during the period of granulous retraction, the redintegration of the skin of mammals follows the law discovered by Spallanzani on the salamander. If the tail of a fish or salamander is cut off near its base, the new part grows faster than when the tail is cut off nearer the tip. The new part which arises from the basal cut grows more rapidly at first and more slowly later. The rate of regeneration is proportional to the importance of the work to be done. It is remarkable that, on mammals, the reparation of the skin, which is brought about by a very different mechanism, obeys the same general law.

The period of granulous retraction plays a very important rôle in the healing of the middle-sized and the large wounds. Thus, a wound of 60 or 70 mm. can be reduced to one-third and one-fourth of its primitive size. A wound of 30 mm. can be reduced to one-half its size. The importance of the granulous period is less for the small wounds. The effort of the granulations on a wound of about 15 mm. reduces its dimensions to three-quarters or even less of its original size.

The end of the granulous period corresponds to the beginning of the epithelial wandering from the edges of the wound. For a wound of about 30 or 40 mm. the retraction becomes exceedingly slow and even stops completely when the distance between the edges has been reduced to 10 or 15 mm. When the wound is larger,

the retraction stops often when its dimensions are still 20 or 25 mm. In that case the epithelial wandering is very slow and often the result is an ulcer.

It seems that the epithelial wandering on the surface of the granulations stops immediately their retraction. The epidermization not only coincides with the end of the period of granulous retraction, but it causes it. In the corner of a granulating rectangular wound I deposited a small square graft of skin. After a few days the graft was found surrounded by the normal skin of the edge and the wound had assumed again a perfectly rectangular appearance. This shows that the retraction stopped at the level of the graft, while it still went on in the other parts of the wound. In another case, the epidermization of the upper part of a large square wound was stimulated by a graft, while the lower part remained without epithelium. It was then observed that the distance between the India-ink-stained edges of the old epidermis was still diminishing in the lower part, while it increased in the upper part. The shape of the square wound became trapezoidal. Sometime after complete epidermization it became square again. It is, therefore, certain that the epidermization inhibits the retractive function of the granulations. When the epidermization takes place early, the scar is large and thin. When the epidermization is late, the granulations undergo a stronger retraction and the scar is thick and comparatively smaller.

The function of the granulous period is also to prepare the surface of the wound for the wandering of the epithelial cells. But it seems probable that its main rôle is to bring the edges of the wound to a certain distance—about 10 or 15 mm. in the dog. It is shown by the fact that if the wound is only 10 mm. wide, practically no retraction occurs. It does not occur because it would be useless, since at the distance of 10 mm. the next mechanism of the reparation, that is, the epithelial wandering, can take place easily, as will be shown later.

3. Period of Epidermization.—On a rectangular wound, the edges of which are stained with India ink, it is easy to detect the beginning of the period of epidermization. The new epithelium spreads at first very slowly on the surface of the granulations. It is difficult to locate exactly the free edge of the new epidermis. Nevertheless, by using paraffin dressing, it is possible to see with certainty in a few cases the edge of the wandering epithelium. The new epidermis is exceedingly delicate and a great many external factors interfere with its growth. The best medium for its growth is certainly coagulated fibrin, which can be obtained by using as a dressing paraffin of a certain consistency and melting-point.

The time of the beginning of epidermization does not depend on the age of the wound but on its dimensions. If the wound is large, the epidermization is tardy. It occurs very much earlier when the wound is smaller.

By measuring the distance between two points taken on the free edge of the new epidermis of a rectangular wound, it was found that the growing of the epithelium is exceedingly slow if the distance is more than 12 or 15 mm. But if the edges are located less than 10 mm. from each other, the epithelium wanders more quickly on the granulations. When the free edges of the epithelium are closer, the rate of cicatrization is very much faster. I found, in one case, a rate of 2.5 mm. for a distance of 5 mm. The curve representing the positions of the two points runs at first almost horizontal and progressively inclines itself downward with an accelerated rate.

When at the end of the granulous retraction of a large wound, the edges of the old epidermis are still at a distance of 20 or 25 mm. the new epidermis cannot spread on the granulations and the cicatrization of the wound comes to a standstill.

It seems that the time of the epidermization and its rate depends mainly on the dimensions of the wound. This point has been ascertained by several other sets of experiments.

By observing trapezoidal wounds it was found that the smaller side about 8 mm. wide was completely epidermized while the larger side about 20 mm. wide presented an epithelial band of about 2 mm. along the edges of the old epidermis. On irregular wounds the epidermization begins always on the points where the edges are closer to each other. In lozenge-shaped wounds the epidermization begins in the acute angles and the wound becomes an ellipse. On several kinds of trapezoidal wounds it was always found that the epidermization begins sooner and spreads more quickly between the points which are separated by the shortest distance.

Therefore, it appears that the law of reparation by epidermization is absolutely different from the law of separation by granulous retraction. *The rate of the epidermization is inversely proportional to the dimensions of the wound.* It is very slow when the distance between the edges of the wound is more than 10 or 15 mm. The maximal activity of the epidermization seems to take place when the cicatrization is nearly complete, and when the edges of the new epithelium are very close to each other.

4. *Cicatricial Period.*—The dimensions of the scar can easily be measured when the edges of the old epidermis are stained with India ink, or when the animal is black. It was found that the scar of a large wound is comparatively smaller than that of a small wound. On the same animal, two wounds of 66 mm. and of 26 mm. were observed. The 66 mm. wound gave a scar of 22 mm. and the 26 mm. wound a scar of 13 mm. The scar of the large wound was only one-third the size of the wound, while the scar of the small wound was one-half the size of the wound. If the wound is still smaller, 10 or 12 mm., the scar is almost the same size as the wound. This is the natural result of the law of granulous retraction.

The evolution of the scar is very slow and the cicatricial period of a wound very long. As soon as the epidermization is completed, the distance between the points A and B of the edges of the old epidermis grows greater. The tracing shows a slight movement upward of the line representing the different values of the distance A and B. The points A and B have a tendency to go back to their former position. This progressive enlargement of the scar lasts for a long time and its result should be a complete redintegration.

The mechanisms which are instrumental in the cicatrization of a wound are coordinated in such a way that the reparation is continuous and progressive. Nevertheless, the reparation presents phases of maximum and minimum activity during which the rate is higher or lower. During the quiescent period, the end of the period of granulous retraction and the beginning of the period of epidermization, the rate of the reparation is slow. It is maximum at the beginning of the period of granulous retraction and at the end of the period of epidermization. The two mechanisms are adapted to the healing of small and middle-sized wounds, the width of which is not over 10 mm. In a wound 30 or 40 mm. in width or smaller, the retraction of the granulations

is very efficient, since it can quickly bring the edges to a distance of 10 or 15 mm. This distance is very favorable to the epidermization. Therefore, at the same time when the rate of reparation by granulation becomes very slow, the epidermization starts and the reparation goes on without interruption, although by a different mechanism. But if the wound is larger, 60 or 70 mm., the retraction of the granulations cannot bring the edges to the minimum distance. They remain at a distance of about 20 mm. and the reparation comes to a standstill because the epidermization cannot take place easily under these conditions. The mechanisms are very efficient for the healing of the injuries to which the animals are exposed in their every-day life. But they do not work as satisfactorily for the larger wounds.

VAPOR ANESTHESIA APPARATUS

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NEW YORK

In 1905 I first presented my apparatus for vapor anesthesia to the medical profession. At that time it seemed quite complicated. It consisted of three bottles connected by tubing, one of which was for ether, one for chloroform and the other being a bottle containing hot water or hot neutral oil for warming the vapor, and having a tube through which the vapor was delivered to the patient. Each bottle was provided with a stop-cock, and a mixture of chloroform and ether could be given. The ether bottle contained a drum for assisting in vaporizing the ether. I have perfected the different parts and

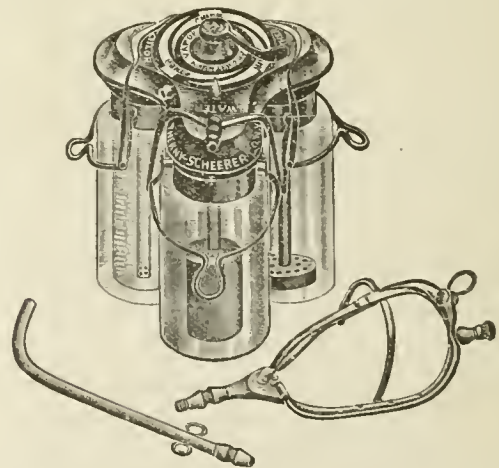


Fig. 1. This shows the three bottles of the vaporizing apparatus, with the single stopcock. The figure at the right below shows the tubular frame of the mask through which the vapor passes to the gauze covering. The tube at the left below is used in delivering the anesthetic in operations about the mouth or throat in which the mask cannot be used.

now present a simplified apparatus consisting of three bottles with one stop-cock. The drum in the ether bottle has been modified (as suggested by Dr. Charles E. Boys, Kalamazoo, Mich.), so that it now vaporizes all of the ether, and it does not necessitate refilling the bottle as often as before. A small bottle holding 10 drams of chloroform has also been placed within the chloroform bottle. This is enough chloroform for a long operation. The end of the tube in the chloroform bottle has been closed and a number of pinhole perforations made at the bottom of this tube, so that it is impossible to waste the chloroform as the air passes through. The last improve-

ment has been to place around the mask a rubber covering which confines the vapor and assists in making the anesthetic more manageable.

If one ounce of the oil of bergamot or terpineol is placed with 3 ounces of water in the hot-water bottle, the odor of ether or chloroform will be so disguised that the patient will be unable to distinguish when the anesthetic is turned on, and consequently no resistance or asphyxial symptoms present themselves in going under the anesthetic. Then again, it is much pleasanter for the surgeon, nurses and others in the room to smell the oil of bergamot or terpineol than to be constantly inhaling the odors of ether and chloroform.

At any time the anesthetist can give either chloroform or ether, or any combination of the two, by simply turning the single stop-cock, the change being made in less than a fraction of a second, all of the vapor passing through the third bottle, usually filled with hot water, and terpineol or a hot neutral oil. Unquestionably a smaller amount of anesthetic is used with this apparatus, or with some similar apparatus, than with any other method now known. It has been used constantly in some of our largest hospitals since 1905, with increasingly gratifying results in the following particulars:

1. A smaller amount of anesthetic is used. In a chloroform anesthesia, in which ether was contra-indicated on account of an ulcer in the stomach, I used 2 drams of chloroform for a



Fig. 2.

Fig. 2.—Illustration of mask one-third size.



Fig. 3.

Fig. 3.—Illustration of rubber covering for mask, which helps to prevent cooling and waste of the anesthetic.

twenty-five-minute operation. Two or three ounces of ether with one to two drams of chloroform per hour is the usual amount used.

2. The technic can be acquired with less danger to the patient than with any other anesthetizing method. In getting the patient entirely under, with this apparatus alone, excitement is usually absent, or so slight that it is unobjectionable.

3. In over 90 per cent. of the cases unpleasant after-effects are entirely absent.

4. A continual narcosis is always maintained, as we know exactly what per cent. the patient is getting at all times, and in addition the gradations are easily and readily made by moving the one lever according to the degree of narcosis demanded by the operation. An intermitting narcosis, which is wrong in principle, is thus avoided. It is especially indicated for nose and throat operations, and is the apparatus for mastoid operations. The anesthetist can maintain primary anesthesia, moving backward and forward between what is commonly known as the second and third degree of anesthesia, without once arousing the dangerous vomiting center. All of the vapor, being warmed, is more respirable, reducing the after-effects and increasing its safety as regards life. With this attenuated vapor, an infant three days old can be safely anesthetized and an alcoholic can be easily kept under, after reaching the surgical stage. All patients can be narcotized within

five minutes, and with this warmed vapor, the kidneys, heart and lungs are never seriously affected.

In order to discover the value of passing this vapor through hot water, the following tests were made by Dr. Chas. Baskerville, professor of chemistry, College of the City of New York:

1. Pure oxygen was passed for seventeen minutes through 4 ounces of anesthetic ether, the resulting mixture passing through the hot-water bottle with the water at 60 C. The first 10 c.c. of distillate were collected. The ether used in this test had given a pronounced aldehyd reaction when allowed to stand over potassium hydroxid for six hours, but the distillate obtained in the above experiment gave only a slight response.

2. An experiment was made, using water at 40 C. and applying external heat to the water-container sufficient to insure vaporization of the ether. The ether distillate obtained under these conditions, gave a negative reaction for aldehyd. It will appear from these results that the aldehyd is removed when ether vapor is passed through water in the neighborhood of 40 C., and that the aldehyd content of the ether passed through is considerably diminished and its toxic value is especially lessened, when the water is kept at a temperature in the neighborhood of 60 C.

The vapor apparatus may be used in combination with a vacuum water pump, similar to the one used by dentists for removing blood and secretions from the mouth and throat in operations about those parts, in which it is necessary to remove the mask. The anesthetic vapor in this instance is administered through a metal tube attached to the delivery tube of the apparatus. I have improved the pump by the addition of an adjustable connection that can be attached to any hydrant or tap.

124 East Sixteenth Street.

EYE-STRAIN A CAUSE OF EXOPHTHALMIC GOITER

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AND

A. C. DURAND, M.D.

ITHACA, N. Y.

Exophthalmic goiter, it is said, is, or may be indicated by four symptoms, tachycardia, exophthalmos, goiter, and tremor. Tachycardia is usually held to be the early, leading, or primary symptom, the other three trailing off in relative unimportance. Indeed, any one or two, perhaps three, of the four may be absent, and yet the real morbid Proteus be present, concealed and yet pathogenic by means of the one or two remaining.

Pathology of a serious or rational standing has really nothing to offer as to the cause and nature of the disease. The oculists have kindly shoved the problem off into the far country labeled "ductless glands," and it has been quizzically suggested that the exophthalmic principality of the quadruple-crowned and loosely joined grand-duchies, owes all its independence to a wondrous little, and little wondrous, "muscle of Müller," situated at the orbital fissure. How it is possible for these tiny fibers by contraction to produce the distortion of a huge, or of any degree, of exophthalmos, with its attendant signs and symptoms, what may be the physiologic function of this muscle in the first place, and consequently what is its morbid function, how the thyroid secretion can execute such a task—all these, and more, raise the corners of the mouth of the genuine scientist. Indeed, the illogicalities of the symptom-complex and of the group-name

illustrate the tendency in all of us to clap an inappropriate name down on a lot of unknown facts, and "stand pat" in the comforting delusion that something has been done as regards etiology and therapeutics.

Now the forgotten *reductio ad absurdum* of this pathologic pathology lies in the fact that each day we all have patients presenting one, if not two, of these four "typical" symptoms, and we never dream of Dr. Basedow, or of Dr. Graves, or of Dr. Exophthalmic Goiter. Far more startling and undreamed of is the fact that we oculists who are also refractionists, have long been curing our patients who exhibit these symptoms, when they are presented singly, and doubtless also when in twos and threes. Nothing is more certain than that the eye-strain of ametropia often causes tachycardia, often causes tremor, often both combined. One of us has already reported a number of cases of tachycardia cured at once by the correction of ametropia, and we could add others. To these might be added cases of tremor. The coexistence of lateral spinal curvature must, and does, probably, add a causative factor, and certainly needs scientific study at the hands of serious-minded pathologists. The essential thing is to reach the precedent functional or physiologic cause of the late morphologic symptoms. In this respect all of our pathology is glaringly in fault and needs revolutionizing. When we find intense and long-continued eye-strain preceding the appearance of either of the three chief symptoms we at once get a glimpse into their possible origin, and especially if one after another is developed seriatim. This more particularly holds good if the exophthalmos is monocular.

What may be the mechanism whereby the symptoms are produced by eye-strain is another matter, and does not, at first, concern the clinician, or even the sensible pathologist, so much as the establishment of the fact. How tachycardia may be caused by eye-strain, and how tremor may result from eye-strain or sciosis, is easily seen, but how exophthalmos is produced by eye-strain is not so readily understood. Less easily still may one explain the ocular origin, if such exists, of goiter.

Among a considerable number of cases that we have had which showed the causal relation of eye-strain and "Graves' disease" is the following:

July 15, 1907, Miss L. R., from Ohio, consulted us on the recommendation of Dr. L. She had been suffering from headache, lassitude, and intense pain in the back of the neck for a year, and the left eye began protruding about eight months previously, becoming more pronounced up to two months prior to her visit. No goiter existed. The pulse-rate was about 105, but variable. An oculist, some two months previously had ordered glasses, after three days of mydriasis, R.E. sph. + 1.00!!! The static error of refraction, however, we demonstrated to be as follows:

R. + sph. 1.50, + cyl. 0.50, ax. 90° = 20/30
L. + sph. 1.25, + cyl. 0.50, ax. 90° = 20/30

For the ten or twelve hours during which the eyes were under the mydriatic the exophthalmos of the left eye disappeared almost completely, and this eye would not have seemed different from its fellow. When the cycloplegic wore off the next day the exophthalmos returned.

This temporary recession of an exophthalmic globe under mydriasis had occurred several times in our practice before, but in Miss R.'s case the sequel was different; for during the six months following the securing of the spectacles correcting her ametropia the exophthalmos slowly and finally completely disappeared.

Graefe's sign did not disappear under mydriasis, but in September, 1910, it was not present, and, so far as the exophthalmos is concerned, no difference was to be detected between the two eyes.

Of course the headache, neck pain, tachycardia, etc., passed away at once with the exact ametropic correction. At the last visit, also, all amblyopia had disappeared, the acuteness of vision being perfect. The ophthalmoscope revealed considerable ophthalmovascular choke, but the most decided symptoms of this disease were not present.

Nothing is needed to demonstrate the fact that in this case the cause of the exophthalmos and tachycardia was eye-strain. Whether goiter would, in time, have been added to the two other symptoms of hyperthyroidism, cannot now be asserted or denied.

The conclusion is suggested that, as multitudes of goitrous patients have no tachycardia or exophthalmos, the goiter symptom is somewhat independent or secondary. It appears more than suggested that a common, if not the chief, cause of so-called exophthalmic goiter is eye-strain. Probably the tachycardia is the first of the ocular reflexes instituted, followed by the exophthalmos, as, chiefly, a secondary vascular phenomenon. (The exophthalmos of choking, or strangulation, or cervical compression, is suggestive.) It is not beyond comprehension that heightened blood-pressure may induce goiter, although the neurotic origin seems more sensible. Lastly, it hardly needs mention that the only cure in such cases must be through prevention, stopping the long preexisting eye-strain by accurate correction of ametropia. Perhaps, rarely, may a cure be expected when decided exophthalmos (and especially of the *two* eyes) has been established.

For twenty years or more one of us (G. M. G.) has been urging the profession to make a differential diagnosis in cases of headache, migraine, neurasthenia, dyspepsia, etc., by cycloplegia. Not one has cared enough about the matter to carry out this simple test. Consequently, it would probably be of little use now to advise mydriasis as a method of testing whether the early symptoms of exophthalmic goiter are due to eye-strain. But why not?

ELEPHANTIASIS OF SCROTUM AND PENIS WITH OPERATION

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SAN FRANCISCO

The following case history is presented because of the rarity of this condition on the Pacific coast. Tropical diseases about the Bay of San Francisco are rapidly increasing in number, and the practitioner must be on the constant lookout for them.

History.—A young man, aged 30, single, a cigar-maker by occupation, was referred to me for extensive swelling of the penis and scrotum. This patient had been in Mexico in 1900 for three months, and in 1902 for a period of six months. There was no other history of tropical exposure. He stated that the disease appeared insidiously and had never been accompanied by pain. There had never been periods of chill, high temperature or diaphoresis, but he said that at times there had been local heat in the scrotum, although unaccompanied by general fever.

Examination.—The scrotum was found to be very large, about the size of a small coconut. The penis presented an edematous collar, 4 cm. in width, just back of the corona glandis. On palpation the testes were found to be of normal size and freely movable within the serotal sac. The size of the scrotum was due to an extensive involvement of its structure. The tissue was hard and brawny to the feel; it did not pit on pressure and was dark red to a light brown in color in places. The swelling was most noticeable directly under the penis, and extended to within 4 cm. of the perineum in the median raphe. The tissue resembled more than anything

else the hard, brawny induration which so frequently occurs in the skin of the neck after extensive operation on its glands for malignant disease. There was no edema in any other portion of the body and the patient stated that there had never been any. One year ago the patient was operated on for adherent prepuce. This was only partially dissected away and the corona glandis was but partly clear at the time of my examination. At the frenum was a tumor mass of hard tissue closely resembling that of the scrotal involvement and about the size of a nickel, being possibly slightly thicker. This was made up of the adherent prepuce, and the mucous membrane of the glans penis was not involved. Back of the corona glandis there was a constriction of tissue of about 0.25 cm. in width, and above this point for at least 4 cm. the tissue was swollen and redundant, presenting the characteristics of the scrotal involvement. The femoral glands were not perceptibly enlarged. The patient's general health had always been good. The heart and lungs were normal. Tuberculin reaction negative.

This patient was referred to Dr. Herbert Gunn, who confirmed the clinical diagnosis of elephantiasis, and made several examinations for filaria, all of which were negative. The patient was placed on a hydragogue cathartic and the scrotal tumor was soon considerably reduced in size, but the skin induration was unaffected.

Operation.—September 9, 1910, at University of California Hospital the patient was operated on. I was fortunate in having present at the operation Dr. P. S. Rossiter, United States Navy, who has had a large experience (eighty-two cases) in the operative treatment of this disease in Samoa. The technic developed by Dr. Rossiter was carefully followed. With the patient in the lithotomy position, the lines of incision on the scrotum were outlined. They were made in perfectly sound tissue, meeting above on the under surface of the penis, then sweeping out in a slight curve to within 1 cm. of the perineum. The testes being well lifted, the tumor mass was grasped in the hand and rapidly cut away along the lines which had been marked. The testes were found to be normal. As the remaining lateral flaps were small, coaptation was obtained with some difficulty by means of tension sutures of chronic gut and the incision carefully united by a continuous horsehair suture. With a sound in the urethra the tumor mass near the frenum was removed by free incision and the prepuce dissected away from the corona glandis. Incision was then made transversely about and high up on the body of the penis, and the portion of involved skin between this point and the corona glandis removed. Sound skin was then brought down and united at the sulcus by means of four tension sutures of silkworm gut and a continuous suture of horsehair. The wounds healed kindly and the patient was discharged from the hospital on the eighteenth day.

240 Stockton Street.

A CASE OF CHRONIC APPENDICITIS SIMULATING NEOPLASM

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NEW YORK

The following case is reported on account of the unusually large circumscribed development of inflammatory tissue, resembling a new growth. Although such a formation has been seen in chronic inflammation of the Fallopian tube, in the appendix it has not been reported to my knowledge.

History.—Miss D., aged 47, was admitted to the surgical service of Dr. Henry Roth at Lebanon Hospital June 2, 1907. About one year before admission to the hospital she had an attack of acute appendicitis. Soon after this attack subsided she noticed a mass in the right lower quadrant of her abdomen. This gradually increased in size. She lost 20 pounds in weight

in one year. Examination revealed a tumor occupying the entire lower right quadrant of the abdomen, extending up to the level of the umbilicus and about one or two inches beyond the median line.

Operation.—This was performed by Dr. Henry Roth on June 3, 1907. On opening the peritoneal cavity a large mass presented itself with a shining, yellowish-brown surface and cystic to semisolid consistency. Its upper surface was attached to a broad band of omentum. There was an adhesion to the rectum. The tumor was intimately attached to the caput coli at the point corresponding to the base of the appendix. The mass was freed from the cecum and removed. In doing this there was an escape of very foul-smelling pus from the tumor through an opening at the point of its attachment to the cecum. The cecum did not show any evidence of involvement and, with the exception of denuded serosa and a small opening at the junction of the longitudinal bands, was normal in appearance. There was no evidence of any other growths or enlargements in other parts of the abdomen or body.

The patient died six days later, within a few hours after onset of symptoms of peritonitis, probably owing to failure of suture line in the cecum. Unfortunately a necropsy was not allowed.

Pathologic Report.—The tumor mass was oval, 19 cm. long, 11.5 cm. broad and 5 cm. thick. In the upper part, where it was attached to the cecum, and connecting with the lumen of the cecum by an opening about 0.5 cm. in diameter, was an oval abscess cavity about 6 cm. by 8 cm. by 4 cm. This cavity was filled with thick, yellowish pus, with a very offensive odor. Below the abscess cavity the tumor was one smooth, firm mass.

Sections were taken from four different locations. Dr. James Ewing of Cornell University was kind enough to go over the data and specimens with me. The following is his report of the more detailed findings:

"Sections from four portions of the tumor show that the growth is composed of fat tissue in various stages of edema and degeneration, a great many dilated veins, many large arteries and arterioles, many very cellular capillaries, considerable new connective tissue containing lymphocytes, lymph nodules, and plasma cells, and in certain areas diffuse infiltration with polymuclear leukocytes with some fibrin. There are also some outlying lobules of normal fat. None of the fat tissue shows any evidence of a tumor process, but rather of edema, mucoid degeneration, and invasion with an excessive number of small cellular blood vessels.

"In some areas about the numerous veins are broad sheaths of spindle cells with nuclei rich in chromatin. These show some of the features of a spindle-cell sarcoma, but are more satisfactorily explained as the result of chronic productive inflammation. Likewise, there are areas in which the small vessels and capillaries are so numerous as to suggest an angiosarcoma, but these appearances are probably the result of unusual cell multiplication in old granulation tissue. The typical structure of lipoma or liposarcoma is entirely wanting. The presence of diffuse suppurative inflammation in one large area, of much new inflammatory connective tissue, and of many lymphocytes, lymph nodules and plasma cells with granulation tissue, shows that the entire process is inflammatory and offers an explanation of the structures simulating a neoplasm.

"Therefore, the diagnosis may be given of chronic appendicitis and inflammation of the mesentery, with tumor-like growth of inflammatory tissue."

527 West One Hundred and Forty-Third Street.

Dyspnea in Pleurisy.—Dyspnea is a very characteristic symptom of pleurisy. It is most urgent in those cases in which the exudation occurs most rapidly and it is astonishing the amount of fluid which a pleural cavity may contain without causing much distress of breathing, provided that it takes place gradually. There must, however, be some other explanation than the mere slowness of the exudation, as there are cases in which, even in spite of rapid effusion, the breathing remains unembarrassed. These cases give less anxiety, as the presence of urgent dyspnea is always a grave indication.—F. de H. Hall, in the *Practitioner*.

Therapeutics

HYPERTHYROIDISM (GRAVES' THYROID DISEASE)

When a child grows tall very rapidly, especially about the age of puberty, the thyroid is at least very active, or actually hypersecreting. The bone formation is rapid, and the epiphyses unite with the long bones at an earlier age than in children who grow more slowly. A young girl who has too much thyroid secretion is likely to have profuse or too frequent menstruation.

In not a few instances, during acute disease in which the heart becomes very rapid, the cause is not the disease, but the disturbance of the thyroid, or a mild thyroiditis, that is present.

In 1835, Graves, of Dublin, first described the disease with which his name is often connected. In 1840, Basedow, of Germany, again described the same affection. The most-used name of the disease, "exophthalmic goiter," is a misnomer and should be discontinued, as we may have this disease without exophthalmos, and exophthalmos may occur without other symptoms of this disease. One of the two names at the head of this article is preferable, although proper names are objectionable for many reasons.

The greater the blood-supply and the greater the amount of simple hypertrophy, the nearer comes the thyroid gland to the condition of hyperthyroidism. The greater the amount of colloid material with formation of cysts, the nearer is the gland to what is known as ordinary goiter. The greater the amount of connective tissue and fibrous tissue development, the nearer comes the gland to undersecreting, sufficiently to cause myxedema.

In a beginning simple goiter, small doses of iodine may be of benefit, and iodine may be of benefit in the first stage of an exophthalmic goiter, the thyroid gland enlarging because it is short of iodine. In such conditions, the administration of small doses of iodine are of benefit, and a large thyroid, under such treatment, will often become smaller and the early symptoms of Graves' disease be inhibited. Such a gland, however, may be exceedingly susceptible to iodine, and a little iodine may precipitate all the Graves' symptoms. Or, the patient and the thyroid may stand small doses of iodine, while large doses would positively do harm, and are almost invariably inadvisable, as tending, sooner or later, to add the iodine cachexia to the thyroid disturbance. The iodine administered for this purpose is preferably in the form of an iodide, and perhaps best the sodium iodide. From 0.05 or 0.10 gm. (from 1 to 1½ grains) given from one to three times a day, is sufficient for saturating the thyroid with iodine and exciting its normal activity. Iodine has been used as an ointment, rubbed into the neck in the thyroid gland region. This, however, is generally inadvisable. The amount that will be absorbed is uncertain. Iodoform, in susceptible patients, placed on some absorbing surface, may cause iodine poisoning and symptoms of hyperthyroidism.

If during the administration of either iodine or thyroid symptoms of hypersecretion of the gland develop, the treatment is pernicious and should be immediately stopped. In fact, in any enlargement of the thyroid the administration of thyroid substance should be tried with great care lest the gland be stimulated to the condition of Graves' disease.

There is no justification for giving large doses of thyroid extract to a patient with a goiter with the expectation of diminishing it in size. It may be thus reduced

in size, but the symptoms caused by such thyroid feeding should prohibit its use to that extent. The injection of iodine into goiters is not justifiable, and the attempt to diminish the size of the goiter with x-ray treatment is of questionable value. While the gland may be thus reduced in size, the skin is caused to become adherent to the underlying tissues, and any future necessary operation becomes much more serious than when the x-rays have not been used.

When any treatment is undertaken to diminish the size of the thyroid, its frequent variations in size without any treatment must be taken into consideration before deciding that such treatment was beneficial.

With these preliminary considerations we are better prepared to study "exophthalmic goiter." Its causes are any of the stimulants of the thyroid gland which have been named as stimulants in the previous article. It is suggested that in some instances exophthalmic goiter has followed some previous general infection, the gland having been first stimulated by such infection and then has continued its activity. Such a cause is probably rare, as sclerosis and subsecretion of the gland are much more likely to follow such irritation. The disease occurs four times as frequently in women as in men and most frequently between the ages of 20 and 40.

SYMPTOMATOLOGY

This disease or condition is well studied by dividing it into four periods: first, the prethyroid period; second, that of incipient symptoms; third, the period when the symptoms are all actively present, the stage of exacerbation; and fourth, when the symptoms of the disease tend to decrease, or the stage of defervescence. While deaths do occur from the disease itself during its exacerbation, it is probably rare. Death, however, often occurs during hyperthyroidism from some intercurrent affection or necessary operation, or from an operation that unfortunately must be done on account of serious symptoms, but has been deferred too long.

1. Rapid development of hyperthyroidism is doubtful, although it has long been stated that it may develop rapidly after some mental shock. Almost invariably careful questioning will show that there were plenty of signs present of hypersecretion of the thyroid. Highly neurotic patients, especially women with uterine irritations, as caused by inflammation or displacements are liable to the development of this disease. Recurrences of tremblings, palpitations, sleeplessness, vasomotor disturbances, and inexorable loss of weight are signs that this gland could readily become so stimulated as to produce the picture of hyperthyroidism. Any of these conditions may be but short-lived, but if frequently repeated, they show a tendency to hyperactivity of this gland.

2. The actual symptoms of a developing Graves' disease are, primarily, an increased rapidity of the heart, some enlargement of the thyroid, and nervous irritability. These symptoms the patients often themselves note, perhaps not the enlargement of the thyroid, but questioning will often disclose the fact that they do not like collars or laces tight around the throat.

If in doubt as to whether these symptoms (especially if the thyroid apparently is not enlarged) are due to hypersecretion of the gland and are symptoms of beginning Graves' disease, the administration of a thyroid tablet (3 grains) once a day, will in five days at least, clear up the diagnosis. If the patient has increased thyroid secretion, every symptom will be greatly inten-

sified. If these symptoms are not intensified, the patient is not beginning an exophthalmic goiter.

3. The three prominent symptoms of an established Graves' disease are exophthalmos, enlarged thyroid, and palpitation of the heart. The most constant of these three symptoms is palpitation, and the next most constant is enlargement of the thyroid. The exophthalmos is frequently absent, and often is present in but slight degree. Exophthalmos may be present with an enlarged thyroid without palpitation. This combination, however, is infrequent, and the gland is not really hyper-secreting. Rarely but one eye is affected. The forward projection of the eye-ball is probably due to dilated blood-vessels at the back of the orbit, as the exophthalmos disappears after death. The thyroid may be enlarged as a whole, but often only half of it is enlarged, and it varies in size from time to time, causing varying sensations of pressure. Part of the gland may increase its colloid material and even show cystic degeneration while the rest of the gland may continue to hyper-secrete.

Palpitation is almost always present more or less persistently, lasting sometimes for weeks, and under the same conditions at the same rate. In other words, a patient who has a palpitation of 130 in the office during examination of the heart may be found for weeks, under the same conditions, with the same frequency of heart rate. No other disease or condition will allow a patient to walk around and attend to his or her business, eat, drink, sleep, and even be merry, with a heart-beat of from 120 to 140, and not recognize that he or she is suffering from palpitation. Any other cause for such a rapid heart will always cause dyspnea, more or less cardiac distress and actual disability. Sometimes the pulse is irregular, rarely intermittent. Often it is a pretty good pulse, even at the rapid rate. The heart is generally hypertrophied, especially the right ventricle, and later in the disease it may become dilated. There may be insufficiency of the valves on account of cardiac enlargement, but there is no valvular lesion. The future danger to the heart is that of a myocarditis. The arterial pressure is often low, but may be normal, and it is occasionally higher than normal. One of the serious dangers in the radical cure, *i. e.*, by operation, of this disease is that the operation is not done until myocardial weakness has developed. The carotid arteries pulsate to the point of throbbing and the thyroid arteries are dilated and also throb. This pulsation in the neck is exceedingly annoying to some of these patients. Aneurysms of the thyroid arteries often occur, giving all sorts of roarings and murmurs in and around the region of the gland.

The fourth most frequent symptom of Graves' disease is tremor. It is almost constantly present, may be of the hands alone, often of the tongue, and it may even be difficult for the patient to hold the head still, especially when being examined.

Other symptoms that may be present are a cough, due to the pressure of the thyroid and due to large blood-vessels in the throat, especially in the lingual tonsil region. These pressures and dilations cause tickling. Diarrheas may occur, and sometimes nausea and vomiting; often severe headaches and insomnia are symptoms. There are vasomotor ataxias, such as hot flashes and then a feeling of coldness, and one may feel the patient's hands or face at one time cold, or hot, and in four or five minutes they feel the opposite.

Another important symptom of the disease is loss of weight, which is almost constant and has often pro-

gressed considerably before the patient comes to the physician; but there is always a limit to this loss of weight, as it does not seem to be continually progressive.

Early in the history of the disease the patient often sweats readily; sometimes has dripping perspirations. This, however, is by no means constant, and is probably due to the vasomotor disturbance. Leg and muscle weaknesses, and sometimes edema of the feet and ankles occur. This is entirely due to a weakened circulation. There may be polyuria, and sometimes an albuminuria, which perhaps represents passive congestion of the kidneys from weakened heart, and occasionally there is glycosuria.

The eye symptoms are characteristic, and the different signs are known by the names of the men who first called attention to them. Names are confusing, and it is unnecessary to quote them. The characteristic signs of the exophthalmic eye are (1) the inability of the upper eyelid to follow the eye-ball on looking down; (2) the unusual amount of sclera disclosed above the cornea caused by retraction of the upper lid when the patient is looking forward; (3) the difficulty or actual inability of the patient to hold the eye in a position of convergence. There may also be involuntary winking and tremor of the eye-ball. There may be, from the pressure, an obstruction of the mouths of the tear-ducts, and the tears may flow down the cheek, although the eyes may become dry.

The skin is generally thin, soft, and moist, and as the blood-vessels of the surface are more or less dilated, perspiration is generally easily caused by the least nervous excitement. There is more or less diminished electrical resistance of the skin, which is perhaps due to the over-filled blood-vessels on the one hand, and to the increased central nervous excitability on the other. Pigmentations of the skin are found on different parts of the body and not infrequently on the eyelids. Sometimes there is falling of the hair, or it may become prematurely gray. There may be brownings of the skin, not dissimilar to what is seen in pernicious anemia or in Addison's disease, or there may be vitiligo. There may be all kinds of eye, ear, and head symptoms.

4. The duration of the disease may be from two to ten years or more. If the disease is to end in death, the complications which bring this about are most frequently myocarditis, diabetes, or a progressive muscular debility and neurasthenia. A pernicious anemia may also be a final outcome. Severe nervous complications may develop, but are rare, such as melancholia, mania, or chorea. If active thyroid disturbance has continued for more than five years, the chances of complete recovery are small, as serious complications have generally occurred. Those patients who recover generally do so in from two to three years by a general amelioration of the symptoms, with a tendency, as previously stated, some years later, to a sub-secretion of the thyroid and partial myxedema.

The majority of patients with this disease, properly treated, will certainly recover, and the better understanding of the treatment and the curative value of early operation as now understood, will probably produce 75 per cent. of recoveries. If left alone, probably not more than a small percentage of patients die of the intensity of the disease itself, but most patients die from complications.

PROGNOSIS

It is impossible to estimate the probable duration of the disease in a given instance. If there is a family tendency to neuroses, or if the patient has shown symp-

toms long previously of neurotic temperament, the recovery will be slow. If the onset of the disease was rather rapid the recovery will probably be more rapid. The older the individual with exophthalmic goiter, generally, the sooner may recovery be expected. Younger patients who recover from the disease are likely to have recurrences. Most patients may be greatly improved even without operation; quite a percentage can be cured without operation; a certain percentage can never be cured without operation. The constantly better prognosis from operation when done early in the disease should cause physicians not to allow a prolonged tachycardia from Graves' thyroid disease to persist, as a heart muscle may become permanently damaged, and then the prognosis of an operation is serious. Also, great loss of weight should not be allowed before an operation is advised. The danger of permanent invalidism and diabetes should always be remembered and a patient should not be allowed to suffer with the disease for years without operative interference having been early suggested and urged.

TREATMENT

First, when the disease is not positively in evidence, but suspected, a small dose of thyroid, as above suggested, should be given daily for a few days or a week, not more than 0.20 gm. (3 grains) of the official thyroid powder once a day. If the symptoms are aggravated, the thyroid is hypersecreting and the patient is in danger of Graves' disease. The treatment at this time, after the diagnosis has been made, is not dissimilar (except that bed rest is not urged) from the treatment of the actual disease.

Meat, coffee, tea, and alcohol should be entirely cut out of the diet. Sexual excitement should not be allowed. Any uterine disturbance should be investigated and corrected, if possible. Some simple iron preparation should be administered, and the elixir of the glycerophosphates of lime and soda is indicated, especially as it has been shown that when there is exophthalmic goiter there is increased elimination of calcium in the urine, also, the lime salts seem to act as a sedative to the thyroid gland. If a patient is well-nourished and in good physical and blood condition the bromids may be given for a time, but should not be long continued, and generally are contra-indicated by the debility and weakness. Most patients, especially when meat is stopped, should receive a small dose of iron each day. On this treatment the majority of these patients will recover, although they may have relapses.

If the thyroid is distinctly enlarged and a few of the symptoms of Graves' disease are present, small doses of iodid may stimulate the gland to more normal activity so that it will not secrete abnormally. This may be tried when active symptoms of Graves' disease are not present. If they are present the iodid will generally make the symptoms worse, as does thyroid feeding.

If the disease is actually present and with all the classic symptoms, the most important symptom is the rapid heart action. Anything that will reduce a pulse of 130, 110 and even more to 100 or 110 is of benefit. Such a patient must be put to bed, and must stay there for the period necessary to quiet the heart. The diet should be that above outlined. Such laxatives as necessary should be given, and daily massage should be done. The glycerophosphates of lime and soda should be tried, and if these do not quiet the heart or the symptoms of hypersecretion, perhaps the best treatment is the hydrobromid of quinin, given in 0.30 gram (5 grain)

doses, three times a day. It may at first cause a little cinchonism, but soon this is not noted, and it seems sometimes to have specific action on the thyroid, and much better action than the sulphate of quinin. Rarely in such severe cases should bromids be given, as they will add to the debility that is present and coming. Atropin in any form is generally of little value, and sometimes seems to excite the nervous system, if in doses sufficient to show its action. Suprarenal substance or extract is of no value. Thymus gland substance has often seemed to cause some improvement, and at other times has absolutely failed. Opium in any form (morphin, codein, or other alkaloid) will always diminish the thyroid secretion, but the future is bad, and such administration is rarely justifiable.

Digitalis is of no value in reducing the frequency of the heart beat when it is stimulated by thyroid secretion. The patient may be poisoned with digitalis and the heart not slowed at all. Strophanthus may be given if the heart is weak, but it will not slow it. Strychnin is generally contra-indicated on account of increasing the nervous irritability. The heart must be quieted with calcium preparations and mental and physical rest, which can best be obtained in a hospital or sanatorium.

Ergot (and it must be a good ergot, a sealed bottle of a pure fluid extract) in a dose of half a teaspoonful given in water, three times a day after meals, may be of benefit in quieting the heart and contracting the peripheral blood-vessels, and should be tried.

Any active electrical treatments of the thyroid, as faradization, galvanization, cataphoresis, or any local counterirritant action, or the rubbing in of ointments are almost invariably of no avail, and often do more harm than good. In fact, the less the gland is manipulated the better.

The application of the x-ray to a gland has been declared by some skilled operators to be of value. It has been tried frequently without success, however, and it is certainly inadvisable if a future operation is contemplated. It injures the skin, makes the skin adherent to the gland and tissues below, and may interfere with perfect healing. In other words, it does not present a good surgical field.

When the Roentgen ray treatment is successful, it has been noted that the gland diminishes in size, and therefore its secretion is probably diminished and the tachycardia is lessened.

The milk from thyroidectomized goats has been administered with good results; also various serum preparations prepared from animals that have been thyroidectomized have at times seemed to furnish an antidote to the hypersecretion of the thyroid, but such treatments, though logical, have not been attended with more than occasional success. An antithyroidin has been presented, which is prepared from the serum of thyroidectomized sheep, the dose of which is 4 grams. (1 drachm) three times a day. Also a thyroidectin has been put on the market, prepared from the same source, put up in capsules, the dose of which is one or two, three times a day. Any of these treatments should be continued for from four to eight weeks, and then repeated at intervals of two or three months.

Beebe and Rogers, of New York, have used successfully an antithyroid serum prepared by them from the serum of Belgian hares after they have injected the animals with serum obtained from exophthalmic goiter thyroids. The serum so prepared has seemed to act as an antitoxin. If the patient develops an immunity or does not any longer improve with the serum from this

animal, they use a serum prepared from some other animal. Injections are given every forty-eight hours. The shorter time the disease has been in existence, the greater the success of the treatment. Lately, Dr. S. P. Beebe, of New York, has stated his belief that extracts of human thyroids, carefully prepared and administered hypodermatically, are by far the best for the human subject. By careful analysis he has come to the conclusion that any portion of the prepared protein that contains about 0.0034 of iodine represents 1 gram of the active protein. He prepares tablets of different strengths representing 1, 2, and 5 per cent. He understands that a 1 per cent. tablet means that 1 per cent. of the dried weight of the tablet is made up of the purified thyroid protein. For hypodermic use he makes various strengths standardized on the iodine basis, put up in sealed glass tubes.

From the degenerations that take place in the thyroid glands of patients with Graves' disease, and from the disturbance that this disease causes in other parts of the body, and also taking into consideration the question of whether the gland disturbance is the primary cause of Graves' disease, the number of successes from such serum injections must be limited. Also, the difficulty of obtaining a sufficient amount of this serum, which must be prepared from the removed exophthalmic goiter glands, must allow but a small portion of patients with Graves' disease to be so treated.

Consequently, when any patient with exophthalmic goiter does not quickly improve with the medicinal treatment above suggested or with the antithyroid treatments that may be readily applied, resort should be had to surgery, and partial thyroidectomy is indicated. Such an operation is indicated if three or four months of medical treatment has not caused marked amelioration of the symptoms; if the exophthalmos is likely to injure the sight; if there is great loss of weight and strength; if the tachycardia persists; and if there is any serious pressure on the esophagus, trachea, or nerves. Such operations are successful in removing the symptoms of the disease. Contra-indications to operation are, as above stated, a weak heart muscle as shown by an irregular and wavering tension pulse; edemas that would show lack of cardiac compensation would also contra-indicate operation. Frequent attacks of diarrhea should postpone such an operation.

The substitute operation of ligating one or more of the enlarged thyroid vessels may ameliorate some of the symptoms, but such ligations are often only temporary in their benefit. The danger of pressing too much thyroid substance into the circulation during ligation is almost as great as during the operation for partial excision.

The prognosis is much better in early operation in Graves' disease than later, on account of the liability of the whole gland to become disturbed in its function, and the probability that other ductless glands are consequently disturbed in their functions, perhaps permanently. It seems to be a fact that different parts of the thyroid may be functioning differently although the complementary secretion may be nearly normal. Consequently, if it is possible to determine the portion of the gland that is especially diseased, it should be that portion which is removed. Sometimes the healthy portion of the gland has been removed and the diseased portion left, and death has occurred on this account. The removal of one lobe of the gland, the most diseased portion, with perhaps the isthmus is generally a sufficient operation. Of course as many parathyroid glands

as possible should be left. It is rare, and then perhaps only when there is carcinomatous degeneration, that the whole thyroid should be removed. If it is necessary to remove the whole gland, and consequently perhaps most of the parathyroid glands, parathyroid substance or extract, or some calcium salt at least, should be administered for some time to prevent convulsive symptoms from such extirpation. Later, thyroid feeding would prevent myxedema.

Dr. C. H. Mayo, Rochester, Minn. (*Ohio State Med. Jour.*, October, 1907) believes that ether is the best anesthetic to use, and half an hour before the ether is begun gives a hypodermic injection of 1/6 of a grain of morphin, and 1/120 of a grain of atropin. The morphin prevents the necessity of much ether, and the atropin prevents the profuse mucus secretion. He places the patient in the reverse Trendelenburg posture which tends by gravity to relieve the upper part of the body of blood. He leaves the posterior capsule of the gland undamaged and thus preserves the parathyroids. Of course the recurrent laryngeal nerve is looked for and protected. He washes the wounded area with Harrington's solution (alcohol 640 parts, water 300 parts, hydrochloric acid 60 parts, bichlorid of mercury 8 parts). This prevents lymphatic absorption. The patients after the operation are given large saline enemas. If they do not retain these, they are given saline solution subcutaneously. This treatment he repeats several times during the first thirty-six hours. If the patients sweat profusely he gives atropin. If they are very restless he gives morphin. Most patients are not confined to bed more than three days.

Dr. T. P. Dunhill (*Brit. Med. Jour.*, May 22, 1909) believes that local anesthesia governs the whole question as to the safety or danger of the operation from exophthalmic goiter. He does not believe that general anesthesia can be recommended as safe, while local anesthesia may be recommended as perfectly safe, unless the patient is moribund.

Drs. Max Ballin and J. W. Vaughan, of Detroit, (*Jour. Michigan Med. Society*, April, 1910) come to the following conclusions as to the final results of thyroidectomy in Graves' disease:

First: Early operation before secondary heart and eye changes have occurred practically assures a cure to the victim of exophthalmic goiter. They would not operate during the height of an exacerbation of the disease, but after absolute bed rest in which the patient's symptoms have quieted down, what might be termed an interval operation.

Second: In no case in which the symptoms have been present for a period of over five years and in which permanent heart changes and eye changes have occurred, can a positive recovery be promised, although the condition may be much improved. These are the dangerous cases for operation, and each must be studied and treated according to the symptoms.

The Medical Profession in Norway.—Recent statistics show that there are now 1,161 registered physicians in Norway and eighty-eight residing in foreign lands, sixty-four being in the United States. The average in all Norway is one physician to 2,007 inhabitants, but in Christiania there is one physician to 850 inhabitants. The age of 66.3 per cent. is between 30 and 50; only 5.3 per cent. are between 25 and 30, and only 2.1 per cent. over 70. Editorial comment on these figures in the *Norsk Magazin for Lægevidenskaben* calls attention to the small number of physicians surviving past 50 and the small proportion who are ready to practice before the age of 30.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 DEARBORN AVENUE . . . CHICAGO, ILL.

Cable Address . . . "Medic, Chicago"

Subscription price Five dollars per annum in advance

[For other information see second page following reading matter]

SATURDAY, DECEMBER 17, 1910

RECENT STUDIES ON TYPHUS FEVER

It will be recalled that Nicolle of Tunis, in Africa, recently succeeded in transmitting typhus fever to the macacus monkey, and that Anderson and Goldberger, working independently with the disease as it is found in Mexico City, were able to infect monkeys with blood taken from typhus patients. These results were further confirmed by the investigations of Ricketts and Wilder. Recently Gaviño and Girard¹ report the transmission of typhus to monkeys of an inferior species, namely, the *Ateles vellerosus*, indigenous to Mexico, by subcutaneous injections of blood from typhus patients. The animals, after an incubation period of eleven to fourteen days, succumb to prostration and a high fever. An exanthematic eruption, such as occurs almost constantly in man, is absent, but the thermal elevation and other symptoms are regarded as sufficiently characteristic to permit the diagnosis of typhus. Immunity is conferred by a single injection so that the monkeys after their recovery from the disease are unaffected by subsequent inoculations. Other animals, such as the white rat, white mouse, rabbit, dog, pig and horse all proved insusceptible to typhus fever.

The Mexican authors report also one experiment in which they seem to have obtained a protective vaccination by the inoculation of a monkey (*Ateles*) with heated blood from a patient in the twelfth day of a severe attack of typhus fever. Four c.c. of the defibrinated blood were sealed in a glass tube and heated for fifteen minutes at 55 C. The control animal received an equal amount of unheated blood, and after an incubation period of fourteen days passed through a characteristic and severe attack of typhus fever. The monkey which received the heated blood showed a slight rise of temperature during the three days after the injection, due, it is suggested, to toxins liberated by the destruction of microorganisms in the heating. An immunity test consisting of the injection of fresh typhus blood from a typhus patient was given and no febrile reaction or appreciable malaise resulted, although the control

sickened fifteen days after his injection of the same blood and died five days later. Unfortunately the experiment as yet stands alone, the scarcity of monkeys interrupting the investigation. We hope that further experiments may be made, as they promise results of practical value in the working out of a successful vaccination against typhus fever.

Gaviño and Girard also studied the blood of typhus patients. No cultivable germ was discovered, but the forms recently described by Ricketts and Wilder were found in the plasma. These structures in smears stained with Giemsa solution appear in three forms: (1) as bipolar bacilliform bodies, two microns long and one-half micron wide, with rounded ends, the poles staining a violet purple and the interpolar substance not at all; (2) similar bacilliform bodies in which a pale violet-staining mass is seen in the central part between the poles; (3) bodies measuring one and one-half microns in length formed of two spherical granules separated by a space in length twice the diameter of the granules, one granule colored a reddish purple with Giemsa, the other blue.²

Gaviño and Girard are of the opinion that the bodies represent products of nuclear disintegration and karyolysis rather than microbes. They base their conclusion on the study of smears from the spleen of one of their diseased monkeys in which they claim to find granules which in some instances show clearly the origin from the nuclei of the leukocytes and in others simulate closely the bodies seen in the blood plasma.

Since 1883, when Mott described diplococci in the blood of typhus patients, numerous microorganisms have been put forward as the specific cause of typhus. Among the more important of these are, a strepto-bacillus obtained by Hlava in 1888 on various culture media, a diplococcus described by Dubief and Bruehl, and a piroplasma seen in the blood by Gottschlich in Alexandria. All, with the exception of the last, were cultivated, but as these observations have not been confirmed, the consensus of scientific opinion seems to be that the problem of the causal agent of typhus still remains unsolved. The bodies described by Ricketts and Wilder cannot be cultivated. Their bipolar structure reminds one of the plague bacillus and this is of interest in view of the similarities between typhus fever and plague: both diseases are acute, self-limited, blood infections; both are associated with subcutaneous hemorrhages; both are apparently insect-borne. It has been shown that plague is carried from host to host by the flea and recent investigations point strongly to the louse as the transmitter of typhus fever. These and other theoretical reasons entitle the bodies in question to very careful consideration, and the results of further investigations are awaited with interest.

1. Gaviño and Girard: Pub. d. Inst. Bact. Nacional, Mexico, 1910.

2. I. Prieto describes other phases of the research in the *Cronica Medica Mexicana*, 1910, xiii, 314.

DIABETES

The important and practical group of communications on the subject of diabetes by Lusk, McLeod, Woodyatt, Pratt and Wallace, which appears in this issue, is worthy of special attention. The papers represent the principal lines along which the work on diabetes is being advanced. The surveys of the literature will be found to be critical, and the commentary to be based on new data which represent definite progress worthy of attention.

Lusk calls attention to the fact that in cases of the severest forms of diabetes mellitus or phlorhizin diabetes in which the glycogen deposits in the body have become exhausted, the sugar in the urine comes solely from protein, provided no starch or sugar is ingested. Under these circumstances the total urinary sugar comes to bear to the total urinary nitrogen a constant ratio, viz., 3.65 grams sugar to 1 gram nitrogen. This means that about 60 per cent. by weight, *i. e.*, the possible maximum, of the protein metabolized has been converted into sugar, all of which is then excreted. In another place Lusk has called this a "fatal ratio," as it indicates a complete loss of tolerance for sugar and a hopeless prognosis. Such a method of making a forecast is significant of what one day will be the rule in medicine. In attaching significance to such a ratio it is, of course, understood that the ratio must be found steadily on successive days, for in cases of no great severity a transient accidental ratio of about 3.65 to 1 may be encountered during a period in which a heavy discharge of sugar from liver glycogen is taking place into the blood. "The intensity of diabetes," says Lusk, "should not be determined by the percentage of sugar in the urine, but by the relationship between the ingo of sugar (or starch) plus the possible maximum of sugar production from protein, as compared with the total output of sugar," a relationship which when expressed in the form of an equation, as done by Falta, gives his "coefficient of excretion." By means of Falta's coefficient a total absence of sugar tolerance is designated as 100. Milder deficiencies of tolerance may be expressed by any whole number or fraction between 0 and 100, thus doing for diabetes what the sphygmomanometer does for arterial pressure, or the erythrocyte count and hemoglobin estimate do for the gauging of an anemia. This employment of figures for expressing the severity of a diabetes will result in a sharper definition or the gradual discarding of such terms as "mild," "moderately severe," "severe," etc., which are now so much employed and with different meanings in different localities. And yet there are those who still, in referring to diabetes, talk about "a 2 per cent. urine," and in other conditions, notably in pregnancy and Bright's disease, draw conclusions from the percentage of urea, with no regard for the total quantities excreted. There are others, too, who do indeed estimate the total quantity of sugar or of urea, especially the latter, and even of nitrogen and other substances, and then draw conclusions innocent

of all knowledge concerning the total amount of protein and non-nitrogenous food which the individual has eaten and by which the amounts of the substances found in the urine are so markedly influenced. By feeding experiments in which he has employed certain simple components of the protein molecule, Lusk is in a position to state that the ability of protein to pass over into sugar is inherent in certain of the component amino-acids and is not due to preformed sugar in the protein molecule.

Woodyatt, working with certain simple sugars, some of which may be regarded as the components of the glucose molecule, brings experimental evidence to show that in the course of the utilization of sugar in the body a cleavage of glucose into two molecules of triose is an important event. He also shows a suggestive parallelism between certain oxidations of sugars which can be performed in the laboratory and those oxidations of sugar in the body which have to do with the checking of acidosis—the chemistry of the latter process receiving therein its first specific consideration.

In keeping with a modern tendency to reexamine some of the teachings concerning diabetes which have been regarded as fixed, McLeod's detailed study of the mechanism of the form of diabetes produced by irritation of certain parts of the nervous system is able and highly suggestive. In Claude Bernard's puncture of the floor of the fourth ventricle McLeod sees a stimulation at the center of a reflex arc, the efferent limb of which runs in the splanchnics and whose effect is to lessen the power of the liver cell to hold its glycogen, *i. e.*, to lessen the inhibition which normally keeps glycogenolysis (or the conversion of glycogen into sugar by the action of glycogenase) within its normal limits. He believes that the asphyxia glycosurias and certain of those caused by organ extracts are ultimately of the same mechanism as the form caused by splanchnic stimulation. Epinephrin glycosuria he is inclined to regard as part and parcel of the well-known action of epinephrin on the sympathetic autonomic nervous system. So in the case of thyroid glycosuria and other experimental forms McLeod registers a protest against a too general tendency to interpret the effect in terms of pancreas inhibition. Even in diabetes mellitus he suggests that a deranged glycogenic function of the liver may contribute to the picture in some degree. In this connection it is interesting to note that Wallace in dogs made diabetic by total pancreas extirpation—a condition which soon clears the liver of glycogen—sees no effect from the use of atropin, whereas Rudisch and some others find by its use an amelioration of glycosuria in diabetes mellitus. Fluctuations in glycosuria caused by such drugs as atropin and opium are greatest in cases in which the liver still holds glycogen.

Pratt's work on the sugar tolerance of dogs before and after ligation of the pancreatic ducts leads him to believe that ligation of the ducts, if thoroughly done,

will result in some loss of tolerance for sugar, if not in real diabetes, contrary to a general belief. After such ligations he fails in some instances to find in the atrophic pancreas rest any Langerhans tissue, but only connective tissue and remnants of acinus cells and duct epithelium. He concludes, from this and other considerations, that the production of an antidiabetic principle is not confined to island tissue. The problem is technically beset with many difficulties. Wallace reiterates what so many have found to be true and what is nevertheless so doggedly disregarded by hundreds of physicians, that save in certain special situations or emergencies there is no drug that is effectively employed in the treatment of diabetes mellitus.

THE SOCIAL AND LEGAL VALUE OF VITAL STATISTICS

Physicians, individually and as a class, have long realized the value of trustworthy vital statistics as a basis of knowledge regarding diseases. Owing to their efforts in urging the passage of vital registration laws, the general public, members of legislatures and even physicians themselves, have largely lost sight of the non-medical value of vital statistics. The passage of such laws has come to be regarded as a favor to physicians and as a matter in which the general public has little, if any, concern. Yet the recording of births and marriages is of no advantage to physicians as such: they are interested in vital statistics only as these contribute to sociologic knowledge. The registration of deaths is useful to the medical profession only in affording information regarding the frequency and mortality of disease. Hence the interest of the medical profession in vital statistics legislation is, at most, entirely impersonal and altruistic.

The subject, however, should be of the greatest interest to all citizens, because it is important that every individual should be able, if necessary, to produce legal evidence of his birth and parentage. It is important that records should be made of the time, place, manner and cause of death of every human being. Registration of vital facts is of the greatest value in determining questions involving parentage, legitimacy, inheritance, property rights, marriage and divorce—in fact, in most of the social or business relations of life. The value of proper registration of these essential facts has long been recognized by all civilized nations except our own. The utter neglect of vital registration by many of our states is a constant source of astonishment to visitors from other countries. In this connection, an article by Deacon,¹ the statistician of the Kansas State Board of Health, is worthy of comment. Our neglect of such fundamental and truly vital matters can be accounted for only by the comparative newness of our social organiza-

tion. Each state, as it becomes older, and as social relations become more complicated, will find it necessary to provide some effective means for registering essential facts regarding its citizens. It is particularly strange that, in the southern states, where the possibility of racial admixture is greatest, and where even a suspicion of tainted ancestry carries with it the gravest social consequences, there has been little effort to make or to preserve legal records of birth. The reason for this neglect must surely be that the legal and social importance of vital statistics registration has never been properly brought to the attention of the public leaders in the South, for certainly when it is appreciated, these states will not delay the adoption and enforcement of appropriate laws on this subject. It is not conducive to national pride to know that such countries as New South Wales, Tasmania, New Zealand, Ceylon, Jamaica, Finland, Roumania, Bulgaria, Japan and Chili are far ahead of the United States in the proper registration and preservation of records on vital matters. Still less gratifying to our self-satisfaction is Mr. Deacon's statement that the United States in this particular must be classed with Africa and Borneo.

THE PREVENTION OF INFANT MORTALITY

The deliberations of the American Association for the Study and Prevention of Infant Mortality, the first annual session of which was recently held, culminated in a series of five resolutions, which, though different in subject, are all in harmony with the aims of the association.

The first of these resolutions deals with the establishment of a national department of health, and shows a broad conception of the essentials of the movement for the prevention of infant mortality. Concerning this particular resolution, a report of the meeting¹ says that Prof. Irving Fisher described the sinister commercial influences that are hypocritically hampering the establishment of a national health department under the pretense of safeguarding "medical freedom," and showed how such a branch of the federal government might become a supremely efficient instrument in the promotion of all those matters of public hygiene and legal enactment on which the reduction of infant mortality depends. The association went on record as "endorsing the movement for a national department of health, in the belief that the establishment of such a department will lead to great reduction in infant mortality, not only through improved regulation of interstate commerce in milk, infant foods, and medicines; but also through wider dissemination of information on the causes of infant mortality and their prevention."

¹ Deacon, W. J. B.: Vital Statistics in Relation to Public Welfare. Jour. Kansas Med. Soc., November, 1910; abstr. in this issue of THE JOURNAL, p. 2172.

¹ Bénére, R. W.: Saving the Babies, Survey, Nov. 26, 1910, p. 317. A report of the meeting is now running in THE JOURNAL, in the Department of Society Proceedings.

The report of the committee on birth registration, by Dr. Cressy L. Wilbur of the Bureau of the Census, inspired a resolution endorsing the model law of the American Medical Association for the registration of births and deaths. This precipitated, incidentally, an interesting discussion, led by Dr. W. H. Welch, on the midwife question, which resulted in the appointment of a committee to formulate a definite policy on this subject.

The third resolution urged on the Secretary of Agriculture the establishment of official standards for milk "branded as certified, inspected or pasteurized" and the enforcement of such standards in interstate commerce.

The remaining resolutions related to instruction of pupils and teachers in elementary hygiene, sanitation and biology in the public and normal schools and in colleges, and the need of safeguarding mothers from industrial and economic pressure and of instructing them in the principles of healthy parenthood and infant hygiene.

This is an ambitious program, but it touches the vital points in the prevention of infant mortality.

Current Comment

READY-MADE MIXTURES

There is little doubt that the tendency in some quarters to underestimate the value of drugs in the treatment of disease is due to the unscientific way in which drugs have been used rather than to the lack of efficacy of the drugs themselves. No reliable conclusions can be deduced regarding the use of drugs unless the administrators of such drugs know the exact amounts that have been used; in other words, accuracy of dosage is essential to scientific therapeutics. In the Pharmacology Department of this issue, one of the reasons for unscientific prescribing is made clear. There are on the market tablets containing bismuth, opium and phenol in varying (alleged) proportions. Whether these tablets were originally made by the various manufacturing pharmaceutical houses in response to a demand by physicians or, as is more likely, were put out by an enterprising firm to catch the physician's fancy makes little difference. The point is, such tablets are on the market, made by a number of large and reputable concerns, and the supposition is that the tablets are prescribed where definite amounts of bismuth, opium and phenol are indicated. Yet careful investigation extending over two years, made in the Association laboratory, proves beyond question that so far as the phenol-content of these tablets is concerned, the dosage is absolutely unreliable. Whether this unreliability is due to the technical difficulties of making such tablets, to the lack of care, or even to actual dishonesty on the part of the manufacturers, may be open to discussion, but it is indisputable that such tablets cannot be scientifically prescribed. Not only should physicians cease prescribing such products, but self-respecting

pharmaceutical houses should cease manufacturing them or else should acknowledge openly that the formula on the label does not represent the actual composition of the product.

ENDOWMENTS FOR MEDICAL EDUCATION

A few years ago President Eliot aptly stated that "the way to get endowment for medicine was to improve medical education." So the best policy for medical colleges to pursue is not to wait, Micawber-like, for something to turn up, but to find out what they need and then to go after it. In some instances this may require, before starting the campaign for ample financial support, an energetic house-cleaning and the making of mergers or other changes so that the college will deserve endowment. That this is a wise policy has been repeatedly shown. The faculty of Drake University College of Medicine voted to close the school unless money enough was forthcoming to conduct the college in accordance with modern standards. As a result \$150,000 was raised in a few weeks' time. In Colorado there were two medical colleges, one of which, being in a small city, lacked ample clinical facilities and the other, owing to insufficient finances, lacked ample laboratory equipment. It was decided to merge the two schools so that the strong points of one could be made to supplement those of the other. This was done with the result that one strong college remained in Colorado with a unified medical profession back of it. A later instance is at Western Reserve University, Cleveland. Last June the trustees determined to raise a million dollars to endow the medical department, and then set about to get it. It is now reported that nearly \$700,000 has been raised. There are numerous localities where such successes may be duplicated if the right steps are taken. The local college or colleges, however, must take the initiative and make all the improvements possible before seeking help elsewhere. The college should first show itself capable of the proper use of funds entrusted to it and then the funds will be forthcoming.

NEW VIEWS ON WOUND-HEALING

While the more ambitious dreams of the surgeons of the pre-Listerian era in regard to wound-healing have been fulfilled, according to Carrel's article in this issue, we have no right to believe that the treatment of wounds has reached its ultimate perfection. We content ourselves as yet with securing a degree of asepsis, and leave to Nature the healing of the wound and the care of cicatrization. Carrel believes that we may be able to go farther than this and to activate the processes of repair, so that wounds which, under our best present methods, heal in a few days, may heal in a few hours; that the development of methods for the stimulation of the growth of epithelial cells, for the inhibition or activation of connective-tissue proliferation and the artificial production of osteogenesis would greatly improve the therapeutics of ulcerations of the skin, and of lesions of the peripheral nerves, the bones and many other tissues. With a view to the development of this new prin-

ciple of surgery, Carrel has undertaken some animal experimental studies to ascertain the laws of the redintegration of tissues. It is a custom of florists to use chemicals for the activation or "foreing" of the growth and maturation of flowers, aside from the use of the ordinary fertilizers, heat, etc. Analogous processes may be invoked in the growth and repair of tissues. Carrel's first article concerns regeneration and cicatrization of surface wounds, and he deduces from his studies certain preliminary principles which are of interest, and which indicate results of the highest importance in wound-healing.

TYPHOID FEVER AND BUSINESS

Sometimes the connection between excessive typhoid fever and the commercial welfare of a town stands out so clearly that the most reluctant observer must grant its existence. This seems to be the case in Rutland, Vermont, where typhoid epidemics in 1909 and 1910 have been attributed to the water-supply. Financial retribution has followed at once. The managers of conventions scheduled to meet in Rutland have changed their intentions and the conventions have met in other places; a wealthy New Yorker who had purchased land and planned a costly residence in Rutland writes to the local paper that he cannot carry out his plan unless protection of the water-supply is assured; there is now talk of damage suits against the city by typhoid victims. Altogether the financial aspect of a polluted water-supply has become very prominent. The *Rutland News* is driven to remark that "there is no question that Rutland has suffered grievously in a business way during the past two years as a result of these annual visitations of typhoid. It is simply good common business sense that the source of the epidemic be eliminated. Commercial prudence, if nothing more, requires it." The experience of Rutland may serve to remind city officials, who deny the existence of danger from a sewage-polluted water-supply on the ground that other sources of typhoid fever exist in the community, that water-borne typhoid may be slow in appearing, but that it is likely when it does occur to bring more discredit and financial loss to a city than typhoid from any other source.

Medical News

ARKANSAS

Library for Sanatorium.—The people of Little Rock have made a liberal response to the appeal for the establishment of a library at the Arkansas Tuberculosis Sanatorium, Booneville. More than 100 volumes were donated on the first day of the appeal, and it is intended that a permanent library shall be established. It is also suggested that magazine subscriptions be donated.

Personal.—Dr. Harry C. Stinson, Little Rock, superintendent of the State Hospital for Nervous Diseases, has notified the Board of Trustees of State Charitable Institutions that he would not accept reelection for another term and asked to be released from duty at the expiration of his present term of office. —Dr. Sterling B. Gammill, Branch, fell from his bridge, November 29, fracturing three ribs. —Dr. L. O. Hunter, Branch, has moved to Chismville.

ILLINOIS

Physicians' Club Election.—At the meeting of the Physicians' Club of Monmouth, December 2, Dr. Chauncy Sherrick was elected president, and Dr. Joseph R. Ebersole, secretary.

Personal.—Dr. and Mrs. William A. Haskell, Alton, have gone to Bermuda for the winter. —Dr. James H. Walker, Ellingham, having passed the required examination, has been commissioned captain and assistant surgeon and assigned to the Fourth Infantry.

Verdict Against Surgeon.—In the third trial of the case of Mrs. Carrie Smith against Dr. Ernest B. Mammen, Bloomington, in which damages were claimed on account of the alleged leaving of a sponge in the abdominal cavity after a surgical operation, a jury in the circuit court is said to have brought in a verdict for the plaintiff, assessing damages of \$1,500.

State Board Prosecutions.—S. Hirschfeld, a graduate of the National Medical University, charged with practicing medicine without a license, is said to have been found guilty and fined \$200. —In the case of Susannah Dyba, charged with practicing without a license, and said to be an old offender, the defendant is said to have been fined \$200 and costs. —In the case of J. A. Nowlin, an osteopath charged with the administration of medicine and also with the practice of surgery, the case was dismissed on account of lack of evidence. The license of osteopaths in Illinois licenses to treat human ailments without using medicine and drugs or the performance of surgical operation. —In the suit brought by the State Board of Health against J. B. Albright, Kewanee, a licensed osteopath, for a similar offense, the defendant is said to have offered to pay a fine of \$100 and engage no more in the practice as a physician, but does not wish judgment in court brought against him. The board declined to accept this proposition. —W. J. Bourque, an optician of Chicago, charged with practicing medicine without a license, is said to have been convicted by a jury in the municipal court of Chicago, December 6, and fined \$100 and costs. —Madam M. L. La-Mounte, a fortune teller of Chicago, charged with practicing medicine without a license, was found guilty and fined \$100 and costs, and paid the fine. —Harrouton Shekerian, Chicago, charged with practicing medicine without a license, is said to have been found guilty and fined \$100 and costs. The fine was paid. —In the suit brought by the board against H. F. Fairfax, Chicago, for practicing medicine without a license, the defendant is said to have been found guilty and fined \$100 and costs.

Chicago

Personal.—Dr. William A. Mann, who has been seriously ill with pneumonia, is reported to be convalescent. —Dr. E. L. Cornell, intern in Cook County Hospital, has recovered from an attack of diphtheria. —Dr. William E. Morgan, who was operated on for appendicitis recently, has returned home recovered.

Urge Retention of County Physician.—The new president of the Cook County Board has received letters from many prominent physicians of the city recommending that Dr. Haim I. Davis be retained as county physician on account of the record which he has made in that office, and expressing the hope that political reasons will not cause Dr. Davis' removal.

INDIANA

Personal.—Dr. Louis Severin, Bluffton, health officer of Wells County, has resigned to take effect Jan. 1, 1911. —Dr. Charles W. Shill, Lafayette, has been appointed physician for the Tippecanoe County jail and infirmary.

Superintendent Wanted.—The Board of Trustees of the Indiana State Tuberculosis Hospital, Rockville, is now receiving applications for the position of superintendent of the institution, who will be employed as soon as appropriation is made for maintenance. All applications and recommendations should be addressed to Dr. Henry Moore, president of the board of trustees, Room 25, State House, Indianapolis.

Built Within Appropriation.—The tuberculosis hospital commission, which had in charge the construction of the State Hospital, Rockville, at its meeting, November 30, reported that the hospital was constructed and finished ready for occupancy, with about \$100 of the appropriation of \$130,000 left to revert to the state treasury. The committee also reported more than \$1,000 turned into the state treasury from earnings from the hospital farm during the construction of the building.

Club Interested in Pure Food.—The Board of Directors of the Commercial Club of Indianapolis, has signed a petition favoring the enactment of a federal law regulating the manufacture and sale of food containers and food put up in food

containers, compelling the marking of the containers so as to show the net capacity and net quantity contained and providing penalty for violation of these provisions. The club is also endeavoring to interest capitalists of the city in building sanitary tenement houses for the poorer classes of foreigners.

State Health Board Recommendations.—The State Board of Health, at its meeting, November 26, decided to make the following recommendations to the General Assembly: medical inspection of all public schools; approval of the board to plans and specifications of all public buildings before contracts are let; additional legislation to further restrict the pollution of streams, giving the board greater power in the prevention of such pollution; greater power to the board for the prevention of the pollution of sources of water-supply of the state, and greater power to the board in governing the construction of sewers.

IOWA

Ill in Hospital.—Dr. Emma J. Neal, Cedar Rapids, is reported to be ill with typhoid fever at Mercy Hospital, Cedar Rapids. —Dr. Irving C. Wood, Logan, is ill in the Clarkson Hospital, Omaha.

Small-Pox in Border Town.—The alleged failure of the town officers of Bradyville, Page County, to enforce the state quarantine law in face of an epidemic of small-pox, has caused action to be brought by both the Missouri and Iowa state boards of health as Bradyville is just across the Iowa line from Missouri. The mayor states that there have been fifty cases of small-pox in the town, and that at present there are twenty-two cases in eighteen families.

Southeastern Iowa Physicians Meet.—The thirty-fifth annual meeting of the Southeastern Medical Society was held in Fort Madison, November 17, and the following officers were elected: president, Dr. Clyde A. Boice, Washington; vice-presidents, Drs. Frank C. Roberts, Fort Madison, and Smith A. Spilman, Ottumwa; secretary-treasurer, Dr. Edward F. La Force, Burlington, and censors, Drs. John F. Herrick, Ottumwa; Henry A. Leipziger, Burlington, and Frank R. Mehler, New London. It was decided to hold the next meeting in Washington.

MARYLAND

Personal.—Dr. Earle H. Sneavelly, assistant physician at the Springfield State Hospital for the Insane, has been appointed third assistant physician at the Essex County Hospital, Overbrook, N. J. —Dr. Thomas B. McDonald, Cumberland, has been appointed physician of Allegany County.

Typhoid Fever in Troop A.—Dr. Alexis W. McGlannan, Baltimore, chief surgeon, Maryland National Guard, has reported on the cause of the epidemic of typhoid fever in Troop A of the organized militia of Maryland, following the encampment at Gettysburg last summer, which affected the health of eleven and caused one death. He thinks the extension of the disease was probably due to the custom in the troop of using a loving-cup and to an infected milk-supply. He recommends in future, preliminary examination of men, prohibition of fresh milk in camps, and that men submit to antityphoid vaccination.

Baltimore

Conference on Hygiene.—A conference on hygiene, with an exhibit, is to be held in Baltimore about February 1, under the auspices of the Medical and Chirurgical Faculty of Maryland. Dr. Marshall L. Price, secretary of the State Board of Health, will be in charge of the exhibit.

Personal.—Mr. J. Bosley Thomas has been made chemist and bacteriologist of the water department. —Dr. Frederick C. Blaneck has been appointed chemist of the city chemical laboratory. —Dr. H. E. Kelsey has been elected vice-president of the North Carolina Society of Maryland.

Local Society Election.—At the annual meeting of the Baltimore City Medical Society, December 6, the following officers were elected: president, Dr. Arthur M. Shipley; vice-president, Dr. Ridgeley B. Warfield; secretary, Dr. William E. Magruder; treasurer, Dr. William S. Gardner; censor, Dr. Charles W. Larned, and delegates to the Medical and Chirurgical Faculty of Maryland, Drs. Richard H. Follis, Archibald C. Harrison, Standish McCleary, William A. Fisher and James M. H. Rowland.

MASSACHUSETTS

Unlicensed Practitioner Fined.—Jeremiah Scopa, East Boston, is said to have been found guilty November 15, of practicing medicine without a license and to have been fined \$100.

Many Medical Alumni.—According to the new directory of Harvard University, recently issued, Harvard now has 3,337

graduates in medicine. This does not include the graduates in dentistry.

Society Election.—At the annual banquet and election of officers of the Somerville Medical Society, held December 1, Dr. Frank L. Morse was elected president; Dr. Robert F. Gilson, vice-president, and Dr. Frederick N. Stephens, secretary-treasurer.

Physician Pardoned.—Dr. Ovid M. Paulhaus, Haverhill, sentenced to state's prison five years ago for having performed a criminal operation which resulted in the death of a Haverhill woman, was released November 25, after having served five years of his six and one-half years' imprisonment.

NEBRASKA

Gubernatorial Appointments.—Governor-elect Aldrich has made the following appointments: Lincoln Hospital for the Insane—superintendent, Dr. John T. Hay, Lincoln (third appointment); physician, Dr. Benjamin F. Williams, Tamora; pathologist, Dr. Lawrence B. Pillsbury, Lincoln; Hastings Asylum—superintendent, Dr. William B. Kern, Grand Island; Norfolk Asylum—superintendent, Dr. Andrew Johnson, Omaha; and penitentiary—physician, Dr. L. R. Jones, Amherst.

Society Elections.—Saline County Medical Society held its annual meeting in Crete, December 8, and elected the following officers: president, Dr. Howard W. Quirk, Crete; vice-president, Dr. Henry Hein, Wilber; secretary-treasurer, Dr. Porter F. Dodson, Wilber; and delegates to the state medical society, Drs. Francis J. Stejskal, Crete, and William S. Warder, Friend. —Lancaster County Medical Society, at its annual meeting in Lincoln, December 3, elected the following officers: Dr. John M. Mayhew, president; Dr. Warwick M. Cowgill, vice-president; Dr. Roy B. Adams, secretary-treasurer; Dr. Edward W. Rowe, censor; and Drs. J. Stanley Welch and Henry J. Lenhoff, delegates to the state medical association, all of Lincoln. Dr. Francis F. Tucker, formerly of Lincoln, for many years a medical missionary in China, addressed the meeting on "Native Practice in China."

NEW YORK

Mayor Vetoes Action of Council.—Mayor Fuhrman of Buffalo has vetoed the recommendations passed by both houses of the city council, which were to the effect that the joint committee, which is investigating the necessity of building a general city hospital with a pavilion for communicable diseases, should visit other cities where such hospitals exist.

The Day Camp.—The Buffalo Day Camp for Tuberculosis has now been open for three seasons, 108 days in 1908; 141 in 1909; and 157 days in 1910. During this season there was an average daily attendance of 43, and 15,000 meals were served, exclusive of the morning and afternoon lunches. Germany, Poland and Italy were the nations most largely represented at the camp.

Low Death Rate.—The monthly bulletin of the State Department of Health for October, reports 10,942 deaths, equivalent to an annual mortality of 14.5 per 1,000. In October, 1909, the rate was 15.5, and in September, 1910, 15.4. About 21 per cent. of the deaths occurred during the first year of life. There was an increase in the number of deaths from cancer and a decrease in epidemic diseases, pulmonary tuberculosis, diseases of the nervous system, diseases of the circulatory system, pneumonia, and bronchitis.

Personal.—Dr. George A. Newton, Freeport, has succeeded Dr. Edwin Carman as health commissioner. —Dr. William B. May, milk inspector of the Department of Health of Buffalo, has been appointed chief of the State Department of Health, vice Dr. William A. Howe, made deputy commissioner of health of Buffalo. —Dr. Eugene A. Smith has returned to Buffalo and resumed practice. —Dr. Thomas H. McKee, Buffalo, has returned from abroad. —Dr. Alva Le R. Chapin, Niagara Falls, was seriously injured in a collision recently when his automobile was struck by an Erie freight train and demolished.

New York City

Gift to German Hospital and Dispensary.—The trustees of this institution have formally accepted the gift of Mrs. Anna Woerishoffer of \$100,000 to be used to found a children's ward to be known as the Dr. Abraham Jacobi Ward.

Epidemic in East New York.—The outbreak of diphtheria and scarlet fever in East New York which was first noted about two weeks ago has assumed epidemic proportions. There are at present about 200 children under surveillance of the inspectors. The scarlet fever is of a mild type.

New York Subscribes Half a Million.—On the eve of the annual meeting of the Red Cross Society it is announced that New York city has completed its apportioned sum, based on ten cents per capita population, for the \$2,000,000 endowment fund of the society. New York was the first city to complete its quota.

Another Open Air Classroom.—The architects for the city have filed plans for an open air room and diet kitchen on the roof of the two-story public baths and gymnasium on the north side of Carmine street which will cost \$6,000. The room will accommodate as an open air classroom fifty children inclined to tuberculosis.

Dinner to Dr. Weir.—A dinner was given at the University Club, in New York, December 10, in recognition of the half-century of service to the profession by Dr. Robert F. Weir. About a hundred were present, including a large proportion of men who had served as house surgeons under Dr. Weir. Among the speakers were Drs. Maurice H. Richardson, Boston; William L. Rodman, Philadelphia, and William S. Halsted, Baltimore. The proceedings included the presentation of a silver cup to Dr. Weir.

PENNSYLVANIA

State Tuberculosis Exhibit to Go to Wales.—The Pennsylvania Society for the Prevention of Tuberculosis received a request from Wales, December 3, for the loan of its educational exhibit, to be shown in a campaign against tuberculosis now being organized in that country. The request comes from Thomas Jones, secretary of the Welsh National Memorial to King Edward the Seventh, accompanied by the statement that of all the exhibits at the International Congress of Tuberculosis, held in Washington, 1908, that of the Pennsylvania Society was considered the best.

Health Conference.—The Western Pennsylvania Public Health Conference, organized at the instance, and under the auspices of the Central Council of the Associated Charities, was held in Pittsburg, November 29 and 30 and December 1. The opening session was addressed by Dr. Sidney E. Goldstein on "Hospitals and Health Agencies of the Pittsburg District and Their Specific Problems and Needs." The next session was devoted to the general subject of "Dispensaries, Their Places and Function, Methods of Cooperation Among Them, Their Opportunities and Responsibilities for Affecting the Home Conditions and Home Care of Patients;" the opening address being delivered by Dr. Richard C. Cabot, Boston. Remarks were also made by representatives of eighteen dispensaries of Pittsburg, presenting features of their work and suggestions in line with the theme of the meeting. At the first evening session, the general subject was "Restoration and Prevention, How the Curative and Preventive Work of Hospitals and Other Health Agencies may be Promoted and Developed by Developing Social Service and the Human Interest Point of View, Side by Side with Scientific Professional Skill and Material Equipment." Dr. Richard C. Cabot, Boston, delivered an address at this session on "Social Service in Hospitals and Dispensaries," and Dr. Samuel G. Dixon, Commissioner of the Pennsylvania Department of Health, delivered an address illustrated by stereopticon views on "How Pennsylvania Fights Tuberculosis by Improving the Homes, Occupations and Habits of the Tubercular." Nursing was the general topic of the morning session on Wednesday with the theme "How Should Nurses be Enlisted, Selected, Trained and Directed for Competent Service in Hospitals, Dispensaries and Private Families." "What are the Essentials for Visiting Nursing Service to the Poor in Their Homes?" The principal address was by Miss Adelaide Nutting, Johns Hopkins University. Dr. Henry M. Hurd, superintendent of Johns Hopkins Hospital, opened the discussion on hospital cooperation by an address on "To What Extent is it Desirable and Practicable to Develop Means and Habits of Cooperation Among the Hospitals in the Purchase of Supplies, Relations with Employees, Admission of Charity Cases, Publication of Needs Encountered and Work Accomplished in the Holding of Conferences as to Common Problems and in Any Other Appropriate Ways," followed by five-minute remarks from representatives of thirty-five hospitals. Efficiency and finance was the general topic for the evening session, the theme being "By What Standard or Test Should the Work of Hospitals, Dispensaries and Nursing Agencies be Measured?" and "To What Extent and Under What Supervision Should Financial Support be Provided Through Public Funds?" with an address by William H. Allen. The discussion was taken up under the general heads of instruction, subsidies and support. At the morning session of the third day, "Children's Health Agen-

cies" were considered, and in the afternoon the general subject was "Investigation and After-Care of Charity Cases." Dr. Charles P. Emerson, Superintendent of Clifton Springs Sanitarium, delivered an address on "Should Applicants for Free Treatment or Charity Rates be Investigated Before or Upon Admission, and Followed up with Friendly Service After Dismissal?" The discussion was taken up under the general heads of self-help, investigation, after-care, practicability and cost. The afternoon session was devoted to a young men's rally, when the subject "The Young Men's Health Problems, Including Sex Hygiene," was discussed. At the closing session of the conference "Community Education" was considered under the general theme "How May Sickness be Prevented and Good Health Promoted by Improving the Homes and Habits of the People Through Popular Education." The principal address, on "Educating the City," was delivered by Dr. William A. Evans, health commissioner of Chicago.

Philadelphia

Parrish Portrait for College.—At a meeting of the College of Physicians, held December 7, a portrait of Dr. Joseph Parrish was presented by Dr. James Tyson on behalf of the donor, Mrs. Susan Parrish Wharton. Dr. Parrish was born Sept. 2, 1779, was elected a member of the college in 1810 and died Mar. 11, 1840.

Consumptives' Open-Air School.—Preparations are being made for the establishment of an open-air school for the instruction of boys and girls suffering with incipient tuberculosis, which will be under the joint care of the Board of Education and the Department of Public Health and Charities. The school will accommodate more than 100 pupils and classes will be heard out-of-doors during the whole school term.

Personal.—Dr. Louis P. Posey has been appointed a member of the State Board of Medical Examiners, vice Dr. Caleb S. Middleton, resigned.—Dr. Edward Martin has been made Barton professor of surgery in the University of Pennsylvania vice Dr. J. William White, resigned. Dr. Martin and Dr. Charles H. Frazier have been nominated to the board of trustees by the medical committee of the board.—Dr. John G. Clark gave a dinner, December 6, in honor of Dr. Franklin H. Martin, Chicago. Plans were arranged for a clinical meeting of the Physicians of North America in this city in November, 1911, one similar to that held recently in Chicago.—Dr. Matthew H. Cryer, professor of oral surgery in the Dental School of the University of Pennsylvania, has been made editor of the *Imperial Stereoscopic Anatomy of the Head and Neck*, a magazine published by D. D. J. Cunningham and Dr. David Watson, of the University of Edinburgh, Scotland.—The directors of the poor of Chester County have chosen Dr. Ralph C. Kell, Philadelphia, as superintendent of the Chester County Hospital for the Insane.

GENERAL NEWS

Academy Mid-Year Meeting.—The fourth annual mid-year meeting of the American Academy of Medicine was held in Buffalo, December 1, under the presidency of Dr. Charles S. Sheldon, Madison, Wis. The conference dealt with the sociologic influences of hospitals and dispensaries.

Personal.—Dr. Wilfred T. Grenfell of Labrador, has been visiting in Charleston, S. C., on his way to the north from Florida.—Dr. Hamilton P. Jones, New Orleans, food commissioner of Louisiana, has been elected second vice-president of the Association of State and National Food and Dairy Departments.—Dr. Robinett B. Hayes, Fayetteville, N. C., has been elected grand regent of the Kappa Psi Fraternity.

Journals Consolidate.—The *Southern Medical Journal* has consolidated with the *Gulf States Journal of Medicine and Surgery*. The editorial office will be Suite 905 Van Antwerp Building, Mobile. The editor-in-chief is Dr. Seale Harris, and the managing editor, Dr. Henry A. Moody, both of Mobile. The associate editors are Drs. John A. Witherspoon, William D. Haggard, Worcester A. Bryan, William Litterer and James M. King, all of Nashville, Tenn. The journal will be conducted on the same high-class lines as before.

The Cartwright Prize.—The Cartwright Prize, valued at \$500, biennially awarded by the Association of the Alumni of the College of Physicians and Surgeons, New York City, will be next awarded at the commencement exercises in 1911. Essays to be held worthy of the prize must contain original investigations made by the writer; must be on medical, surgical, or kindred subjects; must be typewritten and in English, and marked with a device or motto, and accompanied by a sealed envelope similarly marked, containing the name and

address of the author. The payment of the prize money to the successful essayist will be made on his filing with the treasurer of the association a printed copy of the essay. Essays in competition must be sent to Dr. Henry E. Hale, secretary of the Association, 770 West End Avenue, New York City, on or before April 1, 1911.

FOREIGN NEWS

Other Deaths in the Profession Abroad.—General H. Laub, surgeon-general of the Danish army, died November 12, aged 72, from cancer of the rectum. Since his appointment in 1902 as chief of the medical department, it has made great progress under his initiative.—The cable also brings word of the death of Professor Henri Huchard of Paris, an authority on diseases of the heart, aged 66. He founded about 1887 the *Revue Clinique et Thérapeutique* and later the *Journal des Praticiens*, and some of his works on the circulatory system and on neuropathology are text-books in regular use.

Death of Mosso.—The leading physiologist of Italy and a pioneer in the physiology of life at high altitudes, Prof. A. Mosso, professor of physiology at the university of Turin, died November 24, aged 64 years. He founded the *Archives Italiennes de Biologie* in 1882 to present in French the results of the research of Italian workers in this line; much of his own work was published also in Virchow's *Archiv*, especially his monographs on the circulation, respiration, ptomaines and functions of the bladder. Among his books are "Fear," "Fatigue," "Temperature of the Brain" and "Man in the Higher Alps." He was long a senator, and for his advocacy of athletics was called "the apostle of physical exercise." He was also instrumental in founding the Monte Olen international institute for nature study above the snow-line.

Cholera.—No cases of cholera have been reported to the sanitary authorities since last June from Spain, Portugal and some of the South American countries; nearly every other country, however, has had cases either in ships in the harbor or on land, but except in the endemic foci no serious epidemic has developed although conditions were threatening in Italy for a time. Naples had 329 cases, with 131 deaths between September 25 and November 8, but no new cases have been reported from Naples since November 16 and vessels are resuming their schedules. Fourteen provinces of Italy are now infected with cholera, the total number of cases outside of Naples in the six weeks ending November 16, amounting to 536 with 234 deaths, but only forty-four cases were reported throughout the kingdom during the following week and none in Naples or Rome. No cases have been reported at any time north of Rome and only a few cases have occurred there. In Russia the number of officially reported cases by November 19 had reached 213,941, with 99,882 deaths. In the countries immediately adjoining Russia to the west the occasional imported contagion is speedily stamped out and no serious trouble has resulted, although Hungary had recorded 288 cases with 139 deaths by October 15.

CANADA

Hospital Burns.—The Toronto Free Hospital for Consumptives, Weston, was totally destroyed by fire, December 1, with a loss of \$100,000. The ninety-two patients were all removed without casualty.

War on Opium. A bill was introduced into parliament, November 30, by Mackenzie King, minister of labor, making it a punishable offense to use opium except for medicinal purposes. The present laws prohibit the importation, sale, or manufacture of opium.

Cholera on Royal George.—Dr. J. George Adami, Montreal, announces, that although there was a real case of cholera diagnosed on the steamer *Royal George*, there is no reason for anxiety, as the cholera microbe is practically harmless in cold weather. The thirty-seven steerage passengers have been released from detention and sent to their respective destinations.

Two Canadian Periodicals Unite. The merger of the *Montreal Medical Journal* into the *Canadian Medical Journal*, the official organ of the Canadian Medical Association, which was announced in these columns October 1, is accomplished. With the December issue, the *Montreal Medical Journal* ceased to exist as a separate publication. The first issue under the new arrangement will appear in January under the editorial management of Dr. Andrew MacPhail, Montreal.

Society Elections.—The Winnipeg (Man.) Clinical Society has elected the following officers: president, Dr. James G. Munroe; vice-president, Dr. Julius E. Lehmann; secretary, Dr.

Oscar C. Dorman; treasurer, Dr. Raymond S. Brown, and executive committee, Drs. John H. R. Bond, W. H. Reilly and Fred A. Young.—The following territorial members of the Ontario Medical Council have been elected: Drs. George R. Cruickshank, Windsor; Albert B. Welford, Woodstock; Alexander D. Stewart, Fort William, and Thomas W. G. Young, Peterboro.

Hospital Notes.—The Saskatchewan government has decided to locate the new provincial hospital for the insane at Battleford, and has voted \$100,000 for the purpose. The land has been secured and building operations will begin in the spring.—Guelph, Ont., is to have a tuberculosis hospital.—A new children's hospital is to be erected in Hamilton.—A tuberculosis sanatorium is to be installed at Windsor on the old Iler homestead.—Mrs. Jordan of Boston, Mass., has informed the New Brunswick government of her intention to present the property at River Glade, consisting of 700 acres with a large three-story house and several other buildings, valued at \$30,000, to the government to be used as a tuberculosis hospital.

Personal.—Dr. Murray MacLaren, St. John, N. B., has returned from abroad.—Dr. Hugh L. Diékey, Van Anda, B. C., has removed to Honolulu, H. T.—Dr. Everind A. Kirkpatrick, Halifax, is convalescent after severe illness.—Dr. John C. Mitchell has been transferred from Brockville Hospital for the Insane to the Coburg institution.—Dr. Edmund E. King, Toronto, has been reelected a member of the Ontario Medical Council for East Toronto.—Dr. David J. Dunn has been appointed school health officer of Edmonton, Alta.—Drs. Pierre A. Valois and Joseph A. Beaudouin have been appointed civic health officers of Lachine, P. Q.—Dr. Bruce L. Riordan, chief surgeon of the Grand Trunk Railway, Toronto, is seriously ill with typhoid fever.—Dr. Richard J. Monahan, Glace Bay, N. S., has been appointed senior surgeon of the Canadian Naval Service.—Dr. Bruce Hill, Winnipeg, who sued the Winnipeg Electric Railway Company for damages for injuries received while a passenger, has been awarded \$2,000 and costs.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Dec. 3, 1910.

Quackery and Nostrums in Great Britain

There are signs that the government will abandon the indifference which has rendered this country an unrestricted happy hunting-ground for quacks and nostrum exploiters. Recently the government sent forms to the 1,600 health officers of the United Kingdom inviting their opinion on "whether the practice of medicine and surgery by unqualified persons is assuming larger proportions and as to the effect produced by it on the public health." The result is embodied in a recent report. On the whole the answers do not point to a large increase in unqualified practice, though such might have been expected from the profusion of advertisements of quack remedies and "specialists." The increase seems to be most marked in large centers of population, but curiously, quackery appears to flourish less in London than in provincial towns. The most extensive form of unqualified practice is prescribing by pharmacists, which is practically universal. They constantly prescribe for minor ailments or what are believed to be minor. The poor are particularly fond of resorting to them because it costs less than going to a doctor. In some districts a doctor seldom sees a child of the working class which has not been purged or otherwise treated for several days by a pharmacist. Diseases of the skin, the eye, and venereal diseases are much treated by pharmacists, who often also undertake dentistry, and are the chief agents for the sale of nostrums. But they sell the latter only when demanded; they prescribe their own preparations if possible, for the profit on their sale is much greater. Next to pharmacists come "herbalists"—persons with no pharmaceutical qualification whatever, who sell herbs and other drugs as far as the law allows. The only restriction they suffer under, compared to pharmacists, is that they cannot sell poisons. They are numerous and rapidly increasing in the large manufacturing towns of Lancashire and Yorkshire. As they have no legal status they are more reckless than pharmacists. They treat all sorts of diseases, and even visit patients—a thing seldom done by pharmacists. "Bone-setters" are extensively in vogue in some parts, especially in mining districts, and some of the large friendly societies even accept their certificates as equivalent to that of a physician. Of the more fantastic sorts of quackery "Christian Science" is increasing in several northern towns.

In Yorkshire and Durham the practice prevails of diagnosing and treating ailments by persons in a hypnotic state. One great evil from unqualified practice is the spread of infectious disease from failure to diagnose it. Cases are quoted of smallpox, diphtheria, scarlet fever and other diseases being spread in this way. In cancer valuable time is lost because the disease is not recognized in its early stage and is then treated by useless drugs.

A large section of the report is devoted to nostrums. These are purchased extensively by all classes, rich as well as poor. The facility with which they can be obtained is strongly condemned. They have enormously increased the amount of self-drugging, and in the case of incipient disease, such as phthisis, they often give rise to delay until the condition is incurable. The suggestion is made that the composition of all advertised remedies should be stated, that their analysis should be determined by government analysis at the vendors' expense, that the sale of headache powders and similar drugs should be prohibited, and that the sale of infants' food should be regulated. For the other forms of unqualified practice no remedies are suggested, and it is difficult to see how they could be. In this country the liberty of the individual is held so high that it would be impossible to prevent a person who is ill from taking any advice from any one he wishes. The quack labors under only one disadvantage compared with the physician. If a patient dies under his treatment he is liable to be indicted for manslaughter. But this scarcely ever happens, as medical advice is generally sought before the end. If it does happen, he is generally acquitted, as he is held to have done his best and the jury come to the conclusion that medical advice would not have saved the patient.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Nov. 25, 1910.

Protection of Infancy Against Tuberculosis

The eighth general assembly of the organization called La Préservation de l'enfance contre la tuberculose, founded by the lamented professor Grancher, was recently held under the presidency of Dr. Roux, director of the Pasteur Institute. The purpose of the organization is to remove children of tuberculous families from danger of infection, and to place them in the country among the families of healthy peasants living under good hygienic conditions. Only absolutely healthy children, aged from 3 to 13, are accepted. The organization has at present a budget of \$31,000 (155,000 francs), and has twelve offshoots in the principal cities of France. It has 425 protégés distributed in the provinces. When the guardianship of the society ceases, the children often remain as agricultural laborers in the localities where they have been placed.

Election of Two Correspondents of the Academy of Medicine

In its session of November 22, the Académie de médecine elected, as national correspondents, Dr. Lebayle, former intern of the Paris hospitals, dean of the Léon medical school at Nicaragua, and Dr. Oui, professor of obstetrics and of the hygiene of early infancy at the Lille medical school.

Cholera and a New International Sanitary Conference

In response to a question from a member of the Chamber of Deputies, the minister of the interior has officially made a statement to the effect that the question of a new international sanitary conference has been under consideration for some time. Before undertaking a revision of the agreements obtained at the last sanitary conference it is indispensable to make sure that Turkey, which by its geographical situation and the movements of Mussulman pilgrimages, is particularly exposed to the importation of epidemics, should consent to conform to the international sanitary regulations. Accordingly the minister of foreign affairs has used his influence to induce Turkey to enter into the sanitary union. It seems now that Turkey will be disposed to accede and to call a new sanitary conference soon at Constantinople. If these intentions are not realized the initiative no doubt will be taken by one of the governments which are parties to the sanitary union.

Honor to Professor Pinard

A few days ago the friends and pupils of Professor Pinard met in the great amphitheater of the medical school to celebrate the twentieth anniversary of his professorship. Speeches were made by Professor Landouzy, dean of the medical school, and by Drs. Potocki and Segond. At the end of the ceremony, a commemorative medal was presented to Professor Pinard.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Nov. 24, 1910.

Personals

The Prussian Academy of Science has elected the well-known London surgeon, Sir Victor Horsley, and A. Mosso, professor of physiology in Turin, as corresponding members. The Bavarian Academy of Science has elected Professor Gruber to regular membership.

Bavarian Antituberculosis Association

November 20, a national association for the suppression of tuberculosis was founded in Munich, the function of which will be a systematic campaign against tuberculosis as a disease of the people. The Prince Regent has given the association \$1,000 (5,000 marks). At the close of the meeting a tuberculosis museum was opened.

Medical Study Trip

The German central committee for study trips plans an excursion to America for 1912 in connection with a visit to the International Hygienic Congress at Washington. The journey is to last about six weeks and to cost from \$400 (1,650 marks) up, according to the cabin occupied. The price includes fare on land and sea and lodging and service while in America.

Illegitimacy from the Social Standpoint

A few days ago one of the speakers at the meeting of the German Morality Society (*Sittlichkeitsverein*) reviewed the subject of the social significance of illegitimacy in the light of statistics. He first exhibited the varying degrees to which the evil was present among various nations. The Netherlands have 2.5 per cent. of illegitimates, Switzerland 4.5, Prussia 9, Saxony 12, Bavaria 14 and Austria above 14. In the same country differences are found. Thus North Bavaria has 8 per cent., South Bavaria, 20. Further differences may be noted between town and country. Vienna and Munich have quite 30 per cent. of illegitimate births, but it must be noted here that the lying-in institutions in large cities influence the statistics unfavorably. The first factor in the etiology of illegitimacy is the special make-up of the population, the proportion of unmarried members of both sexes. The probability of illegitimate births is greater, the greater the number of the unmarried, the young, and particularly of young females in the population. The Westphalian industrial district, Istria and Dalmatia, in which there is an overplus of men, show only from 3 to 4 per cent. of illegitimate births. In the Alps and certain agrarian districts in which marriage is commonly entered into late, there is a high percentage of illegitimacy. Economic and social conditions also exercise an influence. The difference between the social relations and the trade conditions of town and country are not without their effect. The observation has been made that four-fifths of the illegitimate mothers in the city are from outside and come mostly from simple conditions of life to fall victims to the complicated relations in the great city. Half of the illegitimate mothers in the city are orphans (*roucaist*). Finally, ethical conditions, education and race have their effect, thus the Bavarians have the highest rate of illegitimacy.

The speaker also discussed the situation and fate of illegitimate children. These children are in greater danger than the legitimate, even after birth, and show a larger ratio of stillbirths. In Prussia 34 per cent. of illegitimate children die in the first year of life as compared with 18 per cent. of the legitimate. In Berlin the ratio is 39 to 19 per cent. As a matter of fact, the percentage is still more unfavorable and, if the children legitimized in the first year are accounted for, must be placed as high as 46 per cent. The causes of this mortality are the unfavorable conditions of care, the frequent change of nurses, and lack of proper support. In the first year of life not one-half are supported and at the age of 14, only 15 per cent. The frequent change of caretakers in later childhood leads to neglect. As a consequence of this, criminality is very large among the illegitimate, and their industrial training is faulty. Finally, the speaker discussed the ethical principles for the protection of the illegitimate. Support, titular guardianship and police oversight of the care of the infants are inadequate. The only remedy which is of actual value is trade union guardianship (*Berufsvormundschaft*). This can promptly bring the father of the illegitimate child to support it (in Strassburg 59 per cent. voluntarily supported their children, while 86 per cent. were reached by compulsory measures). This measure also makes possible a proper choice and supervision of the places where the children are cared for, and is financially favorable to the city, while it has also great ethical importance.

Marriages

CHARLES PIUS, M.D., Guadalupe, Cal., to Miss Eloise Moore of Willows, Cal., November 24.

LUTHER RAYMOND FOUST, M.D., to Miss Helen M. Alexander, both of Philadelphia, November 30.

ROY HOMER DYER, M.D., Marshall, Mo., to Miss Frances McClure of Houstonia, Mo., November 23.

EMIL E. NUSSLE, M.D., Chippewa Falls, Wis., to Mrs. Jessie Pottle Cox of St. Paul, Minn., December 7.

JAMES KEELEY EVERHART, M.D., Pittsburg, Pa., to Miss Susan B. Thorley of Harrisburg, Pa., October 22.

THOMAS B. COULTER, M.D., Chickasha, Okla., to Miss Hortense B. Rose, Avondale, Cincinnati, November 28.

Deaths

John Cummings Munro, M.D. Harvard Medical School, Boston, 1885; died at his home in Boston, December 6, from recurrent cancer, for which operation had been performed three years before, aged 52.

A Franklin medal scholar and graduate of the Boston Latin School Dr. Munro entered Harvard University in 1877, graduated in 1881, and received the M.D. degree from Harvard Medical School four years later. Establishing himself in general practice in Boston, he soon began to specialize in surgery, developing a rare skill which placed him early in the front rank of the profession. Dr. Munro was associated with the Harvard Medical School as assistant in anatomy from 1889 to 1893; assistant demonstrator of

anatomy from 1893 to 1894; assistant in clinical surgery from 1894 to 1895; instructor in surgery, 1896 to 1902, and lecturer in surgery, 1903 to 1905. He was keenly interested in the development of surgery toward which his work was a great contribution. He was surgeon at the Boston City Hospital, 1893 to 1903; consulting surgeon, St. Luke's Home, 1901; special consulting surgeon Quincy Hospital, 1902; consulting surgeon, Framingham Hospital, 1905; surgeon to out-patients, Carney Hospital, 1891 to 1896; and surgeon-in-chief, Carney Hospital since June, 1903. He was a member of the American Medical Association and chairman of the Section on Surgery in 1909; Association of American Anatomists, American Surgical Society, Clinical Surgical Society, of which he was president in 1905; Boston Society of Medical Sciences, Boston Society for Medical Improvement, American Academy of Medicine, Southern Surgical and Gynecological Association, an honorary member of the Vermont Medical Society, the Canadian Medical Association, and the Philadelphia Academy of Surgery.

Dr. Munro belonged to the group of surgeons who went through a long apprenticeship in anatomy as a preparation for surgery. He was noted for his skill in dissection, and for the simplicity and clearness of his demonstration. To this

anatomic training was probably due, in a large measure, the technical skill in operation which so distinguished him. He combined, however, with this technical skill, accuracy in diagnosis and remarkable surgical judgment. Entering into surgery at the beginning of the antiseptic period, he quickly acquired a thorough mastery of the details of the method.

Dr. Munro will best be known for his surgical clinic at the Carney Hospital which was instituted in 1903. The establishment of this clinic which carried with it responsibility for the entire surgical service of the hospital, was an important event, as it was the first permanent surgical service to be established in New England. The clinic, under Dr. Munro's guidance, quickly acquired a high rank among the surgical clinics in the country, and, of the surgical clinics in New England, was among the best known and the most frequently visited. His work there served a most useful purpose in various ways. It demonstrated the possibility of doing satisfactory surgery, successful in its results, with simplicity of plan and technic and with a minimum of red tape. In its instruction, it had to do with and reached not so much the undergraduate in medicine as the general practitioner, the worker in the surgical field, the visitor in search of sensible ideas and their application in the field of surgery. At this clinic true charity to the deserving poor was dispensed. The

widespread abuse of the charity of the medical profession was here combated in the only way in which a successful struggle against it can be made, by refusing charity to those who do not merit it. Dr. Munro not only had strong convictions on this matter, but had the courage to put these convictions into practice in the face of much unfavorable and unjust criticism.

Dr. Munro was well known both in this country and abroad. His contributions to the literature of surgery were numerous and on a variety of subjects. He wrote as he

spoke, simply and clearly, and was always conservative and modest in stating his part. His skill as a surgeon was acknowledged by all. Back of it, however, and revealed to but few, were qualities of mind and heart that deserve more admiration than his skill and made the man even greater than the surgeon. Fearless honesty in all things, staunch loyalty to his ideals and to his friends, straightforwardness in his actions, simplicity and cleanliness of life, and modesty as to his self and his achievements were strong characteristics of John Munro. Keen in his observation of men and their methods, he was always charitable in his judgments of both. Traveled, well versed in general literature, appreciative of art in all its aspects, he made a most charming companion. His influence on his fellows was wide and stimulating. A hard worker himself, he incited younger men to action and his hand was ever ready to aid and to encourage them in honest endeavor.

Though naturally undemonstrative and retiring, he was a loyal and devoted friend, and the place he occupied in the affections of the many who knew and loved him for his worth will not be filled.

John C. DaCosta, M.D., a well-known gynecologist of Philadelphia, died at his home, December 6, from pneumonia complicated by arteriosclerosis, aged 76. As a young man,



JOHN C. DA COSTA, 1834-1910



JOHN C. MUNRO, 1858-1910

DaCosta was a civil engineer, and was a member of the staff of engineers of the St. Paul and Duluth Railroad for about twenty years. At the age of 40 he took up the study of medicine in Jefferson Medical College, and graduated from that institution in 1878.

Immediately following his graduation, Dr. Da Costa became instructor in his alma mater and was then made demonstrator of obstetrics. He served for more than twenty years as visiting gynecologist to Jefferson Medical College Hospital, and on his retirement several years ago, was made emeritus gynecologist. He was visiting physician to the Tying-In Charity Hospital, and visiting gynecologist to St. Agnes Hospital. He was a member of the American Medical Association, president of the Philadelphia Obstetrical Society, and a fellow of the College of Physicians of Philadelphia.

Thomas Gill Nock, M.D. Syracuse (N. Y.) University, 1883; formerly a member of the American Medical Association; a member of the Medical Association of New York and New England Railway Surgeons; Society of the State of New York; mayor of Rome in 1904 and 1905, and for six years a member of the fire and police commissioners; three terms coroner of Onondia County; a member of the board of managers of the Utica State Hospital, and local surgeon to the New York Central Railroad Company; was found dead at his home, November 28, from strangulation, aged 51. Dr. Nock had been in ill health for several years, and it is believed that while mentally irresponsible, on account of ill health, he committed suicide.

John Frederick Haller, M.D. University of Buffalo, N. Y., 1888; a member of the Medical Society of the State of New York; consulting gynecologist to Jamaica Hospital; visiting physician to the Bushwick Hospital for Children; examining physician of the Department of Charities for Brooklyn; one of the organizers of the Swedish Hospital; a surgeon of volunteers during the Spanish-American War, attached to the Tenth U. S. Cavalry; died at his home in Brooklyn, December 3, from pneumonia, aged 48.

Abram Brothers, M.D. College of Physicians and Surgeons, New York City, 1884; a member of the American Medical Association, New York Academy of Medicine, and New York Obstetrical Society, founder and once president of the Eastern Medical Society; visiting gynecologist to the New York Post-Graduate and Beth Israel Hospitals; associate professor of Gynecology in the Post-Graduate Medical School; died at his home in New York City, October 13, from diabetes, aged 49.

Julius Pohlman, M.D. University of Buffalo, N. Y., 1883; a member of the Medical Society of the State of New York; formerly assistant in the Museum of Natural Sciences, Buffalo, and later director; lecturer in physiology in his alma mater from 1883 to 1886, and from that time until 1898, professor of physiology; a specialist in diseases of the eye; elected general secretary of the German Society of Naturalists in 1888; died at his home in Buffalo, December 6, aged 62.

Josiah Nichols Woodward, M.D. Dartmouth Medical School, Hanover, N. H., 1880; a member of the New Hampshire Medical Society, and a member of the staff of the Nashua Hospital; city physician of Nashua for three years; a member of the board of health for four years; a member of the common council, and a member of the legislature in 1893 and 1909; died at his home in Nashua, November 28, from abscess of the liver, aged 54.

Benjamin Franklin Haskins, M.D. Bellevue Medical College, 1873; of La Junta, Colo.; formerly a member of the American Medical Association; a veteran of the Civil War; secretary for many years of the school board of Alamosa and La Junta, Colo.; division surgeon of the Denver and Rio Grande Railroad at Alamosa; and consulting surgeon to the Santa Fe Hospital, La Junta; died in Washington, D. C., October 4, aged 62.

Frederick Francis Kelly, M.D. New York University, New York City, 1888; a member of the Prince Edward Island Medical, Maritime Medical, and Canadian Medical Associations; a member of the city council of Charlottetown, and once mayor of the city; a member of the staff of the Charlottetown Hospital; died in that institution, June 5, from mastoid disease, aged 44.

William McAfee Hanna, M.D. University of Louisville, 1862; of Henderson, Ky.; assistant surgeon of Colonel Basil Duke's regiment, U. S. A., during the Civil War; formerly a member of the American Medical Association; for several years a member of the Henderson Board of Health; died in Letcher's Hospital, Henderson, November 28, from cerebral hemorrhage, aged 73.

Clarence W. Erwin, M.D. Medical College of the State of South Carolina, Charleston, 1880; of Erwinton, S. C.; corresponding secretary and treasurer of the Christian Church of South Carolina for twenty-two years; prominent as a planter and physician; died at the home of his brother in Allendale, November 23, from nephritis, aged 53.

William Allen Hubbard, M.D. Eclectic Medical College of Pennsylvania, Philadelphia, 1876; formerly hospital steward in the Freedman's Bureau, Pine Bluff, Ark., and later apothecary in the U. S. Marine-Hospital Service; later a practitioner of Billerica, Mass., and superintendent of Winchester Hall; died at his home in Boston, Oct. 22, 1909, aged 66. (Bu)

Julien E. Hequembourg, M.D. Rush Medical College, 1882; of Chicago; a member of the American Medical Association, and Physicians' Club of Chicago; attending physician to St. Joseph's Hospital, and the Daily News Sanitarium for Babies; died suddenly while making his rounds in St. Joseph's Hospital, Chicago, December 8, from heart disease, aged 54.

Oliver A. Harrison, M.D. University of Louisville, Ky., 1882; a member of the Mississippi State Medical Association; local surgeon for the Queen and Crescent System; who had been incapacitated from active service since last winter when he fell on the ice, fracturing his right femur; died at his home in Meridian, December 3, aged 65.

Montraville McHenry, M.D. University of Vermont, Burlington, 1878; a member of the Medical Society of the State of Pennsylvania, and a member of the House of Delegates from the Columbia County Medical Society at the 1910 meeting; died at his home in Benton, December 1, from cerebral hemorrhage, aged 74.

John H. King, M.D. University of Wooster, Cleveland, 1872; formerly of Butler and Saxonburg, Pa., and a member of the city council and school board of the latter place; died, November 26, near his home at Houseville, from injuries and exposure following an accidental fall over an embankment, aged 67.

Benjamin Williams, M.D. Medical School of Maine, Brunswick, 1864; assistant surgeon of the Eighth Maine Volunteer Infantry during the Civil War; and later state commander of the Grand Army of the Republic; twice mayor of Rockland, Me.; died in Prospect Harbor, Me., November 27, aged 75.

Francis Howe Munroe, M.D. New York Homeopathic Medical College, New York City, 1886; a member of the staff of St. Mary's Hospital, Passaic, N. J., and the Essex County Homeopathic Hospital; died at his home in Newark, N. J., November 29, from cerebral hemorrhage, aged 48.

Patrick Henry McRaven, M.D. Missouri Medical College, St. Louis, 1878; formerly of McClure, Ill., but for a few months a resident of East St. Louis; at one time a member of the staff of the Anna State Hospital; died at his home in East St. Louis, November 21, from pneumonia, aged 58.

Andrew Jackson Sibley, M.D. University of Tennessee, Nashville 1894; a member of the State Medical Association of Texas; one of the board of censors of the Seventh Councilor District Medical Society; died at his home in Creedmoor, June 29, from cerebral hemorrhage, aged 45.

Wear F. Armstrong, M.D. Southwestern Homeopathic Medical College, Louisville, Ky., 1899; a member of the American Medical Association; died at his home in Henderson, Ky., September 12, during an injection of antistreptococcus serum for an infected operation wound, aged 36.

James J. McKone, M.D. Bellevue Medical College, 1887; a member of the American Medical Association; surgeon to St. Joseph's Hospital, Tacoma; acting assistant surgeon, U. S. P. H. and M.-H. Service; died in his apartments in Tacoma, November 27, from pneumonia, aged 47.

Alonzo R. Todd, M.D. Jefferson Medical College, 1880; of Ocean Grove, N. J.; formerly of Baltimore; a member of the Ocean Grove Board of Education; died at the Jefferson Hospital, Philadelphia, November 25, after an operation for the removal of gall-stones, aged 55.

Joel Hill, M.D. College of Physicians and Surgeons, Baltimore, 1880; a member of the Medical Society of the State of North Carolina, and Association of Surgeons of the Southern Railway; died at his home in Lexington, November 22, aged 55.

Harold B. Marchant, M.D. McGill University, Montreal, 1910; of Victoria, B. C.; died at the Terminal City Hospital, November 17, from injuries received while leaving the Britannia Mine, Howe Sound, the day before, aged 28.

Wash Miller, M.D. University of Louisville, 1866; of Winchester, Ky.; for many years president of the Citizens National

Bank in that city; died at the Brown-Proctoria Hotel, Winchester, October 27, from angina pectoris, aged 71.

William Perry Bennett, M.D. Washington University, St. Louis, 1844 or 1845; a well known physician and clergyman of Daviess County, Ky.; died at the home of his son in Utica, October 29, from senile debility, aged 87.

Edward G. Cannon, M.D. Louisville; a veteran of the Mexican War; at one time a circuit rider in southeastern Kentucky; for ten years a resident of Nome, Alaska; died in that place, November 21, from pneumonia, aged 87.

John Henry Arnold (years of practice, Arkansas); for many years a practitioner of Indian Territory; a veteran of the Civil War; died at his home near Henderson, Okla., December 1, from bronchopneumonia, aged 62.

Samuel A. Huffman, M.D. St. Louis College of Physicians and Surgeons 1896; formerly president of the Macoupin County (Ill.) Medical Society; died at his home in St. Louis, November 24, from heart disease.

Robert G. Simpson, M.D. Medical College of Ohio, Cincinnati, 1876; of Modesto, Cal.; formerly of Rising Sun, Ind.; died at the home of his nephew in Modesto, December 1, from heart disease, aged 64.

John M. Sweezy, M.D. Cincinnati College of Medicine and Surgery, 1860; of Cross Plains, Ind.; died in the Madison Sanitarium, Versailles, Ind., November 29, from senile dementia, aged 81.

Charles Butler Stiles, M.D. University of Edinburgh, 1887; died at his home in Hillview, N. Y., November 19, from injuries received from a fall over a steep embankment, aged 49.

Everett Grover Cleveland Snyder, M.D. University of Louisville, 1910; an intern in St. Vincent's infirmary, Little Rock, Ark.; died in that institution, October 17, from typhoid fever, aged 26.

George Frederick Emery, M.D. Queens University, Kingston, Ont., 1889; an eye, ear, nose and throat specialist of Ottawa; died at his home, November 23, from disease of the intestines, aged 43.

Thomas Rhoades Austin, M.D. Eclectic Medical Institute, Cincinnati, 1877; a veteran of the Civil War; died at his home near Neosho, Mo., November 12, from paresis, aged 69.

John Henry Bass, M.D. Louisville, 1859; surgeon in the Confederate service during the Civil War; died at his home in Abilene, Tex., November 14, from tuberculosis, aged 71.

F. Emile Gilbert, M.D. Laval University, Quebec, 1900; a member of the Société Médicale de Quebec; died at his home in Fraserville, Que., October 15, from pneumonia, aged 36.

Albert E. Auringer, M.D. Hahnemann Medical College, Chicago, 1888; of Mendota, Ill.; died December 4, while making a professional call, from cerebral hemorrhage, aged 53.

John E. McCune, M.D. Ohio, about 1850; died at the home of his niece in Plain City, Ohio, October 30, from senile debility, aged 84.

[CONTRIBUTION FROM THE CHEMICAL LABORATORY OF THE AMERICAN MEDICAL ASSOCIATION]

TABLETS OF BISMUTH, OPIUM AND PHENOL

A Second Examination Which Illustrates the Limitations of Tablet Compounding

W. A. Puckner and W. S. Hilpert

More than two years ago the examination of tablets of bismuth, opium and phenol was taken up in the Association laboratory to determine the reliability of pharmaceutical preparations of complex formulas, more or less difficult to prepare. The result of this examination, published in THE JOURNAL, July 25, 1908, p. 330, showed that the tablets sold by different firms contained amounts of phenol ranging from 72.65 per cent. down to 12.66 per cent. of the amount the tablets were claimed to contain. In discussing this discrepancy three questions may be asked: 1. Are these supposedly reputable firms deliberately selling these products below standard? 2. Are these firms unable to determine the quality of their product? 3. Do these firms merely neglect to determine the composition of the finished product? In other words are these firms dishonest, incompetent, or merely negligent? Considering the standing of the firms named in the report one would hesitate to say that these discrepancies were due either to dishonesty or to incompetence and would be inclined to take the more charitable view of negligence.

Two years having elapsed and the report of the laboratory having been given the widest publicity, it would seem that if these firms were ignorant of the real composition of their product at the time the examination was made and published, they would by this time have had ample opportunity to correct the matter, and either to have brought the products up to the claim or else to have discontinued their sale.

To determine whether the discrepancies pointed out in the report referred to could be ascribed to ignorance and whether the firms had made any effort to improve the quality of the products, specimens of these tablets as sold by each of the firms concerned, in the first report were again purchased from one of the large wholesale drug houses and their phenol content again determined.* The following table gives the result of this examination:

Manufacturer.	Per cent. phenol according to formula on label.		Per cent. phenol found.		Amount found expressed as per cent. of amt. claimed. ²		Percentage of variation (plus or minus) between 1908 and 1910 findings.
	1908	1910	1908	1910	1908	1910	
Hance Bros. & White	8.45	8.19	1.85	2.80	21.89	34.19	+ 12.30
W. S. Merrell Chem. Co. . . .	6.30	6.91	3.08	3.98	48.89	57.59	+ 8.70
H. K. Mulford Co.	1.72	1.70	0.90	1.08	52.34	63.53	+ 11.19
Parke, Davis & Co.	6.08	5.42	...	2.54	70.23	46.86	- 23.37
Sharp & Dohme F. Stearns & Co.	8.41	8.49	6.11	4.43	72.65	53.39	- 19.26
Truax, Greene & Co.	7.27	7.51	1.93	1.74	26.55	23.17	- 3.38
H. K. Wampole & Co.	10.03	10.00	1.36	2.81	13.69	28.09	+ 14.40
W. R. Warner & Co.	8.98	8.80	3.49	4.73	39.31	53.75	+ 14.44
W. R. Warner & Co.	12.08	12.15	1.53	1.49	12.66	12.27	- 0.39

1. These figures were calculated from the claimed phenol-content of each tablet and the average weight of the tablets found.

2. These figures were calculated from the percentage of phenol claimed (Column 1) and the percentage found (Column 2).

From the above results it is seen that at the present time the phenol-content of the tablet now ranges from a maximum of 63.53 per cent. down to a minimum of 12.27 per cent. of

* For method of analysis see "Method B," in "Reports of the Chemical Laboratory of the American Medical Association," I, 28.

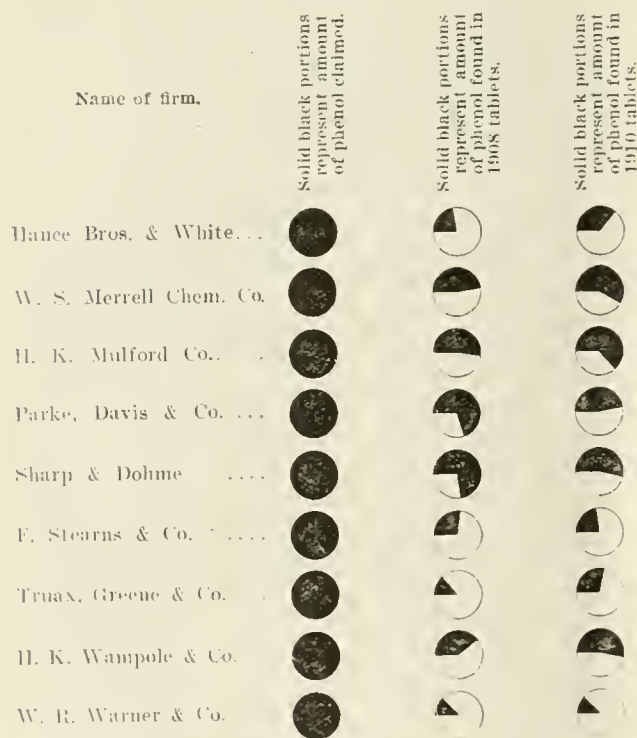
Pharmacology

ANADOL MISBRANDED ?

The United States District Attorney in Chicago has filed information against C. G. Wheeler of the Wheeler Chemical Works, Chicago, for mis-branding "Anadol." This nostrum, our readers will remember, was exposed by the Association chemists in THE JOURNAL, May 21, 1910, p. 1704. Anadol is one of those vicious mixtures which physicians are asked to prescribe, and which contain the dangerous, though if rightly used valuable, drug, acetanilid; yet there is no statement in the advertising matter or on the label to indicate its actual composition. Happily such preparations are gradually becoming extinct, and the Council on Pharmacy and Chemistry, and the Chemical Laboratory of the American Medical Association are to be credited, in great part at least, for this change in conditions. Of course, our exposé of this nostrum did not prevent its being advertised to, and prescribed by, those physicians who prefer to depend on the "literature" of proprietary promoters. But this action of the government will certainly put an end to this product, so far, at least, as interstate commerce is concerned.

that claimed on the label. The products of some of the firms have improved somewhat, while the products of others are worse than they were two years ago. On the whole, it seems that many of the firms still sell these products without being greatly concerned as to their composition. But one firm, whose product contains nearly two-thirds ($\frac{2}{3}$) of the amount of phenol claimed, the H. K. Mulford Co., appears to have considered the past report. The trade package now bears the following legend: "The amount of phenol in this tablet on account of its volatile nature is approximate." It would seem then, that, of the three alternatives suggested, the one ascribing this discrepancy to negligence must be discarded and the profession must decide whether it is to be attributed to incompetence or dishonesty.

EDITORIAL NOTE:—The findings of the Association chemists are not creditable to the pharmaceutical manufacturers concerned. The question asked is a serious one. Regarding at least most of the firms the charge of incompetence would hardly hold, since they employ chemists who are men of standing and are known to be entirely competent to control the manufacture of their products. To say that these firms are dishonest in the matter is a serious charge and no one



The above chart presents the findings of the Association chemists in a graphic form and shows the great discrepancies between the claims made for the tablets and the actual facts. The solid black portions represent the phenol-content. In the first column is given the phenol content claimed by the manufacturer; in the second column is shown the actual phenol-content found in the tablets purchased in 1908, while the third column represents the phenol-content as found in the tablets purchased in 1910.

will believe for a moment that they deliberately used a deficient amount of drug for the sake of saving a few paltry cents in the manufacture of these tablets. We would be inclined to take the view that these firms have little respect for physicians who use such complex mixtures; that, though producing, as a general rule, reliable and honest medicines they believe that in the case of products such as these, scientific accuracy is a waste of time. Perhaps they are right. At least, this should serve as a lesson to physicians who are inclined to use complex, ready-made formulas of this kind and persuade them to write individual prescriptions whose correct compounding by competent pharmacists may be depended on.

Correspondence

Priority in a Method of Prevention of Perforation in Submucous Resection

To the Editor:—*Nihil novum sub sole!* In to-day's mail I received THE JOURNAL of November 19 containing (p. 1785) an article of mine entitled "An Original Method for Prevention of Perforation in Submucous Resection." In the same mail I received, from its author, Dr. William R. Murray of Minneapolis, a reprint of an article from the *St. Paul Medical Journal* of January, 1907, on "The Submucous Resection of the Nasal Septum for the Correction of Septal Irregularities," on page 4 of which I find this marked paragraph: "For this reason I prefer to make the incision through the cartilage a little posterior to the primary incision through the muco-perichondrium, if the character of the deviation will allow it, in order that the membrane on the convex side may cover any such accidental puncture of the opposite membranes."

The assumption of originality in my article was made in good faith. I evolved this method for my own use, absolutely without any knowledge that Dr. Murray had worked out practically the same principle in 1907. Now that he has so kindly and promptly brought his article to my attention, I gladly avail myself of this opportunity of giving him due credit for priority.

RICHARD M. NELSON, M.D.,
Colon Hospital, Cristobal, C. Z.

Thanksgiving Celebration of American Physicians in Vienna

To the Editor:—Many of the American physicians studying in Vienna decided to celebrate Thanksgiving Day in a befitting manner. Semmering with its beautiful surroundings offered them the greatest attraction and the Pension Alpenheim was secured for this festive occasion. Among those present were:

- Dr. and Mrs. J. J. Durand, Atlantic City, N. J.
- Dr. and Mrs. Charles A. Drake, Norwich, N. Y.
- Dr. and Mrs. B. F. Ochs, New York.
- Dr. and Mrs. E. C. Dalton, Valdez, Alaska.
- Dr. and Mrs. S. M. Rinehart, Pittsburg.
- Dr. and Mrs. A. C. Tingdale, Minneapolis.
- Dr. and Mrs. Milton A. Shlenker, New Orleans.
- Dr. Lee Edwards, Toronto, Canada.
- Dr. E. O. Kershner, Clinton, Iowa.
- Dr. George I. Barber, Chicago.
- Dr. E. C. Wrightsman, South Chicago, Ill.
- Dr. Joseph Schwarz, Mobile, Ala.

The physicians and their wives entered into the spirit of the occasion with great enthusiasm. Mrs. Lovasy, the hostess, announced dinner at 2 p. m., and surprised all with the banquet table dressed in the American colors. Flags and bunting and the beautiful ladies who graced the occasion made a picture which aroused the American patriotism of all present. After turkey, cranberry sauce and plum pudding were served, the health of the president and of the kaiser were toasted, and this was followed by a dance.

M. A. SHLENKER.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TREATMENT OF ACIDOSIS—CASOID FLOUR

To the Editor:—1. Is the presence of acetone and diacetic acid in the urine an infallible sign of severe acidosis? What do you think of the following case? In a married woman, aged 28, whose mother died of diabetes, diabetes was discovered about a year and a half ago. The patient was given Fowler's solution by her physician, but never put on a strictly starch-free diet. I saw her first Oct. 1, 1910, when the condition was as follows: Twenty-four-hour amount of urine, 50 ounces; 3.4 per cent. of sugar, no albumin, no casts. Sodium nitroprussid test for acetone strongly positive; ferric chloride test for diacetic acid also very strongly positive. General condition of patient was very good; she felt fine and was not easily fatigued. I put her on Forchheimer's test diet and within two weeks the urine was entirely free from sugar, but there was still the acetone and diacetic acid, although I gave her 30 grains of sodium bicarbonate three times a day. Still she feels perfectly well and vigorous. On November 1 I started giving her two ounces of wheat bread daily. Sugar at once appeared in the urine, about 0.45 per cent. November 7 I changed to three ounces of bread made from gluten flour (40 per cent. of protein), allowing two ounces of oatmeal also. Sugar remains about 0.45 per cent. Twenty-four-hour amount has ranged from 48 to 65 ounces; specific gravity never

above 1.030, acetone and diacetic acid constantly present in large amounts, and patient feeling perfectly well. Thirty grains of sodium bicarbonate, three times a day, has been continued from the start. What prognosis would you give? What treatment would you advise?

2. What do you know about "casoid flour," made in England, sold by T. Loeming, 43 Warren Street, New York, and represented as a starch-free flour?
H. M. M.

ANSWER.—1. Oxybutyric acid, diacetic acid and acetone are known as the acetone bodies. According to present chemical opinion they are largely derived from the fatty acids and appear in the blood and in the urine when large amounts of fats are metabolized in the body. Being acid, they reduce the alkalis of the body and produce the condition known as acidosis. In many cases the formation of these acetone bodies is due to lack of food, without any failure to utilize sugar properly. These bodies also appear in diabetes when sugar formed from ingested carbohydrates, or from the proteins of the foods or tissues, cannot be utilized in sufficient quantity to maintain nutrition. When there is no failure to utilize sugar, and in mild cases of diabetes, the administration of carbohydrates will prevent the formation of these acetone bodies. Acidosis produced by the acetone bodies may be either of a low grade, in which case it does not seriously affect the prognosis, or it may be extreme, in which case it portends the oncoming of diabetic coma. In the case described it would be impossible to give a reliable prognosis without quantitative measurements of the acidosis by determination of the amount of acetone bodies and of the acidity and ammonia content of the urine. Inasmuch, however, as the patient does not seem to be materially affected by the acidosis, a relatively favorable but guarded prognosis should be given. The treatment has evidently been correct and should be continued. An attempt, however, to find a carbohydrate that can be utilized by the patient would be desirable. We would suggest the trial of more oatmeal and less flour. It is evident that gluten flour, with 40 per cent. protein, still contains a very large proportion of carbohydrates. Potatoes also be tried as a source of utilizable carbohydrate.

2. Analyses of casoid flour have shown it to be practically free from carbohydrates. The statement that it is entirely starch-free has not been true in the past, and on account of this unsubstantiated claim it has not been accepted by the Council. The casoid biscuit, or crackers, contain an appreciable, although small, amount of carbohydrates. Casoid flour, however, is not a gluten flour, but contains casein.

A CONVENIENT STAIN FOR THE SPIROCHÆTA PALLIDA

To the Editor:—I notice that in THE JOURNAL (December 10, page 2081) you give the Giemsa stain as an effective method for demonstrating *Spirochæta pallida*. While the results obtained with the Giemsa mixture are perfectly satisfactory, the time required renders it inconvenient. The following method, a description of which I published in 1903 (*Med. News*, 1903, lxxxiii, 248), gives the same results as the Giemsa and requires only ten minutes.

Smears of serum from the lesion are dried and fixed in strong methyl alcohol for two minutes. They are then stained for eight minutes, as follows: About 0.5 c.c. of a 1 to 1,000 aqueous solution of Grübler's eosin W G is placed on the surface of the smear. An approximately equal quantity of a 1 to 400 aqueous solution of Grübler's azure I is squirted on the slide from a pipette bottle and thoroughly mixed with the eosin. The exact quantities are unimportant. The staining mixture precipitates somewhat and should have a predominantly blue color. After eight minutes the slide is washed off in a strong stream of water. It will then be found to be stained perfectly as with the Giemsa method, and the *Spirochæta pallida*, if present, can be easily demonstrated.

This stain has been used by me and by my pupils for the past eight years as a general blood-stain, especially suitable for malarial parasites. The staining can be very considerably shortened, and for general purposes it is occasionally an advantage to use azure II, which contains some methylene blue, instead of the azure I.

FRANCIS C. WOOD, New York.

PRICES OF FOREIGN PUBLICATIONS

To the Editor:—Kindly let me know the subscription price and address of the *Presse Medicale* of Paris and the *British Medical Journal* of London.
H. E. RANDALL, Flint, Mich.

ANSWER.—*British Medical Journal*, 429 Strand, London, England, \$8 a year, including postage; *Presse Medicale*, 129 Boul. St. Germain, Paris, \$3.75 a year, including postage.

The Public Service

Medical Department, U. S. Army

Changes for the week ended Dec. 10, 1910.

Ebor, A. H., M.R.C., December 1, reported for temporary duty at Fort Dade, Fla.

Patterson, R. F., D.S., December 3, reported for temporary duty at Fort Thomas, Ky.

Stallman, George E., D.S., December 1, returned to Fort Sam, Houston, Texas, from temporary duty at Fort McIntosh, Texas.

Halliday, Charles H., M.R.C., December 3, left Fort Fremont, S. C., on ten days' leave of absence.

Bowen, Albert S., Lieutenant, December 3, left Fort Snelling, Minn., on ten days' leave of absence.

Sherwood, John W., M.R.C., December 5, reported for temporary duty at Fort Strong, Mass.; left Fort Andrews, Mass., same date.

Weston, Henry R., M.R.C., December 5, left Fort Strong, Mass., on thirty days' leave of absence.

Long, Charles J., D.S., December 9, reported for duty at Fort Andrews, Mass.

Trinder, J. H., M.R.C., December 8, reported for duty at Fort Jay, N. Y.

Medical Corps, U. S. Navy

Changes for the week ended Dec. 10, 1910.

Larker, E. C., surgeon, ordered to the naval academy.

Stuart, A., surgeon, detached from the naval hospital, Boston, and directed to continue duty at the navy recruiting station, Hartford, Conn.

Olson, G. M., asst.-surg., transferred to the retired list from Dec. 2, 1910; ordered home.

Randall, J. A., P. A. surgeon, and Brown, H. L., P. A. surgeon, detached from the naval hospital, Olongapo, P. I., and ordered home.

Thomas, G. E., asst.-surg., detached from the naval hospital, Canacao, P. I., and ordered to duty at the naval hospital, Olongapo, P. I.

U. S. Public Health and Marine-Hospital Service

Changes for the seven days ended Dec. 7, 1910.

Carmichael, D. A., surgeon, leave of absence for nineteen days from Nov. 15, 1910, amended to read eighteen days from Nov. 15, 1910.

White, J. H., surgeon, granted twenty days' leave of absence from Dec. 2, 1910, without pay.

Williams, L. L., surgeon, granted seven days' leave of absence from Dec. 2, 1910, under paragraph 189, Service Regulations.

Wertenbaker, C. P., surgeon, detail to represent the service at the meeting of the Seaboard Medical Association to be held in Kingston, N. C., Dec. 6-8, 1910, revoked on account of sickness.

Lavinder, C. H., P. A. surgeon, detail to represent the service at the meeting of the Seaboard Medical Association to be held in Kingston, N. C., Dec. 6-8, 1910, revoked on account of sickness.

Gwyn, M. K., P. A. surgeon, granted seventeen days' leave of absence from Dec. 24, 1910.

Cree, R. H., P. A. surgeon, relieved from duty in the bureau and directed to report to the director of the hygienic laboratory.

McKeon, F. H., P. A. surgeon, relieved from duty at Manila, P. I., and directed to proceed to San Francisco and wire arrival.

De Valin, Hugh, P. A. surgeon, directed to proceed to Chicago and report to the medical officer in command for temporary duty.

Riddon, J. R., asst.-surg., granted fourteen days' leave of absence from Dec. 21, 1910.

Miscellany

Ehrlich's Instructions Concerning Salvarsan (606).—Under the date of Oct. 25, 1910, Dr. Ehrlich has issued a circular letter in which he gives his latest ideas as to the methods of administering "606." He says that over 40,000 ampullas of the preparation have been distributed and reports have been received concerning its use. These reports have pretty well settled the dose, indications and contraindications. It should not be used in cases of atrophy of the optic nerve, but may be applied in other syphilitic diseases of the eye, especially gummatous iritis, but should not be used in severe diseases of the nervous system or of the heart and blood-vessels. The first phase of the trial may, therefore, be considered as closed. We now begin the second period, which concerns the permanent results of the remedy. These will depend on a series of circumstances, especially the size of the dose and the method of application, and second, the nature of the disease. The permanent results will be greater, the more decided the first therapeutic impressions. This, naturally, increases with the size of the dose and the rapidity of absorption. From this standpoint, the most efficient methods are (1) intravenous injection; (2) intramuscular injection of an alkaline solution; (3) the markedly irritating acid injection, and (4) the so-called neutral emulsions. He considered that in the first phase the greatest freedom should be allowed to the experimenters in the choice of a method, as only in this way, by a comparison of results, could an idea of the relative value of the different methods be obtained quickly. But it has already been established that the methods most applied, either the intramuscular or subcutaneous injection of the neutral emulsion, have less value as far as permanent results are concerned. This may depend on the fact that it is more difficult to prepare these emulsions with absolute uniformity and minuteness of subdivision, which results in a variability in the rapidity of absorption; and in many instances the therapeutic effect by this method was not sufficiently intensive to secure in general the sterilization or destruction of the spirochete. The intravenous injection gives better results. The technic is simple

and in a proper selection of cases is free from danger, and for many patients much more pleasant. There have been over 1,000 cases already treated by the intravenous method. As an intravenous injection. All injects at least 0.3 to 0.4 or 0.5 gm.; some give still larger doses, 0.7 to 0.8 g.m. The intravenous injection can be repeated after two or three weeks, according to the need of the case, if the curative effect of the first injection is not complete and the Wassermann reaction is still positive. So far, indications of a hypersusceptibility have not appeared, although in many instances intravenous injections have been employed two, three, four or five times. Ehrlich says that the reports that have reached him indicate that the intravenous method deserves prominence over the other methods, especially the subcutaneous. He does not overlook the fact that this method will meet certain technical difficulties in ordinary practice; still it is important in the interest of patients to secure at once the most effective treatment. The intravenous method is therefore recommended by Ehrlich, at least for hospitals and clinics. The things to be especially considered are the following: 1. The disease should be put under treatment as promptly and early as possible, as it generally occurs in robust young individuals. They should be treated with at least 0.5 intravenously. In addition, it would be advisable, in the interest of actual sterilization, to employ an energetic local treatment, extirpation, cauterization or some of the other methods used. 2. In diseases of the central nervous system and the circulatory apparatus, so far as these are really suited to treatment, the greatest caution is advised, and small doses, 0.2 to 0.4, should be used; but whether in these cases the intravenous method does not deserve the preference over the forms of application heretofore used, has not yet been sufficiently determined. Ehrlich, therefore, advises that in the future, as far as possible, the intravenous injection should be used.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

The Legal Value of Vital Statistics

Mr. W. J. V. Deacon, statistician of the Kansas State Board of Health, in the *Journal of the Kansas Medical Society*, November, 1910, discusses vital statistics, with special reference to their legal and social value. As most discussions of this question relate to the medical and sanitary side of registration, this paper is especially deserving of attention by physicians. While too much cannot be said on the value of properly recorded and tabulated vital statistics as a means of "sanitary bookkeeping" and as a stimulus to hygienic reforms, it must be remembered that the recording by the state of births, deaths and marriages is of quite as much importance to the lawyer, the business man and the average citizen as it is to the sanitarian. Mr. Deacon lays special emphasis on the necessity of presenting the facts brought out by registration of vital statistics to the attention of the public and keeping these facts constantly in the foreground. He says:

"It has been said that vital statistics can make disease centers as obvious and as offensive as the smoking nuisance. They will not do this, however, unless they are advertised. The compilation of vital statistics as a matter of history is worse than useless and does not begin to furnish an adequate return for the time, money and effort put in their compilation. To be of real value, vital statistics must be a guide to our public-health officials, and to every public-spirited physician, in the campaign against disease. That the collection and publication of vital statistics is of great importance is a well recognized fact. In international statistics, practically every well-known European state is represented. In addition, I might mention such countries as New South Wales, Tasmania, New Zealand, Ceylon, Jamaica, Finland, Roumania, Bulgaria, Japan and Chili. The United States, as a whole, is not represented in international vital statistics."

Mr. Deacon gives three important reasons for recording births and deaths. These are: first, protection of the rights of the individual and of the community; second, the protection of the health and lives of the people; third, the knowledge of the movement of the population. After pointing out that statistical officers are usually under the direction of state or city boards of health and that, for this reason, the legal and social importance of vital statistics has been lost sight of, Mr. Deacon says:

"The interest of lawyers in this movement is generally because the very nature of their profession causes them to appreciate more quickly the disadvantages and financial hardships that individuals so often suffer, but this, like the interests of the physicians from a sanitary standpoint is not based alone on the professional interest of individual practitioners, though it is true that an orderly and authentic system of recording births and deaths would greatly facilitate legal procedure. The greatest benefit will result to the people themselves and not to any one profession."

Mr. Deacon gives seven provisions which should govern the registration of deaths:

1. Deaths must be registered immediately after their occurrence.
2. Certificates of death must be recorded.
3. Burial or removal permits are essential to the enforcement of the law.
4. Efficient local registrars are necessary.
5. The central registration office should have full control of the machinery and its rules should have the effect of law.
6. The transmission and preservation of returns should be provided for.
7. Penalties should be provided and enforced.

Mr. Deacon considers that one of the fundamental purposes of the proposed national department of health is the collection, compilation and use of vital statistics and repeats the three economic reasons given by Allen for the establishment of such a department. These are: first, to enable society to increase the percentage of exceptional men of each degree, many of whom are now lost through preventable accidents; and also to increase the total population; second, to lessen the cost of sickness; third, to decrease the amount spent on criminality that could be traced (if there were properly filed and reliable figures from which to draw conclusions) to overcrowded, unwholesome and unhygienic environment.

In discussing the influence of vital statistics on social problems, he says:

"Whenever the term 'statistics' is applied to social facts, it suggests action, social control of future contingencies, mastery of the facts whose actions are chronicled. The object of gathering social facts for tabulation is not to gather material for future historians; they are to be used in shaping future history. They are facts collected with a view to improving social vitality, to raising the standard of life and to eliminating permanently those forces known to be destructive to life. Unless they are used in this way they are of interest only to the historian. No city or state can afford to erect a statistical office to serve as a curiosity shop."

This portion of the paper concludes with an arraignment of Kansas which ought alone to be sufficient to secure the enactment of a proper registration law in that state at the next meeting of the legislature:

"Kansas, poor old Kansas! Bleeding Kansas! Bleeding money, wheat and corn at every pore. 'Tis said: A land of smiling sunshine, of winding streams, where you have but to till the soil to make it laugh a harvest. A land dotted with school houses and growing towns and villages, called cities by divine right of prophecy. A land of pigs given to adipose, of sleek cattle, of strong horses, of handsome women, of bouncing babies, of homely, rugged men. A land where no one dies except through accident or over-eating. Poor, bleeding Kansas cannot afford to pay 25 cents to register those bouncing babies and, while for years they have duly registered their fine pigs, their cows and their horses at an expense of from 50 cents to \$10.00 each, they deny to the future citizen, the potential fathers and mothers of this great republic, the right of registration, the establishment of their legal birthright, for the pitiful sum of 25 cents."

"Have you a little fairy in your home?" If you have she is not registered. No human eye can pierce the future and while you by study, industry and thrift may think to leave that 'fairy' far above the reach of the breakers of misfortune, who knows what may arise in the future to require that little one to prove herself your child, your heir and the right to exercise those sovereign rights of citizenship to which estate the little one has been born, and in which rights you to-day think her secure.

"The state owes to every citizen the right that the three principal events in the life of each of them shall be a matter of public record, and these three events are the birth, marriage and death. This state owes it to you to maintain these records, a duty it has shamefully neglected."

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Fifth Month—Second Weekly Meeting

I. HYPEREMIAS OF THE SKIN

ERYTHEMA HYPEREMICUM: Erythema caloricum, e. solare, e. venenatum, e. ab igne, e. traumaticum. Symptoms and treatment.

ERYTHEMA INTERTRIGO: Chafing.

II. INFLAMMATIONS

ERYTHEMA MULTIFORME: Etiology. Symptoms: Constitutional symptoms, visceral manifestations, varied lesions.

ERYTHEMA NODOSUM: Etiology, symptoms.

ERYTHEMA SCARLATINOIDES: Symptoms and diagnosis.

PELLAGRA: Etiology. Symptoms: Disturbances of gastrointestinal and cerebrospinal systems. Cutaneous lesions—three stages—congestion, thickening and pigmentation, atrophic thinning.

URTICARIA: Etiology. Symptoms. Varied lesions: Urticaria papulosa, u. gigans, u. bullosa, u. hemorrhagica, u. perstans, u. factitia. Treatment.

ANGIO-NEUROTIC EDEMA: Symptoms. Diagnosis. Treatment.

ECZEMA: Acute, subacute and chronic.

 Eczema erythematosum, lesions, usual locations.

 Eczema papulosum, lesions, locations, course.

 Eczema vesiculosum, lesions, locations, course.

 Eczema pustulosum, lesions, locations.

 Eczema rubrum and e. squamosum: secondary conditions.

REGIONAL ECZEMA.

DIAGNOSIS: Redness; papule, vesicle, or pustule; discharge; crusts and scales; thickening and infiltration; itching and burning. Differentiate from scabies, herpes, dermatitis, impetigo contagiosa, sycosis, psoriasis, lichen planus.

Society Proceedings

ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES

Nineteenth Annual Meeting, held at Richmond, Va., Oct. 31—Nov. 4, 1910

The President, COL. JOSEPH K. WEAVER, N.G., Pa., Norristown, in the Chair

Officers Elected

The list of officers-elect was published in THE JOURNAL, November 5, page 1656. Milwaukee was selected as the place of meeting for 1911.

Reports of Officers

MAJOR HERBERT A. ARNOLD, N.G., Pa., treasurer, reported the largest number of paid-up members in the history of the organization—1,445—and that the balance in his hands was \$5,826.41, or \$429.09 more than for the previous year.

MAJOR CHARLES LYNCH, M.C., U. S. Army, secretary and editor, explained that the loss in advertising receipts was due

to the acceptance of no advertisements except those approved by the Council on Pharmacy and Chemistry of the American Medical Association.

Department of Public Health

At the business meeting resolutions were adopted favoring the passage of Senate Bill 6049, now pending, or essentially similar legislation having for its object the establishment of a national department of health, of equal dignity and power with other departments of the government, having at its head a secretary of public health, a cabinet officer.

Pay for Organized Militia

On motion of COL. L. MERVIN MAUS, M.C., U. S. Army, a resolution was adopted asking Congress to provide that medical officers and members of the hospital corps of the organized militia receive an annual pay to the amount of 25 per cent. of the active pay of their respective grades as provided by the pay tables of the United States Army and Navy, besides mileage while under orders, and directing the committee on legislation of the association to confer with the similar committee of the National Guard Association, and to represent the conditions as they relate to medical officers with a view of obtaining an increased rate of pay for them.

Ethics, Scope and Prerogatives of Army Medical Officer

COL. L. MERVIN MAUS, M.C., U. S. Army, discussed this subject, which is of interest alike to medical officers of the regular establishment and to those of the organized militia. He outlined the advantages to be derived from the blending of the medical corps of the Army with the U. S. Public Health and Marine-Hospital Service, which would bring under one executive, public health, general and special sanitation, quarantine, hospital organization and management, the care of the sick, property responsibility, examinations, etc. He considers early military training of paramount importance to the medical officer, who should at least have a thorough knowledge of the principles of discipline, military drill and the essentials of command. The medical officer of to-day must be a man of collegiate education or its equivalent, an accomplished physician, a skilful surgeon, an expert in diseases of the eye, ear, nose and throat, a master of obstetrics, gynecology and pediatrics, an alienist, a past master in military hygiene and sanitation, and a thorough student of military regulations and customs, and army life. He must also be proficient in military law, to a certain degree in tactics, especially those relating to hospital corps and ambulance drills; he must understand the art of the architect and builder, the duties of judge advocate, quartermaster, commissary, paymaster, the command of hospitals, hospital ships and trains, ambulance companies and the multitudinous and varied duties connected with municipal administration in all of its complex branches. Among the important duties delegated to the medical officer is that of sanitation, whereby the medical officer becomes the army sanitarian in name, if not altogether in function. He is authorized to supervise the sanitation of the command to which he is attached and to recommend to the commanding officer such measures as he deems best for the health of all concerned. Colonel Maus suggests the greater use of the special sanitary report, instead of waiting and allowing the continuance of an insanitary evil until the monthly report is made. He urges that the recruitment of the army be placed in the hands of the medical corps, as the physical examination is the chief factor of the duties of the recruiting officer. He also believes that retiring boards should consist entirely of medical officers, who, by reason of education and training, are the only officers in the service competent to pass an opinion as to the physical condition of officers brought before such boards. The essayist does not approve of the term surgeon as a designation, preferring the more correct title of medical officer. He suggests that the following designations be made official: For an army in the field or a military tactical division or department, surgeon-general; for a division, division surgeon-general; for a brigade, brigade surgeon-general; for a general hospital, field

hospital, hospital ship, hospital train, post hospital or ambulance company, commanding officer; for a medical supply depôt, officer in charge; for a regiment or separate battalion, chief medical officer; and for other officers assigned as juniors, medical officer. Officers assigned to medico-military inspection or sanitary work should be designated medical inspector-general or sanitary inspector-general.

Vaccine Therapy

MAJOR HARLAN SHOEMAKER, M.C. N. G., Pa., Philadelphia, detailed his experience with natural as compared with artificial vaccine therapy, from which he concluded that bacterial vaccines can be undertaken without fear of unpleasant sequelae because the reaction is of short duration, and consequently there is no danger of injury to a vital organ; because the reaction is not so great as in a natural vaccination or inoculation of living germs; because the surgeon inoculates many patients with innumerable living germs without unfavorable results, and because the bacterial vaccine is dead.

(To be continued)

CHICAGO MEDICAL SOCIETY

Regular Meeting, held Nov. 9, 1910

The President, DR. ALEXANDER HUGH FERGUSON, in the Chair

The Ligation or Partial Extirpation of Exophthalmic Goiter

DR. CHARLES H. MAYO, Rochester, Minn.: There are two groups of cases of hyperthyroidism; first, the simple goiter without symptoms of hyperthyroidism; and, second, the group of cases in which the symptoms of hyperthyroidism constitute the main feature of the case. In cancer of the thyroid it is not uncommon to see marked hyperthyroidism—in fact, some cases have every symptom ordinarily classed as Graves' disease. As to treatment, from an operative standpoint, we will consider the operation of vessel ligation and one of partial extirpation of the gland. For the mild cases, or those seen early, is recommended the simple ligation of the vessels, nerves, and lymphatics at the upper pole, with a linen ligature. Following this procedure the reduction in the delivery and production of secretion seems to bring about that form of reversion of goiter toward the simple type, as demonstrated by MacCarty. The same treatment is indicated in the most advanced cases in which changes in the heart, liver, etc., have advanced to a most serious degree. In this group the improvement is very marked in all who recover from the operation, and the removal secondarily of the larger lobe and isthmus can be made with a marked degree of safety a few months later. Of the cases operated on by ligation who are below weight there is an average gain of 20 pounds in four months. The results from operations are about 70 per cent. cured, and the remainder greatly improved, although operated on at a time when serious and incurable conditions of other organs were present. The mortality for ligation of vessels is 3.7 per cent. The mortality in extirpation cases is 3.9 per cent. This includes the highest mortality of early work. During the past three years twelve patients have died without operation within the first eight days after their arrival in the city for operation, their morbid condition being too evident for surgical treatment at that time.

DISCUSSION

DR. ARTHUR DEAN BEVAN: I believe that the theory of Möbius has been definitely proved to be true, that exophthalmic goiter and the symptoms resulting from this disease are due to the oversecretion of the gland, or possibly, at times, to an altered secretion, and I think Koehler has shown, basing his work on the theory of Möbius, that in order to cure exophthalmic goiter, it is our duty to diminish to approximately normal the internal secretion of the gland. How is this to be done, and at what time are we to resort to operative interference? I have had the same experience that Dr. Mayo has had in losing patients after trying to do too much. I remember three very sick patients I lost in whom I removed

one entire lobe and part of another, and I am rather inclined to believe if I had adopted the plan of Koehler, I would have succeeded in some case in saving the patients' lives. I believe in the very bad cases we should ligate one or two thyroid arteries. As to the technic, Crile adopts a rather stealthy way, without any knowledge of the patient beforehand. Some morning he comes into the room and ligates one of the superior thyroid arteries. I have not much sympathy with Crile's method of doing these operations without the full knowledge of the patient. After listening to Dr. Crile's persuasive argument one day I tried it on an intelligent woman, and she never forgave me. I believe that in almost all cases ether is to be preferred as the anesthetic. In some very bad cases cocain may be used in the following way: about an hour before the operation give hypodermically $\frac{1}{4}$ grain morphin and 1/150 scopolamin; then 1/1,000 solution of cocain should be employed with a little epinephrin added to it.

The technic which I have adopted has been to make a little incision about an inch and a half in length parallel with the normal skin folds in the neck just at the upper border of the thyroid gland, just in front of the sternocleidomastoid. The incision is taken down to the deep fascia; then the sternocleidomastoid is drawn to the side; then the omohyoid passes right in front of the artery. There is this little piece of surgical anatomy which you should remember, and that is, the artery below the hyoid bone is internal to the carotid and the sternocleidomastoid. You find the large artery before seeing the pole of the gland itself. Then you follow that down to the pole. In many of the cases the mere ligation of the superior thyroid will suffice. In the more radical operation of the removal of one lobe of the gland the procedure should be the Koehler incision, and ether anesthesia, as a rule. I think we owe a great deal to Dr. Mayo for showing us that ether anesthesia is quite as safe in the hands of an expert, as I firmly believe it is, as cocain, in the resection of the goiter. The incision should divide the skin, superficial fascia and platysma, and should be very well dissected up, so that a large flap may be made and held by the assistant with a retractor. Then the superficial layer of the deep cervical fascia should be divided in the middle line, and the sterno-hyoid and sterno-thyroid muscles should be drawn to one side. I always ligate the superior thyroid en masse, and then the inferior thyroid. I do not believe we should ever remove more than a single lobe, and if there is a large amount of thyroid left on the opposite side I believe we should complete the operation by the ligation of the superior thyroid on that side. We owe a great deal to Möbius, Koehler and Mayo for teaching us the pathology and treatment of exophthalmic goiter. I believe the time has come when we can say to the patients who have come to us, especially if they come early, "You have exophthalmic goiter; you can be cured by surgical operation with much less danger than by leaving the condition to Nature."

DR. J. HALPENNY, Winnipeg, Manitoba: After a slight amount of experience in experimental work with the parathyroid glands, one is compelled to conclude that at the present time they are not in the practical arena of surgery at all. There are various assumptions regarding those glands that are not fully borne out by experimental work. The statement has been made by many that if the parathyroid glands are all removed, in every case death follows from acute tetany. One is unable to find that this always occurs. One is told that if the parathyroid glands alone be removed death follows more quickly than if the thyroid be also removed with the parathyroid glands. This is not true. Death comes on more quickly with the complete operation than when the surgeon removes the parathyroid glands alone. One finds that when the thyroids are removed and the parathyroids are left behind, there is a certain change in the histologic structure of the parathyroid, so that it takes on the structure of the thyroid. In one animal the lobes of the parathyroids and in another animal the lobes of the thyroids in the two instances appear very similar. This would lead one to conclude that these glands are so closely related that the one is able to take up the work of the other to a certain extent.

In the literature one finds that the argument is put forward that the parathyroid glands are there to check up the thyroid glands; that they are not entirely a different structure, except that they are to check up the thyroid glands, and the statement is made that the probable explanation is this: the thyroid gland normally accumulates or secretes some toxic substance which the parathyroid glands destroy. Remove the parathyroid glands and the toxic substance accumulates very rapidly, and death follows by tetany. The fact that the resultant tissue very closely approximates the tissue when the thyroid is left behind makes it appear that these two glands have work of the same kind to do.

DR. D. W. GRAHAM: I wish to emphasize the use of a general anesthetic instead of local anesthesia in operating for goiter, especially for the exophthalmic type.

DR. L. SCHOOLER, Des Moines, Iowa: I was very glad to hear the essayist emphasize one point, and I think it will inure to the benefit of a large number of patients, and that is that all cases of goiter are not surgical cases. I have seen operation in a good many cases of goiter that in my judgment were not surgical cases. Life-saving operations in advanced cases of goiter are bad surgery. Operating when the patient is moribund will not help the statistics in this class of cases any more than it will in any other.

DR. ALEXANDER HUGH FERGUSON: I wish to ask Dr. Mayo to say something with reference to the class of cases in which thyroidism comes on every month or two or three months, and all the symptoms are directed toward the heart, and there is vomiting, with very little enlargement of the gland. There is no protrusion of the eyeballs, no tachycardia between times, no trembling of muscles, and no eye symptoms. I have had two or three such cases. One patient was supposed to die in an extreme condition of depression; he vomited, had diarrhea and became pulseless, but is slowly getting better. This patient was completely relieved by operation.

DR. C. H. MAYO: If you deem it better to do a thyroidectomy to begin with, and a relapse takes place, with a little enlargement of the left lobe, then it is advisable to ligate the artery and lymphatics on that side, leaving one artery and three veins to supply the gland. If we have not cured the disease, it does not mean that we are through with the patient. If a relapse takes place, the patient can be made better by resection or ligation first, and following after that, after taking out the right lobe, and afterward ligating the superior vessels on the left side, I have resected a part of the left lobe in four cases, using a mattress suture. We have many more cases of exophthalmic goiter in this country than they have in Europe. The operations in this country that have produced tetany have been mostly secondary operations on the remaining lobe. No cancer patient has been cured if there was involvement of the lymphatic glands of the neck. The exophthalmic cases can be improved once or twice with the x-ray, and then comes the operation.

AMERICAN ASSOCIATION FOR THE STUDY AND PREVENTION OF INFANT MORTALITY

(Continued from page 2090)

First Annual Meeting, held at Baltimore, Nov. 9-11, 1910

Philanthropic Prevention of Infant Mortality

DR. H. H. HART, New York City: A study made by the Russell Sage Foundation, at the request of Mr. Homer Folks, revealed the fact that accurate information with reference to the mortality of infants under the care of philanthropic institutions is greatly needed as a basis for preventive effort. Very little accurate information exists, and that which is obtainable does not exist in such form as to permit intelligent comparison. Thirty institutions, including infant asylums and other institutions which care for infants under 2 years of age, were visited. Statistics were obtained partly from published reports and partly from figures furnished by the superintendents of institutions. Reports received from twenty-two institutions showed that out of 56,451 children

under 2 years of age received by the institutions, 22,743 died, a mortality of 40.3 per cent. In many instances the rate was higher, varying from 50 to 70 per cent. In one instance the head of an infant asylum reported that during the past twenty years the death-rate among children under 2 years was 75 per cent. The statistical reports of boards of health and of state boards of charity afford no usable material. Institutional statistics were found to be misleading, because of the practice of treating each year as a unit, and basing the death-rate on the entire number of children cared for during the year. For instance, one institution which had fifty infants on hand at the beginning of the year received 100 and had fifty deaths, an apparent death-rate of 33½ per cent. If, however, the statistics were considered for a series of years, the rate would be found to be nearer 50 per cent. An intelligent study of infant mortality should deal with infants under 1 year. The inquiry referred to revealed the fact that not only was there a lack of uniformity of recording the personal and medical history of infants under care, but that no system that could be considered fairly complete had been perfected for recording such histories. The individual study of each case is required.

The following conclusions have been reached as a result of the study up to the present: First, there is room for improvement in the care of infants even by the most conscientious societies; second, there is a surprising amount of ignorance of their wards by societies. Only a few have an accurate history of their wards, and only a very few have proper medical examination on admission; third, nurses and superintendents of infant asylums are eager for information which will enable them to give adequate care to the infants placed in their charge.

DISCUSSION

DR. W. C. WOODWARD, Washington, D. C.: Is there a record of mortality in the asylums?

DR. S. JOSEPHINE BAKER, New York: I have prepared a chart showing deaths in different localities in New York City, which brings out the fact that almost half of the infant mortality in the Borough of Manhattan is the institutional mortality. The real problem of the institution is not the breast-fed baby, but the bottle-fed baby. The boarding-out method of caring for babies should be elaborated more for the bottle-fed than the breast-fed baby. The bottle-fed baby boarded out in a home has a chance for life; 50 per cent, greater than if kept in an institution.

DR. W. C. WOODWARD: Does any one know of a community in which an official or public register is kept of available wet nurses? The suggestion has been made to me by Dr. Skinner of the Columbia Hospital in Washington, that the frequency of applications for wet nurses by people of means makes it desirable that such a register be kept.

MR. WALTER KRUESI, Boston: The Boston Floating Hospital instituted a system of collecting maternal milk last summer from mothers who could spare it. The hospital offered 50 cents a quart, but the mothers refused to accept pay, preferring to contribute it for any child who needed it.

MR. ROBERT W. BRUERE, New York City: The question of wages enters largely into the care of infants. Ten per cent, of the mothers in the New York Lying-In Hospital come from families in which the weekly income is \$5 or less. A study of the records of 6,000 confinements in 1909 showed that 1,700 were without employment when the child came; in 10 per cent, the income was \$5 or less; only about 5 per cent, had an income of \$15; and one-fifth of the families represented in the study had children of wage-earning age. I question Dr. L. K. Frankel's assertion that maternal insurance is not needed in America because husbands usually support their wives adequately.

DR. L. K. FRANKEL: I object to a system of maternity insurance because I object to married women working. The average woman is doing her full duty to the community when she cares for the child she brought into the world. The economic conditions of the country should be readjusted so that the wage-earning power of the husband will be sufficient to enable him to support his family. The system of maternity insur-

ance developed in Germany and Italy takes into account the problem of the illegitimate child.

DR. LEONARD D. FRESOLIN, Philadelphia: The Philadelphia General Hospital is in touch with various charity societies, and looks out for foundlings reported through these societies. Wet nurses are usually obtained from the obstetric or gynecologic wards of the City Hospital. The women are required to take their babies with them. Pay is usually from \$6 to \$8 a week.

MRS. WILLIAM LOWELL PUTNAM, Boston: In Boston a plan has been followed of sending women out as wet nurses by day only; if for a longer time they take their own babies with them. The arrangement has made it possible to secure the services of a self-respecting class of married women.

DR. C. O. PROBST, Columbus, Ohio: There is a necessity for licensing boarding-out hospitals and places in which women go for confinement. Such a law is operative in Ohio. An examination is made of the place before the license is granted; no child born in such an institution can be placed anywhere in the state without the knowledge and consent of the authorities.

The Relation of Infant Welfare to the General Social Movement

MR. SHERMAN C. KINGSLEY, Chicago: The relation of infant welfare work to the general social movement is about the same as that of the baby to the adult population. The baby makes the population, and out of neglected babyhood come the individuals that furnish the task of charity workers, of reform agencies and those engaged in the general social movement. Infant mortality and poverty go hand in hand. The black dots on the map of any city marking the location of baby funerals will also lead to the homes of the poor. The worker who becomes acquainted with these families discovers the mother who must go out to work to earn a living for herself and children, who has been deserted by her husband, who lives in insanitary tenements, who lives in a part of the city where the problem of poor milk is at its worst, where the alleys are foulest and flies are thickest. There is no problem affecting the home which does not rest finally with the greatest severity on the baby, and the worst effects often even before it is born. The problem of social disease and race responsibility is perhaps never appreciated so fully as when one sees its effects and reads its lesson in the baby victim. Every activity in behalf of human life receives new significance and meaning when the problem of the family and the home is approached with reference to its fitness as a place to welcome and foster infant life.

DISCUSSION

MISS C. VAN BLARCOM, New York: One point not touched on in the paper is the relation of the midwife problem to the production of blindness among infants. About 50 per cent. of the births in Chicago are attended by midwives; 75 per cent. in St. Louis. Midwives in America are not trained women; with a few exceptions they are not well supervised. It is as important that the midwife be trained as the doctor or the nurse. Consequences of lack of training are shown in diseases which follow the trail of the midwife. European midwives are carefully trained.

MR. EDWIN D. SOLENBERGER, Philadelphia: Apropos of the relation of infant welfare work to the social movement, it is important that a definite plan of action be formulated for each community, with a certain part in it for each activity engaged in the campaign against infant mortality. A particular effort should be made under the department of health at the beginning of the hot weather to correlate and strengthen the agencies enlisted in the welfare campaign.

DR. S. W. NEWMAYER, Philadelphia: The plan referred to by Mr. Solenberger is carried out in Philadelphia. All the various organizations engaged in infant welfare work are organized into one central bureau which forms a clearing-house for the work. It would be difficult to enforce laws prohibiting the employment of women before confinement. It might be practicable to have the women visited by visiting nurses, the expense of this care and instruction to be borne by small subscriptions from the various factories.

MR. LOUIS LEVIN, Baltimore: A Jewish association in Baltimore which cares for women during their confinement sends trained care-takers into the homes while the mothers are incapacitated. Realizing the necessity for training the care-takers, arrangements were made in accordance with which the Hebrew Hospital agreed to open a training class for these workers. Instruction is simple, but enables care-takers to give intelligent attention to the needs of mother and child. The course is to cover one year. The present force of untrained care-takers receives \$6 to \$8 a week.

MISS C. VAN BLARCOM, New York City: The Central Midwives Board, appointed by act of Parliament in 1902, establishes standards for training schools. Examinations are required of pupil midwives trained in these schools. The training is analogous to that given to obstetric nurses in this country; the course includes elementary instruction in hygiene, anatomy and physiology.

Infants' Milk Depots and Infant Mortality

MR. WILBUR C. PHILLIPS, New York City: The milk depot is the fulcrum on which rests the lever of the situation—the instrument through which medical, social, educational and philanthropic prevention effect their purpose and achieve success. Operated as it should be, it is more than a depot from which milk is distributed. It is an educational center, a district branch for the dispensation of relief, and an indispensable coordinating unit between nurses, physicians, clinics, dispensaries, hospitals and various philanthropic institutions which concern themselves directly with the welfare of the child. We should have classes for mothers in infant hygiene; periodical consultations under the direction of physicians for weighing and examining the babies, and follow-up work in the home by visiting nurses. If infant mortality is to be prevented and not cured, the home must be the crucial place of attack. The work of infants' milk depots must be coordinate with the hospitals, clinics, dispensaries, floating hospitals, fresh-air homes, day nurseries and all the agencies which are interested in the baby problem. Before birth the depot nurse, through her intimate knowledge of these agencies, will assume the responsibility of preparing mothers for a successful delivery. After the baby is born she will continue to look after it and will place at the mother's disposal every known means of bringing it to strong and healthy childhood. The milk depot is the natural coordinating unit in all this work because of its proximity to the home. In the last analysis, infant mortality is to be solved, not by philanthropy or by institutions, or by the medical profession, or by the state, but by intelligent motherhood.

The assistance and supervision exercised over mothers from the period before confinement until the child is weaned should be as uniform as possible with respect to instruction given and methods taught. Probably some day the instructional work to prevent infant mortality, which at present is being paid for either by philanthropy or given gratuitously by physicians, will be taken over by our cities or towns. Already in New York City we have seen organized the Bureau of Child Hygiene, with the great corps of nurses working at least during the summer among the babies, and it is not unreasonable to expect this work in New York City and elsewhere to continue permanently throughout the year.

DISCUSSION

DR. L. T. ROYSTER, Norfolk, Va.: The educational features of the infants' milk depots represent the most important aspects of the work. We should teach mothers to modify the milk in their own homes. I favor the teaching of the essentials of infant hygiene and infant feeding in the elementary grades of the public schools.

DR. S. JOSEPHINE BAKER, New York: The Little Mothers' Leagues in New York City are voluntary organizations formed among the girls of 12 or over in the public schools in sections of the city where the older children have much of the care of their younger brothers and sisters. Meetings are held weekly, the doctor and nurse of the school serving as honorary president and vice-president. Children are given practical instruction in the preparation of food for infants; they are taught to modify milk, to bathe the baby, and other simple fundamental

rules of infant hygiene and home sanitation. Over 22,000 members are enrolled in the league.

DR. IRA WILE, New York: Two points should be emphasized in a consideration of milk depots. First, the possibilities of caring for the breast-fed baby for whom mixed feeding has to be resorted to when the mother is employed during the day. The breast-fed baby is more welcome than the one entirely artificially fed. Second, milk stations are for well children, not sick ones; they offer means of keeping babies well, not of curing them when they are ill. The third function of the milk station is to teach the ante-natal care of the breasts. Instruction should also be given in personal and household hygiene, and in dietetics. Classes for mothers are a potent means of reducing infant mortality.

DR. J. H. MASON KNOX, JR., Baltimore: The Maryland Association for Study and Prevention of Infant Mortality is a mother's relief society and milk depot combined. The association employs a physician to conduct classes for mothers, an obstetrician, a staff of trained nurses, and a social worker. The society is doing much toward combating the evils of the midwife problem.

MISS LYDIA HOLMAN, North Carolina: I am a visiting nurse in the mountains of North Carolina. The baby in the isolated communities has no chance, and my work was begun in order to secure more of a chance for mothers and babies in the mountainous districts. During eight years I have delivered 308 women. I hope that the plan for the extension of visiting nursing, with the possibilities it offers in the teaching of hygiene and home sanitation, will eventually reach every rural community in the United States.

(To be continued)

PHILADELPHIA COUNTY MEDICAL SOCIETY

Regular Meeting, held Nov. 9, 1910

The President, Dr. Henry Leffmann, in the Chair

TO WHAT EXTENT, IF AT ALL, SHALL THE PRACTITIONER REGARD INTESTINAL ANTISEPSIS AS FEASIBLE?

The Scientific Evidence of the Possibility of Influencing Bacterial Growth in the Intestines

DR. HORATIO C. WOOD, JR.: There is no disinfectant strong enough, in doses which would be safe, to destroy the viability of the bacteria in a quantity of fluid equal to that of the bowel. For such an effect it would require about an ounce of phenol or 5 grains of corrosive sublimate. On the other hand, it is theoretically possible to exercise an antiseptic influence, that is, to restrain the development of bacteria. For this purpose, in a quantity of culture medium equal to the contents of the intestine, it would require: phenol, 3 drams; creosote, 30 minims; solution of formaldehyd, 13 minims; betanaphthol, about 9 grains. These figures do not take into consideration the possibility of the absorption. A critical examination of the experimental data as to the effect of chemical agents on the intestinal flora confirms this conclusion, and shows that it is at least within the bounds of hope to reduce the number of bacteria in the bowel with antiseptic agents. Present evidence shows that the official drug from which the most is to be expected is probably betanaphthol as it is the one in which the margin between safe dose and antiseptic power is the largest, with the exception of formaldehyd, and also that it is slowly absorbed and therefore likely to remain in the bowel long enough to do good.

Intestinal Antiseptics

DR. ALBERT E. ROUSSEL: The beginning of intestinal antiseptics may be traced back to 1872 when Selmi discovered in the products of putrefaction certain substances resembling alkaloids which he called ptomains. The phenomenon that the products of bacterial life are lessened after the administration of intestinal antiseptics indicates that their antiseptic effect is a matter of fact rather than of conjecture, since bacterial cultures do not tend to spontaneous cessation of growth even in so fertile a field as the intestinal tract. Either the intestinal antiseptics act by their own germicidal effect, or they

stimulate the formation of organic substances that have the same effect. The contents of the intestinal tract have little effect in neutralizing the chemical antiseptics. A point of particular importance is not to confuse the medical conception of antiseptics with the surgical one of asepsis. Of my typhoid fever cases in the Howard Hospital by far the greater number have been treated with intestinal antiseptics. The mortality has been $4\frac{1}{3}$ per cent.

Intestinal Antiseptics in Childhood

DR. ALFRED HAND, JR.: Strictly speaking, our aim should be not to retard the growth of microorganisms in the intestinal tract but to kill those germs that are causing trouble. In a consideration of the intestinal flora it is well to note the captions given by Moro that in health the intestinal flora depend on the kind of food taken by the infant, a diet rich in starch favoring the development of the fermenting saccharolytes, while food rich in albumin favors the growth of the putrefying proteolytes, and as Escherich pointed out, the possibility therefore exists of restraining intestinal putrefaction by giving starch plentifully; for fermentation and putrefaction cannot go on in the same medium. We must consider the patient first of all and do him no harm while ridding the intestine of the hostile germs. We should strive for the prevention of enteritis by avoiding the introduction of the disease producing germs. Clean milk is a necessity, and it is safer for at least nine months of the year in this climate to pasteurize the milk taken by infants and children. If the disease has gained a foothold, milk and all milk foods must be absolutely forbidden until the discharges have lost all evidences of inflammatory processes, and all remains of milk in the alimentary canal must be removed by purgation or colonic irrigation. The patient is now in the stage when the use of intestinal antiseptics may be considered. I regard thymol, the naphthol derivatives and phenyl salicylate, or salol, as too irritating. A comparison of two series of cases, one treated solely by the starvation plan, and one with bismuth salicylate, showed net results decidedly in favor of the drug. The drug seemed to have undoubted disinfectant properties which Steele's careful investigation proved mathematically. I would sound a word of warning in the use of calomel in these cases. The more I see of its use the more disinclined I am to employ it. To have any value, the bichlorid, into which it is converted, must be present in such amount as would seem to be irritant if not positively toxic.

Intestinal Antiseptics in Pregnant Women

DR. EDWARD P. DAVIS: Advanced pregnancy renders inevitable intestinal stasis from pressure. The result of this stasis is an effort on the part of Nature to protect the woman, and perforation may threaten. Constipation of pregnancy demands attention, and the pregnant woman must be considered as inevitably constipated. Our effort must be toward providing a diet which shall be poor in the materials tending to putrefaction. I have seen as much good result from the use of compound licorice powder as from any other remedy. Attention must also be paid to maintaining muscular tonicity. Personally, I should be unwilling to give any drugs in the doses recommended in the treatment of the pregnant woman because of the danger to the kidneys.

DISCUSSION

DR. J. P. CROZER GRIFFITH: I think it most important that we study the chemistry of foods, withdrawing that food which does the harm. The modification of the food is the important element both before and after the development of disease.

DR. JAMES W. WALK: My own feeling in regard to intestinal antiseptics is that we are not sure that any dose which is safe to use does a great deal of good, although there may be a possibility. Of great importance is the washing out of the intestine in a rational way. Generally the free use of water by the mouth is of advantage.

DR. HENRY LEFFMANN: In this connection the symbiotic relation of bacteria may well be considered. Bacteria in many cases act not singly but by combination.

State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, January 10. Chairman, Dr. W. H. Sanders, Montgomery.

ARIZONA: Phoenix, January 3-4. Sec., Dr. Ancil Martin.

COLORADO: Denver, January 3. Sec., Dr. S. D. Van Meter, 1723 Tremont Place, Denver.

DISTRICT OF COLUMBIA: The District Bldg., Washington, January 10. Sec., Dr. George C. Ober, 125 B St., S.-E.

ILLINOIS: Coliseum Annex, Chicago, January 11-13. Sec., Dr. J. A. Egan, Springfield.

INDIANA: 120 State House, Indianapolis, January 10-12. Sec., Dr. W. T. Gott.

MINNESOTA: State University, Minneapolis, January 3. Sec., Dr. W. S. Fullerton, 214 American National Bank Bldg., St. Paul.

NEW HAMPSHIRE: State House, Concord, January 3-4. Regent, Mr. Henry C. Morrison.

NEW MEXICO: Santa Fé, January 9-10. Sec., Dr. J. A. Massie.

NEW YORK: New York City, Albany, Syracuse and Buffalo, January 31 to February 3. Chief of Examinations Division, Mr. Charles F. Wheelock, Albany.

NORTH DAKOTA: Grand Forks, January 3-5. Sec., Dr. H. M. Wheeler.

OKLAHOMA: McAlester, January 3. Sec., Dr. Frank P. Davis, Enid.

OREGON: Portland, January 3. Sec., Dr. E. B. McDaniel, Electric Building.

RHODE ISLAND: State House, Providence, January 5. Sec., Dr. Gardner T. Swarts.

SOUTH DAKOTA: Aberdeen, January 11-12. Sec., Dr. E. W. Freyberg, Mitchell.

VERMONT: Montpelier, January 10-12. Sec., Dr. W. Scott Nay, Underhill.

VIRGINIA: Lynchburg, December 20-23. Sec., Dr. R. S. Martin, Stuart.

WASHINGTON: Spokane, January 3. Sec., Dr. F. P. Witter, 207 Traders' Block.

WISCONSIN: Milwaukee, January 10-12. Sec., Dr. John M. Bieffel, 3200 Clybourn St.

Kentucky July Report

Dr. J. N. McCormack, Secretary of the Kentucky State Board of Health, reports the written examination held at Louisville, July 5-7, 1910. The number of subjects examined in was ten; percentage required to pass, 70, and not less than 60 in any one branch. The total number of candidates examined was 133, of whom 101 passed and thirty two failed, including two osteopaths. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Examined.
Howard University, Washington, D. C.	1	(1890)	1
College of Medicine and Surgery, Chicago	1	(1910)	1
Univ. of Louisville (1903) (1908) (1909) 84.	87	(1910)	87
Johns Hopkins University	1	(1905)	1
St. Louis University	1	(1910)	1
St. Louis Coll. of Phys. and Surg.	1	(1893)	1
Medical College of Ohio	1	(1903)	1
Eclectic Medical Institute, Cincinnati	1	(1907)	1
Ohio-Miami Medical College	3	(1910)	3
University of Tennessee	2	(1910)	2
Vanderbilt University	2	(1882) (1910)	2

College	FAILED	Year Grad.	Total No. Examined.
College of Physicians and Surgeons, Chicago	1	(1910)	1
University of Louisville (1905)* (1909)† (15, 1910)...	17	(1910)	17
Louisville National Medical College	1	(1910)	1
Southwestern Homeopathic Medical College	1	(1910)	1
Kentucky School of Medicine	1	(1908)†	1
Louisville and Hospital Medical College (1908)* (1908)† (2, 1908) (1908)**	5	(1908)	5
Edwards Medical College††	1	(1889)	1
Meharry Medical College	3	(1908)* (2, 1910)	3

* Second examination.
 † Third examination.
 ‡ Fourth examination.
 ** Fifth examination.
 †† An official statement says that no college by this name was chartered in the State of New York.

Georgia Homeopathic October Report

Dr. R. E. Hinman, secretary of the Homeopathic Board of Medical Examiners of Georgia, reports that at the meeting held in Atlanta, October 3, 1910, two candidates were licensed through reciprocity. The following colleges were represented:

LICENSED THROUGH RECIPROCALITY

College	Year Grad.	Reciprocity with
Hahnemann Med. College and Hospital, Chicago	(1890)	Indiana
New York Homeo. Medical College and Hospital	(1906)	New York

Idaho October Report

Dr. O. J. Allen, Secretary of the Idaho State Board of Medical Examiners, reports the written examination held at Boise, October 4-5, 1910. The number of subjects examined in was twelve; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was thirty-four, of whom twenty-three passed and eleven failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Northwestern University Medical School	81	(1897) 81; (1900) 80; (1907) 87; (1909) 79, 84.	
Hahnemann Medical College and Hospital, Chicago	84	(1908)	84
Rush Medical College	82	(1907)	82
Chicago College of Medicine and Surgery	77	(1908)	77
College of Physicians and Surgeons, Chicago	76	(1906)	76
University of Louisville	79	(1910)	79
University of Iowa, Homeopathic College	84	(1910)	84
Baltimore Medical College	83	(1908)	83
University of Maryland	76	(1905)	76
Univ. of Minnesota, College of Med. and Surg.	77	(1908)	77
University of Minnesota, Homeopathic Dept.	83	(1907)	83
St. Louis University	77	(1905) 77; (1910)	77
University of Nebraska	79	(1903)	79
Medico-Chirurgical College, Philadelphia	75	(1910)	75
Jefferson Medical College	83	(1909)	83
University of Pennsylvania	82	(1907)	82
University of Nashville	76	(1902)	76
University of Toronto, Ontario	76	(1901)	76

College	FAILED	Year Grad.	Per Cent.
Illinois Medical College	68	(1901)	68
College of Phys. and Surgs., Chicago	72	(1909) 72; (1910)	72
Chicago College of Medicine and Surgery	63	(1909)	63
State University of Iowa, Coll. of Med.	73	(1898) 64; (1910)	73
Sioux City College of Medicine	70	(1905)	70
Drake University	70	(1907)	70
Western Eclectic College of Medicine and Surgery	73	(1909)	73
University of Missonri	71	(1908)	71
Memphis Hospital Medical College	22	(1898)	22

The following questions were asked:

ANATOMY

1. Describe the most characteristic difference in the male and female skeletons. 2. Describe the levator ani muscle. 3. Give relations of important structures in axilla. 4. Rectus abdominis muscle - origin, insertion, sheath, description of muscle, actions. 5. Locate spleen, celiac axis, astragalus, liver outlines, Scarpa's triangle, incus, Haversian canals, parovarium, urachus, falx cerebri.

PATHOLOGY

1. Describe the process of infection, immunity, antitoxin, phagocytosis. 2. Describe the process of hyaline degeneration. 3. Describe the process of pigmentation; of putrefaction. 4. Describe suppurative inflammation; diphtheric inflammation. 5. Describe the structure of a sarcoma; name types of sarcomata. 6. Give pathologic lesions of lobar pneumonia and of capillary bronchitis. 7. Describe the structure of a carcinoma; name the principal varieties of carcinomata. 8. Describe the process of primary healing; of secondary healing. 9. Give the pathologic lesions of acute myelitis; of acute spinal meningitis, and acute anterior poliomyelitis. 10. Describe the lesions of chronic parenchymatous nephritis and chronic interstitial nephritis.

CHEMISTRY AND TOXICOLOGY

1. Mention four official lead preparations and give their chemical formulas. 2. Mention two sources of salicylic acid and describe the action and compound formed when combined with bicarbonate of soda. 3. Give Latin name, chemical formula and mode of preparation of yellow prussiate of potash. (b) Give process for making cyanid of potash. (c) What is red prussiate of potash? 4. Give symbols and atomic weight of (a) hydrogen, (b) oxygen, (c) silver, (d) lead. 5. Give full official title and chemical formula of tartar-emetic. 6. What is the source of phosphorus, (a) picrocarpin, (b) saecharin, (c) with antidotes for the first two? 7. How many minims of Mezerind's solution are necessary to represent 1 grain of morphin? 8. What do you understand by corrosive poison? How soon after the poison is taken will symptoms follow? 9. Explain the action of potassium permanganate and tannic acid as an antidote for opium. 10. What is the difference between sulphids, sulphites and sulphates?

PHYSIOLOGY

1. What effect is produced on the heart's action by stimulation of the cardio-inhibitory center? By stimulation of the pneumogastric nerve? 2. Describe the glands and villi of the intestines. 3. Describe the digestion of a meal of beefsteak and potatoes. 4. Describe the process of absorption by the blood-vessels and by the lymphatics. 5. What is the effect of an excessive meat diet? 6. Name eight secretions and describe the functions of each. 7. Define metabolism, anabolism, catabolism. What are the objects of metabolism? 8. What are the functions of the pneumogastric nerve? 9. Describe the seminal fluid. Through what structures does it pass? 10. What are the sources of animal heat? How is normal body temperature regulated?

HISTOLOGY

1. Mention methods of cell-division, giving examples. 2. From what primary layer is the kidney developed? nails? bone? muscle? epithelium of bladder? 3. Mention three varieties of cartilage and give example of each. 4. Describe the structure of the uterus. 5. Mention five ductless glands.

HYGIENE

1. Admitting that personal infection is the chief means by which diphtheria is carried from place to place, what meteorologic conditions have invariably preceded the most extensive epidemics of that disease? 2. How much linear wall space and how much air space per bed should be available in a ward for contagious diseases? How often should the air be changed? 3. What is meant by the "propulsion" or "plenum" method of ventilation for hospitals, and what are its good and bad points? 4. How high a temperature is required to expel the alcohol from yeast bread? (a) What is the temperature of the baker's oven? (b) Is the loaf effectually sterilized in the baking? 5. What effect has the temperate use of alcoholic spirits on the general health? (a) So used, what is the principal source of elimination? 6. What benefits are derived from the use of tea and coffee and how should these beverages be prepared to obtain healthful results? 7. What are the antiscorbutic properties of potatoes? 8. In changing from extremes of heat to cold, or the reverse, how does the body conserve its forces? 9. What has been the influence of sewage irrigation, or farming, on the general health of those living on the land or engaged in the work? 10. Name the principal methods for the disposal of excreta and sewage.

OBSTETRICS

1. Give the names of the bones which constitute the pelvis and give the diameters at the superior strait. 2. Give the diagnostic signs of pregnancy. 3. Give the etiology, symptomatology and treatment of puerperal eclampsia. 4. Describe the treatment for adherent placenta. 5. Give the diagnosis and treatment for placenta previa. 6. Give the indications for the induction of abortion. 7. Describe the mechanism of an L. O. A. presentation. 8. Describe the treatment for puerperal infection. 9. Give the diagnostic points of an extrauterine pregnancy. 10. Give the etiology, symptomatology and treatment of mammary abscess.

GYNECOLOGY

1. Give the symptoms, objective and subjective, of uterine anteversion and retroversion. 2. Give definition, pathologic changes, causes and symptoms of senile endometritis. 3. Classify uterine fibroids as to location and differentiate between a submucous and interstitial tumor. 4. Tabulate points of difference between chancre and chancroid on the external genitals of the female. 5. Name the different situations in which hernia of the ovary has been found, and state when palliative treatment is indicated and when radical treatment. 6. Give the indications, action and technic for the intrauterine douche. 7. Tabulate diagnostic points between an inverted uterus and a uterine polypus. 8. Tabulate clinical history (only) of ascites and ovarian cyst. 9. Define subinvolution of the uterus and describe the pathologic changes which are coexistent in the pelvic organs. 10. What are the indications for treatment in case of gonorrhoeal infection of the endometrium?

DIAGNOSIS

1. Describe the temperature curve and give the diagnostic points in a typical case of typhoid fever. 2. Describe a test for the demonstration of the *Bacillus tuberculosis*. 3. Give the symptoms and physical signs of a right-sided lobar pneumonia. 4. Differentiate between rheumatic fever, pyemia with suppurative arthritis and gonorrhoeal arthritis. 5. Differentiate between carcinoma of the stomach and gastric ulcer. 6. Give the symptomatology and diagnosis of exophthalmic goiter. 7. Describe the symptoms of rachitis. 8. Describe the urinary findings in diabetes mellitus and chronic interstitial nephritis. 9. Differentiate between the comas of apoplexy, hysteria, alcoholism and uremia. 10. Differentiate between measles and scarlet fever.

PRACTICE OF MEDICINE

1. Give the etiology and symptoms of obstruction of the ducts commonis choleochus. 2. Give the etiology and symptoms of diabetes insipidus. 3. Give the etiology and symptoms of peptic ulcer of the stomach. What special symptoms would suggest ulcer of the duodenum? 4. Describe a pancreatic crisis. Give the symptoms of acute pancreatitis. 5. Give the etiology, lesions, symptoms and prognosis of Addison's disease. 6. What is the etiology of cretinism, its lesions, symptoms and prognosis? 7. Give the causes, lesions and symptoms of perinephritic abscess. 8. What are the symptoms of acute anterior poliomyelitis? 9. Give the causes of hematuria. How may the source of the blood be inferred? 10. Describe the symptoms and course of pseudoleukemia.

SURGERY

1. Inflammation—definition, classification, symptoms, pathology, terminations. 2. Mention five conditions caused by disturbances of nutrition. 3. What tissue is most dependable in closing openings in abdominal hernias? 4. What is acromegaly? Opsonin? Phagocytosis? Dermoid? Anaphylaxis? 5. Severe crushing injury of foot. Expectant treatment? Indication for amputation? Give technic of any classical amputation of foot. 6. Carcinoma of the breast. Give diagnosis and technic of operation. 7. Give diagnosis and treatment of tuberculous disease of the hip-joint. 8. Give technic of gastro-enterostomy. 9. What is the Fowler position? Bier treatment? Port's disease? Wassermann reaction? Murphy method of proctoclysis? 10. Differentiate cholelithiasis.

MATERIA MEDICA AND THERAPEUTICS

1. What is an alkaloid? A glucosid? A resin? A gum? 2. What is the active principle of *nux vomica*? *Mandrake*? *Aloes*? *Jaborandi*? *Belladonna*? Give dose of each? 3. *Senna*: Mention the several varieties. Where is it found? What part of the plant is used? What are its medicinal properties? 4. What is the alkaloidal strength of *gum opium*? Of *cinchona bark*? 5. What is the common name of *staphisagria*? What are its therapeutic uses? 6. Give the physiologic action of *ergot* and name the conditions that indicate its use in labor, and the contra-indications? 7. What are the advantages in the use of chloroform as an anesthetic, and what are the signs indicative of danger in the patient? 8. Explain how antitoxin causes immunity and effects a cure, and the methods of administration as a prophylactic and curative agent. 9. What is cumulative action? Name one drug that has this tendency and give symptoms of such action. Explain the constipating action of opium.

Book Notices

INNERE SEKRETION. Ihre physiologischen Grundlagen und ihre Bedeutung für die Pathologie. Von Dr. Artur Hiedl, Wien. Mit einem Vorwort von Dr. R. Paltauf, Wien. Cloth. Price, \$5.50. Pp. 538. Berlin: Urban and Schwarzenberg; Rebman Co., New York American Agents, 1910.

In this valuable book the author aims to give and gives with complete success, a connected, comprehensive, well-considered and critical presentation of our knowledge of internal secretions.

In a short general part there is traced briefly the development of the ideas of neural and humoral correlation of organs up to the definite establishment by Claude Bernard and Brown-Séquard of the conception of internal secretions. This conception is then defined and its limits drawn, the origin and modes of action of hormones outlined, and the methods and materials used by investigators in developing our knowledge of internal secretions detailed.

In the special part, which constitutes the bulk of the book, the author takes up the thyroid apparatus, the thymus, the adrenal systems, the hypophysis, the pineal gland, the internal secretions of the reproductive organs, of the pancreas, the gastric and the intestinal mucous membranes, and of the kidneys.

In the case of the ductless glands, the development, the human and comparative anatomy, the physiology and physiological chemistry, the pathology, spontaneous as well as experimental, the effects of removal, and the therapeutic relations are fully considered. In each case the development of the knowledge is set forth in an interesting manner. In connection with the adrenals the presentation of the complex embryology and anatomy and of the mode and range of action of adrenalin is furthered materially by means of tabular summaries. The author, himself an active investigator in the fields in question, commands all divisions of the very extensive literature completely. The discussions of moot questions are marked by keen judgment; the difficulties in the way of final opinions are fully stated; and the author carefully avoids further complications by the introduction and advocacy of unnecessary hypotheses. The bibliography, which is not claimed to be complete in any sense, covers 180 pages, and it may be said that it covers the most important literature very well.

There are no illustrations and as the title indicates no attempt is made to discuss from the practical point of view the clinical course, the diagnosis or the treatment of diseases due to disturbances of internal secretions.

Hiedl's book will be of great help to students and investigators and is a welcome addition to our literature.

Professor Paltauf writes an interesting preface.

CHILDREN'S DIET IN HOME AND SCHOOL. With Classified Recipes and Menus. A Reference Book for Parents, Nurses, Teachers, Women's Clubs and Physicians. By Louise E. Hogan, Editor of "The Children's Library." Cloth. Price, 75 cents net. Pp. 128. New York: Doubleday, Page & Co., 1910.

This attractive appearing little volume is one of a type that is unfortunately not rare and which, therefore, deserves more comment than it would in itself warrant. The author of this "reference book for parents, nurses, teachers, women's clubs and physicians" is a lay woman who is also editor of "The Children's Library" and author of "Stories for Children," "How to Feed Children," "The Education and Amusement of Children," etc. A number of pages of this book are devoted to infant-feeding and these best illustrate the point here emphasized. This field that the pediatrician of wide experience and profound training goes into with fear and uncertainty, the author enters as calmly as if she were telling a fairy tale to a child. Only a direct quotation can fully convey this ingenuousness. We are told: "Milk prepared with Fairchild's peptogenic milk powder may be used as a substitute without fear during the whole period of early bottle-feeding and weaning. An actual study was made by Fairchild of cow's milk and of human milk, and by certain definite stated methods the former was brought to closely resemble human milk. Certainly science need go no further in its search for a suitable food for an infant deprived of its natural supply than to provide a substitute which is recognized as

one resembling nature by those who are supposed to know, hence mothers who wish to follow Nature's laws have here an opportunity to do so. A useful little 'red-letter' circular of four pages gives in a brief form all the directions necessary in both ordinary and unusual cases."

How simple, and withal how comprehensive! The science and art of infant-feeding, normal and abnormal, that has been the storm center of pediatric discussion for decades, reduced to four "red-letter" pages advertising a patented baby food! The strange thing is not that the author believes all this, for she has evidently read certain advertisements very carefully and they read convincingly; but that an intelligent layman should know so little about infant-feeding as to undertake to write about it in a book for physicians, or, for that matter, for parents. Further comment would be unkind, for the author is evidently earnest and sincere. Only a sense of duty has prompted the foregoing comments. Such books are distinctly pernicious, because to the uninitiated they bear the stamp of authority.

A MANUAL OF CHEMISTRY. Theoretical and Practical, Inorganic and Organic. Adapted to the Requirements of Students of Medicine. By Arthur P. Luff, M.D., Physician to St. Mary's Hospital, and Hugh C. H. Candy, B.A., Lecturer on Chemistry in the London Hospital Medical College. Cloth. Price, \$1.75. Pp. 622, with 46 illustrations. Chicago: Chicago Medical Book Co., 1910.

This is a complete manual of chemistry for medical students in a small, compact and convenient volume. The book covers the usual ground gone over in medical colleges and in addition material intended for such students as may expect to take examinations requiring knowledge regarding the testing of compounds. This is especially noticeable in Part II, in which the technic for gas analysis is given, which is required in some examinations in England, but which in this country is entirely unnecessary. The work also goes further in physical chemistry than usual. The book may be considered very complete as a regular text for college students but appears to go into details which are unpractical for medical students.

MENTALLY DEFICIENT CHILDREN: THEIR TREATMENT AND TRAINING. By G. E. Shuttleworth, B.A., M.D., Medical Examiner of Defective Children to the Willesden Education Committee, and formerly to the School Board for London, etc., and W. A. Potts, B.A., M.D., Consulting Medical Officer, National Association for the Feeble-Minded, etc. Cloth. Price, \$2 net. Pp. 236, with illustrations. Philadelphia: P. Blakiston's Son & Co., 1910.

The book devotes little space to pathology, but enters fully into the clinical features of mental deficiency, beginning with an interesting historical summary of the treatment of defective children. The authors lay greatest stress on the treatment, mental, moral, and especially industrial; etiology, classification, and prognosis are treated at length. The book can be commended to the physician as a broad, sympathetic and thorough discussion of this important subject.

THE REFRACTIVE AND MOTOR MECHANISM OF THE EYE. By William N. Souther, M.D., Associate Ophthalmologist, Episcopal Eye, Ear and Throat Hospital, Washington, D. C. Cloth. Price, \$2. Pp. 317, with 148 illustrations. Philadelphia: The Keystone Publishing Co., 1910.

The author gives a commendable exposition of the mechanics and physics of optics, and of the refractive and motor mechanism of the eye with reference to the correction of its visual defects by lenses and nerve-tract and muscle exercises. Though elementary in character, the book gives a sufficiently full and clear explanation to aid the student or physician in acquiring a practical knowledge of the subject. An appendix contains algebraic formulas to elucidate the various optical problems. The book is well illustrated.

TREATISE ON DISEASES OF THE SKIN. For the Use of Advanced Students and Practitioners. By Henry W. Stelwagon, M.D., Professor of Dermatology in the Jefferson Medical College, Phila. Sixth Edition. Cloth. Price, \$6 net. Pp. 1195, with 322 illustrations. Philadelphia: W. B. Saunders Co., 1910.

This work in its various editions has received such wide approval from the profession that it has become one of the standard works on diseases of the skin. No further word is needed in regard to it than to say that in this edition it has been revised and many new subjects, new treatments and new illustrations included. As reflected in new editions in other branches of medicine, the increased interest in tropical diseases in recent years has brought forth a number of new skin affections, which are described for the first time.

INDEX-CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE, UNITED STATES ARMY. Authors and Subjects. Second Series. Vol. XV. S.—Skin Grafting. Cloth. Pp. 777. Washington; Government Printing Office, 1910.

The fifteenth volume of the second series of this index-catalogue contains 8,804 author titles, representing 4,688 volumes and 7,460 pamphlets, together with 3,616 subject-titles of separate books and pamphlets and 28,328 titles of articles in periodicals.

Medicolegal

Admissible Opinion Evidence Where Insanity is the Defense to Crime

The Supreme Court of Oregon holds, in the homicide case of State vs. Roselair (109 Pac. R. 865), where the special defense was insanity, that it was not error to permit a medical expert, who made a personal examination of the defendant two or three days after the homicide, and observed his mental condition, to answer the question, propounded by the district attorney: "What would you say as to whether or not he knew right from wrong, and appreciated the consequences of his acts and the nature and quality of his acts?"

The court says that the line of demarcation between sanity and insanity is so indistinct, in some instances, that it is difficult even for a physician to determine them accurately. It is also perplexing for a medical expert to explain the extent of mental infirmity, or to elucidate the degree of intellectual strength so that a person unacquainted therewith may gain a correct idea of the capacity or responsibility of a person whose particular act is the subject of judicial inquiry. In order, therefore, to adapt the language of a witness to the understanding of men of ordinary intelligence, courts have permitted answers to be given which would seem almost to trench on the issue that the jury were called on to determine. It must be admitted that a conflict of judicial utterance exists in respect to this manner of proving a relevant fact. But this court believes that the rule adverted to, though founded in necessity, is fortified by reason and supported by authority. Thus, inquiries calling for opinions respecting the capability of a person charged with the commission of a crime, to distinguish between right and wrong, have been permitted to be answered by witnesses called for that purpose.

The rule is well settled that a medical expert who has made a personal examination of another, for the purpose of determining his capacity to execute a contract, or his responsibility for the commission of a crime, may express an opinion as to the mental condition of such a person at the time of the investigation. A qualified physician may also be allowed by a court to assert an opinion from an examination made of a defendant subsequent to the commission of a crime as to whether or not the person accused thereof was sane or insane at the time the offense was perpetrated. In cases of derangement, the indications of the infirmity frequently manifest themselves for some time after the paroxysm of dementia, and for this reason evidence of recurring symptoms is admissible after the commission of an act asserted to have been perpetrated while laboring under a state of mental exaltation or depression. From such testimony the jury are authorized to deduce an inference as to whether or not the act in question resulted from a mind that was disordered.

Contract with City Health Officer for Services in Epidemic Held Invalid

The Supreme Court of Minnesota holds that a demurrer was properly sustained to the complaint in the case of Bjelland vs. City of Mankato (127 N. W. R. 397), which was brought by the plaintiff, who was health officer of the city, to recover \$1,695 for necessary services rendered in connection with eradicating and controlling an epidemic of small-pox and typhoid fever in the city in 1908, pursuant to an alleged contract with the board of health of the city. The court says that it found it necessary to consider only the question of the validity of the contract which was the basis of the plaintiff's claim. The complaint showed that he was a member of the board of

health—that is, a public officer—and that he entered into the contract with such board for the performance of the professional services for the value of which he sought to recover in this action. Such contracts are forbidden by section 5,032 of the Revised Laws of Minnesota of 1905, and are void. The rule that such contracts are void and cannot be enforced rests on a wise public policy, and it must be enforced without reference to the merits of the contract, the intention of the parties, or the hardship of exceptional cases. Nor does the court agree with the contention that the statute and the rule do not apply to a board of health, and that it may employ one of its members its health officer for the purpose of controlling and suppressing an epidemic of contagious or infectious disease. As to the suggestion that the board of health was confronted by an emergency which justified it in making the contract in question, the court answers that an emergency confronts a board of health in every case of an epidemic of contagious or infectious disease; but this affords no reason why such cases should be excepted from the statute by the court, for the board may employ, when the emergency justifies it, a physician other than one of their own number to render the extra medical services.

Treatment for Rheumatism Instead of Periostitis or Osteomyelitis

The Supreme Court of Alabama affirms a judgment for the defendant in the malpractice case of Hamrick vs. Shipp (52 So. R. 932). It says that the plaintiff's son had been thrown by a mule. Some days afterward the condition developed which made it necessary to procure medical attention. The defendant treated him for acute articular rheumatism. Other physicians of good reputation concurred in his diagnosis and treatment. There was testimony, however, which went to show that the boy's trouble was periostitis or osteomyelitis. But the question put to the jury by the pleading was whether the defendant had "conducted himself in an ignorant, unskillful or negligent manner" in and about his treatment of the boy, and the trial judge instructed the jury, on the defendant's request, that the question for their determination was not whether the boy had periostitis, osteomyelitis or rheumatism, but whether the defendant was possessed of reasonable skill, and whether he had been reasonably diligent, not negligent, in diagnosing and treating the case. There was no reversible error in giving the instruction. It was perhaps not so carefully limited on all sides as it might have been, for it seemed capable of the interpretation that it was not for the jury to determine the nature of the boy's ailment for any purpose, whereas, if the jury could have decided that question, that decision would have been of consequence in determining the ultimate question proposed by the pleading. But there is no rule of responsibility which requires the physician to be infallible in the diagnosis or treatment of diseases. The fact, therefore, if it was a fact, that the disease was something other than rheumatism, was evidential merely, not conclusive. The instruction given correctly stated the ultimate question to be submitted to the jury for decision. If the plaintiff apprehended prejudice from lack of further statement, he should have supplied that element by an explanatory instruction.

Wrongful Attempt to Discredit Physician as Witness

The Springfield (Mo.) Court of Appeals says that in the personal injury case of Dent vs. Springfield Traction Co. (129 S. W. R. 1044) counsel for the plaintiff said in his opening statement that one Dr. R. would not be called as a witness because he was the physician for an employe of the defendant; he having attended the plaintiff as a physician when she was first injured. It was, perhaps, the privilege of the plaintiff not to call her physician as a witness; but the remarks discrediting him beforehand may have been prejudicial to the defendant. Such a statement, under the circumstances, justified the application of the defendant for the appointment of a physician by the court to make a physical examination as to the extent of the plaintiff's injuries. Especially might this be considered true because the defendant could not use

Dr. R. as a witness—he being privileged—should the plaintiff object to his testimony. And it may be considered one thing to waive your own privilege and quite a different proposition to make a statement to the jury implying that you are constrained to do so by reason of some act or conduct imputable to the opposite party.

But when the trial court showed its willingness to have a physician appointed in this case to make the examination the defendant sought to name the physician, suggesting one of its own employes, and afterward named another physician. The court however refused to appoint either of those named; but, without suggestion from either party, named a certain Dr. S., a reputable physician and surgeon, to make the examination. No objection to his qualifications were made by the defendant at any time, and no bias or prejudice was claimed, the only objection being a mere statement of the defendant's counsel that the personal relations between Dr. S. and himself were not pleasant. This certainly was not a sufficient disqualification to prevent the physician from making a correct examination and properly discharging his professional duty, and the objection to the action of the court is held wholly unsubstantial.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

December 3

- 1 *Case of Sulphemoglobinemia. T. W. Clarke, Utica, N. Y., and R. M. Curtis, Paterson, N. J.
- 2 Chemical Problems in Diabetes. A. Magnus-Levy, Germany.
- 3 Occupation as a Therapeutic Agent in Insanity. M. D. Neff, Brooklyn.
- 4 Ventilation of Cars. W. A. Evans, Chicago.
- 5 Diagnosis and treatment of Osteal Tuberculosis without Abscess Formation. B. Holmes.
- 6 Treatment of the More Common Diseases of the Skin. E. L. Cocks, New York.

1. Sulphemoglobinemia.—To the seven cases of this disease now recorded in the literature, Clarke and Curtis add another. The patient, a woman 24 years of age, had never been robust, having suffered from most of the ills to which woman is heir. A few days previously she had noticed that her lips had become blue and her color ashen, though she herself did not feel ill. She was somewhat weak and markedly constipated. Her appearance at that time was much as it is to-day. Her skin was of a steel blue, and her lips purple black. The general appearance has been described as being cadaveric, or better as of the ghastly hue seen in a person standing under the Cooper-Hewitt mercury light. Physical examination was, however, negative except for the remarkable discoloration of the entire body. The heart and lungs were practically normal. The patient was observed for some weeks, and as the ordinary blood examination failed to reveal any polycythemia or other abnormality to account for the condition, a tentative diagnosis of sulphemoglobinemia was made. Two cubic centimeters of blood were withdrawn from a vein in the arm. The blood, which was of a rich chocolate color, was shaken with twice its volume of distilled water in order to lake the corpuscles, and then filtered several times to remove all of the corpuscular remains and fibrin, and give a clear solution. This solution then being further diluted with distilled water was examined with a small pocket spectroscope and showed an intensely dark absorption band in the red portion of the spectrum, in the situation characteristic of the band of sulphemoglobin. Artificial solutions of sulphemoglobin made by the passing of sulphuretted hydrogen through laked and diluted dog's blood and of methemoglobin by adding potassium ferrieyanid or sodium nitrate to similar blood were made for comparison.

The methemoglobin solution when mixed with oxyhemoglobin showed the two absorption bands of oxyhemoglobin in the yellow and green portions of the spectrum, and the characteristic methemoglobin band deep in the red much nearer the C than the D line. The artificial sulphemoglobin showed

also the bands in the yellow and green, and a band in the red, but not so far in the red as in the methemoglobin spectrum, the band being midway between the C and D lines. The patient's blood in a concentrated form showed complete obliteration of the oxyhemoglobin bands, and the presence of an exceptionally clearly defined band half way between C and D absolutely indistinguishable from that of the artificially made sulphemoglobin.

From the evidence at hand, the authors conclude that this is an undoubted case of sulphemoglobinemia of idiopathic origin.

New York Medical Journal

December 3

- 7 *Iodin. F. T. Woodbury, Fort Assiniboine, Mont.
- 8 Regulation of Prostitution. F. Bierhoff, New York.
- 9 Hypernephroma. I. W. Blackburn, Washington, D. C.
- 10 Operative Treatment of Cysto-Urethroscopy. L. Buerger, New York.
- 11 Case of Hypernephroma. J. A. Jackson, Indianapolis.
- 12 Carbon Compounds of Arsenic in the Treatment of Syphilis. S. C. Runnels, Indianapolis.
- 13 Centenarians. J. Knott, Dublin.
- 14 Treatment of Diabetes Mellitus. H. C. Sawyer, San Francisco.
- 15 Cholelithiasis. C. M. Stimson, Philadelphia.
- 16 Cocain Intoxication. N. S. Yawger, Philadelphia.

7. Iodin.—In Woodbury's opinion iodine is the long desired ideal disinfectant and antiseptic. It is cheap, easily obtainable, can be carried in small bulk, is efficient in high dilution, does not damage tissue even where its vitality has been much reduced by traumatism or infection, it has been invariably successful as a germicide under all conditions when the drug and the germs have been brought together, and though it has great powers of tissue penetration the writer has yet to see a case of poisoning even when it was mopped in full strength on the peritoneum and in the parturient uterus. It can be used to disinfect the area of operation without previous preparation; to sterilize instruments, suture material, dressings, and the hands of the surgeon, during the time that the patient is going under the anesthetic. Woodbury prefers to boil his instruments when he can, as the continued use of iodine tarnishes and affects the cutting edges requiring whetting often, though the same in a lesser degree may be said for the soda solution. He uses it entirely to prepare his hands and finds it rarely causes irritation. It can be removed from the hands by boiled or raw starch, ammonia water or the aromatic spirit of ammonia, hydrogen peroxid, Fowler's solution, or ether. It is advisable where long periods of operating are expected, to dip the hands in iodine and immediately decolorize with ammonia; rubber finger cots or rubber gloves may be slipped on, and then redipped in the iodine. This is merely to protect the operator's hands from being dyed a deep brown, which is almost impossible to get rid of, especially when the tincture is reapplied every one or two days.

The solution of one teaspoonful of the tincture to the quart of physiologic salt solution is, roughly, a dilution of seven milligrams in one hundred cubic centimeters, or .007 per cent., and in this strength is most efficacious as an irrigation in all inflammatory and catarrhal conditions of mucous membrane. It can be used in the eye for the ordinary forms of conjunctivitis with prompt improvement. He has also found it to be very efficacious in acute urethral gonorrhoea in twice and three times this strength. When a case of mumps developed in a company of infantry this solution was supplied to the company to be used copiously as a gargle for several days. No other case of mumps developed. It is a routine treatment for all acute throat affections, and in cases of amygdalitis the tonsils are also mopped once daily with the tincture and Bier's treatment with a rubber bandage around the throat has cut down the illness to an average of five days on sick report. It will promptly abort colds when used as a spray. Woodbury has found the iodine salt solution is excellent in cystitis acute and chronic, and catheters kept in the tincture and then transferred to this solution just before use are sterile, non-irritant and perfectly pliable.

The troublesome cases of chaneroids with suppurative inguinal adenitis which drag along in hospital for so many weeks are now rapidly hurried to convalescence by a vigorous pursuit with the tincture. Buboes which have already broken down promptly become healthy granulating wounds and heal up without further trouble.

Boston Medical and Surgical Journal

December 1

- 17 Doctrine of Vitalism in Medicine. M. G. Seelig, St. Louis.
- 18 Present Knowledge of the Laws of Heredity. W. P. Graves, Boston.
- 19 Postoperative Psychoses. J. G. Mumford, Boston.
- 20 Myxo-Fibrosarcoma Originating in the Great Omentum. H. Cabot, Boston.

Archives of Diagnosis, New York

October

- 21 *Pharmaco-Diagnosis of Cardiac Diseases. A. Abrams, San Francisco.
- 22 *The New Functional Psychiatry. W. A. White, Washington, D. C.
- 23 *Adventitious Murmurs Accompanying the First Heart Sound. A. L. Benedict, Buffalo, N. Y.
- 24 Importance of the Neck and Chest Muscles in the Production of the Phenomena Obtained by Percussion and Auscultation of the Chest. F. M. Pottenger, Monrovia, Cal.
- 25 Diagnosis of Chronic Duodenal Catarrh. M. Einhorn, New York.
- 26 Diagnostic Significance of the Acute Headaches of Children. L. Kerr, Brooklyn, N. Y.
- 27 Gastro-Intestinal Hemorrhage in Children. L. Fischer, New York.
- 28 Diagnostic Difficulties in Reconciling the Pathologic Findings with the Clinical Manifestations in an Unusual Case of Cerebral Softening. A. Gordon, Philadelphia.
- 29 Differential Diagnosis Between Gonorrhoeal Epididymitis and Syphilitic Orchitis. A. Ravogli, Cincinnati.
- 30 Diagnosis of Stricture of the Male Urethra. V. C. Pedersen, New York.

21. Cardiac Diseases.—Succinct reference is made by Abrams to the employment of drugs in the diagnosis of some affections of the heart.

Heart Reflex: The reflex in question is a contraction of the myocardium of varying duration when the skin of the precordial region is irritated. This reflex may also be discharged by irritation of the mucous membranes, psychic influences and percussion of the muscles, but the most effective method of provoking it is by means of concussion of the spine of the seventh cervical vertebra. Atropin paralyzes the motor endings of the vagus. During the full physiologic action of the drug the heart reflex is abolished. Small doses of pilocarpin are antagonistic in their action to atropin. After an hypodermic injection of pilocarpin (gr. 1/10), one notes an exaggeration of the heart reflex.

Adams-Stokes Syndrome: Heart-block is caused by lesions of the auriculo-ventricular bundle, and there are also neurogenic forms of the disease due to overstimulation of the vagus. The use of atropin removes the block in the neurogenic forms, whereas in the myogenic forms the heart-block is unaffected. Partial heart-block may be provoked by the inordinate use of digitalis.

Tachycardia: Aconite (tincture is most reliable) slows the heart by vagus stimulation and has only a slight action on the myocardium. If aconite slows the pulse in tachycardia, diminished tonic activity of the vagi may be assumed to exist. If atropin is used between the attacks of paroxysmal tachycardia, and no attack ensues, one may conclude that paralysis of the vagi is not responsible for the paroxysms. In tachycardia from vagus paralysis, the heart does not respond to digitalis because the latter ordinarily inhibits the rapidity of cardiac action by stimulation of the vagi. Here strophanthus is more effective, because it slows the heart by direct action and not by vagus stimulation.

Arrhythmia: Vagus stimulation not only slows the heart-rate, but may also create irregularities in rhythm. If this vagus influence is eliminated by atropin, the irregularities will disappear and thus the neurogenic nature of the irregularity is demonstrated. Irritation of the mucosa of the nasal septum opposite the middle turbinate bone will evoke an arrhythmia of vagal genesis. Here the irritation is conveyed indirectly to the vagus by the trigeminus. If the nasal mucous membrane has been cocaineized, irritation of the mucosa by means of a probe will not evoke arrhythmia. Cocaineizing first one and then the other side of the nose, the source of irritation may be localized and by correcting the nasal anomaly the arrhythmia may be cured.

Myocardial Diseases: Myocardial disease may be suspected even in the absence of cardiac signs, when symptoms not unlike those which accompany the broken compensation of valvular diseases present themselves. A reliable preparation of digitalis may solve the difficulty; if, after five days, the

symptoms are not relieved and there is no rise of the peripheral arterial tension nor increased strength of the pulse, the drug can do no good and may even be dangerous. Within thirty-six hours after the use of a reliable preparation given in adequate doses, one finds that the pulse becomes stronger, more regular and slightly decreased in frequency (provided the pulse was accelerated before the use of digitalis) and diuresis is augmented. By estimating the quantity of urine excreted one is afforded a guide in a dual direction: the reliability of the drug and the efficiency of the cardiac muscle. In cardiac muscular insufficiency, the quantity of urine may be diminished by one-half or more. Owing to the delayed action of digitalis, an increase in the quantity of urine does not occur until the second day of its use; then it continues to increase day after day until the normal is attained (1,500 c.c. in twenty-four hours in a healthy adult); at this time, and when the pulse frequency has been reduced and the tension is increased, one should withdraw the drug, reduce the dose, or give it less frequently.

Cardiac Asthma: Dyspnea resembling this affection may be excited by irritation of the nasal mucosa, and here cocaine applied to the latter by arresting the attack establishes the diagnosis. In differentiating cardiac from bronchial asthma, the former may be prevented by cardiotonic medication, whereas bronchial asthma is uninfluenced unless a dilated right ventricle complicates the disease. Acute failure of the ventricles is commonly present in cardiac asthma, and the attack may be at once jugulated by congestion of the seventh cervical spine. Râles are usually absent in cardiac asthma unless complicated by lung edema. Amyl nitrite inhalation causes the râles due to bronchial spasm to disappear and is without influence on the râles caused by mucus or fluid in the bronchial tree.

Ventricular Dilatation: In differentiating this condition from a pericardial exudate, the heart reflex is invaluable. If the area of precordial dullness is modified after cutaneous irritation, cardiectasis and not an exudate is present.

Angina Pectoris: The pains of false angina are at once subdued by sufficiently large doses of antipyrin, whereas in true angina there is no relief; in fact, the pains may be accentuated, owing to the internal vasoconstriction of the drug.

Thyroid Heart: The physiologic tons of the vagus is said to be dependent on the thyroid secretion. In diminution of the latter (hypothyroidism), symptoms of cardiac weakness are present. Disturbances due to hyperthyroidism are not common. In hypothyroidism (Basedow's disease), antithyroidin or the antiserum of Beebe may improve the condition. It is well to know that the cardiac signs of the latter condition are accentuated by ten 5-grain doses of a reliable thyroid preparation. Iodothyron or iodine will act in the same way and intolerance to iodine is an early sign of hyperthyroidism. A biochemic evidence of the latter is the antagonism existing between thyroid extract and epinephrin in the pupillo-dilator action of the latter on the eye of the frog. In the normal epinephrin does not dilate the pupil, but this occurs after extirpation of the pancreas, in pancreatic insufficiency, diabetes and Basedow's disease. The foregoing susceptibility is most probably caused by hyperthyroidism.

Cardiac Murmurs: Cardiomuscular murmurs dependent on the delirious condition of the organ disappear after the use of digitalis. The latter drug also causes the disappearance of the murmurs of a relative valvular insufficiency. The loudness of a murmur is largely dependent on the activity of the heart. Faint murmurs may often be converted into loud ones by increasing cardiac activity and the latter may be attained by digitalis. Anemic cardiac murmurs disappear after the use of an appropriate chalybeate, but it must completely disappear before we are justified in concluding that it is hemic, inasmuch as anemia may coexist with an organic murmur.

22. Functional Psychiatry.—The keynote of what White terms the new functional psychiatry is its distinctly individualistic trend, its emphasis of the importance of individual psychology. The new movement emphasizes so much more the necessity of the analysis of the symptoms in the individual case that in spite of the work of the Kraepelin school in this direction, White thinks it proper to designate individual

psychology as the characteristic of the new movement in contrast to the life history conception underlying the Kraepelinian. The fundamental conception of this new individualistic viewpoint is that every psychic fact must have been preceded by an efficient psychic cause. Ideas, or better, mental states, do not arise *de novo*. They must be the outcome always of other mental states from which they necessarily issue. This is true throughout the world of psycho-pathology, even in the realm of the so-called organic—the psychoses associated with well-defined brain changes. That an alcoholic should have delirium may well be dependent on a toxemia, but whether he sees in his delirium snakes or monkeys, visions of his office or of hell, must depend on purely psychic causes, on the pre-existing psychic material which has become involved in the disorder. Whether a parietic is exalted or depressed, whether the exaltation is largely erotic or expresses itself by delusions of great wealth must find its explanation in the mental make-up of the person afflicted, and the character of his psychic trends. The fact intended to be emphasized is that the disease process can only deal with the material it finds at hand or which is furnished it, and which it does not itself create.

23. Adventitious Murmurs.—Benedict's patient had Banti's disease with marked ascites. The apex beat was noted in the fourth interspace, just inside the nipple. The cardiac area, determined by auscultatory percussion and by Benedict's modification of that method using a tuning fork instead of percussion, extended to the second space and, while not abnormally large, was tilted upward to the left and downward to the right. There were no valvular murmurs, but clear, though not very forcible, valvular clicks at all valves. There was a rather prolonged sound accompanying the first heart sound, to which Dr. Solis-Cohen's designation of "crunching" applied nicely. Benedict's interpretation of the phenomenon was that the heart, crowded up by the ascites and tilted so as to strike still more forcibly against the left lung, produced an audible current of air from the vesicles into the bronchial tubes, somewhat analogous to that obtained in percussing to elicit the cracked-pot sound. The volume of air involved was, of course, not enough to produce an appreciable expiration, and it could not be made out that the crunching sound was increased either during expiration when the cardiac compression was unresisted, or during inspiration when we might suppose that the resisting air current would have intensified the sound. On the contrary, the inspiratory and expiratory breath sounds interfered with the clear perception of the cardiac crunch. However, respiration, unless very gentle, also interferes with the cracked-pot sound.

Benedict has noted the same phenomena in several other cases in which it might be supposed that the apex beat would have an unusually direct compressive action on the lung. Among these causes are mentioned ballooning of the intestine or particularly of the stomach, and unduly vigorous cardiac action, either with organic hypertrophy or due to functional causes. Cardiac displacement, adhesions tying down parts of the lungs so as to offer special local resistance to the apex beat, small effusions, etc., might also be expected to give rise to the same phenomenon. Another adventitious sound in connection with the apex beat is of fairly common occurrence. With the stomach distended, either spontaneously or artificially, especially when the contents are mainly gaseous, the cardiac impact is almost always appreciable. The stomach tube, with a funnel inserted, makes a very good monaural stethoscope, and one can hear very interesting sounds, as of gastric contraction (manifested by the churning of the contents, scarcely the muscular movement itself), the effervescence of a bicarbonate if the contents are strongly acid, the effervescence produced with hydrogen peroxid, etc. The respiratory and cardiac sounds are usually audible to some degree through the stomach tube. Aside from the detection of the cardiac impulse with the stomach tube in place, the first heart sound of its accompanying systolic murmur, is pretty regularly transmitted to some degree over the area of a distended stomach.

In quite a number of cases Benedict has been able to map out the gastric area by auscultatory percussion, with the patient's own heart acting as an assistant to furnish the

percussion. In some instances, there is purely a transmission of a heart sound, valve closure or murmur, as the case may be. In others, the apex beat either starts a wave in the liquid contents of the stomach, or seems directly to force a little air or liquid through the orifices, mainly the pylorus, or reflexly produces peristalsis which, in turn, may cause a sound in either of the ways just mentioned. Thus gastric sounds, corresponding to the heart beat, may be a mere thump, a crunch, swish or indescribable murmur.

Journal of the Indiana State Medical Society, Fort Wayne

November

- 31 Ophthalmia Neonatorum. G. F. Keiper, Lafayette.
- 32 Sketches of the Medical History of Indiana. G. W. H. Kemper, Muncie.
- 33 County Secretary as the Local Medical Historian. C. N. Combs, Terre Haute.

Medical Fortnightly, St. Louis

November 25

- 34 Postoperative Care and Treatment of Suprapubic Prostatectomy. D. W. Basham, Wichita, Kan.
- 35 Pyloric Obstruction Due to Extrinsic Causes. G. A. Beedle, Kansas City, Mo.
- 36 Plea for Conservative Surgery. H. D. Eaton, Chihuahua, Mexico.

Monthly Cyclopaedia and Medical Bulletin, Philadelphia

November

- 37 Surgery of the Obese. R. T. Morris, New York.
- 38 Effect of Alcohol on Psychoneuroses. A. Gordon, Philadelphia.
- 39 Poliomyelitis: New Facts Concerning Its Etiology, Early Diagnosis and Treatment. T. A. Williams, Washington, D. C.
- 40 *Prevalence of Migraine in a Large Family. G. E. Price, Philadelphia.
- 41 Status of Trachoma in Philadelphia. C. P. Franklin, Philadelphia.
- 42 *Galactagogue Action of Infundibulin. I. Ott and J. C. Scott, Philadelphia.

40. **Migraine in a Family.**—The study of the family history given by Price is of interest because of: 1, the remarkable prevalence of migraine; 2, the unusual sensory manifestations in several of the cases, and, 3, the association of epilepsy with migraine in one case. A man, aged 21, complained of violent headaches occasionally preceded by numbness of the right side of the body. He stated that the headaches had occurred paroxysmally several times a year since he was six years of age, the longest interval between the attacks having been six months. The headaches occur, as a rule, in groups of three or six in rapid succession; thus, if he has one attack, he is apt to have more, and, if he has the fourth attack, he expects them to continue until he has had six. Many of his attacks are preceded by numbness and hypesthesia, commencing in the toes, and creeping up until they affect the leg, arm, trunk, face and tongue. He stated positively that these symptoms are most marked in the hand and foot, becoming less toward the proximal portion of the extremities, being very slight over the trunk; they are present to a marked degree, however, in the lips and tongue. At times he has been unable to control the movements of the affected arm and leg. The numbness lasts from twenty minutes to one hour, and is followed by severe headache on the side opposite the numbness, lasting from twelve hours to three days. Other attacks are preceded by visual disturbances: everything will look as if moving around in a circle; blurring of vision; hemianopsia. The paroxysms are always preceded by pallor and usually accompanied by vomiting, followed by relief of the headache. There is no history of unconsciousness. The grandparents, as far as could be learned, were free of any nervous condition. On the maternal side, the history is negative as to migraine, epilepsy or insanity.

On the paternal side, one aunt has severe attacks of migraine. Another aunt suffers from migraine but not severely. A third aunt had St. Vitus's dance when a child, and in adult life was exceedingly nervous. An uncle acted peculiarly, and was said to have "softening of the brain." The father, aged 67 years, suffers from attacks of blindness for a few seconds, then numbness of arm, tongue and lips, followed by severe headache. At times his speech is affected to such an extent that the family cannot understand what he is saying. The rest of this generation, thirteen in number, all reached adult life, but were free from any nervous disease.

In the present generation there are eight children; seven have migrainous attacks, and three have marked numbness affecting one-half of the body.

42. **Galactagogue Action of Infundibulin.**—In the goat the authors found in the early nursing period that infundibulin injected into a vein in the ear rapidly and greatly increases the flow of milk. The nipple had a cannula inserted into it, and a water aspirator produced the suction necessary to empty the udder. The milk aspirated before and after the injection was caught in a graduated flask and measured every five minutes. This increased flow of milk is not due to an increased amount of blood in the udder, as infundibulin contracts the arterioles. This fact, the authors state, can be correlated with the increased size of the pituitary in pregnancy, although in these cases the enlargement is chiefly in the anterior lobe.

Buffalo Medical Journal

December

- 43 Abnormalities and Complications of the Pregnant State. L. G. Hawley, Buffalo.

Long Island Medical Journal, Brooklyn

November

- 44 The Isle of Pines as a Hibernaculum. W. Browning.
- 45 Tuberculous Peritonitis. C. H. Goodrich, Brooklyn.
- 46 Colles' Fracture. W. H. Rankin, Brooklyn.
- 47 Rupture of the Liver. W. A. Sherwood, Brooklyn.

Journal of the Kansas Medical Society, Kansas City

November

- 48 Vital Statistics in Relation to Public Welfare. W. J. V. Deacon.
- 49 Acute Poliomyelitis, or Acute Myeloencephalitis. H. H. Bogle, Pittsburg, Kan.
- 50 *Relation of the Medical Profession to Medical Institutions and the State. M. T. Sudler, Lawrence, Kan.

50. **Relation of Medical Profession to Medical Institutions.**—Sudler believes that the medical profession of Kansas is overcrowded, and that unqualified and poorly educated men have been admitted to the profession and lowered it in the estimation of the public. This has fostered irregular practitioners such as osteopaths, chiropractics, christian scientists, etc. At present public charity is dealt out without any plan or organization. This is wasteful. The state should organize its hospitals and schools with definite relation to the needs of the people and the profession. The state should provide laboratories where pathologic and bacteriologic examinations can be made at moderate cost. As a matter of economy students can be instructed in these same laboratories. The state should maintain hospitals which would relieve physicians from doing charity work as far as possible. Before entering on the practice of medicine Sudler would ask that every candidate should have had at least two years of college work. Then four years in the medical school, and finally be required to pass an exhaustive practical examination.

Journal of the Oklahoma State Medical Association, Muskogee

November

- 51 Carcinoma of the Skin. E. S. Lain, Oklahoma City.
- 52 Cretinism. J. E. Hughes, Shawnee.
- 53 Internal Splint in Treatment of Fractures. H. E. Pearse, Kansas City, Mo.
- 54 Medical Ethics. L. S. Willour, Atoka.
- 55 A Case Requiring Herniotomy and Lipectomy. C. N. Ballard, Oklahoma City.
- 56 Poliomyelitis Anterior. J. Donohoe, Afton.

Kentucky Medical Journal, Bowling Green

November 1

- 57 Golter. Indications for Operation and Results. J. R. Wathen, Louisville.
- 58 Tonsilectomy as a Routine Practice in Children of a Tuberculous Diathesis. W. C. White, Louisville.
- 59 Indications for the Technic of Gastro-Jejunostomy and Entero-Enterostomy. W. H. Wathen, Louisville.
- 60 The Lactating Breast. T. K. Vanzandt, Louisville.

Texas State Journal of Medicine, Fort Worth

November

- 61 Hookworm Disease or Uncinariasis. C. W. Stiles, Washington, D. C.
- 62 *The Reasons Why Prescriptions Fail. W. M. Brumby, Austin.
- 63 *An Efficient and Safe Catarrh Dressing; a Modification of Holtz and Green's Operation of Entropion. W. R. Thompson, Fort Worth.
- 64 Inflammatory and Infective Changes Produced by Gall-Stones. M. P. Stone, Dallas.

- 65 The Cystoscope and Some of Its Advantages. C. H. Harris, Fort Worth.
66 The Social Evil. J. P. Oliver, Caldwell.

62. **Reasons Why Prescriptions Fail.**—Brunby reviews some of the phases of the patent and proprietary medicine evil and urges physicians to familiarize themselves with the United States Pharmacopeia and the National Formulary. He endorses the work of the Council on Pharmacy and Chemistry.

63. **Cataract Dressing.**—Thompson uses a crinolin bandage over the regular bandage and dressing. The only new thing about this bandage is the technic in its application whereby the ears are prevented from coming in contact with the bandage when dry. This dressing fits snugly and has a feeling of protection. When it is removed on the second, third or fourth day, the crinolin portion over the face and eyes can be used as a mask externally by attaching tape and fastening around the head over the other dressing, or internally by placing next to the moist gauze and applying bandage over it. The absolute protection from external violence, as well as the complete immobilization of the eye and its appendages, renders this, in Thompson's judgment, one of the very best cataract dressings. If properly applied he firmly believes that it will keep many patients from infecting the eye by innocently meddling with the dressing.

Thompson has for a number of years, in cases of entropion, been doing an operation in part after Greene and Heltz with a modification of his own. The operation is as follows: An incision is made on the inner surface of the lid; in a line parallel to and about 2 mm. distant from the row of openings of the Meibomian ducts. It is carried through the conjunctiva and whole thickness of the tarsus, and should extend, in cases of complete entropion, from the inner to the outer canthus. An incision is next made through the skin about 2 mm. above the lashes, in operations on the upper lids, extending from the inner to the outer canthus. By a dissecting process the upper margin of this skin is elevated to a point above the upper border of the tarsus, which is exposed at three or four points by cutting out sections of the muscle, and sutures, three or four in number, are passed through the skin of the lower margin of this cut with curved needles at points corresponding to the exposed portions of the tarsus, and with the assistance of forceps the sutures are anchored into the upper portion of the tarsus by passing the needles partially through it. The sutures are then tied, care being taken to see that the cut edge of the skin comes in contact with the exposed areas of the tarsus. Material assistance can be had by placing a small probe or the end of a pair of forceps beneath the suture and making gentle pressure while the knot is being tied. The portion of skin which has been elevated by dissection is left free. Best results are obtained by seeing that the upper margin of this skin remains free until the lower margin is attached to the tarsus. The advantages of this over other operations is two-fold: first, the piece of skin from the lashes to where it is united to the tarsus is so short that it is not liable to stretch, thereby allowing the margin of the lid to again turn in; second, there is no sacrifice of integument, for that reason rendering the operation harmless in so far as the welfare of the lids are concerned.

Journal of the South Carolina Medical Association, Charleston

October

- 67 The Owen Bill and Its Opponents. S. A. Knopf, New York.
68 Uses of Carbonic Acid Snow in Surgery. S. C. Baker, Sumter, S. C.
69 Hookworm Disease as It Pertains to the Eye and Ear Specialty. L. O. Mauldin, Greenville, S. C.
70 The Unspeakable Hookworm. F. J. Carroll, Summerville, S. C.
71 Value of Free Nasal Breathing. T. A. Quattlebaum, Columbia, S. C.

Woman's Medical Journal, Cincinnati

November

- 72 The Nervous Child—Its Management and Care. M. S. Macy, New York.
73 A Case of Onychogryposis. C. D. Mosher, Palo Alto, Cal.
74 Mental Hygiene. M. L. Neff, Brooklyn, N. Y.
75 Defective Speech in Backward and Feeble-Minded Children. B. C. Downing, Lexington, Mass.
76 The Bedside Widal Test. G. Gilman, San Francisco.
77 A Case of So-Called Cryptogenetic Infection. C. S. Rockhill, Cincinnati.
78 Precocious Diagnosis of Measles by Koplik's Sign. F. S. Mason, New York.

Southern California Practitioner, Los Angeles

November

- 79 Spengler's Treatment of Tuberculosis. W. J. Barlow, Los Angeles.
80 True and False Tabes. J. T. Fisher, Los Angeles.
81 Rabies, Its History, Etiology and Treatment. G. L. Cole, Los Angeles.
82 Measles and Its Eye, Ear, Nose and Throat Complications. H. A. Kiefer, Los Angeles.
83 Nervousness in Children. J. A. Jackson, Pasadena.
84 Hemorrhage from Middle Cerebral Artery. R. F. Palmer, Mesa, Ariz.
85 Anterior Poliomyelitis. E. Wing, Los Angeles.
86 Brains. G. D. Troutman, Tucson, Ariz.
87 Difficulties in the Cure of Tuberculosis. F. M. Pottenger, Monrovia, Cal.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

November 12

- 1 Greek Medicine in Rome. T. C. Allbutt.
2 Four Cases of Pneumonic Plague. H. P. Sleight.
3 Recent Plague Cases in Suffolk. H. H. Brown.
4 *Radium Therapy in Eye Diseases. A. Lawson and J. M. Davidson.
5 *Serum-Anaphylaxis. A. B. Sloan.
6 Bionomics of Pathogenic Organisms and Its Bearing on the Spread of Disease. A. C. Houston.
7 Organization and Results of the Typhoid Campaign in South-west Germany. O. Lentz.
8 Dysentery Bacillus-Carriers. G. H. K. Macalister.
9 Diphtheria Bacillus-Carriers. J. A. Arkwright.
10 Interpretation of the Precipitin Reaction. D. A. Walsh and H. C. Chapman.
11 Anaerobic Culture of the Intestinal Microorganisms. W. J. Penfold.
12 Gastro-Enteritis Due to *B. Paratyphoid*. F. A. Bainbridge.
13 Recognition of *B. Typhosus* by Complement Fixation. H. R. Dean.
14 Serum Treatment of Dysentery. M. A. Ruffer and J. G. Willmore.

4. **Radium Therapy in Eye Disease.**—After an investigation into the possibilities of radium as a therapeutic measure in eye disease, the authors, A. Lawson and J. M. Davidson, concluded that radium is likely to prove of great service, both in the treatment of external diseases of the eye and in those of the eyelids. The method of applying the radium was crude, but satisfactory. The eye was first cocainized and the radium, which was contained in sealed glass tubes, permitting only the passage of beta and gamma rays, was applied directly to the affected part. The fingers of the operator were protected by enveloping first that part of the tube not required and then the fingers in a thick, continuous wrapping of lead foil. In no single instance did they observe the slightest ill-effects from the use of radium; no increase of inflammation or aggravation of symptoms occurred in any case, with the one exception of pain. It soon became evident that lesions of the cornea could be treated successfully with this time limit of five minutes by the same dose which, for affections of the skin and lids, required an exposure three or four times as long, and also that superficial lesions of the cornea frequently do not need any more than quite a small dose, such as 5 to 10 mg., applied once or twice as the case might demand. With regard to the frequency with which the exposures were repeated, they were guided entirely by the progress or otherwise of each individual case. When dealing with a virulent and highly dangerous process, such as a hypopyon ulcer, it was obviously necessary to get a result with the least possible delay, and consequently the exposure was repeated as soon as considered safe, if no improvement had been noted; whereas, in milder cases, they were content to wait longer for signs of amelioration, being anxious to find, if possible, the minimum number of sittings necessary to effect a cure. The effects of radium are continuously exhibited for a considerable space of time, extending into a matter of six weeks at least, and so some of the cases had only one sitting, and a perfect cure resulted. The margin of safety with regard to the minimum interval that should elapse between the sittings must obviously depend on the dose employed. The larger the dose, the sooner should its effects be produced, and the longer the interval between the sittings. Consequently, if a large dose was considered necessary at the first exposure, they seldom repeated it with less than a week's interval, except it happened to be noted that the disease continued to spread in

spite of the treatment, in which case they considered that a second exposure might safely be given at a rather shorter interval.

5. **Serum-Anaphylaxis.**—The chief point of interest in Sloan's case of diphtheria was the occurrence of sudden collapse after the injection of serum at the onset of the second attack. Sloan has no doubt that the grave condition was due to serum-anaphylaxis: (1) The collapse occurred within two hours of the injection without other apparent cause and while the child was lying quietly in bed; (2) the collapse was accompanied by the almost simultaneous appearance of a marked serum-rash of the urticarial type. Apart from the twenty-four hours' urgent illness following the injection, the prolonged febrile period thereafter and the slow convalescence were chiefly due to the serum phenomena. It is Sloan's opinion that, until we have more accurate knowledge of the circumstances bringing about anaphylaxis, we should be particularly cautious not to inject foreign serums without good reason, because we may by doing so render our patients so sensitive that a future necessary injection may cause grave consequences.

Lancet, London

November 12

- 15 Greek Medicine in Rome. T. C. Allbutt.
- 16 A Case of Multiple Myeloma. O. T. Williams, E. R. Evans and E. Glynn.
- 17 Radical Operation for Malignant Disease of the Testis. R. Howard.
- 18 Treatment of Pulmonary Tuberculosis by Intravenous Injections of Chinosol with Formaldehyd. J. McElroy.
- 19 Operative Treatment of Papilloma of the Bladder. J. W. T. Walker.
- 20 Chronic Bronchitis and Emphysema as the Result of Acute Pneumonia. S. West.
- 21 Aortic Regurgitation. W. Broadbent.

November 19

- 22 Prospect Before the Medical Student of To-Day. J. A. Lindsay.
- 23 Hereditary Cranio-Cleido-Dysostosis. D. C. L. Fitzwilliams.
- 24 *Pulmonary Tuberculosis Treated by Continuous Antiseptic Inhalation. D. B. Lees.
- 25 *Fractures in the Neighborhood of Joints. R. Jones.
- 26 *Use of Potassium Bichromate in the Treatment of Phthisis. J. B. Tomblson.
- 27 Compound Fracture with Tetanus Symptoms. E. K. Williams.
- 28 Osteomyelitis of the Left Clavicle. A. MacDonald.
- 29 Uterus Bicornis Unicollis. J. L. Masterman-Wood.

24. **Pulmonary Tuberculosis.**—In November, 1909, Lees published the details of the method of treatment employed by him, and narrated thirty cases of incipient or early pulmonary tuberculosis in which it had been employed with success. Now he records the present condition of these cases, and adds an account of twenty subsequent cases in which the same method of treatment has been used. The thirty cases reported were all incipient or comparatively early cases, though three or four of them were very acute and rapidly advancing when the treatment was instituted. In every one of these thirty cases the result is highly satisfactory. Some of the twenty additional cases now reported came under treatment at a much later stage of the disease or were attended with grave complications. In such instances recovery must be comparatively slow, and the final issue may be doubtful. Any case of pulmonary tuberculosis, if allowed to progress unchecked for many months, may easily reach a condition which is incurable by any form of treatment. But Lees' contention in these two papers is that this ought never be allowed to happen. Pulmonary tuberculosis is recognizable and ought to be discovered before there is any breaking down of lung tissue. To suspend the diagnosis until tubercle bacilli are detected in the sputum is like delaying the diagnosis of cancer until the glands are involved.

25. **Fractures in the Neighborhood of Joints.**—Jones pays more attention to function than appearance, considers correct alignment of more importance than meticulous care in repositioning of fragment, believes that pain is always an indication for physiologic rest, and therefore deprecates early forced passive movements.

26. **Potassium Bichromate in Treatment of Phthisis.** Six cases of phthisis treated by the internal administration of potassium bichromate are reported by Tomblson. He gives

the potassium bichromate in doses of $\frac{1}{4}$ gr. ($2\frac{1}{2}$ minims of a 10 per cent. solution in water) either alone or in a tonic mixture (phosphate, hypophosphite, or simple iron), such dose to be taken in a wine-glass of water after food, at first twice and later three times a day. The first dose and possibly the second may cause vomiting, but this does not matter, as, in his experience, toleration is easily established without missing a dose. The color of some of the mixtures changes from yellow to green, but this seems in no way to impair the efficacy of the mixture. Of these six patients the last four do not know they are under any special treatment. Improvement has been noticeable after the expiration of the first fortnight of treatment.

Annales de l'Institut Pasteur, Paris

September 25, XXIV, No. 9, pp. 673-752

- 30 *Oriental Sore. (Recherches sur le bouton d'Orient. Cultures, reproduction expérimentale, immunisation.) C. Nicolle and L. Manceaux.
- 31 Efforts to Increase Resistance of Trypanosomes. (Essai d'obtention d'une race de Nagana résistante d'emblée à l'émétique.) F. Heckenroth.
- 32 Immunity of Rabbits to the Bacillus of Hog Cholera. (Immunité des lapins contre le b. suipesticus.) J. Shoukevitch.
- 33 Influence of Concentration of Saccharose in Alcoholic Fermentation. Rosenblatt.

30. **Oriental Sore.**—Nicolle and Manceaux have succeeded in cultivating the protozoon which they believe is responsible for Oriental sore, and in reproducing the lesion in dogs and monkeys after a period of incubation ranging from 16 to 166 days. They find many points of resemblance between Oriental sore and kala-azar; recovery from the latter protects the dog against infection from the virus of Oriental sore and affords a partial protection to the monkey. The evidence on hand suggests that the dog is the natural reservoir for the virus of Oriental sore. This animal thus seems to be the agent involved in the etiology of the Leishmanioses.

Archives des Maladies du Cœur, Etc., Paris

November, III, No. 11, pp. 641-704

- 34 Action of Roentgen Ray on the Blood in Diabetes. P. Menetrier and A. Touraine.
- 35 Fibrillation of the Auricles and Extrasystoles of the Ventricles. (Remarques sur les extrasystoles intercalées.) T. Lewis.
- 36 Case of Congenital Hemolytic Jaundice. C. E. Paris and Giroux.

Bulletins de la Société de Pédiatrie, Paris

October, XII, No. 7, pp. 369-414

- 37 *Syphilitic Rachitis and the Wassermann Reaction. C. Leroux and R. Labbé.
- 38 Traumatic Abscess in the Brain. Recovery After Operation Seven Months Later. G. Triboulet and M. Savariaud.
- 39 *Lumbar Drainage in Purulent Meningitis. G. Rosenthal.
- 40 Acute Poliomyelitis Simulating Landry's Paralysis. G. Schreiber.

37. **Syphilitic Rachitis and Wassermann's Reaction.**—Leroux and Labbé found the reaction positive in the fourteen cases of rachitis reported whenever there were manifestations of virulent inherited syphilis. In the cases in which the reaction was negative there were only dystrophic and rachitic malformations without any virulent manifestations. The findings confirm the assumption that rachitis may have a syphilitic origin, yet it is not of a syphilitic nature; syphilitic rachitis seems to be mainly the result of the dystrophic influence of inherited syphilis. It is probable that any chronic infection or intoxication occurring at a certain period of ossification may be an efficient cause of rachitis. It has been observed after malarial infection in infancy and in diabetic infants.

39. **Continuous Lumbar Drainage.**—Rosenthal gives an illustrated description of the needle which he uses for lumbar puncture, and the sheath which is left permanently in the opening for continuous drainage. Gorse has reported the cure of a patient with suppurative meningitis, the treatment including this permanent lumbar drainage kept up for thirteen days.

Presse Médicale, Paris

November 9, XVIII, No. 90, pp. 844-848

- 41 Direct Illumination of the Pelvis. (Endopelyscope.) F. Jayle.

November 12, No. 91, pp. 849-856

- 42 Therapeutics in the Medical Curriculum. (La chaire de thérapeutique à la Faculté de médecine de Paris.) A. B. Marfau.

Semaine Médicale, Paris

November 16, XXX, No. 46, pp. 541-552

43 Toxins of the Placenta. R. de Bovis.

Archiv für Gynaekologie, Berlin

XCII, No. 1, pp. 1-277. Last indexed Sept. 7, p. 1059

- 44 *Treatment of Tubal Pregnancy in Early Months. (Grundsätze und Erfahrungen in der Behandlung der Tubenschwangerschaft der frühen Monate.) II. Fehling.
- 45 Connections Between the Blood Vessels in the Placenta of Twins with Single Ovary. F. Schatz.
- 46 Blastomyces Isolated in Pure Cultures from Human Cancers. (Untersuchungen zur Aetiologie des Carcinoma und über die pathogenen Blastomycesen. II.) G. Leopold.
- 47 Operative Treatment of Uncomplicated Uterine Hemorrhage. (Behandlung uncomplicirter Blutungen insb. die radicale Beseitigung der klimakterischen und präklimakterischen mittelst vaginaler Corpusamputation.) II. Fühli.
- 48 Operations for Genital Prolapse. B. Krönig.
- 49 Placenta Praevia and Anterior Vaginal Hysterotomy. A. Döderlein.
- 50 *Curability of Cancer Under Palliative Measures. (Zur Frage der Heilbarkeit des Krebses.) R. F. Bretschneider.
- 51 *Forensic Examination of Breast Milk. (Die Frauenmilch und ihrer kriminelle Bedeutung.) J. Hertzsch.
- 52 Intra-peral Auto-Infection. W. Zangemeister.
- 53 *Gynecologic Operations in Twenty-Three Years at University Gynecologic Clinic at Leipsic. P. Zweifel.
- 54 *Ultimate Results of Abdominal Panhysterectomy for Carcinoma. E. Aulhorn.
- 55 Bath-Water in the Vagina. (Eindringen von Badewasser in die Scheide.) B. Schweitzer.
- 56 Vaginal Ovariectomy in Sixty-Four Cases without a Death. F. Lichtenstein.

44. **Tubal Pregnancy.**—Fehling reviews his experience with 300 cases of tubal pregnancy in which he operated. In his latest series of 170 cases none of the women with tubal abortion succumbed, but seven died in the fifty cases of rupture of the gravid tube; of this number five died within two hours of the operation, the condition not permitting recovery; one died of yellow atrophy of the liver without peritonitis and the seventh succumbed to peritonitis resulting from an operative injury of the intestine. Only 12.4 per cent. of the patients had not borne children before. In 52 per cent. of the patients the other adnexa were more or less pathologic. The extra-uterine pregnancy occurred more than once in five of the cases. The interval between the last pregnancy and the extra-uterine averaged over four years and ranged up to sixteen. He comments on the rarity of extra-uterine pregnancy in private practice, having encountered only 10 cases among 1,000 private obstetric patients.

50. **Curability of Cancer Under Palliative Measures.**—Bretschneider declares that the prognosis of cancer in the so-called hopeless cases should be guarded, as instances are not lacking in which an apparently incurable growth subsided under merely palliative measures. He reports a typical case of the kind, a woman of 53 having a supposed inoperable carcinoma of the uterine cervix, but it was so favorably influenced by repeated palliative operations that at present there is not a trace, either macroscopic or microscopic, of malignant disease at the spot, and the metastatic foci have evidently been arrested in their growth and have partially retrogressed. The general health of the patient is normal and she has no disturbances of any kind. The clinical cure is thus complete, although she still carries numerous cancer foci; the carcinoma cells seem to have lost their proliferating capacity and the foci have become latent. When first seen, suspicion of kidney disease and dilatation of the left ventricle complicating the inoperable adenocarcinoma rendered the outlook very grave. After curetting and cauterization with 50 per cent. zinc chlorid there was some collapse, requiring camphor and heart tonics, but the patient was dismissed from the hospital in two weeks. She returned seven months later in very good general condition and the cancer had materially subsided. The same technic was applied again and with good results. Four months later she returned on account of hemorrhages and the cancer was then deemed operable, but at the laparotomy the peritoneum was found studded with cancerous nodules, and nothing further was done, as the diffuse peritoneal carcinosis had destroyed all hope of success. The cervix cancer was merely curetted and cauterized as before. A year later, two years after the first excoriation, the patient was seen again, and the aspect was that of perfect health for her age, 55. There had been no further hemorrhages, and the cervix presented merely the usual senile aspect. There are no

records, he adds, of the necropsy findings in such cases of unexpected clinical cures of cancer, but there is nothing theoretically to prevent the assumption that carcinoma foci may completely retrogress. There is evidently a constant battle between the defensive forces of the organism and the proliferating forces of the carcinoma cells. Changes in the blood, as after fever or profuse hemorrhages, and possibly after deep cauterization of the focus, seem to exert sometimes a favorable action on the malignant foci. When the balance between the defences and the cancer cells is maintained and neither is victorious, the cancer is kept in a latent stage, but at any moment when the defensive forces are weakened by any cause the cancer may get the upper hand. Such an assumption would explain the late recurrences of cancer after a long period of latency. The case reported, and others on record, indicate that the defensive forces of the organism are powerfully seconded in their struggle with the cancer cells when the latter are vigorously cauterized or are affected in some other way. There are evidently factors still unknown to us at work in these cancer cases, and something is liable to turn up that will unexpectedly diminish the proliferating capacity of the carcinoma cells and thus induce a turn for the better. Such a possibility should always be borne in mind in the management of inoperable cancer, and the prognosis should not be so grave as to drive the patients into the hands of quacks, especially as the latter are liable here and there to get the credit of the unexpected turn for the better which may occur at any moment.

51. **Forensic Importance of the Lactal Secretion.**—Hertzsch concludes from his research on fifty cases that the absence of colostrum-corpuseles indicates that the child was viable but not necessarily at term. The presence of colostrum-corpuseles alone is no criterion for determination of the date of delivery or age of the fetus or whether the child was suckled or whether this is the first pregnancy or not. If the breasts secrete ripe milk the presence of colostrum-corpuseles does not conflict with the assumption that the child was born at term. In a case of supposed infanticide he certified that a viable child had been born, basing his statement on the copious supply of ripe milk free from colostrum-corpuseles or other formed elements, and circumstances later confirmed the correctness of his testimony.

53. **Twenty-Three Years of Gynecologic Operations.**—This issue of the *Archiv* is a *Festschrift* on the occasion of the centennial of the university clinic for women at Leipsic. Zweifel reviews the 4,062 laparotomies, and devotes a hundred pages to detailed study of technics and results.

54. **Ultimate Outcome of Abdominal Hysterectomy for Cancer.**—Aulhorn compares the outcome with various technics in 420 cases of carcinoma of the uterus during the last eight years; in 221 other cases the growth was inoperable. In the operative cases there were nine women who had never borne children, while the rest averaged six children apiece. Of the 255 patients operated on over six years ago, fifty-two have had no recurrence to date, that is, 51 per cent. according to Winter's formula. Recurrence in the fifth and sixth years was observed in two cases.

Deutsche medizinische Wochenschrift, Berlin

November 10, XXXVI, No. 45, pp. 2081-2128

- 57 Vaginal Methods in Obstetrics. (Dilatation nach Bossi, Metreuryse, Kopolhysterotomie.) P. Jung.
- 58 *Treatment of Laryngeal Tuberculosis. G. Schröder.
- 59 Spontaneous Cure of Tuberculous Pneumothorax. R. Fried.
- 60 Treatment of Cancer in Upper Esophagus. (Hoher Speiseröhrenkrebs und seine Behandlung.) J. W. A. Pernice.
- 61 *Subcutaneous Infusion in Eclampsia. K. Frankenstein.
- 62 Units and Dosage with Radium. (Messmethoden und "Einheiten" in der biologischen Radiumforschung.) S. Loewenthal.
- 63 *Roentgen-Ray Treatment of Myomas. B. Schindler.
- 64 Index of Hardness of Roentgen Tubes. (Objektiver Härtemesser mit Zeigerausschlag für den Röntgenbetrieb.) H. Bauer.

58. **Treatment of Laryngeal Tuberculosis.**—Schröder has had 416 patients with laryngeal tuberculosis in his care during the last fourteen years and the course of sanatorium treatment for each averaged 140 days. He estimates the frequency of laryngeal tuberculosis as a complication of chronic pulmonary tuberculosis in 20 per cent. of the cases in which sana-

torium treatment is indicated, and he urges careful examination for it in every case of lung trouble. Institutional treatment is advisable, as the general treatment is the main thing; only as the lungs improve and heal is there prospect of the laryngeal process healing. Appropriate surgical measures may prove useful adjuvants, but tuberculin treatment should be instituted with extreme reserve and caution. A relative cure was obtained in 24 per cent. of his 416 cases, but only in 15.2 per cent. of the 308 febrile cases and in 19 per cent. of the "open" tuberculous cases.

61. **Saline Infusion in Eclampsia.**—In the case reported by Frankenstein the eclampsia developed during labor and the convulsions persisted after delivery. No benefit being apparent from narcotics, 1 liter of salt solution was injected subcutaneously, repeated six hours later, after which there were no further convulsions; fifty minutes after the second infusion copious diuresis set in and the patient was cured. Notwithstanding the fine results in this case he thinks it would be better to use a 4 per cent. sugar solution or hypotonic salt solution; the ordinary salt solution is liable to make too many demands on the kidneys in their morbid condition. Hypotonic solutions are compensated by the hypertonic composition of the blood. He has had ample experience in regard to the harmlessness and the usefulness of a 4 per cent. sugar solution in his operative gynecologic work. The subcutaneous route is necessary in eclampsia, as there is no time to waste on intestinal infusion, but physiologic salt solution, he declares, should be banished from the treatment of eclampsia; with impending or actual heart failure any infusion is perilous.

63. **Roentgen-Ray Treatment of Myoma.**—Schindler reports continued and repeated success with this method of treating myoma, giving the details of three cases. Under the exposures the complicated myomas are transformed into harmless small tumors, and by the menopause induced the cure is completed until scarcely anything is left of the myomas. The objection that the relics of the myoma might be the seat of malignant degeneration later applies equally well to other measures, such as castration. The Roentgen-ray treatment spares the patient the laparotomy and, he says, is entirely harmless, so that one is justified in giving the method a trial, at least, before resorting to an operation. In the case of a woman of 50, a myoma the size of a child's head, with excessive menstruation, subsided one-half in size and the menopause came on under eleven exposures in three weeks, with four exposures later.

Deutsche Zeitschrift für Chirurgie, Leipsic

October, CVII, No. 113, pp. 1-296

- 65 Differential Diagnosis of Fetal Chondrodystrophy and Imperfect Osteogenesis. M. Sumita.
- 66 *Deforming Arthritis in the Young. G. K. Perthes.
- 67 Jönnesco's Method of Spinal Anesthesia. (Die Rachi-Anästhesie mit Stovain-Strychnin.) E. Juvara.
- 68 Transplantation of Hypoplyses and the Action of this Experimental Hypersecretion. A. Exner.
- 69 Experimental Removal of the Pineal Gland. A. Exner and J. Boese.
- 70 *Improved Extension Treatment of Fractures. (Unterbrechung der Längsextension durch Einschaltung von Gummizügen.) A. Wildt.
- 71 Omentum Plastics for Perforated Duodenal Ulcer. (Netzplastik beim Uleus duodenal perforatum.) G. Axhausen.
- 72 *Production of and Technic for Use of Compressed Air in Hospitals. (Luftcompressor in Krankenhäusern.) F. Kuhn.
- 73 *Dislocation of Tarsometatarsal Articulations. (Luxationen im Lisfranchen Gelenk.) Grunert.
- 74 Plastic Operation on Nerves for Paralysis of the Gluteal Muscles. A. Stoffel.
- 75 *Saline Infusion in Peritonitis. R. Bertelsmann.
- 76 Plastic Operation for Inguinal Eventration. (Eine Tenomyoplastik bei Eventratio inguinalis.) J. M. Jacobovic.

66. **Deforming Arthritis in the Young.**—Perthes believes that the frequency and importance of deforming arthritis of the hip joint in the young have never been sufficiently appreciated; he had no less than six cases of it last year. Trauma can rarely be incriminated; in one of his cases there had been a suppurative process in the hip joint in infancy, but the symptoms of the deforming arthritis did not develop until a number of years later. Pain and tenderness in the joint are rare, although long walking may induce spontaneous pains which may be experienced in the knee, but in many cases there is no painfulness at any time. The limping gait is due probably to insufficiency of the abductor muscles. In all the cases that

have been studied to date, (twenty-six unilateral and twelve bilateral) the course of the pathologic changes was always slowly progressive, but the interference with movement and the spontaneous painfulness may grow less for a time. In treatment, systematic massage and exercises, especially of the abductors, are recommended and immobilization warned against. With much deformity of the bone operative correction may be advisable. The details of the thirty-eight cases on record are summarized.

70. **Improved Technic for Extension with Fracture.**—Wildt calls attention to the importance of counteracting contraction more than is possible with the ordinary Bardenheuer technic, especially after the adhesive plaster has loosened up a little. He describes the technic with which he accomplishes this by interposing a rubber strip in the plaster where it passes over the fracture. The elastic strip is sewed to the strip of plaster, leaving fullness enough so the rubber can stretch by 1 cm. The adhesive plaster is then applied as usual, but where it crosses the fracture it is cut across, leaving the elastic rubber to stand the strain alone at this point.

72. **Compressed Air for Massage, Etc.**—Kuhn calls attention to the great therapeutic value of air under high pressure applied locally to organs, fractures, etc. The result is a total anemia of the part which is followed by a hyperemic reaction, inducing what he calls massage of the blood. The hyperemia produced in this way is more intense than by any other means, while the action on the organs and parts of the air under high pressure is extremely gentle. He applies the high pressure in a double sac in which the limb is placed, the air circulating between the double walls of the sac, or a double sac is made to fit over the organ or part to be treated. He states that this high-pressure massage is useful as an adjuvant during and after the Bier hyperemia technic, while it is an independent method for effectually treating edema, varicose ulcers, excessive callus and joint fractures. The alternation of anemia and hyperemia, he states, is on a scale never before realized, revitalizing the parts and promoting absorption of pathologic fluids by its imitation of the natural stimulation of metabolism. A tank of compressed air can be used, but it is better to have a large amount to use more freely, and he has devised a special apparatus for compressing the air very economically in hospitals where power can be available. The apparatus was described in the *Deutsche med. Wochenschrift*, Aug. 4, 1910, page 1445.

73. **Dislocation of Tarsometatarsal Joints.**—Grunert has found fifteen new cases on record of dislocation of Lisfranc's joint since Lenormant's compilation of ninety-six cases in 1908, and here gives the details of them all with two additional cases from his own experience. The luxation was total in fifty-eight. Reduction by manual pressure succeeded in only 35 per cent. of the total 105 cases, but the patient got along well with the uncorrected total dislocation, while the outcome was most disappointing in the operative cases. The experiences related indicate that operative interference is liable to do harm ultimately rather than good in the total luxations, but that when only a single bone is dislocated, operative interference is justified and has always proved effectual. Any attempt to resect bone merely weakens the foot.

75. **Extensive Saline Infusion in Treatment of Peritonitis.**—Bertelsmann strives to restore approximately normal conditions in the circulation in peritonitis by saline infusion before he attempts any operation. In fourteen cases of peritonitis last year, treatment was by intravenous saline infusion of nearly 4 liters of salt solution before and during the operation. Large compresses were laid over the intestines when the abdomen was opened and the abdominal walls were fastened over them with silk sutures in such a way that no intestines could protrude while a broad slit was left open between the lips of the wound. After the operation subcutaneous or saline infusion is continued at need up to 20 liters in the first two days. By this copious flushing of the vascular system the stagnation in the peripheral vessels is combated and the heart given something to pump on; small amounts of salt solution do not accomplish this. He operates in every case of peritonitis, no matter how desperate it may appear. Of the six

fatalities in his series, five were in patients practically moribund when first seen. The only death that had not been expected was in a woman who died of embolism twelve days after the operation. He suggests several queries for further research: 1. The share in peritonitic collapse of the inflammatory congestion, and whether this is to be combated or regarded as a favorable element. 2. Is the collapse during operations for peritonitis due to the fact that the blood rushes into the vessels in the abdomen when all pressure is removed from these vessels, and can this assumption be sustained by experimental research? 3. Does bacteriemia frequently accompany peritonitis? 4. Is existing bacteriemia influenced favorably or unfavorably by saline infusion?

Fortschritte der Medizin, Leipzig

November 3, XXVIII, No. 41, pp. 1377-1408

- 77 General Anesthesia. (Die Allgemein-Narkose.) P. Sick. Commenced in No. 42.
78 Aneurysm of the Hepatic Artery. D. G. Zesas. Commenced in No. 42.
79 Treatment of Chronic Dyspepsia in Infants. (Therapie der chronischen Ernährungsstörungen des Säuglings.) Sittler.

Jahrbuch für Kinderheilkunde, Berlin

November, LXVII, No. 5, pp. 523-660

- 80 *Large Doses in Tuberculin Treatment of Children. A. Fuchs.
81 Normal Metabolism and Nitrogen and Sulphur Metabolism in Rachitic Dwarf Growth. (Der Stickstoff- und Schwefelstoffwechsel in Fällen von rachitischen Zwergwuchs und ein Beitrag zum normalen Stoffwechsel eines fünf Jahre alten Knaben.) H. Schwarz (New York).
82 Pathology of Growth in Infancy. (Zur Pathologie des Wachstums im Säuglingsalter.) E. Schloss.
83 Hydronephrosis from Ureter Deformity. E. v. Jonkowsky.
84 *Experimental Phosphorus and Strontium Sclerosis. F. Leberdt.
85 Tracheotomy in 676 Cases, 1899-1908. J. C. Schippers.

80. **Treatment of Tuberculosis in Children with Large Doses of Tuberculin.**—Fuchs reports the application in a number of cases of Schlossmann's method of accustoming the child to large doses of tuberculin. About two months was all that was needed to bring them to a dose of 1 gm. The results were very disappointing; no benefit was realized in any instance and the impression in some cases was that the tuberculosis was directly aggravated. Injection near the focus of the surgical lesion induced a peculiar and very pronounced cutaneous reaction, evidently an anaphylactic phenomenon, peripheral to the lesion.

84. **Phosphorus and Strontium Sclerosis.**—Leberdt's recent experimental research shows the importance of the influence of single elements on the growth of the bones, and opens a comparatively new field for physiologic research and for explanation of the action of drugs.

Medizinische Klinik, Berlin

November 13, VI, No. 46, pp. 1809-1814

- 86 Anatomic Bases for Physical Diagnosis. R. Oestreich.
87 Biology of Blood in Women During Gestation Period. (Zur Biologie des Blutes in der Gestationsperiode des Weibes.) M. Neu.
88 *Syphilis of Pancreas and Other Organs. J. Fey.
89 *Convulsions in Whooping-Cough. (Zur Frage der Krampfanfälle während des Keuchstusens.) A. Schiller.
90 *Function of Appendix. (Hat der Wurmfortsatz eine Funktion?) Härtig.
91 Resemblance of Features in Foreign Races. (Anähnlichkeit der Gesichtszüge in fremdem Rassenmilieu.) Lomer.

88. **Syphilis of the Pancreas.**—Fey reports a case of visceral syphilis in which the symptoms from involvement of the pancreas were exceptionally prominent. The patient was a man of 42, otherwise healthy, who acquired syphilis at 21 and took five courses of specific treatment in the course of three years and was free from symptoms for nearly twenty years. Then he had an attack of what seemed to be severe influenza from which he did not seem to recover, and hectic fever, night sweats and cough suggested tuberculosis. There was occasional profuse diarrhea ceasing suddenly after five or six days and, after a year of these symptoms, attacks of pain, most pronounced in the upper abdomen, coming on independent of the intake of food and persisting for one or three hours. Annoying, persistent eructations and enlargement of the liver and spleen, with a little ascites, suggested tuberculous peritonitis. The feces at this time became clay-colored and soft, and sugar was found in the urine. The diagnosis then was

changed to carcinoma of the liver, but the symptoms resisted all treatment on these bases and the patient lost nearly a hundred pounds in weight in the course of the eighteen months. Functional tests of the pancreas gave positive findings with the Cammidge and trypsin tests and the Schmidt nucleus test, while the fat content of the stool averaged 39.4 per cent, and a drop of adrenalin in the left eye induced pronounced mydriasis in twenty-five minutes. The diversity of the symptoms, the protracted course of the syndrome, the hectic fever and positive Wassermann reaction convinced Fey that syphilis was responsible for the whole trouble, and under mercurial inunctions and potassium iodid the fever disappeared in three days, the glycosuria in one week, and the liver and spleen returned to normal size in less than a month. The improvement continued to a clinical cure in a few weeks, but the persistence of the Cammidge reaction and positive adrenalin test indicate that the pancreas still has some interstitial pathologic process, although the gummas probably responsible for the severe symptoms previously observed had retrogressed. The syndrome of visceral syphilis is liable to involve the most various organs and thus present a Protean variety of symptoms, never encountered under other conditions.

89. **Convulsions in Whooping-Cough.**—In the first of Schiller's four cases, the convulsions were evidently the result of latent tetany in a female infant, 17 months old, artificially fed. The prompt success of treatment for the spasmophilic diathesis: castor oil, tea, phosphorus-cod liver oil and abstinence from milk, with symptomatic measures, confirms the assumption of tetany as the cause of the convulsions, the whooping-cough having continued its course unmodified. In the second case the convulsions were merely a casual coincidence, ushering in severe varicella with otitis media. Measures directed against the fever, cold packs and aspirin, banished the convulsions. This patient was a boy of 3. In the third case the infant began to cough when 4 days old, and at three weeks the closure of the glottis initiating the cough frequently persisted, causing dangerous asphyxia from the laryngospasm. The trouble in this case was an actual complication of the whooping-cough, peculiarly dangerous on account of the suffocation recurring without warning and liable to prove fatal unless the child was watched incessantly. In the fourth case a mustard pack was applied on account of beginning bronchopneumonia in an infant nearly 2 years old, with whooping-cough for six weeks. The child was otherwise healthy, but six hours after the mustard pack, applied according to Heubner's technic, severe convulsions developed, with cyanosis, requiring artificial respiration and rapidly exhausting the child, with high fever and death from heart failure the next day. Ibrahim recently reported fatal convulsions following the mustard pack in a case of whooping-cough. If Schiller had known of this experience he would have applied lumbar puncture in his case to counteract the heat congestion from the mustard pack, superposed on the febrile tendency of the incipient bronchopneumonia.

90. **Function of the Appendix.**—Härtig suggests that the appendix may have an analogous function to the automatic lubricators in automobiles to supply a lubricant at points where it is especially needed. The little reserve of intestinal juice in the appendix may be just what is needed at the bottom of the well formed by the cecum to aid in passing the feces along.

Monatsschrift für Geburtshilfe und Gynäkologie, Berlin

November, XXXII, No. 5, pp. 517-634

- 92 Puerperal Bradycardia. J. Novak and L. Jetter.
93 *Varicocele in Pregnant Women. H. Cramer.
94 *Intra-Uterine Respiration. F. Fromme.
95 *Obstetric Auto-Infection. F. Fromme.
96 *Technic for Combined Examination. (Zur kombinierten Untersuchung.) J. Sonnenfeld.
97 Polypous Cysts in Vagina. (Ein seltener polypöser Anhang der Vaginalportion.) H. Peters.
98 Congenital Transmission of Tuberculosis. O. Pankow.
99 Pelvis Manikin. (Ein Modell des weiblichen Beckens.) E. Martin.

93. **Varicocele of Pregnant Women.**—Cramer ascribes the development of varicose veins to primary changes in the walls of the vein under the influence of toxic action. Toxic action from the internal secretions is peculiarly liable to occur in

the pregnant woman and predisposing mechanical causes enhance this tendency. He has noticed that inguinal hernia in women frequently dates from a pregnancy, and he explains this by the spreading of the inguinal canal from the enlargement of the veins passing through it. The stretched canal does not retract again when the enlarged veins subside to normal size. The condition thus left favors development of a hernia. In the male, the varicose enlargement of the corresponding vein occurs outside the inguinal ring, but the corresponding varicocele in women develops in or inside the ring. Since he has been studying this subject he has found complaints of pains in the inguinal region in pregnant women much more common than he had supposed. In one case of the kind the pains were so severe and the disturbances so great that he was compelled to operate, and he gives an illustration of the varicocele removed from each side, at the sixth month of pregnancy. The external ovarian vein was as large as a man's thumb, and was stretching the external inguinal ring so that a finger could be inserted on each side of the engorged vein. There was no tendency to hernia on either side but after resection of the varicocele the tendency of the canal to gape was corrected with sutures as for inguinal hernia, and the pregnancy progressed undisturbed.

94 and 95. **Prophylaxis of Puerperal Fever.**—In the course of a discussion of intra-uterine breathing, sterilization of the hands and "self-infection," Fromme reiterates that the greatest progress realized in obstetrics in the last few years is that we have learned to distinguish between puerperal infection and puerperal intoxication. He regards infectious puerperal fever as the result of importation from without of virulent alien germs capable of penetrating into living tissue and thus setting up general sepsis. The putrefaction bacilli normally in every vagina are not capable of this. If alien germs from without can be kept completely away from the vagina and uterus shortly before, during and after childbirth, there will be no true infectious puerperal fever. When certain that this is the case, we can be confident that the parturient will recover without severe illness. The woman's own germs are incapable of setting up true puerperal fever, and if fever does occur it is merely an intoxication fever from retained membranes or obstruction to the outflow of the lochia, and it subsides when the substances are rinsed out which have been providing the culture material for the patient's own germs.

96. **Combined Examination.**—Sommerfeld has found that any means to divert the patient's attention away from the examination generally suffices to induce the desired relaxation of the abdominal walls for "combined examination." He has found that a simple means to divert the attention is to have the patient hook the fingers of her two hands together and pull vigorously. This has frequently succeeded in his experience when other, more complicated measures failed.

Münchener medizinische Wochenschrift

November 8, LVII, No. 45, pp. 2329-2392

- 100 Post-Mortem Wassermann Reaction. C. Nauwerck and M. Weichert.
- 101 Dungen's Simplification of Wassermann Reaction. (Was leistet die v. Dungen'sche Methode der Syphilisreaktion.) A. Spiegel.
- 102 Importance of Early Hygiene and Care in Prevention of Nervous and Mental Disease. (Bedeutung einer geordneten Säuglings- und Kleinkinderfürsorge für die Verhütung von Epilepsie, Idiotie und Psychopathie.) M. Thiemlich.
- 103 Idem. J. Hoppe.
- 104 Advantages of Peroral Intubation for Operations on Face and Throat. (Die intratracheale Insufflation von Meltzer—New York und Kuhns perorale Intubation; unsere Erfahrungen über die letztere.) E. Köhler.
- 105 Pulmonary Tuberculosis and the Thorax Musculature. (Lungentuberkulose und Brustmuskulatur.) C. Fischer.
- 106 Ehrlich's "606" in Ophthalmology. (Das Ehrlich'sche Präparat 606 bei Augenkrankheiten.) F. Schanz.
- 107 *Severe By-Effects After Injection of Ehrlich's "606." (Blasenstörungen und andere schwere Nebenwirkungen nach einer Injektion von Ehrlich "606.") E. Eitner.
- 108 Foreign Body in Lung. (Fremdkörperextraktion aus der Lunge.) H. Seldel.
- 109 *Toxic Hyperkeratosis. Ruete.
- 110 Multiple Neuromas on Spinal Roots in Nine-Months' Infant. R. Graupner.

107. **Bladder Disturbances After Use of Ehrlich's "606."**—Eitner reports a case in which an injection of "606" was followed by retention of urine and constipation with abolition of the reflexes, the clinical picture being identical with that of

the two cases reported from Prague and mentioned in these columns Sept. 3, 1910, page 898. Eitner never uses methyl alcohol, so that the disturbances cannot be explained in this way, which was the explanation accepted for the Prague cases. He used for the injection a mixture of what was left in two tubes of the "606," the rest of the contents of the vials having been used in another case respectively fourteen and three days previously. The tips of the tubes were fused again to protect the remaining contents, and he thinks that the heat applied in the fusing must have modified the drug within in some way to render it more toxic. Experiments on animals with the "606" after it had been heated seemed to confirm this assumption of a toxic modification of the drug under the influence of heat.

109. **Drug Hyperkeratosis.**—In the first of Ruete's two cases, a man had taken 18 drops of Fowler's solution every day for two years; it had been prescribed originally for herpes and he had not seen a physician since. During the last year keratosis in both hands and feet had developed to a pronounced degree, the palms being covered with wart-like excrescences. The patient was otherwise in good health and free from nervous disturbances. On suspension of the arsenic the skin affection subsided, but it showed a tendency to recur if he took arsenic in any form. There was no melanosis. In the second case the hyperkeratosis was evidently of syphilitic origin and was accompanied by ichthyosis of the back, all subsiding under mercurial treatment.

Virchows Archiv, Berlin

November, CCII, No. 2, pp. 161-320

- 111 Lipoid Pigment of Nerve Cells. (Ist das Nervenpigment ein Abbauprodukt der Zelle?) M. Mühlmann.
- 112 Amyloidosis of the Heart. V. Hecht.
- 113 Chromaffine Substance of the Suprarenals with Kidney Disease. (Nebennieren von Tieren und Menschen bei Nierenkrankheiten.) W. Nowicki.
- 114 Obliterating Tuberculous Mastitis. A. Ingier.
- 115 Pseudoleukemia and Tuberculosis. A. Liechtenstein.
- 116 Absorption in the Human Great Omentum. S. Suzuki.
- 117 Cystic Kidney in the Domestic Animals. (Sacklere, perinephritische und intranephritische, subkapsuläre Zysten bei den Haustieren.) F. W. Hagemann.
- 118 Histology of Hydronephrotic Contracted Kidney. J. Orth.
- 119 Spontaneous Rupture of the Bladder. (Fall von spontaner Blasenruptur mit Veränderungen der elastischen Substanz im Rupturrande des Peritonäums.) T. Frieberg.
- 120 Teratoma in Anterior Mediastinum. F. Sieber.
- 121 Dissecting Aneurism of the Aorta. G. Moriani.
- 122 Chronic Rigid Spine. (Chronische Wirbelsäulenversteifung.) G. Wehrsig.
- 123 Abnormally Large Parietal Foramina. L. Plenk.

Wiener klinische Wochenschrift, Vienna

November 10, XXIII, No. 45, pp. 1583-1622

- 124 *Defective Development of Testicles. (Entwicklungsstörungen der männlichen Keimdrüsen im Jugendalter.) J. Kyrle.
- 125 *Transmission of Cretinism from Man to Animals. (Übertragung des Kretinismus vom Menschen auf das Tier.) A. Kutsehera.
- 126 Ehrlich's "606" in Syphilis. G. Riehl.
- 127 Iuerm. O. Kren.
- 128 Prostatectomy for Traumatic Hemorrhage. H. v. Haberer.

124. **Disturbances in the Development of the Testicles in Children.**—Kyrle found only ten apparently normal testicles in 110 child cadavers. In eighty-six cases development was extremely defective. Among thirty-nine children less than a year old, in twenty-nine the testicles showed this striking lack of normal development, showing that it was congenital. In fifty of the cadavers there were other anomalies in development. It is evident, he says, that a child born with undeveloped, unfinished testicles must be on a lower physical plane than the children with normal genital glands, according to the modern conception of the great importance of these glands for the development of the organism as a whole. He describes the histologic findings in detail, with eleven illustrations, this being, he thinks, the first research of the kind on the testicles before puberty.

125. **Transmission of Cretinism to Animals.**—Kutsehera found two dogs with every sign of cretinism, including the enlarged thyroid, which were brought up in the bed with a certain pauper and her cretin children. Another dog given the family and sleeping in the same bed developed signs of cretinism in three months, and in nine months the picture of cretinism was complete. Another normal dog given the family at the same time was too large to be taken into bed

with them, and he escaped the cretinism, although he slept in the room. Kutschera states that practical experience has confirmed again and again the theoretical premises that cretinism is most liable to develop in small, dirty homes among people who are lacking in a sense for cleanliness and who were exposed to frequent or intimate contact with cretins in early childhood.

Zeitschrift für Urologie, Berlin

November, IV, No. 11, pp. 809-896

- 129 Deformed Penis. (Zwei seltene Missbildungen der männlichen Genitale.) F. Neumann.
130 Congenital Stenosis of Male Urethra. K. R. Wilckens.
131 *Sarcoma of the Bladder. (Zur Statistik und Kasuistik der Blasensarkome.) C. Munwes.

131. **Sarcoma of the Bladder.**—Munwes traces the history of these lesions from 1639 to date, and states that an operation was undertaken in 76 of the 107 cases on record. In 14 no operation was attempted and no mention was made of the treatment in the others. The growth was a round-celled sarcoma in 30 and a spindle-celled sarcoma in 16 of the 94 cases in which the structure is mentioned, and the others were in 12 different categories. The interval between the first symptoms and the operation was from 3 to 16 years in 15 cases, and from 6 weeks to 2 years in 40 others; the data on this point are not given in the other cases. Among the 69 operative cases there have been only 3 patients permanently cured; that is 4.3 per cent. free from recurrence for 5 and 13 years to date; 15 patients succumbed to recurrence. Two of the permanently cured patients had the growth removed by mere resection of the bladder wall. In a personal case described, the patient was a woman of 77, and the alveolar sarcoma was inoperable.

Zentralblatt für Gynäkologie, Leipsic

November 12, XXXIV, No. 46, pp. 1785-1728

- 132 *Prophylaxis of Air Embolism with Placenta Prævia. II. Peters.

132. **Avoidance of Air Embolism with Placenta Prævia.**—Peters is convinced that fatal air embolism is more common than generally believed, especially in private practice with lack of necropsy. But about a dozen cases of air embolism with placenta prævia are now on record. He had a case of this kind in his own practice, the fatal embolism occurring as he was seizing the foot after version, without anesthesia, on an otherwise healthy woman with wide vagina and non-ruptured membranes. No means is known to avoid this danger of air embolism unless the version and separation of the placenta can be done *under water*. He thinks that this innovation might ward off all danger from this cause, but he has had no opportunity to apply it himself. He suggests that the bath tub could be cleaned with boiling water and alcohol, setting fire to the alcohol, and using boiled water for the bath; no more water is needed than to cover properly the external genitals. The inflatable bag could be introduced under water, and the vaginal portion of the uterus could be drawn out of the vulva, which maneuver aids materially in manual separation of the placenta, but has not been applicable hitherto with placenta prævia on account of the danger of air embolism.

Gazzetta degli Ospedali e delle Cliniche, Milan

November 3, XXVI, No. 132, pp. 1393-1400

- 133 *Nutrient Subcutaneous Injections. (Dell'alimentazione sostitutiva per via ipodermica.) V. d'Amico.

November 6, No. 133, pp. 1401-1416

- 134 Lymphogranuloma. G. Serafini.

November 8, No. 134, pp. 1417-1424

- 135 Suggestion for Experimental Research on Spermatozoa as Possible Causal Agents of Cancer. (Nuovo studio sperimentale sull'origine dei tumori.) P. Mionni.

133. **Subcutaneous Nutrient Injections.**—D'Amico states that the experiences to date show that subcutaneous nutrient injections are the only rational and effective means for supplying nourishment, except by the natural route. He thinks that the only absolutely efficient substance for the purpose is fresh, fertilized yolk of egg. This contains the substances required, and in the proper combination. He adds to the yolk 5 gm. of 1 per cent. iodized glycerin and 5 gm. of physiologic salt solution. The mixture is injected into the buttocks; the

glycerin has a special urolytic action while the salt solution favors the assimilation of the mass and the iodine stimulates phagocytosis and cell functioning. His experiences have been uniformly favorable with this technic during the four years in which he has been applying it. The local swelling rapidly subsides. Symptoms of uricemia were observed in only a few cases, including that of a child with tuberculous lesions; there seems to be an excess of uric acid in the blood in the tuberculous. In case it is necessary to supply fluids without demands on the alimentary canal, he has found diluted Trunccek's serum best adapted for the purpose. This contains the salts normally in the blood, the formula being sodium sulphate 0.44, gm.; sodium chlorid, 4.92; sodium phosphate, 0.15; sodium carbonate, 0.21; potassium sulphate, 0.4, and distilled water to 1,000 gm. In a hundred cases of uncontrollable vomiting, this technic of injection of the yolk of eggs, supplemented by 1,000 gm. of the Trunccek serum, the latter repeated as needed, has often been followed by actual resurrection in the most desperate cases. Even when the patients were apparently moribund, in some cases, life was prolonged for from five days to two months.

Riforma Medica, Naples

October 31, XXV, No. 44, pp. 1205-1232

- 136 Treatment of Gastric Disease. (Terapia delle gastropatie dinamiche, ipersecretive ed iperemiche. IX.) G. Rummo.
137 The v. Pirquet Tuberculin Reaction. (Cintirazione del Pirquet.) L. Mazzetti.

Norsk Magazin for Lægevidenskaben, Christiania

November, LXXI, No. 11, pp. 1133-1266

- 138 *Radium Emanations and Endemic Goiter. (Det endemiske strumas ætiologi.) B. Ebbell.
139 Gangrenous Ecthyma. K. Grøn.
140 *Tuberculosis of the Kidneys. (Tuberculosis renum.) C. Johannessen.
141 Operative Treatment of Glaucoma. (Iridotaxis antiglaucomatosa.) J. Borthen.
142 Histologic Study of the Heart Musculature. S. Widerøe.
143 Digitalis and Camphor in Croupous Pneumonia. N. A. Quisling.

138. **Etiology of Endemic Goiter.**—Ebbell calls attention to the fact that goiter seems to be endemic in the regions and the geologic formations where there seems to be the greatest radio-activity. This has convinced him that the radium emanations may be responsible for development of endemic goiter, this assumption being sustained by the fact that boiling the water, which annuls its radio-activity, seems to prevent the tendency to development of goiter. He has no opportunity for experimental research in this line and he asks others to give animals radio-active water exclusively for a period of three months at least to determine the effect on their thyroids.

140. **Tuberculosis of the Kidney.**—Johannessen accepts the possibility of spontaneous recovery from tuberculosis of the kidney—several such cases are on record, but the rarity of this occurrence does not permit reliance on it. He gives the details of a number of instructive cases. The subjective and objective symptoms may vary within a wide range and the tuberculous process in the kidney may run an entirely latent course for a long period, without any subjective or objective symptoms. This explains why tuberculous nephritis often is not diagnosed until it has reached a comparatively advanced stage. In other cases pains and hematuria bring the patient to the physician in an early stage. In some cases the first symptoms are pollakiuria with frequent micturition or even incontinence. Guisv noted pollakiuria as the only symptom of incipient kidney tuberculosis in six out of thirty-one cases; in three cases nocturnal incontinence of urine was the first sign of trouble. This may be the result of what Guyon calls reno-cystic reflex action. The kidney is generally enlarged, but may sometimes be abnormally small; in the beginning the kidney is not palpable as a rule. In the incipient stage there may be a dull or vague pain of varying intensity and apparently spontaneous, localized in one of the lumbar regions, sometimes the sound side, or paroxysmal severe pain, radiating down to the bladder or to the other kidney or up into the shoulder. The urine may be limpid and acid without albumin. In one of the cases reported the urine was pathologic but the bladder seemed entirely normal. In another the severe pains were localized in the left side while the right

was the diseased kidney. In another case the pains developed suddenly in the night, radiating to the bladder and urethra and accompanied with vomiting and chills. This pseudocolic recurred three or four times in two or three months, the patient having no pain in the intervals. One patient was a young man, apparently healthy until he noticed pollakiuria for two months, and then the pseudocolic above mentioned. Now, five months after nephrectomy, he seems in the best of health. In the case of a woman of 28 a similar sudden nocturnal pseudocolic was the very first sign of trouble.

Ugeskrift for Læger, Copenhagen

November 3, LXXII, No. 44, pp. 1333-1364

144 Radium Emanations in Uricacidemia. H. Jansen.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

MODERN TREATMENT. The Management of Disease with Medicinal and Non-Medicinal Remedies. In Contributions by American and Foreign Authorities. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica, Jefferson Medical College, Philadelphia. Assisted by H. R. M. Landis, M.D., Director of the Clinical Department of the Phipps Institute (University of Pennsylvania). In Two Volumes. Vol. I. Cloth. Price, \$6 net. Pp. 930, with 105 illustrations. Philadelphia: Lea & Febiger, 1910.

DIE FRANKENKOST. Ein praktisches Handbuch für Aerzte, Kranken- und Wohlfahrtsanstalten, Sanatorien, Pflegepersonen, Erziehungsanstalten und für die Familie. Von Emilie Kieslinger, Wien. Verfasserin mehrerer, zum Teil preisgekrönter Kochbücher, und Dr. Karl Wirth, Wien, ehem. Assistent d. Wiener allg. Krankenhauses. Paper. Price, 3.60 marks. Pp. 250. Munich: J. F. Lehmanns Verlag, 1910.

THEORIE UND PRAKXIS DER INNEREN MEDIZIN. Ein Lehrbuch für Studierende und Aerzte. Von Dr. Erich Kindborg in Bonn. Erster Band. Die Krankheiten der Zirkulations- und Respirationsorgane. Cloth. Price, 7 marks. Pp. 494, with 47 illustrations. Berlin: S. Karger, 1911.

CIVICS AND HEALTH. By William H. Allen, Secretary, Bureau of Municipal Research. With an Introduction by William T. Sedgwick, Professor of Biology in the Massachusetts Institute of Technology. Cloth. Price, \$1.25. Pp. 411, with illustrations. Chicago: Glinn & Co., 1910.

FEVER-NURSING. Designed for the use of Professional and other Nurses, and especially as a Text-Book for Nurses in Training. By J. C. Wilson, M.D., Author of "A Treatise on the Continued Fevers." Cloth. Price, \$1 net. Pp. 248. Philadelphia: J. B. Lippincott & Co., 1910.

DIE WASSERMANN'SCHE REAKTION. Mit besonderer Berücksichtigung ihrer klinischen Verwertbarkeit. Von Dr. Harald Boas, Privatdozent an der Universität, mit einem Vorwort von Prof. A. Wassermann. Paper. Price, 5.60 marks. Pp. 186. Berlin: S. Karger, 1911.

DIAGNOSTIK DER NERVENKRANKHEITEN. Von Dr. L. E. Bregman, Oberarzt am städtischen jüdischen Krankenhaus in Warschau. Mit einem Geleitwort von Dr. H. Obersteiner in Wien. Paper. Price, 12 marks. Pp. 535, with 193 illustrations. Berlin: S. Karger, 1911.

A GUIDE TO READING IN SOCIAL ETHICS AND ALLIED SUBJECTS. Lists of Books and Articles Selected and Described for the Use of General Readers. By Teachers in Harvard University. Boards. Price, \$1.25. Pp. 265. Cambridge: Harvard University, 1910.

DISEASE OF THE PANCREAS. Its Cause and Nature. By Eugene L. Opie, Professor of Pathology, Washington University, St. Louis. Second Edition. Cloth. Price, \$3. Pp. 387, with 47 illustrations. Philadelphia: J. B. Lippincott Co., 1910.

THE NEED OF REVISING MORALS AND LAWS. A Lecture Delivered at the Royal Albert Hall, London, May 6, 1910. By Lady Cook (née Tennessee Claffin). Paper. Price, 1 penny. Pp. 19. London: Hayman, Christy & Lilly, 1910.

NEW JERSEY TRAINING SCHOOL FOR FEEBLE-MINDED GIRLS AND BOYS. VINELAND, CUMBERLAND COUNTY, 1910. Twenty-Second Annual Report. Paper. Pp. 103, with illustrations. E. R. Johnstone, Supt., Vineland, N. J.

HOW TO COOK FOR THE SICK AND CONVALESCENT. Arranged for the Physician, Trained Nurse and Home Use. By Helena V. Saehse. Fourth Edition. Cloth. Price, \$1.25 net. Pp. 337. Philadelphia: J. B. Lippincott, 1910.

FOURTIH ANNUAL REPORT OF THE CENTRAL STATE HOSPITAL OF VIRGINIA (PETERSBURG). For the Fiscal Year Ending September 30, 1910. Paper. Pp. 95, with illustrations. William Francis Drewry, M.D., Superintendent.

THE MODERN VIEW OF SYPHILIS AND ITS TREATMENT. By Gustav Baer, M.D., Member German Congress for Internal Medicine. Cloth. Price, \$2 net. Pp. 285. New York: D. Appleton & Co., 1910.

THE THIRD ANNUAL REPORT OF THE COMMISSIONER OF HEALTH OF THE COMMONWEALTH OF PENNSYLVANIA. 1908. Cloth. Pp. 1339. Samuel G. Dixon, Commissioner of Health, Harrisburg, Pa.

THE PHYSICIAN'S VISITING LIST (LINDSAY & BLAKISTON'S) FOR 1911. Leather. Price, \$1.25. Twenty-five patients per week. Philadelphia: P. Blakiston's Son & Co., 1910.

New Patents

Recent patents of interest to physicians:

961846. Vegetable hair tonic. John G. Burgess, San Diego, Cal.
 962004. Indicating bottle. William T. Cassidy, Chicago.
 962313. Vaginal irrigating syringe. Henry W. Champlin, Walters Park, Pa.
 962316. Can-cap dropper. Elmer M. Cobb, Portland, Maine.
 961936. Machine for making capsules. Arthur Colton and B. W. Scott, Detroit.
 961760. Making alkali thiosulfates. Louis Destree, Haren, Belgium.
 961848. Machine for granulating magnesias. Ubaldo Di Marco. Hawthorne, N. J.
 961945. Manufacture of bicarbonate of soda. R. H. F. Finlay, Belfast, Ireland.
 962218. Aseptic needle-thread holder for surgical use. Maurice G. Heltz-Boyer, Paris, France.
 962380. Surgical attachment for cots or beds. Eddie E. McMahon, Denver.
 962103. Making pure ortho and para-guaicol sulfonic salts. Bruno R. Seifert and H. Hahle, Radebeul (near Dresden), Germany.
 962170. Making silicon nitrid. Alf Sinding-Larsen, Christiana, Norway.
 962067. Receptacle having apparatus for projecting disinfecting materials, etc., into it. Charles Waldstein, Cambridge, England.
 962809. Sterilizer. Sophia Blickman, New York.
 962617. Inhaler. Ignazio Bucceri, Brooklyn.
 962999. Portable fountain syringe. Artemas L. Dawson, Devall Bluff, Ark.
 962753. Making a neutral sodium salt of lactalbumin. Ernst Fischer and P. Bergell, Berlin, Germany.
 962952. Extension obstetrical instrument. Leonard Gosgorn, Waco, Texas.
 962901. Massage apparatus. Henry C. Karpenstein, New York.
 962657. Syringe. Patrick J. McElroy, Cambridge, Mass.
 962790. Scleroscope. Albert F. Shore, New York.
 962595. Hanging receptacle for medicines and the like. Johnny B. Smith, Johannesburg, Transvaal.
 962872. Soluble perfume tablet. Russell W. Whitlatch, Brooklyn.
 963529. Water purifier. Frederick Dinghaus, Puerto Barrios, Guatemala.
 963538. Invalid-bed. John B. Ford, Jeffersontown, Ky.
 963051. Ointment applicator. Robert A. Kooker, Fort Worth, Texas.
 963454. Sputum-cup and holder therefor. Christian W. Meinecke, Jersey City, N. J.
 963244. Sterilizing milk. Cassius C. Palmer, Cranford, N. J.
 963469. Truss. Charles Pence, Galena, Kan.
 963174. Making concentrated sulfuric acid. Otto Proelss, Kansas City, Mo.
 963175. Making sulfuric acid. Otto Proelss, Kansas City, Mo.
 963179. Pocket atomizer. Royal F. Richards, Los Angeles.
 963254. Phenol sulfonate of opium alkaloids. George L. Schaefer, Brooklyn.
 963726. Combined sterilizer and water-beater. Elbridge G. Stamper, Paducah, Ky.
 963482. Vaginal syringe. Ida L. Stevens, St. Louis.
 963664. Sanitary cuspidor. Michael F. Troy, Brooklyn.
 963492. Disinfectant and deodorizer. Joseph W. H. and W. R. Williams, Sharpsburg, Pa.
 964406. Packing for metal canulas, or the like. Carl F. Dewitt, Berlin, Germany.
 964156. Making haloids. James C. Graves, Midland, Mich., and J. P. Simons, Cleveland.
 963890. Jury and jury-frame for orthopedic treatment. Gustave W. Haas, Los Angeles.
 964105. Adjustable bed. Daniel Hogan, Hoboken, and C. W. Meinecke, Jersey City, N. J.
 964267. Sanitary napkin, and belt for supporting the same. James H. Johnson, Washington, D. C.
 963899. Surgical clamp. Samuel L. Kistler, Los Angeles.
 964110. Mouth speculum. John F. Koehler, Sawyer, Mich.
 964170. Physician's table. Charles N. Leonard, Indianapolis.
 963796. Artificial foot and ankle joint. E. Mueller, Reserve Township, Pa.
 963797. Artificial limb. E. Mueller, Reserve Township, Pa.
 963933. Eye-cup. William J. O'Neill, Chicago.
 964309. Obstetrical appliance. Jennie D. Parrott, Washington, D. C.
 964312. Vibrator. Carl A. Pfauhlehl, Highland Park, Ill.
 964730. Faucet syringe. Charles F. Ackerman, Cleveland.
 964950. Hypodermic syringe. Albert A. Allinger, New York.
 964838. Sterilizing hopper. Arthur C. Badger, Newton Center, Mass.
 964898. Movement cure apparatus. Theodor Budingen, Constance, Germany.
 965079. Mouth-speculum. Henry E. Caswell, Jeffersonville, Ohio.
 964492. Oxygen-gasator. Monroe S. Clawson, New York.
 964769. Syringe. James H. L. Eager, New York.
 964903. Syringe. John L. Fisher, Providence, R. I.
 964964. Indurated casein compound. Byron B. Goldsmith, New York.
 965137. Indurated albuminoid compound. Byron B. Goldsmith, New York.
 964777. Pasteurizing apparatus. James W. Helzer, Wheeling, W. Va.
 964779. Bath cabinet. Adolph M. Holaday, Waltham, Kan.
 964559. Disinfecting apparatus. William H. Rose, New York.

The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOL. LV, No. 26

CHICAGO, ILLINOIS

DECEMBER 24, 1910

THE IMPORTANCE OF A LOW PROTEIN DIET IN CHRONIC NEPHRITIS*

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BOSTON

In planning a diet for chronic nephritis three cardinal principles must determine our selection of food.

First, the amount of protein food must be limited. Since the power of the kidneys to eliminate nitrogenous material is impaired, the amount of such material ingested must be limited to what the kidneys can readily take care of. This necessitates the careful regulation and limitation of the amount of protein food ingested.

Second, a sufficient amount of nutrition must be furnished. Notwithstanding the limitation of protein food, it is essential that sufficient nutriment should be supplied for all needs of the organism. The diet must have a sufficient caloric value, and the loss from limitation of the protein food must be made up by a corresponding increase of the fats and carbohydrates. The caloric value of the diet is of less importance in the more acute stages of acute nephritis, or in acute exacerbations of chronic nephritis. Here, as in all acute diseases, no harm results if the diet for a number of days has a caloric value considerably less than is demanded by the needs of the organism. But in dealing with a chronic condition which may last for months or years, a sufficient number of calories must be furnished or else the body deteriorates from slow starvation.

Third, variety must be provided. No matter how satisfactory a given diet may be, it cannot be strictly maintained for a long time without the patient becoming so tired of it that he rebels. In a diet for a chronic disease, variety is absolutely essential. It must be provided wisely, or the patient will himself vary his diet, and will probably do so foolishly.

LIMITATIONS OF PROTEIN FOOD

It is safe to say that an average adult in health does not need more than 90 gm. of protein in his food daily. It is known from the investigations of Chittenden and others that a person leading an active life can get along and maintain a condition of health and strength over prolonged periods on about half that amount of protein.

For practical purposes I have taken 90 gm. of protein a day as the maximum for cases of chronic nephritis, above which it is unnecessary to go, and have taken 50 gm. as the minimum, below which it is undesirable to go. These are not absolute limits, for I have had

patients in a quiescent stage of chronic interstitial nephritis who exceeded 90 gm. without apparent injury. On the other hand in some advanced cases the patients have done well on less than 50 gm. of protein in a day over long periods.

Practically, then, in the severer or advanced cases of chronic nephritis we limit the ingestion of protein to 50 gm. daily. In proportion as the case is less severe we allow more protein, taking 90 gm. as the maximum for the slight or inactive stages of the disease.

CALORIC VALUE OF THE DIET

As has been already stated, the diet in a chronic disease must provide a sufficient number of calories to meet the requirements of the system for heat, energy, etc. Roughly speaking, an average adult needs 2,000 calories in twenty-four hours if at rest (as a patient in bed), 2,500 calories for light activity, and 3,000 calories for moderate activity. Three thousand calories may be taken as the maximum, for in few cases of chronic nephritis are the patients warranted in doing an amount of work that requires more than that.

It will be found practically that individuals differ considerably in their demands in this respect. For example, I have had a number of patients who have been going about and leading a life of light activity, yet maintaining their weight, strength, and general condition of health on 1,500 to 2,000 calories. It is a mistake to force such patients against their inelination to take 2,500 calories or more, simply because it seems to be demanded on theoretical grounds. The maintenance of the weight, strength, and the general condition is a satisfactory practical test of the efficiency of the diet.

Loss of strength and energy and a marked feeling of lassitude are symptoms frequently complained of by these patients. This arises in part from insufficient nutrition, when the patient has a distaste for food, but also in many cases from the ingestion of too much protein in the food. For the waste products of protein metabolism, which the kidneys fail to eliminate, are largely the cause of these sensations and also of the extreme nervousness that is often present. It is extremely gratifying to see these symptoms diminish and disappear when, through the limitation of the protein food, the kidneys can remove the accumulations of waste material of this sort. The loss of appetite also seems to be caused by the excess of this waste material, for with its removal the appetite returns.

We often find patients going through cycles of alternating anorexia and good appetite. It is Nature's attempt to regulate the protein intake. When there is an excess of the waste products from protein food, anorexia ensues and the supply is cut down. When the

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

excess has been removed, the appetite returns, often whetted by the resulting lack of nourishment. But unless the diet is properly proportioned, an excess of protein is quickly taken, and anorexia again ensues. This process is sometimes exaggerated through the belief on the part of the patient or physician that the feeling of weakness is to be combated by meat, eggs and milk, because of their reputed strength-giving properties.

An increase in the amounts of these foods, relatively rich in protein, simply makes the condition worse instead of better, whereas most gratifying results are often obtained by diminishing the amount of protein ingested, provided sufficient energy is furnished by the other foodstuffs (fats and carbohydrates).

I may allude in passing to the danger in these cases of the fad of the free use of soured milk. If soured milk replaces other protein food, no harm is done. If, because the patient dislikes soured milk, less protein is taken, a distinct benefit may result. But I have seen distinct harm from the addition to a diet already rich in protein of a pint to a pint and a half of soured milk, representing an addition of 20 or 30 gm. of protein a day.

INADVISABILITY OF THE MILK DIET

It was formerly taught that the ideal diet for nephritis, chronic as well as acute, was a strictly milk diet. If other things were allowed in cases of chronic nephritis, it was not because they were considered more desirable, but because it was found practically that the patients would not adhere strictly to this diet for months at a time. Many physicians to-day are trying their best to keep patients with chronic nephritis as close as possible to a strict milk diet. Von Noorden was one of the first to point out a few years ago the fallacy of this line of treatment.

The objection to the exclusive milk diet lies in the fact that, if sufficient nutriment is to be supplied, an excess of protein must be given, whereas the protein should be diminished in order to spare the kidneys. This is easily demonstrated. Each 100 c.c. of milk contains approximately 4 gm. of protein and furnishes about 70 calories. Let us take 2,100 calories as a convenient number to represent the caloric need of an average patient. As each 100 c.c. furnishes 70 calories, it will require 30 times 100 or 3,000 c.c. to furnish 2,100 calories. In this there will be 30 times 4 gm. of protein, or 120 gm. It has been shown that 90 gm. is the maximum, above which we should not go; therefore, if enough milk is given to furnish a proper amount of nourishment, at least one-third more protein must be given than the maximum amount allowed under the most favorable conditions.

PROTEIN QUOTIENT

It is evident that an article of food is desirable in chronic nephritis according as it furnishes a large number of calories, and yet contains a small number of grams of protein, provided, of course, that it is easily digested and assimilated, and is acceptable to the patient.

I have found it convenient to classify the foods containing protein on this principle. I have used the word "protein quotient" to represent the number of calories furnished by a food for every gram of protein it contains. The protein quotient is the quotient obtained by dividing the calories furnished in a given amount by the number of grams of protein it contains. For example, since 100 c.c. of milk contain 4 gm. of protein

and furnish 70 calories, therefore the protein quotient for milk is 70 divided by 4, or 17½, indicating that 17½ calories are obtained for every gram of protein in milk.

We may speak of the protein quotient of a diet. For example, if a diet contains only 50 gm. of protein yet furnishes 2,000 calories, its protein quotient is 40. Or if 90 gm. of protein is allowed for 2,000 calories the protein quotient would be 22.29. In chronic nephritis, then, the protein quotient will range from 22 to 40, and the more severe the case the higher should the protein quotient be.

Table 1 gives a list of the common articles of food arranged according to their protein quotients.

TABLE 1.—COMMON ARTICLES OF FOOD ARRANGED ACCORDING TO THEIR PROTEIN QUOTIENT

Cream (30%)	85.7	Fat ham	33¼
Bacon	69.0	Mutton and pork	23¾
Cake	58.0	Custard	20.0
Cream (20%)	57.0	Baked beans	18.0
Mashed potato	55.0	MILK	17¼
Rice (boiled)	50.0	Soup (purée)	16¾
Chocolate	46.0	Butter beans	16.0
Potato	45.0	Cheese (full cream)	16.0
Pudding (simple)	44.0	Lima beans	15.0
Zwieback	40.0	Green peas	14.0
Crackers	39.0	Buttermilk	13¾
Shredded Wheat	35.0	"PROTEID PORTION"	12¾
Parsnips	35.0	Fat meat	12.5
"CEREAL PORTION"	35.0	Egg	11.5
Green corn	33½	Scrambled egg	11.5
Cereal (cooked)	30.0	Fish chowder	11.0
Macaroni (cooked)	30.0	Oysters	8½
Bread	28.0	Lean meat	6.0
Gruel (milk)	25.0	Fish	6.0
Cocoa	25.0	Lobster	5.0
Beets, carrots	25.0	Beef juice	5.0
Onions, squash	25.0	White of egg	4.0
"Vegetables"	20.0		

TABLE 2.—COMMON ARTICLES CONTAINING NO PROTEIN

One Hundred Grams of Food.	Common Measures.				
	P. F.	C. Cal.	P. F. C. Cal.		
Butter	85	800	Pat (¼ oz.)	9	80
Olive oil	100	900	Tablespoon	15	125
Sugar	100	400	Teaspoon	6	25
Sweet fruits	10	40	One-fourth lb.	12	50

* P, protein; f, fat; c, carbohydrate.

THE NEED OF DIET CHARTS OR TABLES

It is evident that, if these principles are to be applied in arranging the diet of a patient, certain data must be at hand in reference to the composition of different foods and their caloric value. Without these data, scientific regulation of the diet is impossible. This information may be obtained from Atwater and Bryant's tables,¹ or from tables now published in many books on dietetics and in some books on treatment. I presented to the profession a year ago a convenient diet chart,² which contained the statistics for the common articles of food, together with a brief summary of the principles of dietetics. The values given in this chart are approximate only, but are sufficiently accurate for practical use. They are taken as the basis of calculations in this paper. The chief value of the chart is its convenience. With such tables a diet containing the proper amount of protein and at the same time furnishing the desired number of calories can be constructed.

VARIETY, PROTEID PORTIONS, CEREAL PORTIONS

It was found that the third requirement was variety, in a diet that is to continue for a long period. The

1. The Chemical Composition of American Food Materials, Bu'l. 28, U. S. Dept. Agric. Off. Exper. Stations, Wash. (Revised edition).
2. A Practical Diet Chart, Massachusetts Med. Soc., 1909; Boston Med. and Surg. Jour., Sept. 30, 1909, p. 457. These diet charts are now published by W. R. Saunders Co.

problem is to furnish variety and a sufficient amount of nutriment, and yet to regulate the amount of protein and prevent it from exceeding a given amount.

If the percentage of protein in different articles of food is known, it can easily be calculated what amount of each article will furnish a given quantity of protein. From our present point of view, these various amounts of the different articles may be regarded as equivalent one to another, and may be substituted for each other. I have designated these equivalent amounts of food as "portions." For example, milk contains 4 per cent. of protein, eggs 13 per cent., and meat 20 per cent. There-

of protein, the amount of protein contained in one egg. In a similar way bread contains on the average 9 per cent. of protein, boiled rice 2 per cent., and cooked cereals 2 per cent. It is found that an average slice of bread weighs about 40 gm. and contains about 4 gm. of protein. Two hundred gm. of boiled rice or cooked cereal would furnish the same amount. A number of the staple articles of food are grouped together on this basis of 4 gm. of protein to each portion, and for convenience these are called "Cereal Portions." Each cereal portion, containing 4 gm. of protein, contains half as much protein as the proteid portion, which has 8 gm.

TABLE 3.—PROTEID PORTIONS

Under this head are included the common articles of food that are relatively rich in protein. Each "portion" contains 8 grams of protein—the amount in one egg. Therefore, in calculating the amount of protein in a diet, one portion is equivalent to another. Variety may be secured by substituting one portion for another which has been ordered in a diet.

Each of the following amounts constitutes one proteid portion:

P.	F.	C.	Cal.		
8	5.5	....	80	Egg.	One.
8	8.0	....	140	Milk.	One "glass" (200 c.c.). (A tumbler or coffee cup 4 5 full.)
8	1.5	13.0	100	Buttermilk.	One-half pint. (A tumbler or coffee cup full.)
8	2.0	....	50	Meat or fish.	One and one-third oz. (40 grams). One oz. is the amount of meat in the lean part of a lamb chop; or 1 cubic inch of meat or fish. If steak or fish is 1/2 inch thick, surface would be 2x1 inches.
8	8.0	....	100		One oz. (30 grams).
				Varies with amount of fat.	
8	10.0	1.0	120	Cheese.	One and one-third tablespoons (80 grams).
8	6.0	1.0	90	Scrambled egg, or omelette.	One hundred grams (3 1/3 oz.).
8	3.0	8.0	90	Fish chowder.	One-half pint.
8	5.0	13.0	130	Purée soup.	Four and one-half oz. (a small cup) (130 grams).
8	7.0	16.0	160	Mustard.	Five oz., a small cup, or rather large serving (160 grams).
8	19.0	29.0	320	Ice cream	Eight average-sized (each weighing 10 grams, or 1/3 oz.). (One oyster of this size contains 1 gm. protein.)
8	2.0	3.5	65	Oysters.	Same as oysters, according to size.
				Clams.	
8	5.0	5.0	100	Average proteid portion (P. P.).	

TABLE 4.—CEREAL PORTIONS

The articles of food in this table are less rich in protein than those included under the head of proteid portions, but they are staple articles of food and a considerable part of the protein of the food is derived from them. The amount of protein in each cereal portion is 4 grams—the amount is a fairly thick slice of bread. Thus a cereal portion contains half as much protein as a proteid portion. Calculations and substitutes may be made in the same way as with proteid portions.

Each of the following amounts constitutes one cereal portion:

P.	F.	C.	Cal.		
4.0	0.5	24	115	Bread.	One and one-third oz. (40 grams). One slice of an average-sized loaf; 1 tea roll; 1/2 breakfast roll; 1 muffin.
4.0	6.0	40	230	Cake.	Average piece 2 oz. (60 grams).
4.5	4.0	28	165	Crackers.	One and one-third oz. (40 grams). (Weigh different kinds.)
3.0	0.5	22	100	Shredded Wheat.	One biscuit.
4.0	5.0	30	175	Pudding.	Simple puddings (bread, rice, Indian, tapioca, cornstarch), one serving, 3 1/3 oz. (100 grams).
4.0	10.0	38	250	Pie.	Average piece (100 grams).
4.0	....	40	180	Potato.	Two moderate-sized, 200 grams, 1 potato = 1/2 C. P.
4.0	6.0	36	220	Mashed potato.	3 tablespoons. 200 grams. 1 tablespoon = 1/3 C. P.
4.0	....	12	60	Butter beans.	2 tablespoons. 40 grams. 1 tablespoon = 1/2 C. P.
4.0	....	11	60	Lima beans.	2 tablespoons. 50 grams. 1 tablespoon = 1/2 C. P.
4.0	....	10	60	Peas.	2 tablespoons. 60 grams. 1 tablespoon = 1/2 C. P.
4.0	....	27	125	Green corn.	3 tablespoons. 140 grams. 1 tablespoon = 1/3 C. P.
4.0	1.0	24	120	Cereal (cooked).	4 tablespoons. 200 grams. 1 tablespoon = 1/2 C. P.
4.0	1.0	33	160	Corn Flakes, etc. (dry cereals).	8 tablespoons. 40 grams. 1 tablespoon = 1/8 C. P.
4.0	....	48	200	Rice (boiled).	4 tablespoons. 200 grams. 1 tablespoon = 1/4 C. P.
4.0	2.0	21	120	Macaroni.	4 tablespoons. 140 grams. 1 tablespoon = 1/4 C. P.
4.0	2.0	21	120	Vermicelli.	4 tablespoons. 140 grams. 1 tablespoon = 1/4 C. P.
4.0	....	30	140	Parasnis.	4 tablespoons. 200 grams. 1 tablespoon = 1/4 C. P.
4.0	....	20	100	Carrots.	4 tablespoons. 200 grams. 1 tablespoon = 1/4 C. P.
4.0	....	20	100	Squash.	4 tablespoons. 200 grams. 1 tablespoon = 1/4 C. P.
4.0	....	20	100	Turnips.	4 tablespoons. 200 grams. 1 tablespoon = 1/4 C. P.
4.0	....	20	100	Onions.	4 tablespoons. 200 grams. 1 tablespoon = 1/4 C. P.
4.0	1.0	30	140	Average cereal portion (C. P.).	

fore 100 gm. of milk would furnish 4 gm. of protein, the same amount of egg 13 gm., and of meat 20 gm. One egg weighs on the average 2 ounces, or 60 gm. Therefore it will contain approximately 8 gm. of protein. It would require 200 gm. (or c.c.) of milk to furnish 8 gm. of protein, but the same amount would be supplied by 40 gm. of meat. Therefore one egg may be regarded as equivalent to 200 c.c. of milk or 40 gm. of meat, and each of these amounts is one "portion." These albuminoid substances, known as proteids, and other similar articles which are relatively rich in protein are conveniently grouped together. Portions in this group are designated as "Proteid Portions," and the unit is 8 gm.

Table 3 gives a list of proteid portions, and Table 4 gives a list of cereal portions. In these two tables are included all the more common articles of a mixed diet, and from them sufficient variety may be obtained to satisfy any reasonable person.

The regulation of the amount of protein ingested is easy by means of these portions. We can order a certain number of proteid portions (P.P.) and a certain number of cereal portions (C.P.) and know with sufficient accuracy just how much protein the patient gets, although he may be given free choice of all the articles in these lists. For example, if it is desired to give the patient 60 gm. of protein in a day, 4 P.P. (4x8=32)

and 7 C.P. ($7 \times 4 = 28$) can be ordered; or 5 P.P. ($5 \times 8 = 40$) and 5 C.P. ($5 \times 4 = 20$). If the patient is ordered 5 P.P., he might take 2 eggs, one glass of milk, and 2 lamb chops; or one egg, one portion (40 gm.) of fish, 80 gm. of meat, and a cup of custard; or any other combination to make up 5 P.P.; yet from these 5 P.P. he will always get 40 gm. of protein. From the 5 C.P. he will get 20 gm., and the total will always be 60 gm., whatever the combination.

Variety and the regulation of the amount of protein, having thus been provided for, it must next be considered how this scheme affects the problem of the amount of nutrition—the total calories for the day. For, although each portion contains the same amount of protein, the number of calories varies considerably. For example, 1 P.P. of lean meat furnishes only 50 calories, while 1 P.P. of ice-cream furnishes 320 calories; or 1 C.P. of butter beans furnishes 60 calories, while 1 C.P. of cake gives 230 calories. These seem wide variations, but when a person is changing the diet rather frequently he comes pretty near the average figures given in the tables. Sufficient accuracy will therefore be attained by counting each proteid portion as 100 calories and each cereal portion as 140 calories.

THE METHOD OF PLANNING A DIET

The number of grams of protein that the patient should have must first be determined according to the severity of the case. Then the number of calories the diet should furnish must be decided. This is determined by a consideration of the normal weight of the patient and the amount of his activity.

An adult requires in twenty-four hours:

- At rest 14-16 calories per pound of normal weight.
- At light work 16-18 calories per pound of normal weight.
- At moderate work 18-20 calories per pound of normal weight.

Roughly stated, an average-sized man requires:

- At rest 2,000 calories in 24 hours.
- At light work 2,500 calories in 24 hours.
- At moderate work 3,000 calories in 24 hours.

Let us suppose, for example, that it is desired to prescribe a diet which contains 70 gm. of protein and furnishes 2,000 calories. It is desirable to prescribe a certain amount of cream in such a diet, both because it is an acceptable article of food and because of its high caloric value and relatively low amount of protein.

	P.	F.	C.	Cal.
Cream, 20 per cent., 1 oz.	1	6	1	60.
Cream, 30 per cent., 1 oz.	1	9	1	90.

Each ounce of cream contains 1 gm. of protein. A patient can readily take from 2 to 6 or 8 ounces of cream daily.

In planning a diet for a given number of grams of protein, the first number lower that is divisible by four is selected. This number of grams, being a multiple of four, can be provided for from the proteid portions and cereal portions. The number of grams above this is furnished by cream, each ounce of cream furnishing 1 gm. All the protein has now been provided for and no more can be added. The number of calories which have already been furnished are calculated and then the balance is provided for by articles which do not contain protein, such as butter, sugar, fruit, etc. These articles and their composition and caloric values are given in Table 2.

For example, it is desired to get 2,000 calories from a diet containing only 70 gm. of protein. The first number below 70 that is divisible by 4 is 68. Therefore 2 ounces of cream are ordered and the remaining 68 gm. are divided among the proteid and the cereal portions. If 5 P.P. is tried, that furnishes 5 times 8 or 40 gm. of protein, and there are 28 gm. left, which would be provided for by 7 C.P. Now 5 P.P. furnish on the average 500 calories, 7 C.P. furnish 980 calories, and 2 ounces of 20 per cent. cream furnish 120 calories. This provides for 1,600 calories. Since 2,000 calories are wanted and no more protein can be given, 400 calories must be obtained from non-protein foods. One ounce of butter would furnish 240 calories, 250 gm. (half a pound) of sweet fruit would give 100 calories, and 3 teaspoonfuls of sugar would give 75 calories. The total is 415 calories, or 15 calories more than is needed. It is not difficult to calculate such a diet.

This diet is tabulated in Table 5:

TABLE 5.—DIET FURNISHING 2,000 CALORIES WITH 70 GRAMS PROTEIN

	P	F.	C.	Cal.
5 P.P.	40	25	25	500
7 C.P.	28	7	210	980
Cream, 20%, 2 oz.	2	12	2	120
Butter, 1 oz. . . . .	..	27	..	240
Sweet fruits, 250 gm. . . . .	..	..	25	100
Sugar, 3 teaspoonfuls. . . . .	..	..	18	75
Total	70	71	280	2015

The diet may be varied further by the addition of any of the so-called "fodder-vegetables," which include asparagus, string beans, Brussels sprouts, cabbage, cauliflower, celery, cucumbers, greens, lettuce, pumpkin, radish, rhubarb, spinach and tomatoes. These do not in themselves furnish enough protein or nourishment to count. They are, however, acceptable to the taste, they add to the volume of the meal, and they offer a ready method of introducing butter or oil in the diet. They may be taken in such amounts and variety as are desired, provided they are easily digested.

This diet may be reduced to ordinary terms for the patient as follows:

Breakfast.—Fruit, 125 gm. (one-half of a large orange). Cereal, 4 tablespoons (1 c.p.), with $1\frac{1}{2}$ ounces of cream and 1 teaspoonful of sugar. One egg (1 p.p.) on 1 slice of toast (1 c.p.) with 1 pat ($\frac{1}{2}$ oz.) butter. Coffee, with $\frac{1}{2}$ ounce cream and 1 teaspoonful sugar.

Lunch.—Scrambled egg, 80 gm., $1\frac{1}{2}$ tablespoons (1 p.p.). Toast, 1 slice (1 c.p.) with 1 pat butter. Cake, 60 gm., average piece (1 c.p.). Fruit, 125 gm.

Dinner.—Oysters, 4 average-sized ($\frac{1}{2}$ p.p.). Purée soup, 4 ounces ($\frac{1}{2}$ p.p.). Fish, 40 gm. (1 p.p.). Meat, 40 gm. (1 p.p.). Bread, 1 slice (1 c.p.), butter, 1 pat. Potato, 1 moderate-sized ($\frac{1}{2}$ c.p.). Boiled rice, 2 tablespoons ($\frac{1}{2}$ c.p.). Spinach (or other fodder vegetables). Pudding, 100 gm., 1 serving (1 c.p.). Coffee, demi-tasse, with 1 teaspoonful of sugar.

With such a diet planned, the patient is instructed that wherever a proteid portion or a cereal portion is indicated, any other equivalent portion from the list may be substituted. Moreover, if at one meal he does not care for the full allowance, any article omitted or its equivalent may be taken at another meal. The patient may, if he desires, take more fruit, butter, sugar, or other non-protein food than is ordered.

Such a menu gives a patient a diet that is sufficient in amount and nutritive value, is satisfactory in variety to most people, is easy to obtain at an ordinary home table or at a hotel, and can be varied by the patient to

suit his taste; and yet with all the changes the patient is getting a well-balanced ration and his protein intake is strictly regulated.

I find that patients are able to understand these regulations without much difficulty, although the patient should be kept under rather close supervision until the ideas are thoroughly understood. Later the patient should make a report at stated intervals as to just what he has taken in twenty-four hours. In this way a case may be followed and controlled indefinitely.

Where accuracy is important the food should be actually weighed. It is a good plan to do this at the start in any important case. After weighing the different kinds of food for a time the portions can be estimated with sufficient accuracy by the eye. For the purpose of weighing food at the table I have found the food scales designed by Dr. Hart extremely satisfactory.³

RESULTS

What can be accomplished by such regulation of the diet?

Much will depend on the stage of advancement of the disease and on its activity. The treatment is prophylactic and palliative rather than curative. Naturally the best results are obtained in cases in which the functions of the kidneys are but little impaired, in the early or inactive stages of the disease. But surprisingly good results have been obtained in some cases of cardiorenal disease, so advanced that we should ordinarily despair of helping them.

When the protein metabolism can be adjusted relief from those symptoms which are due to failure to eliminate these waste products is obtained, and a condition of relative health is restored. The relief from nervous symptoms, anorexia, and the feeling of lassitude or fatigue has already been mentioned. Perhaps the most gratifying result, however, is the lowering of blood-pressure and the consequent relief of the burden thrown on the heart. It would appear that the increased blood-pressure in case of chronic nephritis is due, in part at least, to the excess of these waste products in the body. Such a reduction of blood-pressure cannot be secured in every case, but a gratifying reduction occurs in a large majority, and a surprising drop in many. Blood-pressures ranging from 200 to 180 mm. are commonly reduced below 160, not infrequently to 150 or 140.

One of my patients over 60 years old, starting with a blood-pressure of 190, finally reached and maintained for months a pressure ranging from 120 to 130. He enjoyed better health and strength than at any time since the symptoms arose two years before, but he died recently from an intercurrent disease, being unable to resist successfully an acute infection which resulted in pleurisy and pericarditis. I am confident that his life by regulation of the diet was prolonged fully two years longer than it would have been otherwise. I can see no reason why he should not have lived for an indefinite period longer but for this intercurrent affection.

Another patient was taken in charge a year and a half ago, after the second severe attack of uremic convulsions occurring within three months. He has been free from uremic attacks since then; he is in better health than for a number of years, and his blood-pressure for the past year has shown an average of 160, although it was 210 when treatment began.

In another case of advanced interstitial nephritis with failing cardiac compensation the blood-pressure was reduced from 260 to 180, although the patient had had symptoms for two years and marked symptoms for several months. In this case, however, the improvement lasted but two months, although during that time the patient was practically free from symptoms. Then the former symptoms recurred, with an increase of blood-pressure, so that in two months more it had again reached 260. The patient lived only about two months after that. Surely this was a very advanced case, yet great relief ensued for a time.

Such results cannot be secured in all cases, of course; nevertheless, they are exceptional rather in the degree of reduction of blood-pressure than in the fact that a satisfactory result was obtained. I have had a good result now in so many cases in which I hardly dared hope for it, that I am beginning to predict relief in almost every case. Contrast such results with the transient and unsatisfactory results of drug treatment, and I think you will agree that it is well worth while to take the moderate amount of trouble involved in the proper regulation of the diet.

The stumbling-block in the past has not been the absence of sufficient knowledge, for the scientific laboratory workers have known the underlying facts for years, but the difficulty of getting that knowledge into a form simple enough to enable the physician to apply it in every-day practice. This difficulty is overcome, at least in large measure, by the charts and tables here mentioned.

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ABSTRACT OF DISCUSSION

DR. G. C. SMITH, Boston: I have been interested during the past fifteen years in dietetics in chronic diseases, and the best methods of dealing with chronic affections. There are so few remedies in the way of drugs that can be continued with benefit for a long time, that it is necessary to get at these troubles in some other way, and the dietetic way seems to be the one indicated. The first instruction in New England given on the subject of dietetics has been given by Dr. Arnold. It is really a misfortune that every institution teaching medicine in this country does not have a definite chair of dietetics. It seems to me that this is too large a subject for a man who is teaching another subject to give instruction on. For the past two or three years, however, there has been an improvement in the manner in which the young physician in New England handles the chronic cases, dietetically speaking. Our experience has been somewhat different from Dr. Arnold's in some respects. The question of calories which enters into any diet can be modified very much, as explained by Dr. Arnold in his tables. In other words, in the cases that are primarily renal, the patients as a rule are very thin, usually cold and anemic. In such patients, the carbohydrates and fats must predominate in the diet. On the other hand, in the cardiorenal cases we often find the reverse. In these cases frequently the cardiac part is primary and the interstitial changes or process in the liver, the kidneys and elsewhere are secondary and consequent upon the prolonged congestion of these organs. Such a prolonged congestion, with the long duration of the disease, produces changes in metabolism which weaken the patient, making him take much less nourishment because he suffers with indigestion. The nourishment too may be of the wrong kind, *e. g.*: One may cut out the proteid and increase the "pap," and especially the sweets and bread with their high percentage of starches. By doing this and adding cream and butter the calories are much increased. Such patients are unable to take much exercise because of the cardiorenal disease; therefore, they remain in the house and at rest. A reduction in the number of calories in such cases should be made by

3. Hart, T. S.: A New Food Scale, THE JOURNAL A. M. A., Aug. 7, 1909, p. 457.

reducing the amount of fat and carbohydrates. Then the question of the proteid element comes up. There is no doubt in this class of cases but that the proteid element must be higher than seventy grams; one cannot produce an improvement in metabolism without more proteid; hence we must give it to furnish the best nutrition for the cells of the body. Consequently in all these cardiorenal cases it will be found advisable to raise the amount of proteids higher than physicians as a rule recommend. This may be considered a little off from the subject of the paper, but it is such a common thing to find the renal and cardiac cases mixed that it is well to consider them.

DR. PHILIP S. ROY, Washington, D. C.: I have used Dr. Arnold's charts regularly. As to the question of fats and carbohydrates overloading the system and the metabolism becoming deranged as a consequence thereof, as mentioned by Dr. Smith, I have not found that the case if Dr. Arnold's plan be followed. When one wishes to lessen the number of carbohydrate calories, he can replace these calories with fat. Three pints of milk with a pint of cream and one ounce of butter equals about 2,000 calories. This will give all the energy needed. I am in accord with the statement that the proteids in disease of the kidney should not be above 50 grams daily.

DR. H. D. ARNOLD, Boston: I am glad that Dr. Smith mentioned the cardiorenal cases in which the cardiac end predominates. The problem here is somewhat different, in that the power of the kidneys to eliminate nitrogenous material is less seriously impaired. Greater liberality in the use of protein food may be allowed, yet even in these cases there is no necessity for large amounts. I think that 50 grams of protein are enough for the purposes of tissue building, including the heart. It is of great importance that there should be an abundant amount of nutrition—a sufficiently high caloric value to the diet—but beyond the amount of protein needed for tissue-building, this nutriment is just as well, if not better, derived from the other foodstuffs. Often, however, our plan must be modified because of questions of digestion and assimilation. Some people cannot digest fats well, and others have difficulty with the carbohydrates. I would not be understood as maintaining that we must always give the number of calories which are indicated by theoretical calculations. Often we find a patient will maintain weight and strength, and may even gain, on 1,500 calories when 2,000 or more are demanded theoretically. If such is the case it is a mistake to force the patient to take the larger amount.

The only credit I feel that I am entitled to in this work is in getting our knowledge in dietetics into a simple, practical form for application in ordinary practice. There is nothing in it that is new or that has not been utilized by the laboratory workers in metabolism experiments for years. But the data have been too complicated for use in ordinary cases and have not been easily available. If we can apply these principles to ordinary patients we shall plan diets with far more intelligence than we have done in the past.

Health and Sanitation in Cuba.—Reporting the result of an inspection trip over the Island of Cuba (*Sanidad y Beneficencia*, April, 1910, p. 305), Dr. Manuel Varona Suarez, Secretary of Health and Charities, says that there did not exist a single case of quarantinable disease with the exception of leprosy, and that his country was on a level with the healthiest communities in the world. He also asserts that should such a disease enter the country the efficient sanitary organization of the island would be able to ward off the threatening danger. He feels that the national health department is efficient, but regrets that he cannot say as much for the sanitary service in the municipalities, for he found with a few exceptions that vaccination was neglected, that the public slaughter houses were in a shameful condition, and that the cemeteries were almost as much neglected. Two great obstacles to efficient sanitation were lack of water supplies and sewerage systems. His inspection convinced him of the urgent necessity of establishing dispensaries and sanatoriums at appropriate sites in the various provinces and of founding hospitals and special wards for the care of the large consumptive population which lacks resources to protect itself against the disease and which constitutes the chief factor in its propagation.

APPENDICITIS IN CHILDHOOD

WITH A REPORT OF 500 CASES *

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This paper is based on an analysis of 500 cases in which I operated at the Children's Hospital of the Mary J. Drexel Home, and on a review of the more recent literature.

Appendicitis in childhood, characterized as it is by subtle and insidious onset, rapid progress and obscurity of symptoms, is a disease of the most profound importance, and it well merits more attention and study than has hitherto been bestowed on it.

The earliest case of appendicitis was reported by Dixon,¹ and occurred in a baby, aged 24 days, which was premature at the eighth month. The appendix was gangrenous and formed, with part of the cecum and ileum, the contents of a sac of a strangulated inguinal hernia. Since the appendix was adherent to the sac, Dixon held it responsible for the descent of the ileum and cecum. A very similar case is reported by Lilienthal.² Other cases of infantile appendicitis are reported by Bamberg,³ in a child, aged 5 weeks; by Dennis and Goyens, in two infants, aged 6 weeks, and by Blumer and Shaw, in one, aged 7 weeks. Berkholz⁴ reports four cases in infants, aged 12, 15, 17 and 19 months, respectively, while Schellong⁵ met a case in an infant, aged 21 months. Alsberg⁶ gives as his youngest patient a baby, aged 6 months, while Springer⁷ has seen none younger than 3 years. My youngest patient was 21 months old. Mayet (cited by Springer) collected reports of nine cases of appendicitis in infants. In 1,000 cases McCosh⁸ found 1.7 per cent. in children up to 5 years of age. My statistics, however, place the frequency in the first five years at about 8 per cent. This frequency in the first five years of life will probably be diminished under more refined diagnoses. Churchmann⁹ thinks that infantile appendicitis deserves separate consideration from that occurring later in childhood, stating, with much truth, that the surgical problem of infantile appendicitis is that of diagnosis, and that the difficulty of diagnosis keeps up the mortality. So, also, von Brunn¹⁰ asserts that the danger of appendicitis is greater in the first years of life than later, and gives a 50 per cent. mortality in all infants under 5 years of age that were present in a series of 117 cases in children. In those from 6 to 10 years of age, inclusive, the frequency jumps from 8 per cent. to 36 per cent., finally reaching 56 per cent. in those between the ages of 11 and 15 years.

As to sex, males predominate. Riedel¹¹ found that of 1,532 patients 955 were males and 577 females. My series showed 315 males and 185 females.

* Read in the Section on Surgery of the American Medical Association, at the Sixty-first Annual Session, at St. Louis, June, 1910.
* For reasons of space, the table of cases is omitted. It appears in the Transactions of the Section and in the author's reprints.

1. Dixon: *Ann. Surg.*, 1908, xlvii, 57.
2. Lilienthal, Howard: *THE JOURNAL A. M. A.*, Aug. 29, 1908, p. 751.
3. Bamberg: *Inaug. Diss.*, Leipzig, 1905.
4. Berkholz: *Monatschr. f. Kinderh.*, lxxxviii, 133.
5. Schellong: *Med. Klin.*, 1908, iv, 722.
6. Alsberg: *Arch. f. Kinderh.*, 1909, l, 252.
7. Springer: *Prag. med. Wechschr.*, 1909, xxxiv, 89.
8. McCosh, A. J.: *Appendicitis in Children*, *THE JOURNAL A. M. A.*, Sept. 24, 1909, p. 853.
9. Churchmann: *Bull. Johns Hopkins Hosp.*, 1909, xx, 31.
10. v. Brunn: *Deutsch. med. Wechschr.*, 1909, xxxv, 1591.
11. Riedel: *München. med. Wechschr.*, 1907, liv, 2305.

The microscopic pathology of acute appendicitis has been carefully studied by Alsborg,⁶ who emphasizes the importance of fixing the appendix in 0.8 per cent. formaldehyd solution immediately after its severance from the cecum. The most important changes, of course, are in the mucosa, but the other coats act in sympathy, as the inflammation increases in intensity from the center toward the periphery. In the mucosa the epithelium is desquamated, often eroded and extensively destroyed, and hemorrhages are frequent. The solitary lymph-nodules are enlarged, thickened and studded with polymorphonuclear eosinophils. Alsborg warns against mistaking the exceptionally well-developed nodules of children beyond 2 years of age, especially when cut oblique, for inflammatory changes. The submucosa and sometimes the muscular coat is edematous and the blood and lymph-vessels distended and choked with leukocytes. The serosa is congested and often covered with white fibrin. Ulceration may extend through to the serosa, producing appendicitis granulosa of Riedel, which involves, by predilection, the hip.

In chronic appendicitis also the principal changes are found in the mucosa, in which the epithelium and mucous glands are destroyed and the lymph-nodules atrophied, while contractions may obliterate the entire length of the lumen, or only one part of it. Stenosis near the base of the appendix leads to the formation of hydrops or empyema, and, if near the tip, produces a globular swelling, which, however, causes little or no danger. Adhesions, more or less extensive, may be connected with other organs more remote from the ileocecal region than in adults, because of the greater length of the appendix in children, which compared to that of the large intestine, is, according to Ribbert, 1.1 in new-born children and 1.2 in adults. This circumstance accounts for many mistaken diagnoses, Schellong² reporting a case in which the appendix ran transversely behind the bladder to the left and set up a left-sided appendicitis. Riedel¹¹ states that strictures are relatively rare in children, because a long time is required for their formation. He places their frequency in adults at 26.5 per cent. and in children at 8.7 per cent. Fecal concretions, on the other hand, are relatively common, Springer⁷ having found them in 59 per cent. of acute cases and in 20 per cent. of chronic. They are even more frequent than in adults, in the proportion, according to Riedel, of 39 per cent. in children and 27.7 per cent. in adults. The same author states that the worst attacks are associated with suppurating fecal concretions. It is interesting to observe that Low found meconium in the appendix of a 5-month fetus.

Often, the regional lymph-nodules are swollen, indurated and inflamed, and Comby¹² regards them as "witnesses of infectious processes of which appendicitis is the stage." Churchmann⁹ states that the pathology of appendicitis in children is distinguished from that of adult life by the tendency to early perforation and the frequency of spreading peritonitis, and Sloan¹³ observes that the undeveloped omentum affords less protection against rapidly spreading peritonitis.

The predisposing causes of appendicitis are said to be infectious disease, family disposition, dental caries and mechanical irritation. Of the infectious and contagious diseases, enteric fever, scarlatina, influenza, mumps, pertussis and chicken-pox, have been mentioned. Enteric

fever and intestinal catarrh certainly produce congestion of the appendix, which, with superficial loss of epithelium, may prepare the way for infection of the deeper layers. As to scarlatina, Springer states that Ganghofer, in twenty years' experience with scarlet fever, did not observe acute appendicitis in a single instance. Epidemics of influenza often leave in their wake severe acute attacks of appendicitis; certainly, influenza readily affects lymphoid organs. Chicken-pox was more than likely the cause of appendicitis in Schellong's case. The etiologic status of nasopharyngeal troubles, tonsillitis, adenoids, cervical adenopathies and otitis media, is problematic, as the path by which the exciting cause of these conditions reaches the appendix is somewhat obscure, unless it is assumed to be hematogenous. Sloan¹³ states that the period of greatest development and activity of the lymphoid tissues corresponds to the period of greatest incidence of appendicitis. Family disposition is emphasized by the French, and may be accounted for by the irregular mode of life among poor families, so that neglect, improper feeding and insufficient medical attention may bring about appendicitis as well in one child of a family as in another.

Jackson¹⁴ presents eleven arguments why dental caries should cause appendicitis, the most striking of which are that infants suffer rarely and that the civilized have both dental caries and appendicitis, while the uncivilized have good teeth, and no appendicitis. Teeth, examined by Alsborg in nine children with appendicitis, were carious, and partly absent in six and normal in three. Mechanical irritation may be caused by errors of diet and foreign bodies. Errors of diet, though undoubtedly responsible for recurrences in adults, are probably only remotely connected with acute appendicitis. Springer has noticed no increase in the frequency of acute appendicitis when the fruit season is at its height. Fecal concretions and other foreign bodies may irritate the appendix enough to permit the entrance of bacteria through epithelial abrasions, but, on the contrary, they may lie dormant for a long time and, not rarely, throughout life. Alsborg found two bits of enamel in an acutely inflamed appendix. To intestinal worms, by their frequency in childhood, might be ascribed a causative rôle. In large numbers (as, for example, 80 oxyuris in an appendix extirpated by Hippius-Levinsohn, cited by Springer) they could block the lumen of the appendix, cause colic, and injure the mucosa superficially by trauma and by the elaboration of toxins. The exciting cause of appendicitis is, of course, bacterial, and usually *Bacillus coli communis*, which is ever alert to invade the walls of the appendix through a *locus minoris resistentiæ* offered by any of the predisposing causes. Other pyogenic organisms may act alone or in conjunction with *B. coli*.

The symptoms of acute appendicitis in infants are unquestionably scanty, irregular and misleading, and it undoubtedly follows that infantile appendicitis is more frequent than is generally believed, or than statistics show. Thus, at autopsy on a 2-weeks-old infant that died of severe acute enteritis, Deiss (cited by Soltmann) found acute appendicitis with serofibrinous peritonitis, without having produced any clinical symptoms, and concludes from this that such findings in infants, even when less severe, are frequent. So, too Churchmann states that appendicitis of the severest type may exist without one of the classic symptoms, and that even a general peritonitis may develop under observation.

12. Comby: Bull. méd., Paris, 1908, xxi, 535.

13. Sloan: Eclec. Med. Jour., Cincinnati, 1909, lxi, 372.

14. Jackson: Australasian Med. Cong. Tr., 1909, 4, 1359.

In older children, on the contrary, symptoms reach the other extreme, and acute attacks, even more regularly than in adults, occur suddenly and with very stormy symptoms. There are severe pains which localize about the navel, shortly followed by vomiting, rigidity, more or less extensive, and abdominal distention. The temperature is usually higher than in adults and the pulse more frequent. On the whole, these children give the impression of being seriously ill, lying on their backs with legs drawn up, or curled up on their side, writhing from pain. It must be remembered that the child may be mentally incapable of accurately locating the pain, often pointing to various parts of the abdomen as the place of greatest intensity. Voluntary rigidity is common in children, owing to fear. Hyperpyrexia is an attribute of childhood, and the rapid pulse is due in part to the hyperpyrexia, and in part to the restlessness of the child. Thus, it is evident that the reaction of the whole organism is more active in childhood than later.

In chronic appendicitis the whole organism may be affected by the presence of a chronic focus of infection. The troubles are chiefly digestive. The appetite is capricious and varies from day to day. The tongue is coated and the breath bad. Digestion is slow and dyspepsia marked by flatulence and epigastric swelling after meals. Constipation is habitual and obstinate. Such disturbance may interfere with nutrition even to the extent of emaciation. The face may be thin, pale and sallow, and there may be black circles about the eyes. On the other hand, sufferers from chronic appendicitis may have rosy cheeks and a generally healthy condition. There may be circulatory disturbances, as pallor and blushing of the face, cold hands and feet, and cardiac palpitation and dyspnea on exertion. Secondary anemia, with a murmur at the base of the heart may exist, and fainting may occur. Appendiceal neurasthenia may render children dull and silent and "friends of solitude and repose."

The diagnosis of appendicitis in infancy and childhood should be made easy by the epigram: "All cases of abdominal trouble in children are appendicitis until proved otherwise." With this proviso, there should follow a systematic examination of all organs. In infancy it is unquestionably difficult, yet usually capable of being established. In this solution it must be borne in mind that the younger the child, the more deeply the appendix lies in the pelvis, owing, according to Selter, to the deep position of the cecum in the pelvic fossa. Hence, it is conceivable that bladder symptoms may monopolize the attention of the examiner, there being cloudy urine from edema of the bladder, tenesmus, and even retention from direct irritation of the bladder wall. Many cases have been reported in which urinary symptoms predominated. Churchmann writes that all urinary symptoms in childhood suggest the possibility of appendicitis. For the same reason pelvic abscesses are common, and may simulate abscesses from other causes, so that the same author states that in infants with apparent hip-joint disease, particularly if the thigh be flexed, the same possibility should be kept in mind. It is obvious then that every possible means of reaching in and about the right iliac region must be employed. The simple procedure of catheterizing the bladder may go a long way toward clearing up a doubtful case, and evacuating the phantom pelvic abscess.

By far one of the most important procedures in children is rectal palpation, and this must never be neg-

lected. Churchman states that palpable resistance on the right side by rectal examination is one of the most frequent findings, and Selter calls it absolutely constant. In Schellong's case, the symptoms were characteristic of rectal abscess, including fever, rectal tenesmus and frequent small slimy stools. Rectal examination revealed within half a finger's length an abscess which protruded from above and to the right toward the rectum. Doubtless this rectal palpation has been the sole element of correct diagnosis in numerous cases, including two of my own. Tenderness at McBurney's point, when present, is almost pathognomonic, but the wandering appendices of childhood may carry their tenderness elsewhere. Thus, tenderness may be greater on the left side than on the right, as when the appendix is in the pelvis. Other signs, more applicable to older children, are hyperesthesia of the skin, and the fact that sudden removal of the palpating finger-tips from the point of greatest tenderness is more painful than the finger-tips themselves. Carstens¹⁵ recommends palpatory percussion. Flexion of the right thigh on the abdomen is likewise very suggestive. In chronic appendicitis the organ is more often palpable than in adults, and an analytic study of the symptoms, together with localization of the tenderness at or near McBurney's point, usually establishes the diagnosis.

An appreciation of the difficulties of differential diagnosis may be had only by scanning the various and varying cases reported in the literature. Affections of the thoracic, abdominal and pelvic viscera, as well as of near-by joints, may enviously mimic the peculiar little ways of the appendix. The old question of pneumonia or appendicitis must be cautiously considered, particularly right-sided central pneumonia with but few physical signs. At the onset of right-sided croupous or central pneumonia, pain is often referred to the abdomen, and incriminates the appendix. This abdominal hyperesthesia may disappear by firm manual pressure, and the abdominal walls relax between respirations, which are very rapid. There may be herpes and cyanosis of the lips. In puzzling cases, careful observation usually clears the diagnosis within twenty-four hours. Cholelithiasis is rare in childhood, yet Alsberg mentions a typical gall-stone attack in a 3-year-old child, with the passage of gall-stones. Julien¹⁶ reports a case of perforative appendicitis with retrocecal abscess, which was diagnosed as hepatic colic. Pancreatitis, renal colic, and movable kidney are rare in childhood. Intestinal catarrh, especially when accompanied by colic, may seriously cloud the diagnosis because of pain, vomiting, increased abdominal tension, fever and rapid pulse.

Of the intestinal obstructions, intussusception may be distinguished by the tympanites, by paroxysmal pain, by the discharge of bloody mucus from the anus, and by the late appearance of inflammatory peritoneal reaction, although if seen for the first time in the stage of general peritonitis, differentiation from appendiceal peritonitis is impossible, and in such cases operation is the safest procedure. Intussusception is of importance because of its frequency in childhood. The dense, sausage-shaped tumor, which shifts and varies in size, even to the extent of being reached by rectal palpation, as the intussusciens advances, may be helpful in diagnosis. Springer was led to the erroneous diagnosis of perforative appendicitis with peritonitis in a case which autopsy showed to be volvulus, caused by a lymphangioma in the mesentery

15. Carstens: *Deutsch. med. Wchnschr.*, 1909, p. 1592.

16. Julien: *Echo méd. du Nord.*, 1907, xl, 859.

of the small intestine. This case suggests the possibility of a congenital mesenteric cyst, such as I recently¹⁷ reported, likewise being confused with acute appendicitis. In one of my cases, a right ovarian cyst twisted on its pedicle, in a girl aged 12, simulated acute appendicitis. In girls, salpingitis and gonococcal peritonitis must be considered, and the presence of vaginal discharge or vulvovaginitis will be helpful, as well as rectal examination. Tuberculous peritonitis was mimicked by a case of appendicitis reported by Rubritius and Hermann (cited by Springer) from von Jaksch's clinic. Acute cystitis in small children, caused by the colon bacillus, gives rise to fever, pains about the navel and vomiting. Here urinalysis, which often must be made repeatedly, suggests the diagnosis. Chronic appendicitis, by causing adhesions to the bladder, may be confused with cystitis. Lumbar abscess, such as may accompany Pott's disease, was diagnosed by Julien¹⁶ in Case 4 of his series, a girl aged 4 with appendiceal abscess, which was evacuated by lumbar incision. In right-sided hip-joint disease there is absence of inflammatory peritoneal reaction, presence of muscular contracture, and the demonstration of foci of diseased bone. Churchmann reports cases which simulated this as well as vesical calculus, intestinal obstruction, associated with roundworms, and even cerebrospinal meningitis. Diagnosis in cases treated medically must always be uncertain.

The prognosis of acute appendicitis is favorable, if the case is received early, and if the appendix is removed early. If the patient is operated on within the first twenty-four hours, the mortality is practically nil. Beyond this time, in suppurating cases, the mortality rapidly rises and after the third or fourth day is nearly as unfavorable as it was favorable in the early stage. With the flight of time, thinner grows the hair that suspends the sword of Damocles. Moreover, the danger of acute appendicitis is greater in the first two years of life than later. In chronic appendicitis, while there is no immediate danger, yet an acute attack with perforative peritonitis is always to be feared. In fact, as Alsberg expresses it, "A person who has once recovered from an attack of appendicitis sits on a barrel of gunpowder."

As regards the value of the leukocyte count, I agree with Soltmann that the greater the leukocytosis, and the larger the relative percentage of polymorphonuclears, provided the temperature and the pulse are proportionate and not high, the more favorable the prognosis; while the lower the leukocytosis, with lower temperature and more frequent pulse, the more unfavorable and severe the course. He thinks that leukocytes here play a rôle similar to that which they play in the autolysis of the lungs in pneumonia, where a proteolytic ferment exerts a digestive action on the exudate.

The ideal treatment will maintain the mortality at nil. This ideal will be attained only when all patients are operated on early. That early operation is the normal course to pursue is now conceded by the world's surgeons. It is true that more early cases are received than formerly. That is why the mortality is decreasing as the years roll on. But the desideratum is that all patients be received early. I believe that the fault is not so much with the medical profession as with the ignorance and prejudice of parents. How many patients do we receive, sick from three to seven days, with pus-laden abdomens, and the parents beseeching us to operate!

The time to operate, then, is before the storm breaks, and while the noon-day quiet holds the hill. Twenty-eight of the appendices in my series were ballooned with pus, and on the point of exploding, when removed. Such an organ, like Vesuvius, threatens the entire peritoneal cavity. A unique feature of appendicitis, up to and during this stage, is that the entire area of acute inflammation and phlegmon can be removed with nothing but benefit to the patient. Where else in the body is such a thing possible? Can a digit, the seat of a felon, be amputated with propriety? Can a pyosalpinx be removed with the same disregard for the value of the organ? Can even a surface phlegmon, as a carbuncle, be removed *in toto* in a similarly satisfactory manner? Inconceivable! Here, then, is an organ which, together with the disease that has attacked it, can be ablated without depriving the patient of an organ or tissue of any recognized value.

In cases in which there is a localizing abscess, with diffuse peritonitis, general abdominal tenderness, with more or less distention and bilateral rigidity, moderately high temperature and rapid pulse, with a low leukocyte count and a large percentage of polymorphonuclears, it is best to defer operation. With the ebbing of the tide, there is often revealed a mass stranded on the pelvic shelf, an indication that the omentum and coils of intestine have had time to assemble and form a barrier to the pus. With the evacuation of the abscess, recovery is practically assured. In twenty of my cases I waited from two to twelve days before operating.

Such cases are managed very much the same as cases of acute pyosalpinx. Rest in bed, ice-packs to the abdomen, the Fowler position, gastric lavage, rectal instillations of saline solution and no water, no nourishment by mouth, no purgatives, no opium.

Opium clouds the symptoms and makes the diagnosis more difficult. By favoring tympanites, it interferes with palpation and percussion, and, by diminishing or removing pain, it makes severe cases assume a more benign aspect. It also retards the defensive activities of the leukocytes. Purgatives must be withheld absolutely. This statement cannot be made too strong. The majority of badly progressing cases of appendicitis have been treated with purgatives and the most unfavorable turn often dates directly from the time of their administration. Cases have been reported in which purgatives have produced perforation. As one writer expresses it, "First purgatives, then death." Cathartics must never be given unless it is absolutely certain that appendicitis is absent. By increasing peristalsis, they interfere with the localizing process, and in the presence of perforation, increase fecal extravasation. If spontaneous defecation does not occur after the most acute symptoms have subsided, it may be assisted by small, lightly injected enemas of soap suds or oil, or by suppositories.

I wish it clearly understood that I employ non-operative treatment only in cases with localizing abscess with diffuse peritonitis. To treat early intra-appendiceal appendicitis medically is a hazardous venture; as well might one tie a halter about the little patient's neck. It is like the game of heads I win, tails you lose. Medical treatment should have no more place in the treatment of these early cases than it has in hare-lip or cleft palate. Its mortality is twice that of the operative, and in cases of recovery it is difficult to convince the parents of the

17. Deaver, H. C.: *Ann. Surg.*, 1909, xlix, 619.

necessity of interval operation. Furthermore, when recurrence does occur, surgical help may not be at hand.

Operation is even more suitable for children than for adults, since their kidneys and cardiovascular system have not suffered through alcohol or age, and hypostatic pneumonia seldom occurs. In suppurative cases the appendix may be removed when it lies free or presents conspicuously in the wall of the abscess. On the other hand, when the abscess is large and the appendix not directly visible, and when its removal necessitates extensive dissection of adhesions, it should not be disturbed, because of the probably already weakened and exhausted condition of the child, and the chance of diffusing pus over the abdomen. Thus, in twenty-six of my cases, the appendix was not searched for, but was removed subsequently. When pus is already diffused throughout the abdominal cavity, flushing the peritoneum is decidedly contra-indicated. Accessible pus, however, may be mopped away and copious drainage provided through the original incision and through counter incisions. In "clean" cases, I employ a small gridiron incision, since it reduces the chances of a post-operative hernia to a minimum. The stump of the appendix must be carefully disposed of by tucking under, and cecoplication must be so performed that there will be no liability of the sutures yielding, thus permitting reinfection of the peritoneum by the stump. As a routine measure a glass tube should be passed into the pelvic basin to explore for fluid, lest a pelvic collection be overlooked, and this precaution may be rendered doubly effective by rectal examination previous to operation.

The post-operative treatment of appendicitis is highly important. This begins immediately on the patient's removal from the operating table. If drainage has been required, the patient should be propped upright in bed, in the Fowler position. I do not maintain this position for more than thirty-six hours, for fear the intestines, already crowded into the pelvis by gravity, adhere to each other and cause intestinal obstruction. Enteroclysis, I am sure, is most beneficial for pus cases.

Nausea, spitting up, and vomiting after operation, usually yield to the stomach-tube. If these are persistent, however, and if there is a sudden severe pain becoming paroxysmal, intestinal obstruction has developed, as these are the initial symptoms.

The classic symptoms of intestinal obstruction, projectile vomiting, great distention, and retention of feces and gas, must not be permitted to appear, since they bring forlorn hope to the operating-table. These are not the symptoms of intestinal obstruction, but are those of a toxic peritonitis, the result of intestinal obstruction. I found the temperature and pulse to be of but little significance in these cases. When operating, if no definite constricting band is found, and the adhesions are numerous, the best procedure is to establish lateral anastomosis to circumvent the obstructed area. Accordingly, I established ileocolostomy in one of my cases of intestinal obstruction. In two other cases the same procedure was indicated at the primary operation for prophylaxis of the partial obstruction, which was present, becoming complete. In the one, two knuckles of ileum had adhered so as to produce partial obstruction by agglutination, and ileocolostomy was necessary. In the other, enterorrhaphy to close a perforation of the ileum so narrowed the intestine that ileocolostomy was likewise performed. I have prepared a table showing sixteen cases of intestinal obstruction operated on with one

death, that of a boy, admitted on the fourth day of his illness, who had developed a frightful peritonitis and, after a plucky fight of eighty-five days, in the course of which he developed bronchopneumonia and subphrenic abscess and endured three operations, finally succumbed to that octopus of surgery, universal abdominal adhesions.

Secondary abscess occurred in twelve of my cases, and was subphrenic in six. Cases showing diffuse peritonitis at operation must be watched carefully throughout the first month of the post-operative period for evidence of this complication. Protracted elevation of temperature, together with high leukocyte count and local signs, usually indicate secondary abscess. Subphrenic abscess fixes the diaphragm, produces rigidity of the overlying muscles, pushes the liver down, causes diaphragmatic pleurisy, and makes the patient profoundly septic. In the series of intestinal obstruction, two secondary abscesses were found, one beneath the diaphragm and the other at the duodeno-jejunal flexure.

The amount of urine must be watched daily after operation, and the stools examined for blood and intestinal parasites. The heart and lungs should be examined daily, and the skin closely watched for prompt diagnosis of the eruptive fevers and the throat for diphtheria. Six of my patients developed contagious diseases during their convalescence.

As regards drainage, I employ it only when the exudate is purulent or in large quantity. I use gauze, with or without a glass or rubber drainage-tube. The objection to drainage, especially with tubes, is that it may cause inflammatory exudate predisposing to intestinal obstruction. Glass tubes are more suitable for the pelvis, but their rigidity is a drawback. One of my patients broke a glass tube in his pelvis. In three others the tube was found, when dressing, to be blocked by a plug of omentum. The glass tube is usually removed within three days, when the exudate becomes clear and small in amount. It is replaced by a rubber tube, which is removed within a week. Rubber tubes are also useful in draining pockets of pus through counter-incisions, and, in conjunction with gauze, for large collections. Gauze drains well for a few hours, but, after that, it is only protective in function and hinders, rather than favors, drainage. Over the drainage I place gauze dressings, wrung out in sterile salt solution, since thus they absorb discharges more readily than a dry dressing.

CONCLUSIONS

1. Appendicitis in childhood occurs with increasing frequency from birth to puberty, and is more common in males.
2. It runs a rapid and severe course in children more often than in adults. There is less tendency to the formation of strictures, but fecal concretions are more often found.
3. Enteric fever, intestinal catarrh and influenza may predispose to appendicitis. Other infectious or contagious diseases and nasopharyngeal troubles are hardly to be considered as etiologic factors.
4. In infants the symptoms of acute appendicitis are often scanty, irregular and misleading. Infantile appendicitis is more frequent than is generally believed, or than statistics. In older children even more regularly than in adults, acute attacks occur suddenly and stormily. Chronic appendicitis represents a focus of chronic autotoxemia, with all its attending evils.

5. All cases of abdominal trouble in children should be regarded as appendicitis until proved otherwise. Differential diagnosis must be made between appendicitis and intestinal catarrh or worms, right-sided pneumonia or sacro-iliac disease, ovarian cyst twisted on its pedicle, mesenteric cysts, cystitis and rectal abscess.

6. The prognosis in acute appendicitis is favorable, if the case is received early and if the appendix is removed early. If the patient is operated on within the first twenty-four hours, the mortality is practically nil. After this time, the prognosis rapidly becomes worse. In chronic appendicitis an acute attack with perforative appendicitis is always to be feared.

7. The result of this ideal in treatment is to maintain the mortality at nil. Early operation is the normal course to pursue.

8. In intra-appendiceal appendicitis the appendix with the entire diseased tissue can be removed with nothing but benefit to the patient.

9. Non-operative treatment is indicated in cases of localizing abscess with diffuse peritonitis. Opium and purgatives are absolutely contra-indicated. Cathartics must never be given unless it is absolutely certain that appendicitis is absent.

10. Operation is even more suitable for children than for adults.

11. Post-operative treatment is highly important. The Fowler position must not be maintained for more than thirty-six hours in drainage cases, lest intestinal obstruction develop.

12. Intestinal obstruction is ushered in by sudden, severe pain, becoming paroxysmal, and by nausea, spitting up and vomiting. Later symptoms arise in consequence of toxic peritonitis, the result of intestinal obstruction. The temperature and pulse are of but little significance in these cases. In the presence of numerous adhesions ileocolostomy is the best procedure.

13. Secondary abscess must be carefully watched for. It is revealed by a rise and continued elevation of temperature, with high leukocyte count and local signs.

14. Contagious diseases must be recognized at once.

15. Drainage is to be employed only when the exudate is purulent or in large quantity. By its presence, it produces adhesions and predisposes to intestinal obstruction. Glass tubes may be broken or plugged by omentum. Rubber tubes are valuable for their pliability. Gauze drains well at first, but later retards drainage. A wet dressing is the best for absorption.

CONDITION OF PERITONEUM	
Local peritonitis with abscess.....	243
General peritonitis	12
Diffuse peritonitis	43
LOCATION OF ABSCESS	
About appendix	123
Pelvis	65
Liver to pelvis	11
Subhepatic	3
Near navel	1
Near spleen	1
Multiple	39
MISCELLANEOUS PATHOLOGIC CONDITIONS	
Gangrene of liver (partial).....	1
Gangrene of spleen (one-half).....	1
Gangrene of omentum (partial).....	1
Gangrene of cecum (single).....	3
Gangrene of cecum (multiple).....	4
Gangrene of ileum (partial).....	7
Ulcer of cecum (subserous).....	1
Ectymosis of cecum (subserous).....	1
Cecum adherent to parietes.....	3
Perforation of ileum.....	2
Perforation of cecum.....	3
Uterus didelphys	1
Uterus, retroversion of.....	1
Ovarian cyst, twisted on pedicle.....	1
DRAINAGE	
Gauze	113
Tube, glass	52
Tube, rubber	24
Gauze and glass tube.....	91
Gauze and rubber tube.....	18
Counter-openings	19
COMPLICATIONS	
Bronchitis	1
Pneumonia	12
Abscess, secondary	12
Abscess, subphrenic	6
Intestinal obstruction	16
Phlebitis	2
Parotitis	1
Nephritis	1
Uremia	2
Endocarditis, acute	1
Diphtheria	2
Scarlatina	1
Measles	1
Pertussis	1
Enteric fever	1
Erysipelas	1
Melena	2
Hemorrhage, secondary	1
Evisceration from crying.....	2
Ulcer, decubitus	1
CAUSE OF DEATH	
General peritonitis	12
Pneumonia	5
Uremia	5
Abscess, subphrenic	2
Abscess, perisplenic	1
Hemorrhage, secondary	1
Gangrene of spleen.....	1
Gangrene of ileum.....	1
Intestinal obstruction	1

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ABSTRACT OF DISCUSSION

DR. L. S. McMurtry, Louisville, Ky.: The subject of appendicitis has received such frequent and elaborate consideration in this section from year to year that it is difficult to present any phase of the subject which has not hitherto been discussed. The paper just read, however, brings forward an important and common incidence of this disease which has not had adequate attention. This disease is often overlooked in children, or the diagnosis made too late to obtain the best results from treatment. There are two conditions which render diagnosis exceptionally difficult: First, those anatomic variations found in childhood relating to the position and relations of the caput coli and appendix, developmental in character, detract from the classic local symptoms and are in consequence misleading. Second, in early childhood the patient is unable to lend the cooperation as to subjective symptoms afforded by adults, which is so valuable as a diagnostic aid. And again, the diagnosis is more difficult because in young children palpation is impracticable, especially deep palpation. Gentle rectal examination is a valuable aid to diagnosis, and will often disclose the nature of the disease.

The essayist has properly emphasized the importance of quick work in the operative procedure. The dangers of prolonged

STATISTICS

Number of cases.....	500
Number of deaths.....	23
Mortality	(per cent.) 4.6

SEX

Males	315
Females	185

AGE

Birth to five years.....	40
Six to ten years.....	180
Eleven to fifteen years.....	280

VARIETY

Acute appendicitis	403
Chronic appendicitis	97

CONDITION OF APPENDIX

Abscess at tip.....	27
Ulcerated, but not perforated.....	18
About to perforate.....	28
Perforated	17
Gangrenous	52
Perforated and gangrenous.....	91
Kinked or curled.....	32
Rotated on axis.....	5
Fecal concretion in appendix.....	19
Fecal concretion in abscess.....	7
Oxyuris in appendix	1
Slough of tip.....	1
Chronic	97
Acute catarrhal	105

anesthesia and extensive manipulation are increased in operations in children, and hence the greatest expedition should be observed. In a large proportion of suppurative cases the appendix should not be searched for, the surgeon contenting himself with evacuation and drainage for the immediate good result. In a word, Dr. Deaver has advocated the same principles in children that should be applied to adult life, after diagnosis has been established. In my experience intestinal obstruction is more common after operation in children than in adults, and the early recognition of this sequel will do much to prevent a fatal result. The rule in diagnosis set forth by Dr. Deaver is an admirable one, and should be generally adopted, viz., that diagnosis of appendicitis should be assumed in cases of severe abdominal pain accompanied by fever, and, unless proved otherwise, should be treated as appendicitis. And finally, in acute inflammatory disease of the abdomen in children opium should not be given in the early stage of the disease. The use of opium and drastic cathartics is harmful and should be withheld.

DR. EDGAR A. VANDER VEER, Albany, N. Y.: In my experience, based on a study of the cases occurring in the practice of my father and myself, I find that the disease is most general between the ages of ten and twenty. Before the age of ten years the cases are comparatively infrequent and not so easily diagnosed by the attending physician, because of the inability of the child to make known the exact location of the pain. The approach to and the commencement of puberty also seems to have a bearing on the subject, and may to some extent account for the increased number of cases recognized after the age of ten years. Our youngest case occurred in a boy, three and one-half years old, who was ill only six hours, but from whom a gangrenous appendix was removed. He complained of pain in the stomach, but the diagnosis was made chiefly on the rigidity of the right rectus muscle.

As the author says, a child often comes to the surgeon with a history of having had bilious attacks, and when such a history is given it is wise to entertain the possibility that there have been attacks of appendicitis. In fact, I have operated in several cases in which the only symptom complained of was an indefinite pain in the abdomen, accompanied by a history of the patient having had several bilious attacks, and invariably have found a diseased appendix to be the cause of the trouble. Differential diagnosis between appendicitis and the other conditions mentioned is not very easy, though very important, and can only be determined by a careful weighing of the symptoms.

When we obtain a history of a child having suffered for years from bilious attacks, taken suddenly with vomiting and an acute pain in the abdomen, no matter whether in the right inguinal region or not, but gradually converging to that point, with an increased leukocytosis and with rigidity of the right rectus muscle, without excluding any of the other conditions, we are safe in making a diagnosis of appendicitis.

As to the laboratory as an aid in diagnosis and prognosis, I have not found it of very much value, as the decision must be made by the surgeon on the symptoms presenting at the time he sees the case, not delaying for an elaborate report from the laboratory, which delay might prove fatal in many instances. Of course, the most favorable time for operation is in the first twenty-four hours, when the prognosis is very good indeed; but it is seldom that we see a case under such favorable conditions; it usually runs along anywhere from three to four days to a week. In all these cases I believe in immediate operation, no matter whether the appendix has not as yet ruptured, whether the abscess has formed, or whether there is diffuse peritonitis present. Often in cases in which the patients are in desperate condition I have seen them recover after operation, and in my opinion the prognosis lies not so much in the operation as in the postoperative treatment.

The average practitioner within the past five years has come to recognize the symptoms of appendicitis much earlier than formerly, the result being that cases come to operation much sooner and the danger of resulting complications is greatly lessened, so that the abscess cases and cases of general peritonitis, with their consequent complications, are also greatly lessened in number.

Children, as a rule, react quickly after operation and seem to have more resisting power against infection, etc., than people of middle age.

When we come to look over the entire situation, appendicitis, barring the difficulty of making diagnosis, is no different in children from what it is in adults.

DR. M. M. LUCE, Cortland, N. Y.: Why can we not treat appendicitis as we generally treat other things, strictly on a basis of facts? In other words, why not believe what we see, and strive to be prepared to read the handwriting on the wall—on the inside of the abdominal wall—from external manifestations, and not be misled by irrelevant symptoms? It has been my experience as well as that of several surgeons to operate on patients with acute, progressive appendicitis who were ill in bed with other unassociated ailments.

Much as we have learned about appendicitis, we have yet to learn that we ought to treat it precisely as we treat cancer, that is, as a local disease. To wait for the development of constitutional symptoms, such as elevation of temperature, increased frequency of pulse, with high tension—the development of tympanites, etc., is to trifle with death in defiance of the plainest teaching of experienced surgeons. Our ablest surgeons, whose experience covers many thousand cases, tell us that the actual pathology of the appendix is not reflected by the symptoms of the patient. Why then should the general practitioner presume on a limited degree of good fortune, often mistaken for skill, decide offhand what cases are operable and what inoperable, without recourse to a surgical consultation? Meanwhile let it be admitted that good medical treatment is far preferable to poor surgical treatment.

Appendicitis may occur in any section of the country, at any time, and in any individual. There is but one treatment for a progressive case of appendicitis, namely, operation, not when fulminating peritonitis has developed, but long before the deadly infection has passed beyond control.

Some laymen, and many physicians "dread operations" having in mind operations performed too late and under conditions which they do their best to perpetuate. They do not recommend operation except as a last resort, life or death—unfortunately, such patients usually have both operation and death. We are deeply indebted to Morris, Fowler, Ochsner, Murphy, the Mayos, and a score of others, for their thoroughgoing studies of the treatment of peritonitis. Surgical prophylaxis is the watchword for the early treatment of suppurative peritonitis—just as one fire-proof building is worth a dozen fire engines. It is fair to assume that within a few years, the man who trifles with a case of progressive appendicitis will be classed with the one who applies a greasy nostrum to a mammary cancer.

DR. MAURICE ROSENTHAL, Fort Wayne, Ind.: As has been brought out by the paper, as well as in the discussion, the lack of drainage and the formation of adhesions with consequent intestinal obstruction have contributed to the immediate mortality in these cases. I attribute nearly all my mortality in appendicitis to obstruction and lack of drainage. You can prevent bowel adhesions, at least for some time, by the liberal application of petrolatum. Like paraffin, petrolatum is absorbed very slowly, possibly not at all. By applying it in the area to be drained, I have found that drainage is more prolonged and more profuse, and that the dangers of adhesions and obstructions can be greatly reduced thereby. I have used petrolatum by manual application to a limited area, in a few cases—the last four cases, I think, in which I operated. I got better drainage, more efficient drainage, and more prolonged drainage, and probably averted some of the dangers of adhesions from obstruction.

DR. HERMAN TUHOLSKÉ, St. Louis: There are without question certain principles thoroughly understood and known which govern the management of appendicitis in children. No one has done so much in this direction as Dr. Ochsner. We have learned considerable about the proper treatment of appendicitis from him. There are some things that are very clear today. Some twenty-odd years ago, when I had a very limited experience in operating for appendicitis, I said: "Make the diagnosis and then operate." I have several times since then changed my opinion, but have always come back to the orig-

inal idea. The point of greatest importance is that a diagnosis of appendicitis should not be based on any one symptom. There is no such thing as a pathognomonic symptom of appendicitis. Pain in the region of the appendix may mean something else. Not long ago a physician made a diagnosis of appendicitis for a man who was traveling in the East and urged immediate operation. The patient returned to St. Louis at once, suffering great pain at the classical point. He asked me to operate for appendicitis. I had him go to bed in the hospital. When I saw him in the morning, there was as beautiful a streak of herpes zoster as I have ever seen, occupying the line of pain. Recovery was prompt.

As to treatment, I believe in operation as soon as the diagnosis is made, unless there is a positive contraindication. In making a diagnosis we must be on our guard, because in the early hours in young children there may be something else brewing. I have seen three cases recently, in which I was called by competent internists to operate, and which occurred in children of five and six years, who within a day developed pneumonia. One of them was rolling around in bed moving his limbs freely. I examined the child and elicited no pain in the abdomen. I asked for ten hour's delay, and at the end of that time the doctor told me the child had an unmistakable attack of pneumonia. First, make a careful diagnosis and then act, but never harbor the idea that appendicitis patients do not die; nor should you operate on the strength of one symptom or a combination of indistinct symptoms.

When you are sure of your diagnosis and the patient is still in fair condition, operate at once. If you wait until pus is forming, then you must follow some other plan of treatment and use your best judgment in selecting the proper time for operation later in the interval. An appendix which has been inflamed must be removed some time.

DR. JOHN B. DEEVER, Philadelphia: We have heard a great deal about race suicide within the last few years from one of our most distinguished citizens, but there is no one thing that contributes so largely to a decreasing population as does sterility, the result of pelvic appendicular peritonitis in young girls and young women.

PERSISTENT PATENCY OF THE DUCTUS ARTERIOSUS

DEGENERATION OF THE CARDIAC MUSCLE AND CORONARY
ARTERIES, AND OF THE SINO-ALBICULAR BUNDLE,
FOLLOWED BY RUPTURE OF THE RIGHT
VENTRICLE*

KATE CAMPBELL MEAD, M.D.
MIDDLETOWN, CONN.

One of the most interesting problems of physiologists to-day is concerned with the structure and action of the heart. So much experimental work has been done during the past few years on the cardiac muscle, nerves, valves, and blood supply, as well as on the arterial system, by means of measuring apparatus and surgical operations, that any extraordinary case of heart failure which can be studied during life and post-mortem should be made available for future reference, as an addition to our sum-total of knowledge of congenital anomalies, as well as of inflammatory disease.

It is for this reason that I have ventured to make a slight contribution to the literature on congenital cardiac malformation, which in this case was associated with a sequence of disorders of the heart and its valves, resulting in a rare condition of rupture of the right ventricle, and in the patient's death at the age of 26.

In presenting this report I must express my regret that no sphygmographic tracings or electrocardiograms

were made from the heart, the arteries, or the veins; but a brief study of the conditions as a whole may not be unprofitable, although a full discussion of such a case would far exceed the limits of this paper.

REPORT OF CASE

History—The patient was a married woman. Of her early history there is little known: she told me she had always had rheumatism and backache, had suffered frequently from grip, and that her physicians in Berlin, Germany, said she had heart trouble since she was a little girl. Her parents and grandparents were healthy. I first saw her April 3, 1905, and her condition was as follows: Height, about 5 feet, 4 inches; weight, 120 pounds; body, plump; color, good; some acne on face; catarrh of throat and nose; lateral and antero-posterior curvatures of the spine due to muscular weakness, simulating both scoliosis and kyphosis; aortic pulsation in the abdomen noticeable; heart enlarged 1 cm. to right and left, with a murmuring, noisy systolic murmur heard both at base and apex, extending to right of the sternum and almost to the axilla; lungs normal; bowels distended with gas; diarrheal movements; stomach larger than normal; liver normal; left kidney in left groin; pelvic organs normal; urine normal.

After a summer of rest and hygienic life the cardiac murmurs nearly disappeared, but the patient continued to suffer from backache, diarrhea, and catarrh of the throat. The following year she went through a successful pregnancy in better health than usual, even omitting colds and grip. During the summer of 1907 she had a nervous strain which was followed in the early autumn by a condition of flabby muscles and flabby heart, with loud systolic murmur over the pulmonary artery in the third space, and a strong thrill felt over the third and fourth interspaces at the right of the sternum, and frequent palpitations. Her intestinal indigestion was very troublesome, and the facial acne most annoying. Hygienic treatment, baths, massage, careful diet, and occasional doses of codein gave considerable relief, while digitalis, even in minute doses, caused most uncomfortable bounding and beating of the arteries all over the body.

At the end of December, 1907, I referred the patient to Dr. Thayer of Baltimore, who sent me the following diagnosis:

"There is evidently a congenital malformation, but one which from her history and condition, may well be compatible with a long life. The long machinery murmur over the right ventricle with systolic accentuation, together with the accentuation of the second pulmonic sound, and the rather large right side suggest a septum defect (ventricular). This lesion is also more compatible with long life than most other cardiac defects. A striking feature of this case is the fact that the murmur is so loud at the base and in the first left interspace, and that the accentuation high up is late, a late systolic, almost a diastolic accentuation, but the murmur still continues throughout both cycles of the heart with the heart sounds heard, as it were, superimposed. The loudness of the murmur high up and the change in its accentuation would suggest to me an open ductus arteriosus."¹

1. I have taken the following notes from Dr. Thayer's memoranda: "Weight, 121½. Color is good. General nourishment good. Pulse, 21 to the quarter at the beginning of examination, regular. Radial, not palpable. Pressure, by estimate, 120-25; measurement, maximum, about 115; minimum not easy to estimate. Thorax, symmetrical. Costal angle about 90. Movements, equal. Resonance and respiration clear in front. Back perfectly clear. Heart, P. M. I. in the fifth space, approximately normal position, 8.6 cm. from the median line, begins above in the second space and extends about 5.5 cm. to the right of the median line in the fourth space. No thrill in the precordial region, although the impulse is rather well felt in the second and third left spaces. Sounds, at the apex, first clear excepting for a soft systolic gradually fading away. Second, clear, followed by a very soft diastolic. As one reaches the fourth space a characteristic long machinery sound with systolic accentuation lasting through the whole cycle is audible. This is loudest in the third space, well heard in the second, also over the right side and out over the left chest. In the first left space under the clavicle the murmur was also very long and well heard with late systolic or, perhaps, even diastolic accentuation. The second pulmonic is loud and sharp. The second aortic is also of fairly good intensity. Right kidney descends below the costal margin. Liver is just felt descending below the costal margin on deep inspiration; no enlargement. From the character and position of the murmur one is justified in assuming a septum defect, and from the murmur which is heard up under the clavicle in so high a position, an open ductus Botalli."

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

During 1908 the patient was fairly well so long as she lived a quiet life and refrained from lifting heavy objects, which gave her pain in the abdomen and slight palpitation of the heart. In November she suffered from another attack of influenza, with tonsillitis, slight bronchitis, and a little pleurisy at the base of the left lung. The mild fever left her very much exhausted, with a hoarse voice and irritating cough, due apparently to a large lingual tonsil and relaxed uvula, but with no new cardiac symptoms, either objective or subjective. She continued hoarse, and although the cough was gone by the end of February, 1909, her heart began to be more dilated and to have the murmurs and irregularity first heard in 1906. After a visit to Lakewood, in April, however, she gained several pounds in weight and felt better, although there was now in addition to the hoarseness a peculiar thin voice.

On April 22, 1909, I referred the patient to Dr. E. Terry Smith of Hartford, who reported a paralysis of the left vocal cord, caused probably by pressure from the heart on the abductor fibers of the left recurrent laryngeal nerve.

A report by Dr. Goodale of Boston, a week later, confirming Dr. Smith's diagnosis, was as follows:

"April 30, 1909. Left vocal cord fixed in median line, immovable on phonation and respiration. Left arytenoid moves inward slightly on phonation. There is no evidence of thickening or irregularity in or about the arytenoids.

"The preservation of motion in the left arytenoid on phonation is due to the contraction of the interarytenoid muscle, indicating preservation of function in the superior laryngeal nerve. This movement, together with the absence of irregularity or thickening in the left arytenoid joint, renders it probable that there is no ankylosis in the joint itself. It is, of course, possible that Mrs. X.'s abductor paralysis arises from grip or laryngitis, but this is, to my mind, less probable than that it arises from pressure along the course of the nerve, for the reason that general infections do not, as a rule, affect the abductor fibers alone of one cord."

The patient was then sent to Dr. Percy Brown of Boston, who made a Roentgen diagnosis of her heart as follows:

"The base of the heart, examined from both behind and in front, presents an undue and abnormal bulging on its left side, which markedly changes the shadow usually recognized as the normal in form and size. This appearance is in close juxtaposition with the descending arch of the aorta, and may to a certain extent involve that structure. The dilatation is general, however, rather than a sharply localized expansion, which would tend to rule out the likelihood of aneurism as being the etiologic factor. I am rather of the opinion that it is due to a hypertrophied and dilated left auricle, secondary to an insufficient mitral valve. This dilatation is the only apparent cause of the mechanical inference with the function of the recurrent laryngeal branch."

For one month, while the patient was living quietly and taking simple vocal lessons, the heart symptoms again improved and the voice became nearly normal, but on June 1 she complained, when walking, of severe paroxysmal pains in the abdomen and legs, especially in climbing stairs or going up hill. The heart was not then larger than usual and the murmurs were faint; pulse 80; systolic blood-pressure was 118, and hemoglobin normal; urine normal. On June 5 the apical mitral murmur of 1906 returned, and the left area of dullness extended 3 cm. to the left of the nipple; pulse 100. On June 11 the pulse was 70 and regular, but a hard, suffocating pain was centered in the stomach and abdomen, at times accompanied, when walking was attempted, by severe pressure below the diaphragm. This persisted for one week, when some edema was noticed in the face and abdomen; the patient passed 500 c.c. of urine in eighteen hours full of urates, but containing no albumin, the specific gravity being 1040; her radial blood-pressure was 140. Digitalis being contraindicated, warm Naubeim baths were given, plus strophanthus and diuretin; the urine increased to 900 c.c. for a few days and the abdominal girth was reduced 6 cm.; at the same time the heart sounded stronger, and the edema left the face. Then, however, the stomach became irritable, the heart began to be very irregular with loud aortic murmur, and all baths and heart tonics were replaced by calomel, Epsom salt, and codain. On July 5, the voice again showed signs of the former

paralysis, and a laryngeal cough was almost constant; the pulse was 105, pressure 130; the legs were very much swollen; the stomach and bowels were full of gas and the urine scanty. On July 9 she could not rest for a moment, owing to the laryngeal cough and cardiac discomfort; at 5 a. m. of the 10th she broke into a profuse cold perspiration; at 7 a. m. she seemed faint and lapsed into a short stupor, after which until death no pulse could be detected at the wrist, even though hypodermic stimulants were freely injected; the carotid pulse was 104, very irregular, and the patient had difficulty in breathing, was restless and thirsty all day, dozing at brief intervals; she took a little nourishment and passed about 7 ounces of thick urine. At 10 p. m. she had another period of fainting with profuse perspiration and gasping, after which she could with difficulty be aroused, her speech was somewhat incoherent and thick, and she was still very restless. At 12:55 a. m., after swallowing a few drops of liquid, she suddenly threw up her arms, opened her eyes widely, gasped once or twice, and died.

So much for the patient's symptoms while under my care. Her earlier medical history is very meager. She was born in Berlin, Germany, a perfectly normal birth and a typically healthy baby, it was thought, but the physicians of her childhood are dead. A letter from Dr. Max Ph. Meyer, Geh.-Sanitätsrath, gave the following information: There was a systolic murmur over the mitral valve, which was louder during the fever of measles in 1895. In 1899, after a period of fatigue, the aortic valves were not found to be free from chronic inflammation, the tones not being quite clear. A note from Dr. Geheimrath Wolf says: "After two examinations, I found a good compensation in the heart (*ein gut compensierter Herzfehler*)."

Owing to the peculiarity of the symptoms in this case and the lack of early history, together with her early death, it seemed wise to seek for a postmortem diagnosis in order to make it possible to use for future cases whatever could be learned of the exact causes for the cardiac weakness in this patient. Dr. Jessie W. Fisher, pathologist to the State Asylum for the Insane at Middletown, Conn., performed an autopsy with the following result:

"Necropsy.—Some twelve hours post-mortem. Rigor mortis moderate. The patient was a well-developed, well-nourished, but undersized woman, 26 years of age, with distended abdomen, edematous feet and legs, and cyanosed face and neck. Panniculus adiposus was 3 cm. in thickness. The stomach was much distended with gas, and the abdominal cavity contained at least 2,000 c.c. of straw-colored fluid.

"Thorax: Both parietal and visceral layers of the left pleura were adherent laterally, posteriorly, and to the diaphragm. The right pleura was free.

"Left Lung: Weight was not taken. The lower lobe showed hypostatic congestion, the remainder of the lung being crepitant, presenting no abnormalities. Bronchi free and unobstructed.

"Right Lung: Lower lobe showed a slight amount of hypostatic congestion. Otherwise the tissue was normal.

"Heart: The pericardium was smooth and glistening and covered by a very thin layer of fat. The pericardial sac contained about two ounces of fluid blood. When the sac was opened, three ruptures on the right ventricle appeared, parallel to the descending branch of the anterior coronary artery, and 3 cm. to 4 cm. to the right of it. The first was 2.5 cm. from the pulmonary valve, and was 9 mm. in length, slit-like in appearance, involving only the superficial fibers. The second was near the apex of the heart and measured 15 mm. in length externally and penetrated the ventricle by a minute aperture. The third, immediately below and on the apex of the right ventricle, was 15 mm. in length externally, but presented only a pin-point opening internally.

"At autopsy the ruptures seemed to be in the left coronary artery, but on later dissection of epicardial fat the first rupture lay 3 cm. to the right, and the second and third ruptures 4 cm. to the right of the left coronary.

"The ruptures lay in almost a straight line with each other, and the blood had separated the epicardium above and below them, giving the appearance of a thrombosed vessel.

"The ductus arteriosus was patent and had developed into a good-sized vessel, with walls 1.5 mm. in thickness. The diameter of the opening into the aorta was 1 cm., and into the pulmonary artery was 4 mm., where it was surrounded by a thickened ring, and slight fold of membrane. It was funnel-shaped with large end in aorta and 1 cm. in length. The aortic opening of the duct was located opposite the left subclavian artery.

"Heart weighed 395 gm. (Osler gives the weight of a normal female heart as 250 gm.)

"The heart was in systole. The right side was dilated and hypertrophied, containing fluid blood. The right auricle and ventricle were nearly twice as large as normal, and the right ventricular wall was almost as thick as the left, which was also hypertrophied. The foramen ovale was closed, but the fossa was 2.5 by 1.5 cm. At its base the Eustachian valve formed a membranous valve 1.5 cm. in width and 4.5 cm. long, containing muscle fibers.

"Beneath the epicardium of right ventricle there was a marked accumulation of fat, which covered the myocardium and coronary arteries completely.

"The myocardium was thickened, pale in color, and flabby, especially in the right ventricle.

"The auriculoventricular node was well marked, lying between the fossa ovalis and enlarged Eustachian valve. The fibers seemed to pass to the left, where they were lost.

"The ventricular septum was thickened without any indications of defect.²

"The pulmonary artery was almost twice the size of the aorta; it was soft, and the aorta slightly thickened around the duct and valve. Insertion of the duct into the aorta was almost at a right angle.

"The cusps of the pulmonary valve were smooth, thin, transparent and competent. The cusps of the tricuspid valve were smooth, glistening and competent. The aortic cusps were slightly thickened throughout and the aortic opening stenosed. The aorta showed plaques of sclerosis around the valve. The cusps of the mitral valve showed slight thickening along the free borders. This opening was small and stenosed. The descending branch of the left coronary was small and walls thickened, but not calcareous. The right coronary was larger than the left, and like it thickened throughout its course.

"Measurements: Tricuspid, 11.5 cm.; mitral, 8.5 cm.; pulmonary, 7.0 cm.; aortic, 5.0 cm.; left ventricle, 1.3 cm.; right ventricle, 1.1 cm.

"Larynx and Trachea: The recurrent laryngeal nerve was normal in appearance, as was the vagus. The larynx, vocal cords and trachea presented no evidence of pathologic change, except for a small tracheocele situated just above the bifurcation of the trachea. Microscopically, the recurrent laryngeal nerve showed no degeneration with Marchi's stain.

"Microscopic examination of muscle near site of rupture: eosin and methylene blue sections stained poorly, nuclear outline faint or nuclei entirely absent. Muscle fibers separated from each other, and intervals filled with red blood cells. Cross striations very distinct. Some fragmentation. Sudan III sections showed muscle cells loaded with fine granules of fat. Hematoxylin and eosin same as methylene blue and eosin.

"Kidneys: The kidneys were pale in color. The capsule peeled easily, leaving a smooth surface. On section the tissue was pale; the cortex was a trifle narrower than usual, but the markings were distinct. On microscopic examination of the kidneys, capsule of Bowman showed considerable thickening and swelling of the cells lining the capsule, and the epithelial cells lining the tubules were swollen and granular. All of the vessel walls showed extreme thickening.

"Liver: The liver was slightly enlarged, but was not removed for examination.

Anatomic Diagnosis.—"Rupture of the heart and sclerosis of coronaries, patent ductus arteriosus, aortic and mitral stenosis and chronic endocarditis of aortic and mitral valves, atheroma of aorta, hypertrophy and dilatation of right heart.

tracheocele, slight chronic nephritis, fatty degeneration of myocardium."

Having the autopsy report, it was not difficult to explain the symptoms during the life of the patient, for, doubtless, the primary cause of all the pathologic findings in this heart was the persistent patency of the ductus arteriosus. Dr. H. Gideon Wells³ has found in all literature only forty-one cases of uncomplicated ductus arteriosus reported with corroboration of the diagnosis at autopsy, and in only twenty of these cases did the subject reach maturity.

In Maude E. Abbott's⁴ tabulated series of 19 cases of patent ductus arteriosus, the oldest patient was 53, the youngest 6 years old; nine were males, ten females. Out of 106 cases of patent ductus arteriosus, there were eighty-seven cases complicating the defects, leaving the above-mentioned nineteen cases which were proved at autopsy to have the simple defect of patent ductus arteriosus. She gives as causes for this defect the loose musculature of the artery, the sudden change in cardiac blood-pressure at birth, and the alterations in relative position of the ductus and great vessels due to stretching, etc. The usual funnel shape of the ductus is caused by the back pressure of blood from the aorta into the pulmonary vein, but where there is congenital aortic stenosis the current should be reversed. The pulmonary artery and the right ventricle must naturally dilate, and arteriosclerotic patches are not uncommon in the neighborhood of the patent duct and aorta. As for symptoms of a patent ductus arteriosus there may or may not be a systolic thrill, but the "long machinery murmur" is nearly always produced, and the accentuated second pulmonary sound distinguishes this anomaly from pulmonary stenosis. Several other writers have also mentioned the paralysis of the left recurrent laryngeal nerve, due to pressure on that nerve by the patent duct or enlarged auricle, which causes a laryngeal spasm prolonged for hours at a time, giving the right ventricle no time to recover from the added resistance to its contraction, and therefore aiding permanent dilatation of the right side of the heart with all its attendant evils.

My case differed in many points as to symptoms from that reported by Dr. H. Gideon Wells. His patient was 42 years old, suffered from symptoms of gall-duct disease or of acute yellow atrophy of the liver, and died from a hemorrhage of the bowels with a temperature of 106, after a few days in the hospital. The previous history of his case was negative, and the examination of the heart when the patient entered the hospital showed systolic murmurs from the second to the sixth right interspace, so that a tentative diagnosis was made of aortic dilatation with enlarged heart. In the case of my patient, there was no other disease of the body and no symptoms not explained by the condition of the heart, which, however, was well hypertrophied and did not appear by percussion, palpation or auscultation to be unequal to its task. "This patient was very susceptible to influenza, having one or two attacks every year. These attacks always increased temporarily the cardiac irritation, and the murmur was at such times much more noticeable than at other times.⁵ In 1906, when the patient went through a successful pregnancy, the mur-

3. Wells, H. Gideon: Persistent Patency of the Ductus Arteriosus, *Am. Jour. Med. Sc.*, 1908.

4. Abbott, Maude E.: Statistics of Congenital Cardiac Disease (400 cases analyzed), *Osler's Modern Medicine*, iv, 396.

5. Schlagenhauser's case of acute aortic endocarditis from the influenza bacillus in a case of patent ductus arteriosus suggests, along with my case, the possibility of the infection from influenza being more virulent than in ordinary cases.

2. The thickness of right ventricle wall is normally 4.7 mm.; left ventricle, 20-25 mm.; left auricle, 3 mm.; right auricle, 2 mm.

murs were very slight, not recurring until after a nervous strain six months later.⁶

It is probable that our patient might have had no symptoms from the large patent ductus arteriosus if she had had no influenza and no other subsequent cardiac complications. Death from a patent duct is usually thought to occur in infancy, although the condition is one which might be overlooked in autopsy, and 9 out of 41 patients whose cases are reported by Wells lived more than forty years.

The characteristic signs of patent ductus arteriosus are in the main those indicated by Dr. Thayer after examining our patient. Osler's⁷ terse symptomatology of a persistent ductus Botalli is as follows: "Loud, especially vibratory, systolic murmurs, with the point of maximum intensity over the upper third of the sternum, associated with a lack of marked symptoms of hypertrophy of the left ventricle." Thayer suspected also a septum defect on account of the character of the murmur over the third and fourth space, but this defect was not found on autopsy. Communication between the aorta and pulmonary artery might cause much the same symptoms as from the communication between the auricles. Their etiology is different, but the physical signs of hypertrophy with systolic murmurs at apex, and generally a diastolic murmur, or continuous murmurs⁸ are common to both conditions. A septum defect is, however, frequently found in hearts in which there is also patent ductus arteriosus. W. Langdon Brown⁹ says: "The deficiency in the exit of blood from the right ventricle will be made good to some extent by the ductus arteriosus remaining open."

Let us now look at the patient's subjective symptoms, as explained by the condition of the heart at the autopsy, and then at the objective symptoms which called forth various hypotheses.

For the last five years of her life the patient complained frequently of palpitations of the heart, sometimes at night, sometimes on exertion. It is possible to explain these symptoms by the mitral stenosis, since out of seventy-three cases of irregularity of the heart, Lewis found that 52 per cent. were instances of mitral stenosis. In many of these patients symptoms of valvular lesion were absent, the patient complaining of short-windedness, fluttering in the chest or neck, and gastric discomfort, the palpitations sometimes occurring in the middle of the night. Such was the case in my patient, the mitral lesions at times being impossible to define, but owing to the slight sclerosis of the mitral valves, there was at times some stenosis of that orifice, which would cause an increase of the interauricular pressure and eventually a condition of fibrosis of the auricles as well as in the ventricles. Lewis¹¹ says that it is possible that fibrosis by interfering with the circulation in restricted areas of the musculature sets up a state of irritability. Anemia of the muscle does the same thing, and may also result in extra systoles, and more or less permanent irregular tachycardia. "Unexpected death in patients with fibrotic hearts is a well-recognized fact." The aortic murmur, not always present, was caused by an incompetent thick-

ened edge of one cusp of its double valve. Osler¹² thinks that this condition is generally well compensated, and may not shorten life. Broadbent, on the contrary, finds that 40 years is about the limit of life in this condition. Where there is any sclerosis of the aorta, however, there is apt to be a narrowing of the orifice of the coronary arteries. Sudden death may be caused by the blocking of one of these coronary arteries, or there may be a more deliberate sclerosis or a narrowing of the coronaries, which leads to fibroid degeneration of the cardiac muscle and eventually to fatty infiltration or fragmentation of the muscle fibers.

In regard to the degeneration of the coronary arteries, Abbott says:

I believe that the commonest site for rupture of the cardiac muscle is on the anterior wall of the *left* ventricle [in our case it was the *right*] near the interventricular septum, about the junction of the lower and middle thirds, and the reason that this is the "seat of election" is because this area is supplied by the descending branch of the anterior coronary artery (the artery of the septum), which is a very common branch to undergo thrombosis, or embolism, thus leading to infarction of the supplied area of heart muscle. This vessel has been called the artery of sudden death, because disease of it is so frequently followed by serious results.¹³

In this connection an interesting question arises: Was the intense pain in the legs and abdomen of this patient due to sclerosis of the coronaries and referred to the abdomen instead of being felt in the heart? Or may there have been a sclerosis of the femorals with intermittent claudication, as well as sclerosis of the aorta and coronaries? The victims of angina may be due to a chronic arteritis in the gastric and mesenteric vessels, as well as to the heart. The radial blood-pressure in my patient never exceeded 140, but it is said that even low blood-pressures may co-exist with early arteriosclerosis. Certainly the intense throbbing in the abdominal aorta ought to have shown a higher pressure there than that in the radials.¹⁵ Osler¹⁶ says that spasm or narrowing of a coronary artery, or even of one branch, may so modify the action of a section of the heart that it works with disturbed tension, and there may be stretching and strain sufficient to arouse painful sensations, like the intermittent claudication of the arteries of the legs in a case of cramp.

At the autopsy there was thought to be a condition of thrombus of the anterior coronary artery with rupture in three places, but on careful dissection and microscopic examination the arteries were found to be unruptured, and it was the muscle of the right ventricle at a distance of 3 or 4 cm. from the artery, parallel with it, which ruptured, close to the interventricular septum where its circulation was probably the poorest. Abbott writes that this is a rare condition. She says:

"We have four cases of rupture of the heart in this museum, in three of which the seat of rupture is in the situation above described, i. e., the left ventricle wall. Another possible explanation may be that the auriculoventricular bundle of His is distributed so extensively in the septum that disease of the artery supplying the septum may be productive of more serious disturbance than that of the artery in another part of the heart."

There was no sudden pain in my patient's case to note the formation of a thrombus, only restlessness and anx-

6. One such case is reported in which the diagnosis of patent ductus arteriosus was made in infancy, and again ten years later, and also at the age of twenty years, when Balfour confirmed the diagnosis, after which time the condition began to disappear until, at the age of thirty-five the lesion seemed to have healed entirely.

7. Osler, William: *Practice of Medicine*, p. 769.

8. Osler, W.: *Practice of Medicine*, p. 367.

9. Brown, W. Langdon: *Physiological Principles in Treatment*, p. 308.

11. Lewis, Thomas: *Paroxysmal Tachycardia*, *Heart*, No. 2, 1.

12. Osler, W.: *Practice of Medicine*, p. 729.

13. Dr. Osler speaks of this in his address on Angina Pectoris, *New York Med. Jour.*, 1897, lxxv.

15. Osler: *Modern Medicine*, iv, 285.

16. Osler, William: *Lancet*, London, March 26, 1910.

ity, followed by collapse, when the heart ruptured, not only once but three distinct times. The patient's father died probably from thrombosis of the coronaries several days after an operation for appendicitis, and as Blumer¹⁸ suggests, there may be an inherited tendency to the production of thrombogen or thrombokinase. The effect of ligation of the coronary artery must be similar to thrombosis. Lewis says:¹⁹

In the case of the right coronary, the area devascularized includes the right auricle and the greater part of the right ventricle. The muscle involved blanches and then becomes livid. The right auricle continues to beat less and less strongly, while the ventricle follows even less strongly to final fibrillation. Tachycardia was obtained in nine out of the twelve cases of right coronary artery ligated, cardiac irregularities most often following obstruction of this artery, and paroxysms occurring in from fifteen to sixty minutes after inter-

ference with the vascular supply, the paroxysms varying from a few seconds to thirty-five minutes in duration. But if tachycardia is caused by a lesion in the cardiac muscle of the right ventricle itself, independently of nervous control, heart-block and a stop of the auricular beat can be also caused by irritation of the vagus.

Therefore, in this case, the anemic condition of the cardiac muscle, or of the bundle of His, caused by a lack of blood-supply from the sclerosed right coronary artery, may have been the cause of the palpitations and discomfort, while the dilatation of the stomach and intestines may have produced pneumogastric irritation which further increased the cardiac irritability, resulting in fibrillation of the ventricle and sudden death

from ventricular exhaustion. The rate of rhythm of the ventricular contraction varies from 140 to 420. In my patient the pulsation in the left carotid was from about 160 to a beat too rapid to count, followed by sudden stillness. At the autopsy the blood found in the pericardial sac amounted to only 60 c.c., too little of itself either to stop the heart by pressure or anemia, many a stab wound of the heart being larger than all of the ruptures in the right ventricle. Therefore, it seems to me that we may be justified in attributing death ultimately in this case, to the trouble in the sino-ventricular conducting system²⁰ rather than to the rupture, and that neither the patent ductus arteriosus nor the aortic stenosis would have been incompatible with long life. In all the cases of heart-block or extrasystole which have come to autopsy, there have been shown either gummata, anemic necrosis on account of throm-

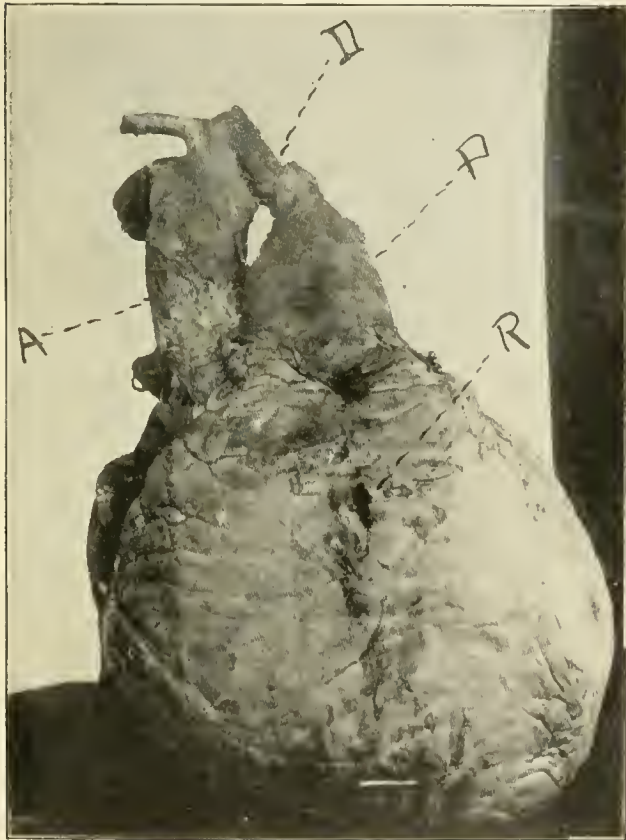


Fig. 1.—Heart from subject with persistent patent ductus arteriosus; A, aorta; D, ductus arteriosus; P, pulmonary artery; R, ruptured right ventricle.



Fig. 2.—Rupture seen from apex of heart.

basis of the nutrient arteries, fibrosis, new growth, athroma, or fatty infiltration.²¹ The common cause is the same, i. e., interference with the conducting bundle (the auriculo-ventricular bundle), or its node.²² This is probably one of the reasons why digitalis failed to be of service in the case in question, and explains the

20. Retzer has renamed the bundle of His the sinoventricular conducting system. This he considers a neuromuscular apparatus possibly connected with the sympathetic ganglia, the end organs of the conducting system being surrounded by a plexus of non-medullated nerves. Retzer: *Anat. Rec.*, II, 149; *Johns Hopkins Hosp. Bull.*, 1908, p. 208.

21. Thomas Lewis in a recent article on auricular fibrillation has formulated the following data as to the action of digitalis. "Digitalis retards the ventricular rate in clinical auricular fibrillation by enhancing a previously existing auriculo-ventricular heart-block. The rapid and irregular impulses showered on the ventricle from the fibrillating auricle are hindered in their passage from one chamber to the other by the action of drugs of this class. The influence of digitalis is exerted, directly or through the vagus, on the junctional tissues between auricle and ventricle."

22. Brown, W. L.: *Physiological Principles in Treatment*, p. 251.

18. Blumer: In *Osler's Modern Medicine*, iv, 504.
19. Lewis, Thomas: *Auricular Fibrillation and Its Relationship to Clinical Irregularity of the Heart*, *Heart*, 1910, No. 4, i, 368.

symptoms of fluttering or big thudding beats, or the long pauses often complained of by the patient, when taking this remedy, and which were dismissed as being irregularities due to indigestion and not to organic change in the heart. In a recent case of rheumatic endocarditis, Mackenzie²³ observed a delay in the *a-c* interval, which was greatly increased by digitalis so that several ventricular beats dropped out altogether,

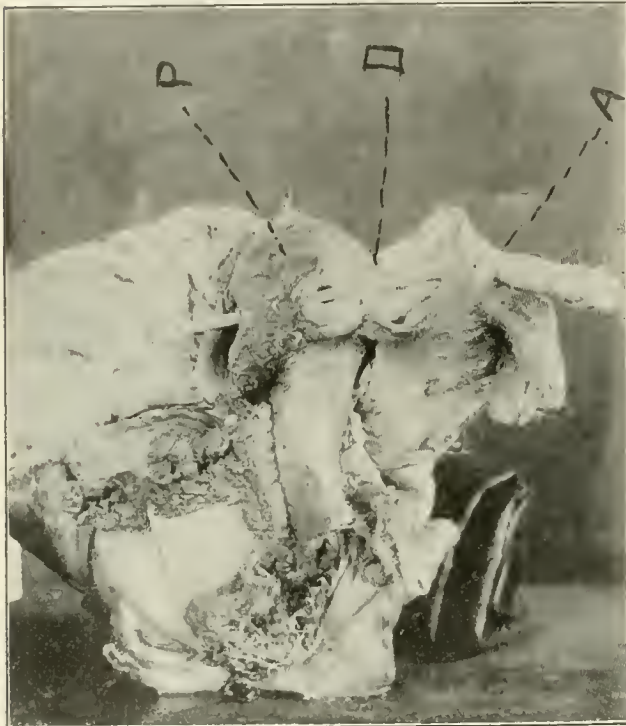


Fig. 3.—A, aorta; P, pulmonary artery; D, ductus arteriosus laid open, showing the opening into both the aorta and pulmonary artery



Fig. 4.—Radiograph taken by Dr. Percy Brown, Boston, three months before the death of the patient.

and the pulse became markedly irregular. Stimulation of the vagus was also capable of converting delay of auriculoventricular conductivity into actual heart-block.

During all this time, despite the futility of treatment, the patient's color was very good. She was healthy

looking, cheerful, interested in everything but herself, and never anxious as to her ultimate recovery, an optimism which was shared by all the consultants who examined her, as well as by me, up to the last thirty-six hours, when all the disagreeable symptoms rapidly increased, the most troublesome of all being the continuous laryngeal irritation, and which no hypodermics or any form of treatment could arrest until the final rupture of the heart and death.

The kidneys and liver shared in the general discomfort of this patient for the last two weeks of her life. The liver may be looked on as a sponge-like safety-valve to the heart, which works to its own destruction until edema and ascites occur. If death follows soon, the liver shows its engorgement; if death is postponed, the liver shrinks and shrivels. The edema and ascites in this case remained stationary, and the liver was not noticeably enlarged or fatty.

The condition of the kidneys and their function in this case is best described by Osler. "There is a great lessening in the total amount of urine excreted; darker color, strongly acid reaction which is caused by sarcolactic acid made from the poor arterial blood, and slight albumin." In other words, a mild nephritis, with thickening of the wall of the arteries such as was found at autopsy.

It is evident that we have one great lesson to learn from the history of such a case as this, namely, the necessity of early diagnosis of congenital defects in the heart, with consequent insistence on a hygienic life, protection as far as possible from infectious diseases (including rheumatism and common colds as well as influenza and children's diseases), and avoidance of nerve or muscle strain. Careful study of cardiac murmurs should teach us to know congenital anomalies, in order to differentiate them from endocardial inflammatory changes in the valves; and wherever it is possible, the diagnosis should be confirmed by autopsy and the cases studied and published for the benefit of the medical profession in the care of similar cases.

ABSTRACT OF DISCUSSION

DR. WILDER TILESTON, New Haven, Conn.: I should like to emphasize the paralysis of the recurrent laryngeal nerve. Pressure by a dilated ductus arteriosus must now be added to the list of possible causes of recurrent laryngeal paralysis. A few years ago v. Schroetter, jr., of Vienna, reported a case of patent ductus with laryngeal paralysis, exactly similar to Dr. Mead's. At that time this was the only case of the sort to be found in the literature.

SIMPLIFIED OPERATION FOR CHALAZION

ROBERT SCOTT LAMB, M. D., WASHINGTON, D. C.

Ophthalmic surgeons have from time to time had recurrences after incising and curetting chalazia and I desire to call attention to a simple procedure which prevents the reforming of secretion in a not quite obliterated cyst wall. After anesthetizing the conjunctiva a chalazion forceps grasps the lid surrounding the tumor and the usual incision of the conjunctiva and the sac beneath is made at right angles to the lid margin. The contents are then carefully removed with a eurette and the bleeding controlled. A strabismus hook is then heated red over an alcohol flame, or an electric cautery point is used to gently touch the interior of the sac and so destroy the secreting surface. This has the obvious advantage over extirpation of simplifying the operation and the after-treatment and of lessening the trauma. Previously I had used tincture of iodine, and at another period phenol, but nothing has been quite so satisfactory in my hands as the above procedure.

²³ Carter, Alfred B.: Article on Heart Disease, Quoted in the Internat. Med. Ann., 1908, p. 288.

SODIUM CACODYLATE IN SYPHILIS

REPORT OF A CASE

A. J. CAFFREY, M.D.
MILWAUKEE, WIS.

History.—E. H., a young man, aged about 23, presented himself for treatment with a typical chancre on his lower lip. He gave a history of having a "cold sore" on his lip, and had



Fig. 1.—Chancre of lip at beginning of treatment with sodium cacodylate, Oct. 24, 1910.



Fig. 2.—Soft, elevated, bleb-like condition, free from scab after fourteen days' treatment.

become inoculated about a month or so before, by kissing. The disease is directly traceable to a woman who had syphilitic mucous patches on the inside of her lips. Dr. L. F. Jermain saw the patient also, and we made the diagnosis principally from

the secondaries and the history of the case, examination for spirochetes not being deemed necessary.

Examination.—The cervical and sublingual glands were swollen and nodular, and small papular eruptions were beginning to appear on the patient's face. He had received no treatment before he consulted me, which was on Oct. 24, 1910. The left tonsil was also swollen, as the photograph of October 24 shows.

Treatment.—I began October 24 giving one grain doses of sodium cacodylate by hypodermic injection into the pectoral muscles every twenty-four hours and continued this for eight days; then I doubled the dose for four days more. After the first dose, the pain and all the secondaries began to disappear, and at the end of twelve days all secondary manifestations had disappeared, but the chancre was not entirely healed; it was more circumscribed, however, and being afraid of the secondaries coming back, I consulted Dr. J. B. Murphy, who advised the injection of three grains daily for seven more days, which I did, with marvelous results. The scab cleared away like magic, and at the end of nineteen days' treatment all traces of the disease had left the patient, except a slightly elevated and indurated surface on the lip, which has since subsided and is forming a healthy scar under the influence of one grain doses of the drug given subcutaneously daily.



Fig. 3.—Beginning healthy scar; photograph taken Nov. 20, 1910.

I treated this patient continuously from October 24 to November 20, as described above, excepting for two days while waiting to hear from Dr. Murphy. No other local or internal treatment was used. Of course time alone will tell whether the result is permanent, but I think the drug used is safe, because one can, as it were, feel one's way. I saw no disagreeable effects outside of a strong arsenical breath, which was so strong that one day the patient blew his breath on a fresh rose and it actually died inside of five minutes; this occurred at the end of a three-grain treatment. Physically the treatment had no ill effect on the patient, and he is now, as far as I can see, entirely cured.

600 Grand Avenue.

TRAPEZIUS TRANSPLANTATION IN THE
TREATMENT OF DELTOID PARALYSIS

DEAN D. LEWIS, M.D.
CHICAGO

Although muscle and tendon transplantation has been used extensively during the past fifteen years to correct motor disturbances following paralysis of a muscle or group of muscles, but few cases are reported in which the procedure has been used to correct the motor disturbances associated with deltoid paralysis. Hoffa¹ reported three cases and Gersuny² one in 1906 in which the trapezius was transplanted into the paralyzed deltoid, and during the past year Kiliani³ has reported another. The results in two of Hoffa's cases were very satisfactory. The third case could not be traced. In Gersuny's case the arm could be raised to the horizontal in four months and at the end of six months the range of motion approached the normal, but the movements were not carried out with much power. Kiliani's patient had a fair degree of motion after three months. Of the

1. Hoffa, A.: Ueber die End-Resultate der Sehnenplastiken, Arch. f. klin. Chir., 1906, lxxxii, 493.
2. Gersuny: Eine Operation bei motorischen Lähmungen, Wien. klin. Wchnschr., 1906, p. 263.
3. Kiliani, O. G. T.: An Operation for Paralytic Shoulder-Joint due to Infantile Paralysis, Ann. Surg., 1910, li, 79.

five patients operated on by transplantation of the trapezius into the deltoid, the results were highly satisfactory in four.

The object of this communication is to add reports of two cases to the five already published and to suggest a point in technic which, I believe, will prove to be of value.

The operation as originally practiced by Hoffa consisted of separating the clavicular, acromial and a portion of the spinous attachments of the trapezius muscle and of suturing the muscle which had been separated into the deltoid low down, the arm being held in extreme abduction. Gersuny practiced much the same procedure. He, however, chiselled up some bone with the trapezius, hoping that he might secure a better line of attachment by approximating this to the deltoid. Kiliani introduced two new points in the technic, (1) shortening of the capsule of the joint, and (2) plication of the long head of the biceps.

In both of the cases in which I have operated I have plicated the long head of the biceps without shortening the capsular ligament, and I believe this procedure is



Deltoid paralysis of nine years' standing following anterior poliomyelitis. Power of abduction completely lost for nine years. Results eight weeks after transplantation of trapezius. The contracted outer border of the trapezius on the right side is prominent. History given under Case 2.

sufficient to overcome the pathologic subluxation in these cases.

The results of the first case in which I operated were not entirely satisfactory. The imperfect result was due in part, I believe, to stretching of the paralyzed deltoid muscle.⁴

AUTHOR'S TECHNIC

In the second case the following technic was employed:

1. A longitudinal incision was made extending from the middle of the outer border of the trapezius muscle down to the junction of the middle with the lower third of the deltoid muscle.

2. The clavicular, acromial and a portion of the spinous attachments of the trapezius muscles were separated.

3. The atrophic deltoid was next separated from the clavicle and spine of the scapula and turned down.

4. Bradford, in the August number of the American Journal of Orthopedic Surgery, reports seven cases of deltoid paralysis treated by the periosteal silk strand transfer method. The results were satisfactory. He believes that this method does away with the possibility of stretching of either the transplanted or paralyzed muscle.

4. The sheath of the long head of the biceps was opened, and the tendon, after being displaced from its bed, was plicated to correct the pathologic subluxation.

5. An attempt was then made to suture the trapezius low down on the humerus. This was impossible, because the spinal accessory nerve interfered. The trapezius was then sutured into the capsule, where it is attached to the humerus. I believe that the suture of the trapezius into the capsule at its attachment to the humerus is an important point. If it were possible, it would be better to suture the muscle directly into the bone lower down, but the spinal accessory nerve becomes so tense that its function would be interfered with if the attempt were made. The trapezius can easily be sutured at the line just mentioned, and apparently this attachment affords sufficient purchase to carry out the movements which follow contraction of the muscle.

6. The deltoid was then sutured over the trapezius high up, the arm being held in hyperabduction.

7. The upper part of the skin suture was sutured transversely, with the idea that shortening the skin incision in this way might aid in overcoming the pathologic subluxation. The incision when completed resembled the letter T, the horizontal arm of the T extending across the summit of the shoulder.

The arm was then dressed at an angle of about 100 degrees, and maintained in this position for about four and one-half weeks. Then it was gradually lowered.

The results at the end of eight weeks are shown in the accompanying illustration. The patient raises the right arm, the forearm being flexed, quite rapidly to the horizontal, but she cannot hold the arm in this position for any great length of time. The movements are carried out with precision and power. The outer edge of the contracted trapezius can be seen in the illustration. No contraction of the deltoid takes place. The pathologic subluxation has been overcome and the appearance of the shoulder has been improved, as it now has a rounded contour. There had been complete loss of abduction in this case for nine years. Paralysis of the deltoid was apparently due to anterior poliomyelitis.

The following are the histories of the two cases:

CASE 1.—*History*.—Mr. E. B., aged 25, was referred to me Jan. 17, 1910, by Dr. Thor Rothstein, who suggested that the trapezius muscle be used to correct the effects of the deltoid paralysis. Two years previously, the patient had fallen into a pit and had injured his chest and left shoulder. He soon went back to work, but was unable to use the left arm as he did before the injury. About two weeks after the accident, he was taken sick, with high fever, nausea and vomiting, headache and pain in the muscles of the neck. After about thirty-six hours the left upper extremity was almost completely paralyzed.

Examination.—The left upper extremity hung perfectly limp. The muscles about the shoulder were flattened and atrophic. The supraspinous and infraspinous fossae were sunken; the acromion process was prominent and the head of the humerus was displaced downward and forward; two fingers could be placed in the groove between the acromion and the head of the humerus. The forearm could not be flexed and the muscles on the anterior surface of the arm were atrophic; the biceps and brachialis anticus were paralyzed. There was some pronation, but both pronation and supination were seriously interfered with. The fingers were partially flexed in a position somewhat suggestive of claw-hand and the interosseal muscles were atrophic. Sensation in the entire extremity was somewhat impaired. The patient had no motion in the upper extremity, except a peculiar swinging movement, which occurred when he swayed the entire body.

Operative Results. These were not altogether satisfactory. The pathologic dislocation was corrected; there was some abduction of the arm, but the improvement did not permit any great range of motion. The failure was in part due, I believe, to the lengthening of the paralyzed deltoid muscle, on which depended the transmission of power obtained by transplantation of the trapezius.

CASE 2.—History.—Miss K., aged 18, up to the age of 9, had had full use of the right arm. At this time she fell from a fence, a distance of about 4 feet, and struck on the summit of the shoulder. Immediately following the fall there was some loss of function, but this, as the patient stated, was due to local tenderness about the shoulder. Following the fall, the patient was sick in bed for about two weeks. She could not state the nature of her illness, but at the end of one week there developed, quite suddenly, paralysis of some of the muscles about the shoulder. This was evidently a case of cervical poliomyelitis, although the history is somewhat suggestive of an ascending neuritis of the axillary nerve.

Examination.—The right arm hung limp. The shoulder was flattened, the head of the humerus was displaced downward, so that a finger could be placed in the groove between it and the acromion. The supraspinous and infraspinous fossæ were full, but rotation was somewhat interfered with. The latissimus dorsi was somewhat atrophic. There were no sensory disturbances. The muscles of the arm were well developed, but flexion of the forearm was not as strong as on the opposite side.

Operative Results.—The trapezius was transplanted as described, and at the end of eight weeks the arm could be raised to the horizontal, as indicated in the figure.

150 Michigan Avenue.

CONGENITAL DISLOCATION OF THE SHOULDER-JOINT

VICTOR F. HUNTLEY, M.D.
MANTON, MICH.

The skiagram shown here was taken during some experimental work on the chest, in an effort to demonstrate early tuberculosis. The case appeared to me to be so unusual at least, that I thought it might prove of interest to the many readers of *THE JOURNAL*; hence this report:

The case is that of a young man aged about 30, who has always been able by raising the arms above the head to pro-



Skiagram showing congenital dislocation of the shoulder-joint.

duce a complete dislocation of the head of the humerus; the dislocation being downward and outward as is well portrayed by the skiagram. This anomalous condition causes no discomfort, as his occupation does not require any considerable employment of his arms in an overhead position, and the head of the humerus immediately resumes its proper place when the arms are in their resting position, the excursion of the head apparently causing no irritation of the surrounding ligaments and muscles.

The point of particular interest, to myself at least, in this case is the position of the spine of the scapula and the apparent open space between or at the junction of the clavicle and the acromion process of the scapular spine. The skiagram was taken with the patient lying on his back on the table, arm drawn up and flexed at the elbow with the hand under the head. The extreme mobility of the scapula is well shown in the skiagram as well as the marvelous flexibility of the scapula and clavicle in the upward movement of the arm. The apparent break in the epiphysis is no doubt more apparent than real, the rays undoubtedly passing through the more porous texture of the bone. It serves to show the junction of the bones very clearly, and their relation to the coracoid process is also well developed while in this exaggerated position, and it brings out with great satisfaction the wonderfully flexible bony protection to this greatest of all joints, the human shoulder.

SPOROTRICHOSIS IN AMERICA

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Since the publication of my recent article on sporotrichosis,¹ I have received communications from several physicians regarding similar cases which they have encountered in their work. Although cultures were made in only a few instances, the clinical manifestations in the majority of the cases were such that there can be little doubt regarding the nature of the causative agent. Four other American cases have been reported since my article was written, one by Stelwagon,² one by Pusey,³ and one by Hyde and Davis⁴ (who refer to a third Chicago case under the care of Dr. Zuraski).

Pusey has suggested that the affection probably occurs much more frequently than statistics would indicate, and my experience certainly tends to prove the correctness of this supposition. The lesions often resemble those of tertiary hues, and as they heal promptly under antisyphilitic treatment it is very probable that many cases of sporotrichosis have been incorrectly diagnosed, but successfully treated, as instances of gumma. When the characteristic symptomatology of the affection is borne in mind, however, this mistake is not liable to occur.

A traumatic lesion of the hand, forearm, or leg which proves resistant to ordinary surgical treatment, and is accompanied by the development of one or more sharply circumscribed, painless, cutaneous or subcutaneous abscesses along the course of the limb, should always arouse suspicion, especially if the inflammatory manifestations typical of a streptococcal cellulitis are absent. A microscopic examination of the contents of the abscesses is usually negative, although the organism multiplies readily on agar and other simple culture media.

In France it has been found that the disease occurs more frequently in the rural districts than in the cities (owing to the fact that the sporothrix thrives best on vegetable matter, thus affording abundant opportunity for the infection of slight open wounds on the hands and arms of farmers and others of similar occupation).

1. *THE JOURNAL A. M. A.*, Sept. 17, 1910, p. 1000.
2. Stelwagon: *Diseases of the Skin*, Ed. 6, 1910, Philadelphia, W. B. Saunders Company, p. 1119.
3. Pusey: *Jour. Cutan. Dis.*, xxviii, 352.
4. Hyde and Davis: *Jour. Cutan. Dis.*, xxviii, 321.

Since sporotrichosis in man is comparatively rare in America, the two following cases of the disease, and one of syphilis simulating sporotrichosis, are of interest:

CASE 1.—This occurred in the practice of Dr. Ira B. Chadwick of Tyro, Kan. I am indebted to Dr. Howard Hill of this city, for a photograph of the affected limb (Fig. 1), and for other courtesies. The history, taken by Dr. Chadwick, follows: The patient A. B., was a farmer's boy, aged 11, a native of Missouri, and a resident of Kansas. The cutaneous history of the family is negative. The lesion developed from a hen-bite on the back of the right hand. The wound had ulcerated under home treatment, and when first seen by the physician was oval in shape, with a raised border, and about the size of a silver dollar. Abscesses began to form on the

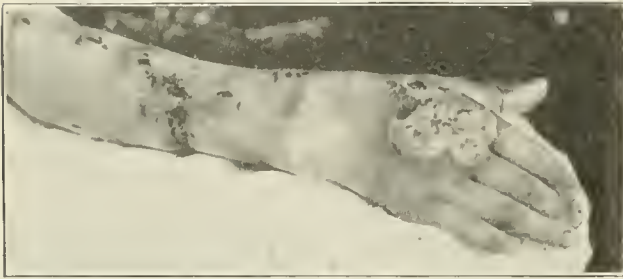


Fig. 1.—Wound on dorsum of hand, with typical chain of abscesses extending up the forearm (Case 1).



Fig. 2.—Site of original wound (3 months after injury was received) in Case 2.

forearm about four weeks after the injury was received. In the course of two months twenty-one abscesses developed. These were opened, treated with antiseptics, and later excised completely. At no time was there any glandular enlargement. The abscesses were confined to the arm, no other part of the body being affected. A number of microscopic examinations of the contents of the abscesses were made (methylene blue, Wright's, and carbol-fuchsin being used), but no micro-organisms were found. The pus resembled "thickened coconut milk." None of the incised lesions showed a tendency to heal, and recovery took place only after the entire wall of each abscess had been dissected out. Dr. Chadwick was repeatedly advised by other physicians to amputate the limb, but refused to do so. The patient was discharged cured at the end of ten weeks. Considerable scarring remains, but the patient retains perfect use of his arm.

CASE 2.—This occurred in the practice of Dr. N. P. Wood of Independence, Mo. The cultures were made and the etiologic organisms isolated by Dr. Frank J. Hall of this city, to whom I am indebted for the case history and for the photograph (taken by Dr. Hall's associate, Dr. O. L. Castle). The patient, L. M., was a farmer's daughter, aged 18, a native of Kansas and a resident of Missouri. The cutaneous history of the family is negative. The lesion developed from a slight wound on the back of the right hand, the patient having accidentally injured herself while feeding Kafir corn to domestic animals. At the time the photograph was taken (Fig. 2), the lesion had been present three months. Two small, subcutaneous abscesses were present, one just above the annular ligament and one midway between the wrist and elbow. The sporotrichosis (Schenck) was secured in pure culture from one of the abscesses. All of the lesions healed promptly under the administration of potassium iodid.

CASE 3.—This occurred in the practice of Dr. C. D. Osborne of Highpoint, Mo. The patient, R. S., a farmer's daughter, aged 16, a native of Missouri and a resident of Moniteau County, Mo. Two months prior to the date on which the patient consulted Dr. Osborne, she had received a slight incised wound on the ball of the index-finger of the right



Fig. 3.—Ulcerated gummata (syphilitic) resembling the ulcers sometimes seen in sporotrichosis. The lesions are irregularly grouped, however, and considerably indurated.

hand while manipulating a kraut-cutter. The lesion refused to heal, in spite of the application of spirits of turpentine and various other household remedies. At the time of the examination this lesion was about the size of a dime, and was partially covered with a layer of disintegrated epidermis and stringy, adherent pus. Beneath this coating were masses of exuberant granulation tissue which bled easily, but were not painful to the touch. The surrounding skin was undermined with pus, but there was no areola of hyperemia. Extending up the ulnar side of the forearm and the inner side of the upper arm was a chain of cutaneous and subcutaneous abscesses, eleven in number. Two of these, both located near the wrist, had ulcerated through the epidermis and thick, brownish pus exuded when pressure was applied over the lesions. There was present no evidence of a coccic cellulitis, the glands were not involved, and there was practically no pain. Only the right hand and arm were affected. After employing antiseptics for a few days, Dr. Osborne concluded that the case was an unusual one of syphilis and placed the patient on mixed treatment. The lesions slowly healed, in the course of four or five weeks, leaving slight scars.

CONSERVATIVE SURGERY OF THE PELVIC ORGANS AND THE LOWER ABDOMINAL WALL *

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ATLANTA, GA.

It is not my purpose to attempt to present anything new, but rather to discuss end-results in pelvic surgery from the viewpoint of a practical man who has kept in exceptionally close touch with his cases, prior to and following surgical operations.

For fourteen years I did a very active general practice with a constantly increasing surgical element. For ten years now, I have limited my work to surgery and surgical consultations.

I reside within 200 miles of where I was born in a community of Scotch settlers as clannish as native Scots; I am of Scotch extraction, a member of perhaps the most prolific and ramifying family of all those Scotch pioneers. A great deal of my surgery has been done on these relatives and life-time friends, thus enabling me to follow up my cases.

Atlanta has been the field of my professional activities, her population nearly trebling during my residence



Fig. 1.—Initial incision in author's operation for appendicitis. A, aponeurosis; U, umbilicus; P, pubes; A. S. S., anterior superior spine.

there. As a general practitioner doing surgery, I knew intimately postsurgical results. I simply state these facts as explanatory.

On account of these unusual relations, I have been intensely sympathetic and individual in my surgery, forgetting sometimes, I fear, the general good of surgery, in the (to me) all-absorbing problems of the case in hand. What will enhance this individual's chances for recovery? What will promote his or her permanent, complete restoration to health and comfort? In this intensely personal application of surgery, I may have unwittingly failed in a measure to bear in mind always that obverse of the picture—the greatest good to the largest number.

Thus following up closely and keeping in touch with my postoperative cases, I have not infrequently been chagrined to find that while the surgical procedures were "successful," the patients were not cured; or there were sequelae quite as disabling, often more disquieting, than the conditions for which the operations were done.

This has been notably true of complete oophorectomies and complete salpingo-oophorectomies.

We have only to review our pelvic surgery—to follow up our cases—to find many instances in which surgery has proved harmful rather than helpful. This is not really the fault of surgery or of surgeons. New procedures must be worked out carefully, followed up conscientiously, and reports of results made faithfully, that we may know just what to expect.

The Battey and Tait operations, championed by many of the most brilliant and esteemed abdominal surgeons, initiated a "furor operativus" that cost hundreds of thousands of women their ovaries with the consequent disabilities and neuroses that so frequently follow

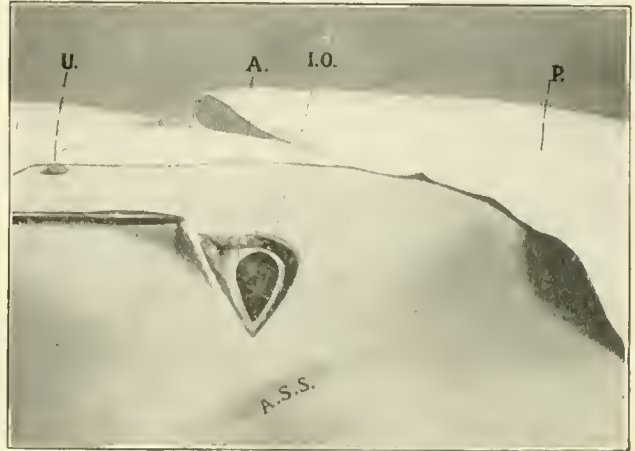


Fig. 2.—Second step in author's operation. I. O., internal oblique muscle. Other lettering same as in Figure 1.

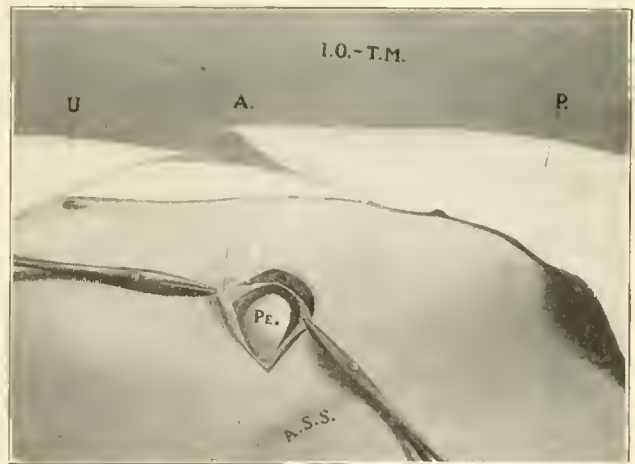


Fig. 3.—Third step. I. O.-T. M., internal oblique and transversalis muscles, separated and retracted; Pe., peritoneum. Other lettering same as in Figure 2.

oophorectomy. How many homes have thus been rendered childless, loveless and broken up by our former lack of knowledge of the internal secretions of these organs! My first laparotomy was done for tender, cystic ovaries, which I removed successfully, but with infinite disaster to my patient. Poor creature! For nearly twenty years I watched her wasting life. During this whole time she was a loyal patient. I did everything I knew; referred her to all kinds of specialists, only to get her back with that appealing look for help. She died eventually with cancer of the uterus. What influence, if any, my operation on her two decades ago,

* Read in the Section on Surgery of the American Medical Association, at the Sixty-first Annual Session, at St. Louis, June, 1910.

which made her miserable, bore on her as an etiologic factor of her fatal disease. I do not know. But of one thing I am sure, and that is that if I had been more conservative her resisting powers would not have been lowered.

I shall deal with the subject of conservative surgery from an individual rather than from a collective standpoint.

Every patient submitting his or her case to the surgeon (in the absence of urgent necessity for immediate operation), has the right to expect and should receive an exhaustive examination for diagnosis, and thereupon

finds many of these patients returned to him surgical victims rather than surgical victories. Such work excused, if it did not warrant, the epigram, "furor operativus," made by a brilliant, lamented surgeon of international reputation in his presidential address before the last Atlanta meeting of the American Medical Association. Such work, in a measure, justifies the feeling on the part of some internists that they must stand between their patients and operating surgeons. We should not be satisfied to have our patients simply recover from operations. Surgery that does not benefit or cure the patient is harmful, lessening confidence in surgery and surgeons, and often deterring those with serious surgical conditions from submitting to necessary operations.

By conservative surgery I mean that type of surgery that aims at conserving tissues and functioning organs in whole or in part, when this can be done without undue hazard to the life of the individual.

Considering the subject as a whole, radical surgery is frequently the most conservative surgery. No surgeon could possibly believe more firmly, nor advise more earnestly, than do I, prompt interference in acute

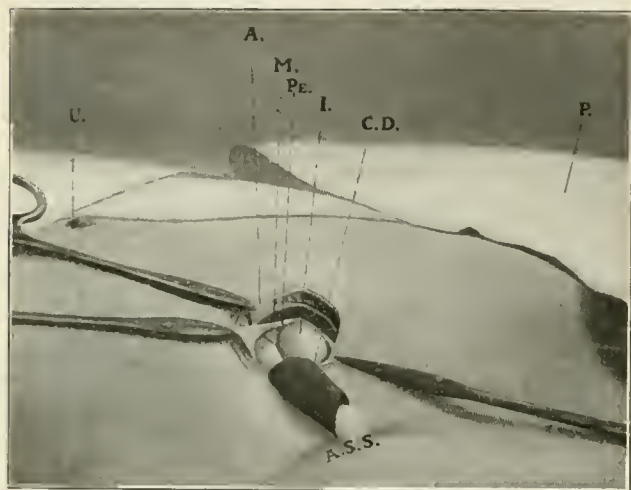


Fig. 4.—Fourth step. Cigaret drain (C.D.) inserted in outer angle of wound. M., muscles separated and retracted; I, intestine. Other lettering same as before.

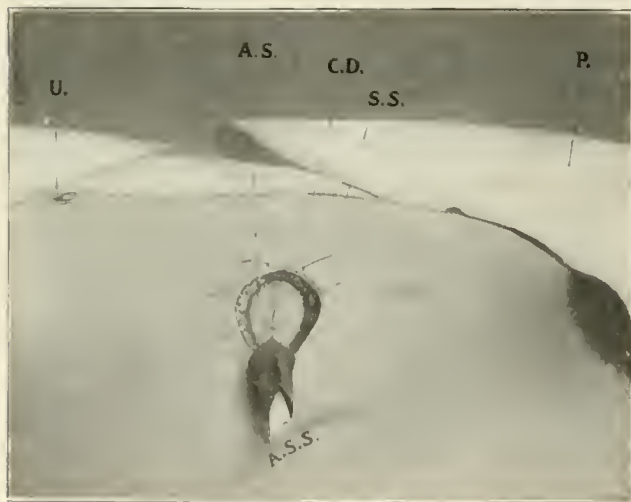


Fig. 5.—Fifth step. A. S., aponeurosis sutured; S. S., silkworm-gut sutures. Other lettering as before.

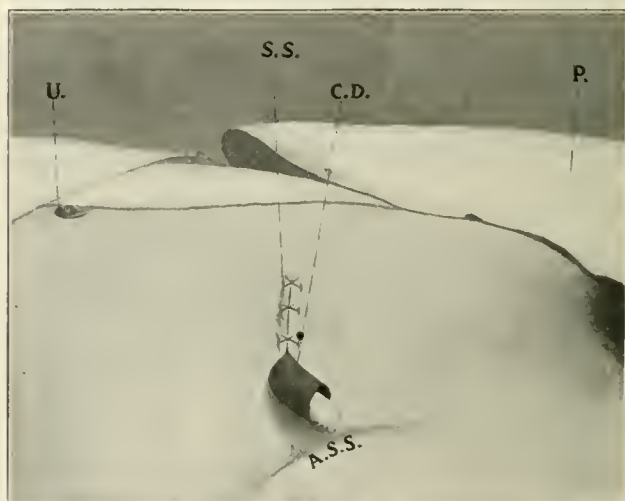


Fig. 6.—Operation completed. Silkworm-gut sutures tied.

a mature prognosis after a carefully considered detailed history.

It is quite too much the vogue for operating surgeons, after a desultory history and hurried examination to make some such remark in the operating-room as—"there is something wrong in this abdomen. I will tell you what it is after I open up and see inside." Such remarks have a bad influence on medical students and young surgeons, tending to the far-too-prevalent practice of rushing patients to the operating-table to be opened up for general results. The general practitioner

appendicitis, acute obstruction of the bowels, perforation of the alimentary tract, penetrating wounds of the abdomen, etc. Delays under these, or like tragic conditions, to make hair-splitting diagnoses, are little short of criminal. Here it is the surgeon's duty, as stated by a distinguished southern surgeon, to "get into the abdomen as quickly as possible, do the essential work, and get out of the abdomen as quickly as possible." Where, however, there is nothing urgent, failure to consider seriously the individual from every viewpoint is equally reprehensible.

Neuroses, intestinal toxemias and parasites, visceral ptoses, as well as heart, lung and kidney conditions, should all receive careful consideration and be given due weight. Repeated examinations of the urine, examination of the stomach contents and feces, examination of the blood, x-ray examinations covering a period of from two to ten days, should be made. Two days may be sufficient; ten days is a period none too long to keep some of these patients under observation and treatment before resorting to surgery. In doubtful complicated conditions even weeks of observation may be necessary. Thus by a systematic plan of coordination and elimina-

tion, we may arrive at far more accurate diagnoses and give better advice as to treatment.

I began doing conservative work on the ovaries and tubes in September, 1903, impressed by the many hopeless and helpless wrecks following my own complete salpingo-oophorectomies, and similar wrecks following like operations done by other surgeons and gynecologists which came under my observation. At that time no conservative work was being done in Grady Hospital, our large city hospital, nor was there, so far as I was then aware, any being done in my vicinity. Prolapsed ovaries, cystic ovaries, were removed with their tubes. In acute pelvic infections and pus cases, the tubes and ovaries were also completely removed. Hysterectomies were frequently done in addition.

I have been largely influenced to bring these subjects before this Section for discussion by the recent articles on conservative surgery of the ovaries by Dr. J. O. Polak,¹ of New York, Dr. R. A. Barr, Nashville, Tenn., and Dr. James W. Cokenower, of Des Moines, Iowa, all of whom practically condemn conservative surgery of the ovaries and tubes. Their reasons as given are: fewer immediate cures, the large number of patients returning later for radical operations, after conservative operations have failed. The small percentage (5 per cent. to 10 per cent.) of women bearing children after conservative operations, seems, however, to be their chief argument.

My own experience differs materially from the experiences of these gentlemen in every particular. My observation of several hundred complete operations done in hospital and private practice, and later personal experience with 135 conservative operations on the ovaries and tubes, has satisfied me that the number of complete and satisfactory cures is larger following the conservative operation than following radical procedures. Some of the patients on whom conservative operations have been done return for later operations, conservative or radical, as indicated; just as many patients on whom radical operations have been done return later for the breaking up of adhesions, partial or complete intestinal obstruction, etc.

My conservative operations in married women have been followed by a fraction less than 16 per cent. of known pregnancies and safe deliveries of healthy children. I do not doubt that some of those who have passed from under my observation have also borne children. Most of my conservative operations, however, have been done on young women, and here I think the results have been even better than in married women. Artificial menopause has been prevented, the natural characteristics of the woman have also been preserved; they have retained their womanly traits and their womanliness. They have been preserved from that feeling of being set apart from their kind which comes to most of the women that I have known on whom radical operations have been done. I may have been peculiarly unfortunate in having these poor creatures appeal to me so frequently for help; but my inquiries among general practitioners, gynecologists, and neurologists, have confirmed my own experience. Almost without exception my own observation is confirmed by the general practitioners and female gynecologists, who have large opportunities for observation and intimate knowledge of these cases, making their observation especially valuable; and neurologists to whom these miserable creatures are referred as a last resort, to eke out their remaining days in abject suffering.

despondency and disappointment. I have discussed this subject freely with Dr. Sawyer, our leading woman gynecologist and obstetrician, and have her consent to quote her experience, with reports of typical cases. I have also talked the matter over frequently and in detail with Dr. E. Bates Block, our leading neurologist, and his experience coincides almost exactly with that expressed above.

The argument that only 5 to 10 per cent. of pregnancies follow conservative operations, and therefore these operations should be condemned, seems to me to be not well supported, or based on sound fundamental facts and reasoning. When we consider the thousands and thousands of radical operations that have been done during the last twenty-five years, and the ever-increasing tendency towards race suicide, even this small percentage of homes preserved and children borne is no small argument.

As we work out these conservative operations more in detail, with better technic, a larger and larger percentage of pregnancies will follow.

There must always be a great difference between the results obtained in private practice amongst the better classes of people and the results obtained in large charity hospitals. A large percentage of these latter cases cannot be followed up, and their subsequent histories as to operations and pregnancies cannot be gathered with any degree of accuracy.

I am constrained to insert here the report of five cases from the pen of a woman physician, who was a nurse before she studied medicine. She says:

Than that of the poor, miserable woman, undergoing the nervous changes following the entire removal of both ovaries, there can be, to me, no sadder state in life. An observation of these cases covering some seventeen years, many of them women whom I had known prior to operation, convinces me that their last state is worse than their first.

Reviewing the history of a number of these women, who, in a vain hope of finding some relief, have sought me, I find the invariable and most marked symptom is that of despondency; sooner or later the feeling of utter hopelessness is theirs. Restlessness, discontent, inability to engage in former duties or pleasures, bitterness and fear of the future, together with loss of power to control the emotions, are always present. A scene of weeping is a part of every interview. The physical findings vary only slightly—a narrow vagina (frequently it is with difficulty that I introduce the examining finger, even in those who have borne children), a small cervix, which bleeds on the slightest touch, as does the vaginal mucosa; the uterine body is small and exquisitely tender. These examinations are always made with difficulty, provoking the most exaggerated nervous manifestations.

CASE 1.—Miss M., aged 22, on whom I saw the operation done in January, 1895, came to me in the spring of 1904, nine years afterwards, with an appeal to do something to help the "unbearable nervousness" from which she suffered. She was despondent and altogether miserable. Her home life, she admitted, was all that it could be to make one happy, but she took no enjoyment in it. Examination showed the typical condition described.

CASE 2.—Miss B., aged 21, operated on in September, 1896, of a cheerful, happy disposition, as I remembered her in girlhood, was so changed, when I again saw her in 1905, that I would not have recognized her as the same. She expressed herself as never having had one moment's freedom from pain and nervousness since the operation; she wished that she had died at the time. She had consulted various specialists, North and South, with no assurances of relief by operation or treatment. Examination showed the vagina so contracted that it was almost impossible to introduce the index-finger, a diminutive uterus so tender as to cause an outcry of pain on the slightest touch, and profuse bleeding from the gentlest manip-

1. Polak, John Osborn: Final Results in Conservative Surgery on the Ovaries, THE JOURNAL A. M. A., Oct. 22, 1909, p. 1382.

ulation. She is now a hopeless wreck, with the bitterest condemnation of the surgeon who did the operation.

CASE 3.—Mrs. C. had a double ovariectomy nine years previous to consulting me. At no time since the operation had she been so well as before, and at the time that I saw her she was a bed-ridden invalid. She complained of pain in every part of the body (with no disease of any organ that I could find), of wretchedness and despair. The trend was a lament that she was a burden to her husband and family, and wished she were dead. The atrophic vaginal and uterine changes were most marked. She underwent an operation some months ago for what the surgeon termed "adhesions," but says she is in no way benefited by it.

CASE 4.—Mrs. H., with a history of an operation done twelve years ago, presented herself, with symptoms similar to those of Mrs. C. She was a woman of unusual strength of character; her effort to overcome the train of nervous symptoms which have followed the operation has been of the strongest. She views the future without hope, but is trying to make the best of an empty life. And so I might tabulate the entire list, finding only the slightest variation in phases of nervousness or physical signs.

Surely these victims of mistaken judgment should invite a plea for conservative surgery on the ovary.

AUTHOR'S INCISION IN APPENDICITIS

Let me now direct your attention to my method of opening the abdomen for appendicitis, simply to place it on record. The hernias following late operations for acute suppurating and fulminant appendicitis are disabling, sometimes dangerous, and usually preventable.

May 10, 1903, in my one hundred and twelfth operation for appendicitis, I made my first transverse cut to reach a gangrenous appendix. It then seemed to me that such a cut would give better exposure, better drainage, less trauma, and leave the abdominal wall far less liable to subsequent hernial development. An experience covering seventy-six cases in late, neglected, acute appendiceal abscesses, in perforative and fulminant appendicitis, many with advanced spreading peritonitis, has abundantly demonstrated the feasibility of the operation, and has proved it to be the best incision in my hands for such cases. I do not advocate this incision in cases suitable for the McBurney gridiron operation, or those associated with pelvic pathologic conditions that should be dealt with at the same time.

I make a transverse cut well out in the flank through the skin and superficial fascia, buttonholing the aponeurosis; then separating the transverse fibers of the internal oblique and transversalis muscles. I next make a transverse cut through the transversalis fascia and peritoneum. This incision, if made well to the outside, gives the very best possible drainage outlet in appendiceal cases. It is easily retracted, giving much more room and better exposure than does a lateral incision to the outside of, or through, the fibers of the right rectus muscle. While there is a direct opening through the whole abdominal wall, two muscle layers, the internal oblique and transversalis, are practically uninjured, the nerve and blood-supply little interfered with, lessening also the danger of inguinal hernia. Where complications are encountered, and still more room is needed, the incision may be extended to the median line, through the skin and superficial fascia, the internal oblique and transversalis muscles separated to the edge of the rectus, the sheath of the rectus cut transversely and the edge of that muscle lifted up. The posterior sheath may also be cut if necessary. The advantages of the operation are: facility, better drainage, better exposure, protection against ventral hernia, and less danger of inguinal hernia following.

I have followed up many of my transverse operations, and in all of the cases observed have found a good solid scar. Certainly some hernias will result. That I do not advocate or employ the transverse incision as a routine, is evidenced by the fact that I have performed this operation only 76 times in the last 567 appendectomies.

ABSTRACT OF DISCUSSION

DR. ALEXANDER HUGH FERGUSON, Chicago: The end-result of operating on prolapsed ovaries and on small cysts in the ovaries has, no doubt, been pretty well decided in the experience of almost every surgeon of note. This work does not entirely belong to the gynecologist; surgeons deserve a great deal of credit. I have not for its own sake removed a prolapsed ovary in twenty years. I have removed small and large cysts from ovaries in hundreds of cases, but I have always conserved all the ovarian tissue I could, just as Dr. McRae has. I have done this not merely to favor the propagation of the race, but to maintain the mental equilibrium and happiness of the patient. These cases can be divided into two classes. First, there are the patients who are not nervous primarily, but who have cystic and prolapsed ovaries. One cannot class them with the neurotics; however, if allowed to continue in that state they will become nervous. If those ovaries and tubes are removed simply because they are displaced and a little cystic, these patients can be converted into hopeless neurasthenics. Then there is a second class that comes before us prominently to-day. What shall we do with a neurasthenic patient who is suffering with pelvic tenderness, due to prolapse, uterine disease or cystic ovaries? Shall we operate on these patients? Why not? If we do not operate the condition becomes profound and the patient may become insane. The majority become invalids. If we remove the pathologic condition from the pelvis, we remove a certain amount of the irritation that was interfering with the well-being of the patient or that caused the displacement of the ovary, etc. Shortening the ligaments, removing the cysts and making the pelvis as nearly normal as possible, will not interfere with the nerves of the patient, nor with her mentality. Some surgeons have stated that no operation should be done on a neurasthenic. That is a mistake. Even the insane claim our honest attention, and removal of diseased tissues will often better the patient's mental condition. Then we come to the very acute cases, in which surgery has not often been practiced. A young woman became pregnant, and fearing discovery, because she had been married secretly, she went to an abortionist. She developed acute pyosalpinx, with a temperature of 105 F. I opened the Douglas' cul-de-sac and found pus there and also a double pyosalpinx. I then opened the abdomen and found the appendix involved secondarily. What would you do? Ablate these tubes? No! I split the fundus of the uterus transversely and drained the pus into the uterus. The fimbriated ends of the tubes were opened. In five weeks this young woman left the hospital apparently in an excellent condition.

DR. J. M. BALDY, Philadelphia: It seems a pity that surgeons should go to the extreme on any surgical subject in this day, and especially when it is a question of pelvic surgery, pure and simple. To acknowledge oneself as always doing conservative surgery or as always doing radical surgery, is a tacit acknowledgement of mental immaturity. A great deal is said about conserving the pelvic organs, and much is said about complete hysterectomy and the removal of everything, but very little is said about a very essential feature, one regarding which all thorough surgeons and gynecologists agree, and that is to make a proper diagnosis, and to know beforehand whether any operation should be done. Therein lies the great evil, the great harm of all this work. More patients are injured, not because they have the ovaries and tubes removed, or because any conservative surgery is done, but because they were operated on at all when operation was not indicated. They were simply neurasthenics, patients who belonged to the neurologist, who needed commo-

sense, outdoor life, or anything else you choose, except to fall into the hands of the surgeon. That is a lesson everyone of us must learn. It is a fact that where you find a young community of young surgeons, that is, surgeons young in surgery, and where you find that other class of men, the so-called general surgeons, men who dabble in everything—surgery, gynecology and what not, you will find that many unnecessary operations are done; that is, many patients are operated on when what they really need is medical care.

DR. HYMAN M. FOLKES, Biloxi, Miss.: The diagnosis is the essential feature in these cases. As Dr. Baldy well put it, every sensible man, every man of large experience, will know when to operate and what to do after he has entered the abdominal cavity. Practically 50 per cent. of these cases are not operative cases. Dr. McRae brought out a point that few surgeons have realized to any great extent, and that is the end-results of injudicious surgical procedures. I have had many patients who have been operated on times without number. I remember one woman, aged 30, who had been subjected to sixteen operations, and she was in as bad a condition after the sixteenth operation as she was before the first, if not worse. The younger these women are when they are robbed of their ovaries, the worse off they are in every respect: I mean women who are operated on injudiciously. Every sensible person knows that when there exists in the abdomen any condition requiring radical surgery, it should be done, regardless of end-results. One cannot stop to consider the patient from the neurologic standpoint; she must be considered from the surgical standpoint exclusively. I recall a young woman of 20, who had both ovaries removed at the age of 18, and every 20 or 30 days she had the most distressing symptoms. The urine output was as low as 6 ounces for the 24 hours, and the girl was almost blind. There was at no time any condition like nephritis. Except for the reduced quantity, the urine was entirely negative, so far as any involvement of the kidneys was concerned. I could not regard the case as anything other than a toxemia. Relative to these end-results, I have consulted many gynecologists, but they were averse to saying anything. For this especial case, I suggested ovarian transplantation, which was declined. Later the uterus was removed and the woman recovered. I believe that when it is necessary to remove both ovaries, it is well to take out the uterus at the same time. Undoubtedly, there is an ovarian secretion, but I do not see how reflex irritation from the uterus could bring about such a mental condition as was present in this patient.

DR. L. F. SCHMAUSS, Alexandria, Ind.: One will more often be disappointed in doing conservative surgery than in doing radical surgery. It all depends on what we mean by so-called radical or conservative surgery. Some men are said to be radical when they remove everything that is diseased. That is not radical; it is simply a thorough and complete, a conservative operation, and these are the operations which give the best results, so far as the patients are concerned. It would be well if all cases would turn out as Dr. McRae has reported, but a surgeon must expect to be frequently disappointed. Many patients, if not completely relieved at the first operation, will not submit to a second, and will continue a life of chronic invalidism. Therefore, one can err as much on the side of "conservatism" as on the side of "radicalism." While examining ovaries and tubes before deciding what to do, the physician must be careful how he handles these organs, in order to avoid irritating them, causing the lighting up of old inflammation, cyst formation, etc.

DR. JOHN C. MURPHY, St. Louis: This question of conservative surgery in the pelvis requires a broader and more varied experience on the part of the surgeon than does any other kind of surgery. If the surgeon is confronted with a condition which admits of no delay, it is important that he make up his mind quickly. In dealing with pelvic lesions, speaking from the standpoint of the gynecologist, I frequently see cases in which so-called conservative surgery has been done, and in which the work has been very incomplete, so that the patients have had to be subjected to unnecessary second operations. When the abdomen is once opened, no matter

for what condition, the surgeon should have a sufficient knowledge of pathology to recognize what should be done. Unfortunately, however, some men have limited mentality, although possessed of some mechanical ingenuity. They take out ovaries and tubes, and frequently leave an infected uterus behind. And they think they are doing conservative surgery. I have had occasion to see numerous operations performed that were technically perfect, but the operator seemed to lack the training of the pathologist. I have seen surgeons operate on clinic patients whom they had not seen up to the time of their coming to the table. Someone else made the diagnosis, and asked the surgeon to operate for a certain condition. This certainly is to the detriment of the patient and not to the credit of the surgeon. Sometimes it is conservative to be radical. We must learn to differentiate between these conditions. There are thousands of women who are suffering from the results of incomplete surgery in the pelvis, which deters other sufferers from seeking the relief they might otherwise obtain. The surgeon should not so readily accept the sometimes incomplete diagnosis of his medical colleague, but should combine the science of the diagnostician with the art of the operator. The only conservatism worthy of consideration is that which puts the patient in the best possible condition to enjoy the pleasure of living.

DR. FLOYD W. McRAE, Atlanta, Ga.: I agree with Dr. Baldy, that surgeons, as well as gynecologists, ought to be diagnosticians. I do not believe that there is any real antagonism between surgeons and gynecologists. There is not a good gynecologist who is not also a good surgeon, and any good surgeon is capable of doing most gynecologic operations. I do not believe that Dr. Baldy, or any other surgeon of experience, operates in these medical cases to which I referred. One of the principal points in my paper was that we must make a diagnosis. Dr. Murphy referred to one point of which I spoke, and that is operating on patients without making a previous examination. We should not go into these cases blindly, because that is when and where we make mistakes. Without doubt, many operations are done radically when conservative procedures would have been better. Often infections in the pelvis have practically jugulated themselves. We can do conservative surgery in these infective cases, and we can do much to preserve to the woman her womanliness. I have yet to see a young woman, who has had tubes, ovaries and uterus removed, and who is satisfied with her condition after five or six years. The younger the woman the more important it is for us to conserve these organs, or even to transplant at least a portion of an ovary into the uterus, saving enough of the ovary to prevent an artificial menopause. False deductions are made from improper diagnoses, improper appreciation of pathology, and lack of care in doing this work. I would rather operate twice or thrice on one patient and preserve her womanliness than do a complete operation and make of her one of those hapless individuals described in my paper.

A New Method for the Differentiation of Bacterial Species. —In a second report on the influence of bacterial endotoxins on phagocytosis (*Nature*, Nov. 24, 1910), L. S. Dudgeon, P. N. Panton and H. A. F. Wilson say they have failed to demonstrate in any of their experiments any action of the endotoxic substances on the leukocytes: experiments of allowing bacteria to be exposed to the action of specific endotoxic substances furnished similar results. They confirm those published in their first communication that the phagocytic result was dependent on the interaction of endotoxin of serum. They have found, in the case of normal serum, that the amount of phagocytosis permitted when bacteria and endotoxin interact is not related to the amount of hemolytic complement present. The action of the endotoxin seems to be specific even with such closely related organisms as the typhoid and paratyphoid types and they suggest that this method may be employed for the differentiation of bacterial species. The amount of endotoxin has been shown to be strongly hemostable.

THE DIAGNOSIS AND TREATMENT OF CHRONIC INTESTINAL INDIGES- TION IN CHILDREN *

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This paper relates exclusively to chronic intestinal indigestion in children beyond the second year of life. It is not our intention to go into a detailed description of the condition, but rather to point out certain of its features which are of special interest and importance. Its etiology, as is well known, includes bad conditions of hygiene, food of poor quality, improperly prepared foods, overeating, eating at improper intervals, too rapid eating, insufficient mastication, defective teeth, exercise too soon after eating, fatigue, insufficient hours of rest, educational over-work, nervous influences, etc. Any and all of these conditions may result in disturbances of the gastro-intestinal tract in children who are primarily entirely normal and eventually bring about the form of disturbed digestion under consideration.

In addition to the causes mentioned it must be borne in mind that many children, either as a result of inheritance, previous acute illness or environment, suffer from constitutional debility which predisposes them to diseases of the gastro-intestinal tract.

While chronic disorders of the intestinal tract may be secondary to disturbances of the gastric digestion or the product of recurring attacks of acute gastro-intestinal disturbance, one must not lose sight of the fact that in a large percentage, if not the majority of cases, the condition is primary, and it is in this group of cases, which eventually result in the more pronounced types, that the earlier symptoms are frequently overlooked.

In the routine examination of the stools of apparently normal children, foul-smelling feces, which may or may not contain particles of undigested food, are a common finding. With these results as a guide a closer examination of the donor will often result in the establishment of other symptoms of disturbance of the intestinal digestion of which the child has never complained and which have passed entirely unrecognized.

Not infrequently, however, this condition of the stools is the only evidence one can discover, and it may continue indefinitely as the only symptom. It is well, therefore, to remember that chronic indigestion may and usually does persist for many weeks or months in a mild form, and at this stage its recognition is especially important, as therapeutic measures are much more promptly effective when applied early than in the later course of the disease.

The only satisfactory way of making the diagnosis of these milder forms, as has been indicated by the foregoing statements, is by an examination of the stools. Questioning the parents or child as to the regularity in movement of the bowels or condition of the stools is fruitless. In the first place, comparatively few parents give answers based on observation. They may insist on the child going to the toilet each day and the child may respond and have a movement, which is reported to the parent as satisfactory; but it is manifestly impossible

that the child should know the color, odor and general appearance of a normal stool—as a matter of fact, there are few adults who do—consequently the statements of the parent or child cannot be accepted as indicating the actual conditions.

Quite recently one of us referred to a fellow-practitioner, a highly intelligent adult, who was suffering from insomnia and an associated group of symptoms which are commonly included under hypochondriasis or neurasthenia. The patient stated that he had been having a normal stool each day immediately after breakfast since childhood. The stool, which was sent to the laboratory for examination, was dark-green in color; macroscopically it contained undigested vegetable and meat fiber and the odor was indescribably bad. When the patient was told the character of the stool he remarked that he knew the odor was bad, but he supposed, since this had been the odor of his stools for many years, that it was normal. This serves as an illustration of the unreliability of the patients' statements as to the character of the stools.

It is manifest, therefore, that if satisfactory data are to be obtained the stools must be examined by the physician, and not on one occasion only, but several times at intervals of some days, since it is not uncommon for the child to occasionally have fairly normal stools, even in long-standing cases.

In order to appreciate one's findings it is necessary to have some idea of the appearance of normal feces. While the consistence and form may vary within certain limits, according to the character of the diet, we consider a stool to be normal when it is of faintly alkaline, amphoteric or neutral reaction, well-formed, light or medium brown in color, and has only a slight and not a noteworthy offensive fecal odor. It should show no evidences of fermentation and only slight traces of mucus should be present. Microscopically a normal stool shows, besides vegetable cells, poorly striated muscle fibers, leukocytes, bacteria, etc., no starch granules, and, if any, only a few neutral fat globules, soaps or crystals.

In intestinal indigestion the stools show evidences of abnormality depending on the particular element in the diet which is being less satisfactorily disposed of. Macroscopically the stool may be unformed or only partly formed, whitish, light brown, greenish or dark brown in color, and show an increase in offensiveness referable and in proportion to the increase of the putrefactive processes. It may be semi-solid, soft or mushy, or, on the other hand, hard and dry. It may contain undigested particles of muscle or vegetable tissue, show varying degrees of fermentation and varying amounts of mucus. Microscopically the stool may show large numbers of vegetable cells, fairly well-striated muscle fibers, starch granules, and, in the cases due to disturbances of the fat digestion, excessive quantities of neutral fat, soaps or crystals.

In the cases with marked abdominal symptoms the stools may show an exaggeration of the foregoing picture. The consistence may be very loose, or watery, and the fermentation marked enough to produce almost constant bubbling on the surface of the stool and the odor offensive in the extreme.

It is well to remember one point that has been referred to, namely, that the stools are often continuously offensive without containing particles of undigested food. This condition may not necessarily indicate a disturbance of the digestion of such character as we are considering, but may be the product of practically any

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

condition which will bring about a general lowering of nutrition, such as chronic infection through the lymphatic tissues of the nasopharynx or the faucial tonsils. In consequence there evidently occurs in the intestinal tract a diminution in resistance to the multiplication of the putrefactive bacteria without any material interference with its digestive function.

A careful study of the urine is of value in directing one's attention to disturbed intestinal digestion when the stools show no evidences of abnormality. The general characteristics of the urine as a rule show no changes, and, although it has been stated that there is an increase in albumin, this has only occasionally been true of the cases observed by us. We can conceive that certain changes might be produced in the functioning power of the kidneys, especially in the long-standing cases, which would result in an increased elimination of albumin. More commonly indican, phenol and urobilinogen are present in amounts depending on the degree of the intestinal putrefaction. These products may appear either alone or in combination, and, though usually associated with disturbances of the protein digestion, are sometimes present when the putrefactive process depends on other causes.

The manifestations aside from the stools may vary from practically no subjective symptoms to the most extreme clinical picture that one can depict. The symptoms are by no means restricted to the intestinal tract; in fact, the absence or mildness of the abdominal symptoms may be so striking as entirely to obscure the actual seat of the primary disturbance. The cardiovascular and nervous systems sometimes furnish the bulk of the symptoms; coldness and blueness of the extremities, fits of pallor, even amounting to syncope at times, palpitation and irregularity of the heart's action are common symptoms on the part of the circulation, and, together with the wasting, which in the long-standing cases is constant, there may be considerable anemia, which is usually, however, more apparent than real.

On the part of the nervous system there is no limit to the manifestations, and it is to these that we wish particularly to draw attention. The most common nervous phenomena are restless sleep, muttering during sleep, night terrors and sometimes insomnia. There is a general condition of restlessness and irritability and inability to concentration of effort, especially mental effort. These children are apt to do badly in their studies. They frequently drift into a clinical picture which in the adult would be defined as neurasthenia, and after this condition of nervous imbalance has been well developed convulsive seizures sometimes occur.

Not once but many times we have had these cases come under our observation, with the diagnosis of epilepsy and a hopeless prognosis as to recovery, and it is this fact more than any other which has stimulated us to present this paper, because we believe that the convulsive seizures occurring in this condition are frequently, if neglected, the beginning point of what later develops into so-called epilepsy. It has been our experience that in these neglected cases the history has shown a tendency to increasing frequency of the convulsive seizures: in other words, each convulsive seizure has rendered the nervous system more unstable and, therefore, more susceptible to insults from the toxic products which are constantly forming. The result is that the habit of fits becomes well established and eventually the resistance is so slight that the subject is to all intents and purposes an epileptic.

The relationship between chronic disturbances of the intestinal digestion and convulsive seizures cannot be too strongly emphasized. It is almost criminal to assume that, because any child has had a series of convulsive seizures lasting over a period of months or even a year, it is necessarily epileptic. Such an assumption is a most liberal contribution to the production of epilepsy.

The proper attitude to take toward a child with such a history is that there is a tangible cause for the attacks, which must be searched for through every possible avenue until it is determined and eradicated. The frequency with which it can be traced to these chronic conditions of the intestinal tract will be surprising and enlightening.

The fact that certain children suffering from chronic disturbances of the intestinal tract show more marked nervous phenomena than others is difficult to explain. The relationship of these symptoms to inherited weakness of the nervous system or to inherited tendencies which result in nervous instability is very commonly emphasized. We find certain writers describing under the headings of neurasthenia, nervousness, lithemia, chronic gastro-intestinal disturbances, chronic intestinal indigestion, constipation, etc., practically the same varied group of nervous symptoms. While neurasthenia is not accepted by some pediatricists as occurring in early life, it is by others, and, as to etiology, it is usually defined as hereditary and acquired. We are probably all willing to admit that we are not born into the world endowed with the same amount of nervous resistance. Unquestionably each individual differs from others in this respect, and some have very little nervous resistance. These latter are the ones defined as the hereditary neurasthenics. Their nervous force is so limited that the slightest variation from the normal routine of life results in the production of nervous symptoms; indeed, it is said that these may occur without an exciting cause. These cases are described by some pediatricists as of easy recognition even in early infancy through the occurrence of such reflex phenomena as abnormal tendency to fright (as starting on the occurrence of any sudden noise), abnormally light sleep, continuous crying day and night, etc.

Acquired neurasthenia is usually attributed to overstrain, either mental or physical, and to certain emotions. These latter causes are rarely active in children and, therefore, one must assume that in early life the large majority of instances of neurasthenia are manifestations of a hereditary weakness unless certain other factors, not active in adult life, are capable of producing neurasthenia in children.

It seems to us that this group of nervous symptoms which is common to so many disorders in early life should be classified either as neurasthenia caused by the conditions with which they are associated or that the term "neurasthenia" should be restricted to an exceedingly small group of cases or eliminated entirely from the category of diseases of child life. We incline to this latter view because we believe that the instances in which these nervous manifestations exist, apart from all exciting causes, are practically unknown. They may be dependent on any one of a number, such as bad environment, adenoids and enlarged tonsils, defects in vision, and the chronic disturbances of the gastro-intestinal tract. Unquestionably this latter group is more largely responsible for the nervous phenomena of children than any of the others, and this is especially true of chronic intestinal indigestion. In certain children the nervous

system may be especially susceptible because of hereditary deficiency; in others the prolonged action of toxic products on the nerve centers results in an acquired susceptibility with the production of the same phenomena.

In either event the fact remains that in chronic intestinal indigestion there is a large group of nervous symptoms which are dependent on the toxic substances, which are absorbed or retained in consequence of the abnormal conditions of the intestinal tract—a fact which we daily demonstrate by bringing them under complete control by correcting the intestinal condition.

The important point to bear in mind is this causative relationship, since there is grave danger of accepting the nervous symptoms as the disease without endeavoring to determine the primary condition and relieving it. Probably all of us have been inclined to look on this condition of nervousness associated with chronic intestinal indigestion in early life as the internist has looked on neurasthenia in the adult, viz., as often more or less hopeless from the therapeutic standpoint. This attitude has made the handling of these cases difficult.

We have shown a tendency to neglect them. The bad results of such neglect are far-reaching. The longer the condition lasts the more numerous and fixed the symptoms become. These children often pass out of childhood into early youth and on up to adult life, becoming more fixed in their ill health and correspondingly more neglected as the treatment of their condition becomes more difficult. They swell the number of so-called cranks, hypochondriacs, neurasthenics and hysterics among adults, a large percentage of whom could have been given comfortable, useful lives if the true nature of their condition had been recognized in childhood.

Aside from the symptoms referred to these cases of chronic intestinal indigestion sometimes manifest another group of symptoms which may be misleading from the standpoint of diagnosis.

Distention of the abdomen does not develop in all instances, but in the cases in which the nutrition of the muscles suffers the abdomen may be greatly distended. The thinning out of the abdominal muscles lessens the support to the abdominal contents; this lack of support, together with the weakening of the intestinal wall and the putrefactive processes within the intestine, brings about a ballooning of the abdomen which may become extreme; when vomiting of toxic origin, which may persist for some days, is added to these symptoms the clinical picture of tuberculous peritonitis is strongly suggested and sometimes eliminated with considerable difficulty, especially the fibrous form. The only satisfactory evidence on which peritonitis can be excluded is the history of the case, continuous observation over a period of weeks, the absence of the characteristic doughy or infiltrated feeling of tuberculous peritonitis, and the absence of masses within the abdomen, signs which may, however, be entirely lacking.

There is one other symptom to which we wish to call attention, and that is a peculiar form of dyspnea which we have somewhere seen aptly described as "sighing respiration." This symptom is most marked after meals and especially after the evening meal or when food is taken immediately after severe exercise. It is associated with a feeling of epigastric distress or pressure and consists of inability to get a sensation of satisfaction from respiratory effort. It is usually associated with increased distention of the abdomen, especially the distention of rather sudden origin. The child will take a full deep inspiration, which is followed by a sighing expiration.

It sometimes becomes almost continuous for a period of days and in older children we have seen it produce considerable alarm. Exercise will sometimes increase it, but generally it lessens abruptly or entirely disappears when the attention is distracted by occupation. On what this symptom depends we are uncertain. Whilst usually associated with increase in the abdominal distention, the latter rarely seems sufficient to mechanically interfere with the proper function of the intrathoracic organs. It would seem to be more properly attributable to some toxic effect on the centers of respiration and probably always exaggerated by psychic influences.

Edsall has suggested that since in gastro-intestinal conditions marked acidosis is not uncommon it is entirely possible that a "subacidosis" may overstimulate the respiratory centers sufficiently to produce this symptom.

Haldane and Priestly have shown that carbon dioxide is the normal stimulant to the respiratory center. It has also been shown that other acids may have the same effect. Therefore it is not a lack of oxygen but the presence of carbon dioxide and other acids that produces respiratory effort.

Beddard, Pembrey and Spriggs have shown that in the coma of diabetics carbon dioxide tension may not be increased and that the blood can still absorb carbon dioxide freely, but that slightly excessive amounts of carbon dioxide in the respired air cause great excess of dyspnea.

Since this dyspnea is very often controlled by alkalies, and since acid intoxication is known to exist in diabetic coma, the authors referred to conclude that the organic acids produce the Kussmaul breathing by acting as respiratory stimulants.

In the light of these conclusions, and because of the striking similarity between the sighing respiration of intestinal indigestion and the Kussmaul breathing, the suggestion of Edsall would seem to provide the correct explanation.

TREATMENT

Coming now to the treatment of chronic intestinal indigestion, we would say that it divides itself into the following heads:

1. Absolute control of the patient—which means the full cooperation of the mother and nurse.
2. Hygienic treatment.
3. Dietetic treatment.
4. Medicinal treatment.

Unless one has the full assistance of the caretakers in carrying out measures of treatment, failure is a foregone conclusion. The first step in the treatment, therefore, consists in securing such cooperation. This can usually be done by a full explanation of the nature of the disease, its chronicity, the dire results which will inevitably follow neglect of the condition, by placing of a large share of the responsibility of treatment on the mother or nurse, where it rightly belongs, by the promise of cure if they cooperate, and by making them understand in the beginning that the treatment must be continued not over days or weeks, but months, and that drugs will be but a small factor in accomplishing results.

If the confidence of the attendants is thus obtained, the most important feature in the treatment is accomplished. In the children of the poor and ignorant, seen in the hospital clinics, one can obtain better results—in fact, one might say that the only way in which one can get thoroughly satisfactory results is—by placing them

in the wards of the hospital for several weeks, as the conditions necessary for treatment cannot be secured in their homes.

Patients of this class unfortunately will only too often relapse after they have returned to their home environment. Much can be accomplished with such patients, however, by following them up in their homes through the medium of social workers or visiting nurses.

Hygienic measures are very important. Life in the open air, for its stimulating effect on the circulation and general toning effect, must be insisted on, and the sleeping-rooms must be cool and ventilated through wide-open windows. Properly regulated exercise is important, but this should be largely in the open air and always short of fatigue. Children must be required to eat slowly and masticate their food thoroughly, the common habit of bolting food to get away to school or to games being one of the causes of this condition. A period of rest should intervene between the taking of food and indulgence in active exercise. Very little, if any, physical exercise should be permitted after the evening meal. Long hours of sleep obtained by early retiring are essential.

The skin of these children is usually dry and inactive. It must be stimulated to do its work as an organ of elimination by the use of daily baths, rubbing, and unguents, preferably with olive oil.

The kidneys must be kept active by the free use of water, which will also contribute to the lessening of constipation when it exists. Regularity in the evacuation of the bowels is necessary, especially in the presence of constipation. The child must be guarded against too close consideration of its symptoms, a result which is often brought about by undue anxiety on the part of the parents. Its environments must be cheerful and free of gloom. It must be relieved from all occupations which are depressing, especially from overwork in school.

Defective conditions in the teeth must be corrected and disturbing adenoids or tonsils removed, but only after the treatment has been continued long enough to bring about some improvement in the general health, and then by quick operations.

The nature of the diet depends to a large extent on the character of the indigestion. This can only be determined, as has been previously pointed out, by a careful study of the stools. If any one element of the diet has been badly handled, it must be withdrawn from the dietary, temporarily at least. Generally speaking such patients will do better in the beginning on a very much restricted diet, restricted even beyond the caloric needs in the individual case. One of the commonest errors in the treatment is the tendency to overcome the poor nutrition by full feeding. Obviously such a course is comparable only to adding fuel to the flames. These children are already the victims of too much food, and what their digestions need is not increased work, but rest. This can usually be most satisfactorily accomplished by the administration of a milk diet in some form. Where fats are badly handled, it is sometimes necessary to use diluted or even fat-free milks, and in some cases properly prepared buttermilk is useful. The milk diet should be continued until the stools give evidence of satisfactory digestion, after which the diet may be gradually extended, studying the stools the while and bearing in mind the elements in the food which have been poorly disposed of.

Usually the diet can be gradually advanced until a general well-rounded diet equal to the needs of the

individual child has been reached. The heaviest meal should be given in the middle of the day, and the evening meal should be very light, as these children rarely sleep quietly on a full stomach.

It seems almost needless to say that all foods of recognized indigestibility should be permanently excluded and that the pernicious habit of eating between meals should be forbidden. Tea and coffee and other unnecessary and disturbing substances must follow the same course.

The use of drugs in this condition represents the least important part of the treatment. There is no specific, and, therefore, whatever drugs are given must be directed to the relief of certain symptoms.

We have used the so-called intestinal antiseptics for the control of putrefactive processes, but with entirely negative results. In the beginning of treatment and occasionally thereafter, a course of calomel followed by colonic irrigation will do much to relieve this feature of the disease. The intestinal washings seem especially effective in the cases with loose, watery, foul-smelling stools.

For the frequently associated constipation, one need rarely resort to the use of drugs. The free use of water on rising, evacuation of the bowels immediately after the morning meal, together with properly applied abdominal massage, and later the free use of green vegetables and laxative fruits, will invariably control this symptom.

As a temporary measure, we prefer olive oil enemas and non-irritant suppositories to laxative drugs. In the emaciated patients with marked abdominal distention, temporary mechanical support to the abdominal wall, together with muscle exercises directed to improvement in the tone of the abdominal muscles will contribute to the relief of constipation.

The bitter tonics, which are given more for their toning effect on the gastric mucosa than for their general effect, are the only tonics which are indicated. In short, if the conditions which are active in the causation of the disease can be controlled in the manner indicated under the preceding headings, the clinical picture will usually clear up without the necessity of drugs.

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ABSTRACT OF DISCUSSION

DR. H. L. CORT, Newark, N. J.: I have seen a number of cases that correspond to this clinical picture, and it is well to remember that many cases of so-called epilepsy are amenable to treatment. Most of the cases I have seen have been referred to me by physicians who thought they had epilepsy to deal with. Physicians are too ready to use medicine in treatment of intestinal indigestion in children, without proper attention to the diet. I think we should study these cases carefully and question the mother closely, in order to determine the dietetic errors. In the treatment, an important part is the correction of the diet. It may be that milk is used with red meats, or milk is used at breakfast with fruit and sugar. In addition we find over-feeding the rule, with the consequent putrefactive intestinal decomposition. In these cases there are restlessness, sleeplessness, indicanuria, fits of uncontrollable anger and foul-smelling stools. We cannot remove the results of putrefaction with carbohydrate diet alone, nor with calomel, or castor oil, but I think that we can do it by the use of bichlorid of mercury. Corrosive sublimate was abandoned by the surgeon because it became an albuminate which was insoluble, and the same is true when given by the mouth, but when it is given with hydrochloric acid it probably reaches the intestine, although it may there be changed into some other salt which finally alters the malodorous character of the intestinal contents. It should be given with the tinc-

ture of the chlorid of iron and with considerable glycerin an hour before the ingestion of food in small quantities.

DR. CHARLES GILMORE KERLEY, New York: I agree with everything Dr. Hamill has said, but I want to emphasize one point that I think he did not emphasize sufficiently, and that is, the matter of rest in the type of child he discusses. All of the lower animals lie down and sleep or take a rest after a full meal if they have an opportunity, and their digestive function is carried on better. When an animal has to work after a full meal, the digestion and assimilation are not so good. This has been demonstrated time and again. We all know how much exercise is taken by children, especially children of school age. The amount of energy expended in their work is tremendous, and the energy that is expended in play cannot be utilized in the digestion of food. When we have wasted energy in a child we have invariably indigestion, malassimilation, malnutrition and neurasthenia. Keep these children in bed in the morning, and let them have their breakfast in bed and give them a modified rest-cure. Then let them run about and play like normal children until luncheon in the middle of the day. Then have them rest again for an hour and a half and then allow them to run about until 6 p. m., when their evening meal is taken, and then to bed. In that way the child gets all of the rest required and he conserves his vitality for the processes of assimilation and growth. If we let these children lead a child's life and see that they get sufficient rest, they will not get into the condition described by Dr. Hamill. One of our greatest errors in the management of young children is in permitting the extraordinary amount of work they do from morning until evening. If you don't believe that, take one of your own children and weigh him, and then give him this rest and weigh him at the end of a month, and you will find that the child will gain a pound or more.

DR. L. T. ROYSTER, Norfolk, Va.: Has Dr. Hamill made any observation at all in the matter of temperature during the convulsive seizures in the class of cases he mentions? Does he consider the temperature, either positive or negative, in any way suggestive of the diagnosis between that condition and epilepsy? I have asked a number of neurologists in this country that question and none of them seems to have thought of it to the extent of making an observation.

DR. H. M. McCLANAHAN, Omaha: The valuable thought in this paper to me was the possibility of intestinal indigestion and consequent toxemia leading to epilepsy. I have in mind a little girl who had repeated convulsions as often as once a week. She had chronic intestinal indigestion of the mucous type. After following out the course of treatment suggested by Dr. Hamill that child has absolutely recovered and more than six months have elapsed since a convulsion occurred. I am thoroughly convinced that, though the trouble was not true epilepsy, it was leading to epilepsy; and I am convinced that the convulsions were due to some toxins in the blood from the intestinal putrefaction. I believe more than most of you in the value of drugs, and I hope that I shall never become a therapeutic nihilist any more than I am a social nihilist, but I think that when the mother is given a drug to administer in these cases she is far more apt to carry out your treatment than if you depend absolutely on hygienic treatment. In the presence of constipation, especially the mucous type, the use of phosphate of soda is of value, although its value is not great compared with that of rest and a correction of the diet.

DR. E. E. GRAHAM, Philadelphia: In considering the nervous symptoms Dr. Hamill speaks of, we should not lose sight of the fact that a convulsive seizure in a child is brought about by an entirely different cause from a convulsive seizure in an adult. In children the convulsion is commonly of reflex origin, while in the adult it is commonly the result of some organic disease of the nervous system. This only adds force to the statement that chronic gastro-intestinal disease may originate and produce epilepsy in the adult. The probability of convulsions due to brain injury in an adult is very remote, while it is very common in children. For many years I have made a study of the cases in which convul-

sions developed in infancy, and that study has proved to my mind conclusively that the young child who has a convulsion is very commonly the one who later develops epilepsy, and that probably the convulsion, due to gastro-intestinal intoxication, is the origin of the late epilepsy. In other words, a certain amount of damage to a child's nervous system predisposes it to epilepsy. Any condition that is chronic for months or years and predisposes the child to convulsions certainly establishes a future condition that will predispose that individual to epilepsy. This paper is valuable because it deals with a condition with which we are all brought into contact, though it is a type of trouble that the large majority of us are apt to overlook.

DR. JOHN LOVETT MORSE, Boston: I merely wish to emphasize the importance of regulation of the diet in the treatment of these cases. The only way in which the diet can be accurately regulated is by having the mother keep an exact account of what the child eats, both as to quantity and quality, and by repeated examination of the stools. In this way only can we determine exactly what the cause of the condition is. The only feasible way of disinfecting the intestine is by changing the bacterial flora, and this can be done only by changing the food. I want especially to emphasize the value of the carbohydrates in changing the flora in these conditions. Changing the intestinal contents by the carbohydrates changes the flora, inhibits the growth of the organisms, which thrive on proteids, and hence prevents the formation and absorption of the products of the decomposition of proteids. When Dr. Coit spoke of protecting the bichlorid by hydrochloric acid, I wondered how many inches down the intestinal tract it would go before it was neutralized.

DR. FRITZ B. TALBOT, Boston: There is a general impression that it is a very difficult procedure to make an examination of the stools. From three to five minutes are required to make the examination, and it gives important information concerning the digestion of fat, starches and meat. I have been impressed by the fact that an excess of fat is common in these cases of intestinal indigestion. The reason for this is that fat is the component of the food, which the parents are more likely to give in excess to a child who is run down.

DR. SAMUEL M. HAMILL, Philadelphia: Dr. Kerley is probably right in believing that I did not sufficiently emphasize the importance of rest in the treatment of chronic intestinal indigestion. He believes in prolonging the night's rest by giving these children their breakfast in bed. I am inclined to believe that in these cases many hours of consecutive rest result in the accumulation of toxic products which are very depressing in their effect. It is my custom, therefore, to have these children get up at a comparatively early hour, and, in order to secure a satisfactory total rest for the twenty-four hours, to have them rest at later periods of the day. I think that rest is so important that I sometimes have these children separated from other children by sending them to the country in charge of a nurse, where they can be under better control and where a quiet restful life is possible. I have not studied the temperature curve in the cases having convulsions, but I do not believe it would prove of value in the differential diagnosis from epilepsy.

As to Dr. Graham's remarks, I am perfectly willing to admit that children are more susceptible to reflex influences than are adults, but I do not believe the convulsive seizures in these cases are of a purely reflex nature. They are of toxic origin, as are the other symptoms.

I do not want Dr. McClanahan to believe that I am a therapeutic nihilist. I give drugs to these patients, but it is exceedingly important to emphasize the fact that drugs are overemployed and that they are frequently given without the slightest indication. I realize that it is desirable to console the mother by giving some medicine to the child, and I think we can do this honestly by prescribing some valuable drug, but we must make her realize the limitations of drugs, for unless we emphasize the necessity for general hygienic treatment the mother will neglect this and pin her faith to the drugs.

Dr. Morse spoke of the value of getting a record from the mother of the exact dietary of the child. I never treat a child without doing this, and I think it is exceedingly important. I secure not only a list of the various foods administered, but also a statement of the amounts of each food.

The examination of the stools, as has been suggested by Dr. Talbot, is not a difficult procedure, and one can gather much valuable information from the macroscopic study alone. The microscopic examination is important, but not so much so as the macroscopic. The sooner we realize that the examination of the stools is an easy procedure, the sooner we shall employ it as a routine measure.

NITROUS OXID AND OXYGEN ANESTHESIA *

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The advances in the use and perfection of nitrous oxid anesthesia since the report of the Anesthesia Commission on this subject, at the meeting of 1908, seem to consist of the following:

1. The employment of this agent, with modifications, as the routine anesthetic in several of the large clinics of this country.

2. The demonstration clinically and experimentally of the advantages of nitrogen oxid and oxygen over ether, in the prevention of shock, the conservation of immunity and its value in the case of the handicapped patient (Crile).

3. The establishment of rebreathing of nitrous oxid and oxygen for two or three minute periods, as harmless and beneficial, with the great reduction in cost of this anesthetic (Gatch).

It has already been shown that nitrous oxid is the safest of all anesthetics and the most pleasant to take; that it requires the shortest time for induction; that there is almost immediate recovery after its discontinuance, and that it has no bad after-effects. There is no stage of excitement, and excitement is absent when the patient returns to consciousness. Dentists, who have used it in short administrations for many years, state that literally millions of administrations have yielded an infinitesimal number of deaths.

It is not absolutely free from danger, however. Death can occur from its continuous administration, without admission of air or oxygen in from two to four minutes. In overdosage, death is caused by asphyxiation and cardiac inhibition. In the fatal animal experiments, sudden arrest of the heart in overdistention was observed. The danger-signals with this anesthetic are:

1. Deep and persistent cyanosis.
2. Depression and slowing of the pulse.
3. Vomiting.

Cyanosis is the first indication of trouble, and gives startling warning of impending danger. Discontinuance of gas and giving of oxygen, which should be always at hand, uniformly and promptly dissipate all danger.

Crile has shown in the physiologic laboratory that animals under nitrous oxid withstand shock-producing trauma much better than under ether. The resistance of animals rendered pathologic from infections, hemorrhage, and hyperthyroidism, likewise, was strikingly better under nitrous oxid than under ether. These laboratory observations were corroborated by the histologic examination of the primitive ganglion cells of the central nervous system.

Crile's recent investigations in cytology show that there is decidedly more destruction of chromatin after ether than after nitrous oxid. Again, there is no lowering of the phagocytic power after nitrous oxid, as after ether. Nitrous oxid does not reduce hemoglobin or cause any permanent blood change. There is no acetone or indicanuria as a result. Postanesthetic complications are absent.

Although oxygen was used by Andrews with nitrous oxid as early as 1868, some of the later apparatus provided for the admixture of air. Bevan employs this gas and air mixture with success, and I have used it in a series of over 100 cases. This mixture, however, does not provide such smooth anesthesia as does the mixture with oxygen. On account of the large atmospheric content of nitrogen, if enough air is used to do away with cyanosis entirely, it so dilutes the mixture that complete anesthesia is interfered with. While cyanosis is not desirable and can be prevented by the addition of oxygen, yet it should be understood that the cyanosis is not nearly so dangerous as that cyanosis produced by ether or chloroform—a cyanosis due to cardiac and respiratory depression.

It seems to have been established by Gatch that rebreathing nitrous oxid and oxygen in periods of two minutes is not only perfectly safe, but helpful to respiration, circulation and blood-pressure. Moreover, rebreathing reduces the expense greatly, which was partly responsible for the somewhat restricted use of this agent. Rebreathing seems to be more satisfactory than the continuous administration of the gas. The respirations are deeper and fuller, and the pulse is slowed by the therapeutic excess of carbon dioxide stimulating the center of cardio-inhibition. The temperature is slightly raised. The argument for rebreathing is that carbon dioxide under 4 per cent. concentration is non-toxic; that in normal and somewhat increased amounts in the blood it is the normal stimulus to the venous wall; that the abolition of venous tonus and not arterial is the primary cause of failure of circulation in shock. Carbon dioxide stimulates the cardio-inhibitory, vasomotor and respiratory centers, and an increase such as is afforded by rebreathing during gas and oxygen raises the blood-pressure and is thus an easily available preventive of shock. The loss of body heat by expired air is conserved by rebreathing and artificial warming of the gases is rendered unnecessary.

The apparatus of Gatch providing for rebreathing is extremely simple, portable and inexpensive. It has a rubber sleeve that fits snugly and conveniently over the face-piece, preventing leakage of gases and the ingress of air which checks the anesthesia. The patient can be given air or gas, with or without oxygen, and made to breathe the mixed gases to and from the bag. Even a little air allowed to mix the gases spoils the anesthesia. The apparatus has an attachment permitting ether to be added when needed for short periods, all without removal of the mask, until the anesthesia is to be permanently withdrawn. It is a very powerful etherizing device when needed.

It is not necessary to attempt to give any arbitrary percentage of oxygen. Just enough to dispel the cyanosis is the aim and, roughly speaking, a puff of oxygen in each bag of nitrous oxid that is to be rebreathed is sufficient. Keep the patient pink, is the rule. If the color cannot be kept good, it is better to give ether by the open method.

* Approved by the Committee on Anesthesia of the American Medical Association.

Not all patients, notably not the very robust and alcoholics, can be sufficiently relaxed without disagreeable cyanosis. In these, ether given for three or four minutes in the mask or by the open method, will usually accomplish relaxation and oblivion. The quantity of ether is negligible. When rigidity is overcome the gas may be resumed. A little ether, so small in quantity that the patient is never aware of it, is given in about three-fourths of the abdominal cases at Johns Hopkins Hospital (Gatch). The post-operative discomfort is less with a little ether and no cyanosis than with no ether and prolonged cyanosis. Pronounced cyanosis is apt to be followed by headache.

Teter estimates that a small quantity of ether given in this way will be necessary in about 10 per cent. of the cases. In laparotomies three, five or seven minutes of ether will be required in about 40 per cent. of cases.

Gas and oxygen can be used with impunity where ether is contraindicated, i. e., in kidney disease. Nitrous oxid has also been employed in advanced pulmonary lesions and seems to have caused no mortality. It is particularly helpful in those desperate cases from any cause that urgently demand operation and yet are so risky that the surgeon realizes that ether or chloroform is the added weight which depresses the beam.

The borderline cases in which the operator seriously questions the wisdom of trying to do anything, may have surgical aid extended safely, so far as the anesthetic is concerned, by nitrous oxid and oxygen, but only at the greatest hazard with ether or chloroform. Moreover, the inevitable, though small, anesthetic mortality from pneumonia, anuria, fatty degeneration of the liver, etc., can be prevented.

The chief class of cases rendering nitrous oxid unsafe is that of heart lesions, whether myocardial or valvular.

Anesthetization with nitrous oxid is incontestably more difficult than ether. It requires special training and expertness to acquire the technic. Crile has had it administered practically as his routine anesthetic in over 1,000 cases. There has been one death six hours afterward which he charges to the anesthetic. With the increased experience acquired by his special anesthetist he feels that this fatality could now be averted.

The danger, therefore, is not so much in the agent as in the administrator, but this is equally true of the other anesthetics. The simple cases should be chosen first.

It is therefore not adaptable for the all-round use of the general practitioner, but will grow greatly in popularity in the highly perfected clinics, in hospitals with expert permanent anesthetists, and with those who specialize in anesthetics. Fortunately most of the major surgery and graver traumas are cared for under these conditions, and thus the desperate-chance patient may have this added safeguard and adjuvant to life-saving.

Gas and oxygen are not only indicated where the risk is great, but routinely they are a special boon to patients who have been operated on before and who have a more or less justifiable and vigorously expressed dread of the primary "smothering" effects of ether, and the secondary feeling of *mal de mer*.

Nitrous oxid can be safely administered for two or three hours, and at Johns Hopkins Hospital where it has been used routinely on the surgical side in over 1,000 cases, Gatch kept one patient under its influence for five hours without ill effects. It can be given longer with safety than any other anesthetic.

A preliminary dose of morphin gr. $\frac{1}{4}$ and atropin gr. $\frac{1}{150}$ or half that amount is useful in the majority of

cases to assuage the fear of the anesthetic and of the operative ordeal. Anesthesia is induced more easily and proceeds more tranquilly; a smaller quantity is required and the after pain is annulled. No food or drink should be given for at least four hours prior to operation. Do not begin the operation too soon.

Crile gives $\frac{1}{150}$ gr. scopolamin or less two hours before operation. It induces the "twilight slumber" and obliterates any fright or even anxiety about the operation. The effect, and with the preliminary dose of morphin followed by the anesthetic lulls the patient into a drowsy somnolence which deprives the entire day of painful recollection.

Nitrous oxid and oxygen anesthesia with the apparatus not permitting rebreathing, costs about \$5.00 an hour. With the apparatus of Gatch, obtaining the other benefits of rebreathing, the cost is reduced to \$1.00 or \$1.50 an hour. This cost may be further greatly reduced by installing, for a few hundred dollars, a permanent plant in the basement of the hospital, for the manufacture of nitrous oxid. It can be piped to the operating-room, thus doing away with the noise made by the escape of the gas under pressure in the cylinders.

Continuous auscultation of the heart by a phonendoscope, as practiced by Cushing and advised by Teter, gives accurate information, and allows both hands of the anesthetist to be employed with the patient and the apparatus.

ANESTHESIA IN TRAUMATIC SURGERY*

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On being asked by the committee to report on anesthesia in traumatic surgery from the Birmingham district, I sent a circular letter to a number of surgeons in this country and abroad, asking them to give their experience and observations in regard to this subject; and below will be found a condensed form of the reports submitted by them.

Professor Eiselsberg writes that in the Vienna clinic they have a special station devoted to traumatic surgical cases. He advises that as small an amount of the anesthetic be used as possible. No morphin or scopolamin should be used in fractures of the skull as there is danger of sudden collapse. Morphin should precede the anesthetic in fractured ribs, thereby avoiding dyspnea. He prefers using Billroth's mixture (chloroform, ether and alcohol) followed by ether where a general anesthetic is to be used. Spinal anesthesia is to be used only where others are contra-indicated. He has never observed a death from the anesthetic. The greatest precautions are to be taken where a general anesthetic is used as traumatized patients are much more sensitive to the effects of anesthetics than other. Where possible the operation should be postponed until the first period of shock has been passed.

Dr. Charles H. Mayo says that he and his colleagues have practically no traumatic cases in their surgery and that they have had very little opportunity to observe the effects of anesthesia in this class of work.

Dr. George W. Crile writes as follows:

Wherever possible, nitrous oxid oxygen anesthesia is used. I base my preference on the observation that under nitrous oxid anesthesia there is less shock than under ether. That is,

* Approved by the Committee on Anesthesia of the American Medical Association.

either nitrous oxid offers a certain protection or ether does a certain amount of harm, I am not prepared to say which it is. In cases of intracranial pressure I should use only local anesthesia. In these cases, when anemia of the brain is threatened, a little pressure is often sufficient to cause a fatal degree of anemia. Likewise, if in fractures the shock is not deep, I should prefer ether, because there is better muscular relaxation and better adjustment could be made. Whenever practical during operations, I cocaineize the large nerve trunks. There is no doubt that spinal anesthesia is accompanied by less shock, but I have not as yet adopted it as a general operative anesthesia.

Dr. John C. Munro, since resigning from the Boston City Hospital six years ago, has seen very little traumatic surgery; prior to that time his experience was very large. His observations have been that any general anesthetic, except in short operations, increased the shock of the trauma. Ether acts as a temporary stimulant but, beyond ten or fifteen minutes, is a cause of increased shock. He does not like cocain locally on account of the increase of time required for operation and the increase in psychic depression. Ether is superior to chloroform in chest injuries. A general anesthetic should be used to prevent shock from pain that comes with handling fractures, etc., and it should be used if it will shorten the operative procedures and prevent prolonged exposure of the patient.

Mr. Rutherford Morrison, Newcastle-on-Tyne, holds that the danger of the anesthetic depends more on the skill and care of the anesthetist than any other factor and that other considerations are insignificant. He asserts that shock is combated by the anesthetic and especially the open ether method plus oxygen. In any and every case the anesthetic should be preceded by morphin and atropin. With a skilled anesthetist his preference is for chloroform by Vann Harcourt's inhaler for everything; with an unskilled anesthetist ether offers a larger safety margin.

Dr. T. C. Witherspoon, of Butte, Mont., treats a large number of traumatic cases from the mines and railroads; he relies entirely on ether as a general anesthetic and cocain and cocain for local use. A local anesthetic is always used where it will suffice. He has not used spinal anesthesia in this class of cases but thinks it would be more useful and safer than ether. He has never seen a death attributable to the anesthetic either in traumatic or non-traumatic cases.

Mr. Robert Jones, of Liverpool, says that he has been much interested in this subject. He writes:

About fourteen or fifteen years ago, when I was appointed operating surgeon to the Manchester Ship Canal Works, where we had three hospitals and 20,000 people working, I had a great deal to do with the administration of anesthetics during the condition of grave trauma; and in such cases as double amputation of the leg, or amputation of thigh and arm, where disinfection and operation had to be rapidly done, I found the results very unfortunate, so many apparently never recovering from the anesthesia combined with the shock.

I made a good many experiments as to anesthesia administration, and found shock (as evidenced by pulse and temperature) more pronounced after chloroform than after ether, but that the administration of either resulted in a certain degree of shock. I also noted that the navy, who is a very obstinate man in this country, would come in, perhaps, with badly crushed legs which required amputation, but which he refused to have amputated. To my astonishment, these patients often lived on until sepsis or some other trouble supervened; and some lived on until weeks or months afterward, operations were allowed. One also noticed that, even after very trivial operations, patients were sick and generally upset, and I became convinced that, in conditions of grave

shock, if one could operate without an anesthetic, the greatest possible advantage would accrue. I therefore determined that, in all my big smashes, I would behave as the surgeons used to behave in the days of old and amputate without any anesthetic at all. I used to give them plenty of hot water to drink, and, after preliminaries, I amputated as rapidly as I could. The patient hardly ever complained of pain except when the knife went through the skin, and nearly always when the bone was sawn there was a fall in the pulse and a sigh or groan. From the time I adopted this line of treatment, my results show astonishing improvement; the mortality became markedly lessened, the patient (instead of sleeping on to eternity) conversed with me immediately the operation was over, and in some instances the pulse gave the impression of having improved. By this method I have amputated both legs and an arm in the same patient, and altogether operated in twenty-seven cases of grave lesions. Unfortunately, the hospital was burned down and my precise records were destroyed, so that I have never been able to publish the results in detail, but have depended on impressions. Although I had almost a rebellion on the part of the staff when I started this method of treatment, they all became enthusiastic when the results were appreciated.

I will give another case in point bearing on the same question. My house surgeon from the Southern Hospital telephoned to me one evening, about fifteen years ago, that a man had been badly smashed by being taken round a wheel in a forge. The shoulder was evulsed, the pectoral muscle lay outside his chest, the patient was pulseless and the house surgeon said that it was no good coming to see him. I went up, however, and found the man pallid, with ribs broken and the pulse barely appreciable in the other arm. With a pair of scissors I clipped the muscle slowly through, tying every little vessel and taking half an hour or more in trimming up and removing the whole of the upper arm, and the house surgeon at the end told me that his pulse was now quite clearly to be felt.

Dr. John A. Wyeth of New York, considers chloroform more dangerous in any and all forms of surgery than ether; ether more dangerous than nitrous oxid, and nitrous oxid combined with oxygen the least dangerous of all general anesthetics. He advises a close study of each case before deciding on an anesthetic, and thinks that a local anesthetic can often be used instead of a general anesthetic.

Dr. J. J. Buchanan of Pittsburg finds that in cases of pronounced shock, in which a general anesthetic is contra-indicated, operations of necessity, such as amputations, can be done without anesthesia of any kind, without materially adding to shock, if performed with celerity. He finds, also that, under similar conditions, abdominal section and internal manipulations are well endured without anesthesia, if manipulation is not too complicated or prolonged. A general anesthetic is contra-indicated in head injuries with pronounced cerebral symptoms, also in collapse of the lung from external open injury.

Dr. John B. Roberts of Philadelphia thinks that ether acts as a heart stimulant and lessens shock, but that it may be only temporary. He thinks death is usually due to a "bad etherizer." He has had little experience with other anesthetics.

Dr. Joseph C. Bloodgood of Baltimore, says:

In my experience all anesthetics, except perhaps nitrous oxid, as they are toxic substances, would rather increase the effects of trauma. It is quite true that indirectly they may do good when they allow us to remove all cause of the shock greater than the anesthetic itself; for example, hemorrhage, infection, perforation in peritonitis, pancreatitis, lacerated and crushed limbs. Here we must risk the danger of the anesthetic in order to remove a condition which is keeping up the shock. I am also of the opinion that there is a definite relation between the degree of seriousness of the

condition and the shock and the part of the body subjected to operation or injury. It is my opinion that the anesthetic acts about the same except in surgery of the chest. The anesthetic of choice to-day with me is nitrous oxid gas and oxygen; next, nitrous oxid combined with ether; next, ether alone by the drop method; chloroform I rarely employ; spinal anesthesia never.

Dr. A. J. Ochsner of Chicago says that he simply uses ether in all cases whether traumatic or non-traumatic. He has kept records in a large number of cases in which chloroform was given until anesthesia was accomplished, then ether, except where contra-indicated. Then for a time he used nitrous oxid gas but has gone back to the use of ether by the open drop method.

Professor Rovsing of Copenhagen, says:

I use always, in traumatic as in ether cases, only the morphin-ether narcosis with the Wanssleer apparatus. I have never seen an accident, never had but one disagreeable moment in using this method.

Dr. Walter Lathrop of the state hospital for the middle coal-field of Pennsylvania at Hazleton, writes:

Our traumatic surgery consists almost entirely in the treatment of accidents sustained in and about the mines, and the question as to whether an anesthetic should be employed is answered in the injury itself in most instances, and not entirely dependent on the judgment of the surgeon, for the majority of the cases are of such a nature as to demand immediate operation on admission.

From the time the accident occurs until the patient is received in the hospital considerable valuable time elapses, the distance they are transported varying from one to ten miles, and it is only natural to suppose that many suffer excruciating pain and gladly submit to any course of treatment by which their suffering can be alleviated. It invariably happens that those severely injured beg to be "put to sleep," as they express it. With the fear of taking an anesthetic, so commonly encountered in non-traumatic surgery, eliminated, the depressant action of the anesthetic does not manifest itself so markedly, while the pain endured undoubtedly acts as a stimulus to the various nerve centers. These factors, acting as a unit, preclude to a great extent any danger in administering anesthesia, except in those cases in which exhausting hemorrhage has occurred or in profound nervous depression, for in this type it would be almost malpractice to attempt any local treatment without first endeavoring to combat the constitutional deficiency. An anesthetic is administered fearlessly in injuries of various parts. No discrimination is made as to the injured parts, following of course the rules mentioned above. For general anesthesia, our anesthetic of course is chloroform, preceded in all cases by a hypodermic injection of morphin, gr. 1/4, and atropin, gr. 1/150, based entirely on its successful use covering a period of eight years. In extreme cardiac weakness ether is sometimes substituted. Ethyl chlorid is used largely in superficial work. Traumatic shock, unless it be of a very severe type, does not contra-indicate the employment of anesthesia, for it has been found that in many cases the circulatory and respiratory systems often return to a condition nearer normal while under the anesthetic; especially is this true if the function of either has been embarrassed directly by the injury. Death from anesthesia, either sudden or a reasonable length of time after its use in traumatic surgery, we have not yet experienced.

Professor Tutlier of Paris says that ether is the anesthetic of choice, but that he uses chloroform in chest conditions and uses a local anesthetic only on the extremities, as fingers and toes. He advises waiting until the shock has disappeared before operation and thinks the mortality depends on the severity of the shock. He uses spinal anesthesia in treating fractures of the extremities.

Dr. John H. Gibbon of Philadelphia says:

In the absence of shock, I do not see that trauma in any way affects the anesthesia, except in extensive injuries of bones or extensive injuries of fatty structures when I think that fat embolism of the lung may be aggravated by ether. Serious injury of the thorax, I think, renders the administration of an anesthetic more dangerous. As a rule, I employ the following sequence in producing anesthesia, morphin gr. 1/4, atropin gr. 1/150, by hypodermic twenty minutes before the anesthesia is started, then ethyl chlorid followed by ether. Spinal and infiltration anesthetics are used where possible, if the general anesthetic is contra-indicated. Where I am obliged to operate in shock, as for instance in hemorrhage, I employ the same sequence as in other cases. Except for shock, I do not see that the anesthetic acts any differently in traumatic and non-traumatic cases.

Dr. George Tully Vaughan of Washington does not find that there is any marked difference in anesthesia in disease and in trauma. He prefers ether to any other anesthetic and thinks that even in minor cases a general anesthetic is preferable to local anesthesia and is not any more dangerous than as correspondingly large dose of a local anesthetic.

Dr. John Rogers of New York says that ether is the anesthetic in general use at Bellevue Hospital. He prefers nitrous oxid and oxygen for injuries of the extremities but thinks ether or chloroform is to be preferred to nitrous oxid in injuries of the head.

Dr. Charles K. Teter of Cleveland has made some experiments comparing nitrous oxid with ether and finds that shock-producing trauma is better borne under nitrous oxid. He finds that the blood-pressure remains higher under nitrous oxid, and in shock it rises, whereas under ether it usually falls. He has used nitrous oxid in something over 15,000 cases with only one death; and this was not due to the anesthetic.

Dr. Edward H. Ochsner of Chicago does not think that traumatism *per se* is an indication against the use of an anesthetic if properly given. He thinks that ether if properly given is almost devoid of danger; he prefers training a lay woman to give anesthetics. He thinks that the subject of anesthesia is really settled and that any further investigation can not add materially to our knowledge of the subject.

Dr. W. W. Grant of Denver prefers ether with oxygen. He advises against the administration of any anesthetic until the patient has reacted. He thinks there is "less shock and greater immunity from anesthetic" in head injuries than in other parts of the body.

Dr. J. D. S. Davis of Birmingham, says:

Ether, I think, is the best anesthetic in shock in traumatic surgery. I have had no deaths from anesthetics in traumatic surgery. Ether is the safest anesthetic in fracture cases, internal injuries and rupture cases, especially where shock is present. In traumatic cases with shock, ether is not only more satisfactory and safer than chloroform, but as a rule, relieves the shock. In traumatic surgery, I believe that primary operation under ether is safer than waiting for shock to subside before administering the anesthetic. I have had very little experience with nitrous oxid gas and oxygen, but I believe it is the coming anesthetic in traumatic surgery, because it has marked advantage over ether in the relief of shock.

My personal experience has been confined principally to mine injuries, including injuries of the head, spine, extremities and trunk. It has been my good or ill fortune to operate on eighteen or twenty spinal injuries with very little benefit to the patients, as in most instances the cord has been torn in two; in one case I

sutured the cord and my patient did well for about two weeks when he died from an ascending infection from the bladder; I have invariably used ether in these cases, after the patient had reacted. A few years ago I became interested in the use of stovain as a spinal anesthetic and found that it reduced the shock where the extremities were badly mangled and enabled us to operate earlier than where a general anesthetic was used.

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THE COMPARATIVE DANGER OF ETHYL CHLORID AS AN ANESTHETIC *

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Statistics are notoriously unreliable, and yet there are certain problems which can hardly be studied by any other method. A striking illustration of one of the causes which leads to the untrustworthiness of vital statistics is found in the recent paper by Miller¹ on ethyl chlorid anesthesia. In this paper Miller presents the statistics on 13,796 anesthetics with ethyl chlorid, in which there were 5 deaths. In the same paper, however, there are references to some 30 fatalities occurring during ethyl chlorid anesthesia, of which at least 20 are directly attributable to the anesthetic. These cases, however, could not be included in his table, because they were reported as isolated cases without any means of determining the corresponding number of anesthetics which had been produced with safety. Miller from his statistics places the mortality from ethyl chlorid anesthesia at 1 in 8,800 cases. McCardie² presents statistics of 9,711 cases with four deaths of which he was cognizant. Of these cases 2,000 (with no deaths) the personal experience of McCardie are included in Miller's table. It would seem, however, that it is only fair in attempting to reach conclusions as to the danger of these anesthetics, that McCardie's statistics, although they cover a comparatively small number of cases, should be added to those of Miller. If we do this we have statistics of 51,507 cases with 9 deaths, a mortality of 1 in 5,710. The statistics on ether and chloroform of Coates, Gould, Garree, Gurlt and others,³ covering several million cases, give a mortality from chloroform of about 1 in 3,500, and from ether, 1 in 15,000. From the statistical standpoint, therefore, ethyl chlorid would seem to stand between ether and chloroform, but closer to the latter.

This conclusion, however, is unfair because the anesthetics by ethyl chlorid have practically all been of but a few minutes' duration, and the secondary dangers which occur as a result of prolonged anesthesia and which have caused a considerable bulk of the fatalities of ether and of chloroform do not come into consideration in the case of ethyl chlorid. Ethyl chlorid, on account of the quickness and fugaciousness of its action, enters into competition with nitrous oxid gas rather than with ether. Lee,⁴ in reviewing the use of ethyl chlorid at the Pennsylvania Hospital, says that, in spite of the comparatively high mortality which has followed its use at that insti-

tution, it is "still being used for minor surgical procedures and dressing more painful wounds," and also as a preliminary to ether. Of twenty-two deaths reported by Luke,⁵ 8 were in dental cases. It is evident, therefore, that the fair comparison for ethyl chlorid is with nitrous oxid when used for a few minutes only. If we set alongside of the commonly accepted mortality for the latter gas so used, 1 death in 1,000,000 anesthetics, and the figures for ethyl chlorid, 1 in 6,000, the danger of this agent is evident.

As remarked by Miller, the safety of an anesthetic is to be judged by two factors: first, the range between the amount required to produce unconsciousness and that required to kill; and second, the character of the signs which indicate approaching danger. As this author points out, the danger signals in ethyl chlorid anesthesia are such as may be easily overlooked by any except the most experienced anesthetizer. There is another element of danger which comes to light in studying the reports of the individual fatalities from ethyl chlorid, and that is the extraordinary suddenness of the end. In the great majority of these cases death has occurred from an anesthesia of less than five minutes; in one instance the patient was dead within half a minute from the beginning of the inhalation.

McCardie calls attention to the high mortality from this anesthetic in England as compared to the European continent, which he believes is due to the fact that it is habitually administered in that country by the "closed" method; a number of experienced anesthetizers are in accord with this view.

While I may perhaps seem unduly harsh in my condemnation of an anesthetic which has given good results in the hands of a number of anesthetizers of large experience, it is because of my profound conviction that the freedom with which this drug is being employed by inexperienced and untrained persons, with the idea that it is practically as safe as nitrous oxid, is little short of criminal. In this country, especially outside of large cities, it is being used habitually by dentists in connection with the extraction of teeth. This practice, I believe, is one which the medical profession should strongly condemn. The only possible advantage possessed by ethyl chlorid over gas, aside from the question of cost, is its portability. Such considerations, however, should not be allowed to stand for a moment as against the fact that ethyl chlorid is about 200 times as dangerous as nitrous oxid.

434 South Forty-Fourth Street.

Simple Non-Operative Cure of Hemorrhoids.—J. Toth writes to the *Wiener medizinische Wochenschrift*, Nov. 19, 1910, to call attention to a simple means of keeping hemorrhoids under control, and finally curing them, by gentle, constant compression. This is accomplished, he says, by means of a rather loose pledget of absorbent cotton, not larger than a large pea, which is introduced into the anus between the internal and the external sphincters. Under the influence of the compression the varicose enlargement of the veins at this point retrogresses and the hemorrhoids become obliterated. The loose cotton pledget has several advantages over a solid device for the purpose: The anus does not behave toward the cotton as toward a foreign body, while the gentle compression day and night is scarcely perceived. The pledget does not have to be removed before defecation, as it is expelled with the stool. Systematic perseverance in its use is the main thing. Toth says that he has been successfully applying this simple measure for several years.

* Approved by the Committee on Anesthesia of the American Medical Association.

1. Miller, A. H.: Value of Ethyl Chlorid as a General Anesthetic, *Boston Med. and Surg. Jour.*, May 26, 1909, p. 643.

2. McCardie, W. J.: Ethyl Chlorid as a General Anesthetic, *Brit. Med. Jour.*, March 17, 1906, p. 616.

3. See Wood's Therapeutics, p. 38, Edition 14.

4. Lee, W. E.: Use of Ethyl Chlorid as a General Anesthetic in the Pennsylvania Hospital, *Ann. Surg.*, November, 1908, p. 461.

5. Luke, T. D.: Twenty-two Fatalities Which Have Occurred Under Ethyl Chlorid, *Lancet*, London, May 5, 1906, p. 1235.

PREVENTION OF HEMORRHAGE IN PULMONARY TUBERCULOSIS BY THE ADMINISTRATION OF AUTOGENOUS VACCINES *

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Discharge of blood from the mouth may be caused by heart disease, carcinoma, hemophilia, arteriosclerosis, vicarious menstruation, hysteria, aneurysm, bleeding gums, or nasal, pharyngeal, or gastric lesion, but the great majority of hemorrhages are from tuberculosis of the lungs.

Stricker¹ found 221 of 480 hemorrhages due to tuberculosis, and in 196 more this was probably the cause. Sicé¹ (1884) says, "Aside from infectious diseases, hemophilia, and acute infections of the lungs (pneumonia, abscess, gangrene) we only know of two real causes of hemoptysis—heart disease and pulmonary tuberculosis."

The pathologic conditions preceding hemorrhage vary with the stage of the disease. In early cases it may be due to localized hyperemia in the lung induced by violent or long-continued exercise; or, more likely, due to weakening and erosion of small blood-vessels by the growth of tubercles. Early hemorrhages are always venous; in later stages hemorrhages arise from both the arteries and veins (Minor¹). The connective tissue of the adventitia is more resistant to dissolution than the surrounding pulmonary tissue, and vessels stand out in the walls of cavities unsupported; on these unsupported vessels aneurysms develop and hemorrhage results with a weakening of the wall of the aneurysm and any slight rise in blood-pressure. That hemorrhage is due, in many cases, to rise in blood-pressure is seen in its relation to overexertion. Hemorrhage may also result as an oozing of blood from granulations lining old cavity walls.

The frequency of hemorrhage has been reported as between 30 and 80 per cent. De Renzi¹ says that hemorrhage occurs in one-third to two-thirds of his cases (1894), Fox¹ (1891) in 54 per cent, Aufrecht¹ (1905) in 26.4 per cent, Williams¹ (1887) in 54 per cent, Walsh¹ (1871) in 81 per cent. (Minor). In the 181 cases which I have studied the percentage is much less, 15.46.

The immediate causes of hemorrhage given by various authors are overexertion, straining at stool, blows on the chest wall, and other things that would cause an undue rise in blood-pressure. Excitement, worry, temper, etc., would act in the same way. Hot, damp weather favors hemorrhage. The systemic plethora of the premenstrual period and vicarious menstruation may be rare causes. The overfeeding of tuberculous patients not infrequently predisposes to hemorrhage. The importance of sex is slight. The season of the year has a marked influence on hemorrhage; the worst period of the year, in the vicinity of Chicago, being the summer, and the hot spells are especially dreaded. Epidemics of hemorrhages have occurred, however, at other periods of the year, frequently during the winter and spring. These, I believe, are due to epidemics of "colds," influenza, etc.

Fox¹ (1891) says that heredity is important, patients with a marked family history of tuberculosis showing the greater tendency. Age is also an important factor; hemorrhage is very rare in childhood, more common between the ages of 20 and 30, less common after 45, and rare in old age.

The influence of mixed infection on hemorrhage is not given by any of the authors I have consulted, but Flick concludes from the bacteriologic studies made by Ravenel,² Irwin, and himself that the pneumococcus is an important agent in causing hemorrhage. The influence which mixed infection may exert on the pathologic changes occurring in pulmonary tuberculosis is by no means definitely known. The bacteriologic examination of the sputum reveals but little in the majority of cases because so many of these secondary organisms are found under normal conditions living saprophytically on the mucous membranes in various parts of the respiratory tract. Some authors state that the bronchi in health are free from bacteria (Cornet³). Others assert that a great variety may be present even in health. Post-mortem bacteriologic studies of the lung have revealed but little. Streptococci, notorious as causing terminal septicemia, have been found in a majority of the cases examined. How are we to know whether they were present in the lung early in the disease or invaded as a terminal septicemia? The findings of most investigators in this field show the presence of the *Bacillus coli*, *Proteus vulgaris* and other post-mortem invaders, in addition to the pyogenic cocci and the diphtheria bacillus in the lungs examined. Organisms of secondary infection have been found in the blood-stream in a small number of cases, usually far advanced, and but a short time before death. Panichi,⁴ however, reports that in three of four cases he recovered organisms of mixed infection from the blood-stream at least two months before death.

Prudden⁵ (1894) was unable to produce cavities in guinea-pigs by the inoculation of tubercle bacilli alone. He was able to produce them, however, in tuberculous guinea-pigs by intratracheal injections of streptococci. Marmorek,⁶ on the contrary, was able to produce cavities by injecting tubercle bacilli in conjunction with large quantities of strong tubercle toxins.

Webb¹ says that an irregular opsonic index to any of the secondary organisms is diagnostic of mixed infection. Wirth⁷ examining twenty-five cases, found abnormal indices in cases showing no temperature and did not find irregular indices in cases showing high and irregular temperatures. He found serums giving a normal result at the time of drawing to show abnormal indices the following day. The normal index he considered as between 0.8 and 1.2. He found no change in the index to *Bacillus capsulatus*, *tetragenus*, *catarrhalis*, *Bacillus pneumoniae*, *Bacillus coli*, or *subtilis*, but he found a variation to staphylococcus, streptococcus, pneumococcus, and influenza bacillus. The following were his results: influenza, 2 out of 17 examined; staphylococcus, 2 out of 17 examined; pneumococcus, 18 out of 24 examined; streptococcus, 6 out of 19 examined. I have taken the opsonic index to the pneumococcus, strepto-

2. Ravenel and Irwin: Phipps Inst. Rep., 1906 III, 229; iv, 392.

3. Cornet: Nothnagel, Encyclopedia of Practical Medicine, Am. ed., Philadelphia, 1904, Saunders & Co., p. 488.

4. Panichi: Der Pneumococcus im Blut bei Lungentuberculose, Berl. klin. Wchnschr., 1908, No. 41, p. 1840.

5. Prudden: Concurrent Infection and Formation of Cavities in Acute Pulmonary Tuberculosis, New York Med. Jour., July 7, 1894.

6. Marmorek: Production expérimentale de cavernes pulmonaires chez le cobaye et le lapin, Soc. de Biol. Séance du 26 Janvier, 1904.

7. Wirth: Beitr. z. Klin. d. Tuberk. (Brauer's), XII, 159.

* Work done under the Max Pam Research Fund. The article was awarded the Freer medal by the prize essay committee of the Alumni Association of Rush Medical College.

Klebs: Tuberculosis, ed. 1, New York, 1903, Appleton & Co., p. 212

coccus and staphylococcus in 40 cases representing all stages of the disease, both active and inactive, and found an abnormal index in only one case. The index in this case was 0.75 and this was to the staphylococcus. This patient had an anal fistula in which the staphylococcus was present in large numbers. The normal index in both Wirth's report and my own was considered as between 0.8 and 1.2. Therefore I do not consider the opsonic index of value in the diagnosis of mixed infection in tuberculosis.

It is difficult to estimate the importance of mixed infection in tuberculosis at the present time. The experimental results are contradictory and the conclusions of investigators are at variance. Because of the atypical course of the disease, the rapid variations in temperature at irregular intervals, the fact that extensive infiltration may occur in a few days and disappear leaving areas of caseation or softening, I am convinced that organisms other than the slow-growing, persistent, slightly toxic, tubercle bacillus are concerned. Some authors have contended that practically all the damage to lung tissue is done by organisms other than the tubercle bacillus.

Weaver⁸ has shown that injections of killed streptococci protects rabbits against subsequent injections of large numbers of living virulent streptococci. The work of Wright⁹ and others has shown that injections of killed and attenuated bacteria have a protective effect against subsequent infection. This production of active immunity has been known for a long time and its importance in preventive medicine has been proved conclusively by Jennerian vaccination against small-pox, and Pasteur's vaccination against chicken cholera, anthrax and hydrophobia. It has been successfully employed against typhoid. Wright has collected statistics dealing in all with 49,600 individuals, of whom 8,600 were inoculated and showed a case incidence of 2.25 per cent. with a mortality of 12 per cent. In the remaining 41,000 uninoculated the case incidence was 5.75 per cent. with a case mortality of 21 per cent.

The data on protective inoculations against pyogenic infections are very meager, but the results that have been obtained in therapeutic inoculations against the gonococcus, streptococcus, staphylococcus, pneumococcus, etc., especially in chronic, subacute and localized infections, seem to show that injections of killed organisms hasten recovery and protect against relapse.

Webb¹ has used killed organisms against mixed infection in tuberculosis and has observed a protection in inoculated cases against influenza. Five patients inoculated against influenza with their own organisms, and eight inoculated against influenza with stock vaccines, all giving histories of repeated former attacks, escaped the epidemic. Preventive inoculations were not given in thirty-two cases, the patients denying that they ever had influenza, and fifteen succumbed to an influenza epidemic.

Since June 15, 1909, I have administered autogenous vaccine in thirty-one cases of pulmonary tuberculosis at the Ottawa Tent Colony. Of these thirty-one cases twenty-one were under observation two months or longer. Patients not under observation at least two months are not included in this report.

Vaccines were not administered as a protective measure, but therapeutically. It has been observed that during the fall and winter of 1909-10 hemorrhages have

been less frequent than before. The class of patients, diet, exercise, sleeping conditions, and supervision were practically the same as in preceding years; the only new factor introduced into the treatment was the autogenous vaccines. It occurred to me that possibly the injection of vaccines against the organisms of secondary infection had a protective action against tissue dissolution and hence against hemorrhage.

The vaccines administered in all cases were autogenous. They were prepared by taking carefully selected particles of sputum and washing by whipping vigorously in several changes of sterile water with sterile forceps. The washed sputum was then introduced into about 10 to 15 c.c. of either plain bouillon or a medium made up of 1 part of sterile beef serum and 3 parts of bouillon. This was incubated at 37° C. for twenty-four or forty-eight hours, at which time a moderately thick growth had developed. The beef serum mixture appeared to have no advantage over the plain bouillon. The growth was then examined for bacteria, and the relative number of cocci, in pairs, tetrads, clumps and chains were noted. Allen¹⁰ says the proportion of the various organisms thus grown is approximately the same as when introduced. More recently I have been using large blood-agar slants for the cultivation of bacteria from the sputum. The emulsion of bacteria was shaken vigorously for ten or fifteen minutes, centrifuged at high speed for from forty-five seconds to one and one-half minutes, depending on the density, and the supernatant homogeneous emulsion decanted into another tube.

The number of organisms was then estimated by Wright's method. This is done by taking up one volume of 1.5 per cent. solution of sodium citrate in a capillary pipette, then equal volumes of blood and bacterial suspension, mixing thoroughly on a slide, drawing up into the pipette and then making four slides by placing a small drop on each and drawing out in a thin smear by dragging the edge of another slide over it. These were stained with methylene blue and the erythrocytes and bacteria present in fifteen fields in each of the four slides were counted. An estimation of the number of organisms present in a cubic millimeter of the emulsion was then calculated. The number of erythrocytes in 1 cubic millimeter was considered as 5,000,000; the number of erythrocytes in the number of fields counted is to the number of bacteria as 5,000,000 is to *x*. By multiplying by 1,000 the approximate number of organisms in 1 c.c. was obtained. This is a long and laborious procedure, so I tried counting the bacteria in a blood-counting chamber in the same way the blood-count is made. To do this it was necessary that the organisms be stained. I used a fresh, carefully filtered solution of gentian violet or Unna's methylene blue. I drew some of this stain into the pipette, a volume of the bacterial suspension, to be estimated, then more stain, and finished my dilution with either distilled water or salt solution. The pipette was shaken vigorously, several drops blown out and a small drop placed in the Thoma or Turk counting-chamber and covered with an ordinary thin coverslip. The coverslip used in blood-counting is too thick to use with the oil immersion lens. The chamber was then set aside until the organisms had settled; it usually takes about one to six hours, depending on the diluent used and the size and number of the organisms present. Whether the organisms have all settled out or not is easily determined by focusing on the

8. Weaver: Jour. Infect. Dis., 1908, v. 589.

9. Wright: Studies on Immunization, Ed. 1, London, 1909, Constable & Co., Ltd.

10. Allen: Vaccine Therapy and Opsonic Treatment, Ed. 2, Philadelphia, 1908, Blakiston's Son & Co.

lines of the chamber and then raising the lens through several planes and looking for organisms in suspension. The bacteria are well stained and easily distinguished. If there are confusing particles of dirt present, a weak alcoholic solution can be used as a diluent; this gives a very clean slide and the bacteria are easily picked out. The method is very simple and rapid, and, I believe, more accurate than Wright's method. In the preparation of vaccines during the past four months, November, 1909, to March, 1910, I have used this method exclusively.

The organisms were killed by heating to 60 C. for forty-five minutes, either before or after counting, and sterility was insured by inoculating a tube of broth or blood-agar from the heated suspension. The suspension was then placed in a sterile bottle of brown glass and a drop of strong phenol or compound solution of cresol added.

The size and frequency of the dose administered depended on the condition of the patient. In afebrile patients in fairly good physical condition comparatively large doses, 200 to 500 million, were given, at intervals of seven to ten days. In febrile cases with the patients in poor physical condition, doses of 25 million were administered every second or third day for several doses and then increased to 50 and 100 million. When doses of 100 million or more were given the interval was lengthened to from five to ten days. In all cases considered in this report, at least three doses were administered. The number of hemorrhages occurring in all classes of patients under observation for at least two months, from June 15, 1908, to March 1, 1909, are compared with the number of hemorrhages occurring in all classes of patients under observation for at least two months, from June 15, 1909, to March 1, 1910. The number of hemorrhages occurring in all classes of patients receiving vaccines during the latter period is compared with the number of hemorrhages occurring in cases not receiving vaccines during the same period.

TABLE 1.—HEMORRHAGES BETWEEN JUNE 15, 1908, AND MARCH 1, 1909, NO PATIENTS RECEIVING VACCINES

Class.	Cases, No.	Hemorrhages, No.	Hemorrhage, Per Cent.
Incipient	42	6	14.28
Moderately advanced..	14	11	25
Advanced	13	1	7.7
Far advanced	1	0	.....
Total	100	18	18

TABLE 2.—HEMORRHAGES BETWEEN JUNE 15, 1909, AND MARCH 1, 1910, ALL PATIENTS, THOSE RECEIVING VACCINES AND THOSE NOT RECEIVING VACCINES

Class.	Cases, No.	Vaccinated, No.	Hemorrhages, No.	Hemorrhage, Per Cent.
Incipient	16	3	0	0
Moderately advanced..	30	4	5	16.6
Advanced	24	11	4	16.66
Far advanced	11	3	1	9.1
Total	81	21	10	12.34

TABLE 3.—HEMORRHAGES BETWEEN JUNE 15, 1909, AND MARCH 1, 1910, PATIENTS RECEIVING VACCINES

Class.	Cases, No.	Hemorrhages, No.	Hemorrhage, Per Cent.
Incipient	3	..	.....
Moderately advanced..	4	..	.....
Advanced	11	1	9
Far advanced	3	..	.....
Total	21	1	4.7

TABLE 4.—HEMORRHAGES BETWEEN JUNE 15, 1909, AND MARCH 1, 1910, PATIENTS NOT RECEIVING VACCINES

Class.	Cases, No.	Hemorrhages, No.	Hemorrhage, Per Cent.
Incipient	13	..	.....
Moderately advanced..	26	5	19.2
Advanced	13	3	23.1
Far advanced	8	1	12.5
Total	60	9	15

It is seen from the tables that the total number of hemorrhages during the same period of time and during the same seasons of 1909-1910 is about 50 per cent. less than the total number of hemorrhages occurring during a corresponding period in 1908-1909.

From June 15, 1909, to March 1, 1910, in patients receiving vaccines the percentage of hemorrhage is only one-third of the percentage in patients not receiving vaccines. All patients were under exactly the same conditions of housing, feeding, and medical supervision. While it is not admissible to draw definite conclusions from such a small number of cases, the results seem to be indicative and will justify the administration of autogenous vaccines in a larger number of cases as a protective measure. A report will be made next year.

I wish to thank Miss Elizabeth Peck and Miss Elizabeth Byrne for assistance in the preparation of vaccines and the determination of opsonic indices.

In addition to the articles previously cited, the following references will be found of interest:

Ravenel and Klebs: Rep. Internat. Cong. on Tuberc., 1908.
 Jöchman: Ueber die Bakterien bei Lungentuberkulose; Ein Beitrag zur Frage der Mischinfektion, Deutsch. Arch. f. klin. Med., 1905, lxxxiii, 558.
 Tessier: Jour. de physiol. et path. gén., 1901, iii, 223.
 Laird: New York State Jour. Med., 1908, viii, 516.
 Foulerton: Lancet, London, 1901, ii, 311.
 Hinguenin: Ueber Sekundärinfektion bei Lungentuberkulose, Cor.-Bl. f. Schweiz. Aerzte, 1894, No. 14, n. 14.
 Kerchsensteiner: Studien zur Bakterien der Lungen und bronchialen Eiterungen, Deutsch. Arch. f. klin. Med., 1903, lxxv, 132-180.
 Ortner: Die Lungen-Tuberkulose als Mischinfektion, Beitr. z. klin. Med. u. Chir., 1893.
 Pasquale, A.: Die Streptokokken bei der tuberkulösen Infektion, Centralbl. f. Bakteriologie, 1894, xvi, 114.

TINCTURE OF IODIN FOR THE UMBILICAL CORD

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The increasing use of iodine suggested to me its application to the freshly severed umbilical cord. The tincture, as is well known, tends to form a dry iodine-impregnated scale or scab over any moist surface not giving off a purulent discharge, such as a clean varicose ulcer or a freshly sutured wound. The treatment to be described was tried on several infants with satisfactory results. In one case the cord was found mummified and separated on the fourth day, the granulated surface healed to a small dry scab within the same week. Others averaged ten days to two weeks for the entire process. Iodine was not observed. The technic used is as follows:

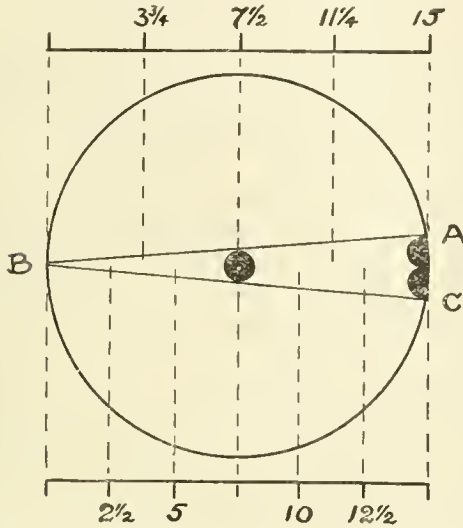
As soon as the cord is cut and tied, blood and vernix caseosa are wiped off with a sterile pledget. The stump is then painted with the official tincture until deeply stained; especially the cut end, the ligature, and the line of attachment. Due care should be taken to avoid the epidermis beyond the line of union with the cord. After the bath, dry sterile gauze or cotton is packed about the stump and held with the usual binder. In case the dressing becomes soiled or moist it is changed at once. After the cord falls off the granulating or denuded surface remaining is painted as before, and the dressing is reapplied. The advantages of the method consist in simplicity, increased rapidity of drying, and the penetrating bactericidal property of the drug.

171 Virginia Street.

A SIMPLE METHOD FOR THE MEASUREMENT OF BLOOD-CELLS

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In the microscopic examination of blood it sometimes becomes desirable for purposes of comparison and classification to know, with some degree of accuracy, the size of certain cells. The method about to be described is simple, fairly accurate, and can be used by anyone who cares to expend a little patience in adapting the eye-



Sketch illustrating a simple method for the measurement of blood-cells. View of field, with available measurements in microns, when the radius is divided into halves and thirds. Spun glass A B C giving black line effect and forming gauge.

piece of his microscope for the procedure, and when once accomplished, having a permanent fixture.

It consists in arranging two pieces of spun glass across the diaphragm of the eye-piece so that an acute angle is formed, the apex of the angle coming exactly to one border of the field which is the opening in the diaphragm. The other ends of the spun glass are separated sufficiently so that at the margin of the field they just enclose two normal red blood-cells, one above the other, in apposition, thus making approximately 15 microns.

The spun glass may be obtained by heating a piece of glass stirring-rod in the flame of a Bunsen burner and quickly pulling the ends apart after removing from the flame. A piece of this minute thread may be easily handled by a silver probe, the end of which has been warmed and touched to a small piece of paraffin, a little of the same substance being previously distributed over the diaphragm at diametrically opposite points.

When the final satisfactory adjustment of the spun glass has been made a small piece of paraffin is gently placed over the ends of the same and the heated end of the probe quickly "solders" them permanently in place.

A normal red cell of 7.5 microns will just fit between the lines when in the center of the field, and it requires but a glance to locate the position of a cell in relation to the apex or base of the triangle when it is placed so that both lines touch its edges.

A cell so placed can easily be recognized as being in the middle of the right half of the field, or the middle of the left half of the field, or in the outer, middle, or inner thirds of either half of the field, giving a scale of microns marked in the sketch, which for blood work is particularly appropriate; and a scale for comparison in other cases which may suggest themselves.

A CASE OF HAIRY TONGUE

M. LEON, M.D.
MT. OLIVE, ILL.

I wish to report a case of "hairy tongue" which came under my observation and treatment a few weeks ago.

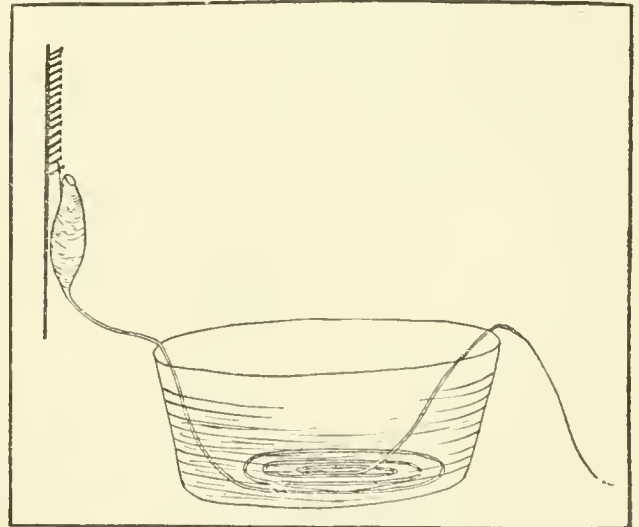
History.—The patient, Mrs. W., aged 75, informed me that she had been suffering from chronic indigestion for the last five years. On examination of her tongue I found a black, velvety coating strongly resembling a mass of long, fine hair. The coating was located in the center of the tongue on the papilla filiformes. A scraping of it was put under the microscope for examination and was found to contain epithelium and an immense number of mycelia. The papilla filiformes were somewhat hypertrophic.

Treatment.—After applying for several days a strong solution of potassium chlorate, pure hydrogen peroxid, etc., without marked benefit, I scraped off the coating under local anesthesia and applied a 10 per cent. alcoholic solution of mercuric chlorid. This application was repeated daily for two weeks, with the result that the coating was entirely disappeared.

A SIMPLE METHOD OF RECTAL FEEDING OR PROCTOCLYSIS

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The excellent results obtained in the treatment of peritonitis by proctoclysis, and the number of cases demanding nutrient enemas, have resulted in the devising of various forms of more or less elaborate apparatus for introducing fluids slowly and continuously into the rectum at a constant temperature. For hospital work



Proctoclysis apparatus, consisting of an ordinary rubber enema bag, long rubber tube and rubber catheter, a large pan containing hot water in which is coiled the rubber tube for maintaining the proper temperature of the saline fluid; also a simple device for regulating the height of the bag. The apparatus may be used also for rectal feeding.

or when refined instruments can be used any of these give admirable results. But in certain cases occurring outside of hospitals a simple and readily improvised method is sometimes of value.

In a cancerous condition of the stomach demanding rectal feeding, and in a recent case of duodenal ulcer, I

successfully used the following device, and its simplicity may recommend it in emergencies in which a more elaborate apparatus is not obtainable:

Two-inch nails are driven into a small board at intervals of an inch for about two feet. This board when tied to the bed or nailed to the wall gives a means of lowering or raising the enema bag. About fifteen feet of medium heavy tubing is attached to the end of an ordinary two-quart enema bag, and a small rubber catheter is joined to the end of this tube. Near the edge of the bed is placed a pan containing two or more gallons of warm water, the temperature of which is about 100 F. Into this pan the tube passes and is coiled so that about twelve feet of it is immersed in the water. A heavy rubber such as is found in the lavage tube is needed in order that the tubing may not twist itself to the surface as happens with inferior or light weight tubing. The pan should be near the patient so that the rubber pipe and catheter may have only a short distance to pass to the rectum.

The enema bag is then leveled so that the flow shall be about twenty drops a minute. The normal salt solution or nutrient fluid, being warmed to about 99 F. when put into the bag, regains any heat lost during the injection in passing through the coils of tubing in the warm water. As a consequence the fluid enters the rectum at a fairly constant temperature. Once an hour an attendant can add a little hot water until the temperature is "a little warmer than the hand." Three gallons of water in an ordinary dish pan at a temperature of 100 F. in a room where the temperature is 72 F. loses only about four or five degrees in half an hour or longer.

Therapeutics

HYPOSECRETION OF THE THYROID

The disturbances caused by an insufficiency of the thyroid gland will, of course, depend on whether the secretion is diminished or entirely absent. Also, it is logical to believe that certain elements of the thyroid secretion may be diminished while others are normal, or it is even possible that some elements may be increased while others are diminished. Such a supposition will account for the manifold indications both of hypersecretion and hyposecretion. The conditions caused by diminished secretion may be enumerated as follows:

Chlorosis	Epilepsy
Amenorrhœa	Melancholia
Obesity	Slow growth in children
Goiter	Cretinism
Eczema	Adiposis dolorosa
Hysteria (depressant forms)	Lipomatosis
Vomiting of pregnancy	Myxedema
Eclampsia	Senility

The theory of hypothyroidism, or a subsecretion of the thyroid gland, has been advocated by some for many years, and now the condition has been generally accepted as clinically recognizable, even when present in small degree. If the secretion is entirely absent in a young child, a cretin results. If it is seriously defective, there is slow and stunted growth. If it is present in larger amount but still much insufficient, juvenile obesity is present, with a phlegmatic disposition, slowed pulse, and a delayed puberty. If there is an undersecretion at puberty (and this occurs most frequently in young girls) we have amenorrhœa, perhaps chlorosis, and often peculiar nervous crises, even epileptic attacks. The typical symptoms of hypothyroidism are best recognized and studied in the adult female. If there is absolute

absence of secretion myxedema develops. A normally diminishing secretion, such as occurs after 45 or 50 years of age, is shown by symptoms, the most evident being the addition of flesh, especially deposits of fat, a slowly increasing blood-pressure, and a gradual development of connective tissue in various parts of the body. If this secretion diminishes normally as age advances into old age, the skin begins to lose its nutrition and dries and wrinkles, with a tendency to the occurrence of eczemas.

PRINCIPAL USES OF THYROID

The *absence of menstruation*, after it has once developed, without pregnancy or acute or chronic disease, generally points to a diminution of the thyroid and ovarian secretions. If the patient is anemic, iron and ovarian extract should be the treatment. If the patient is not very anemic and tends to put on weight, thyroid is the treatment. The dose of thyroid should be small, not more than 3 grains of the dried extract once a day.

There has never been a satisfactory explanation of the condition of *chlorosis*. For some reason these patients do not metabolize the iron of their food. Large doses of iron always cure these patients. Arsenic does the same, possibly from its stimulation of the thyroid gland, possibly from some unexplained antiseptic action. Sometimes some of the laxative inorganic salts, in small doses, act satisfactorily. Sometimes small doses of thyroid are efficient. It is generally true that if these girls begin to menstruate normally the disease disappears, and thyroid is the best emmenagogue that we possess.

Infantile obesity is best modified by small doses of thyroid, and if recognized early the condition may be inhibited. The disturbance in metabolism that is most frequently improved by thyroid is *obesity*. Thyroid will probably cause loss of weight in every instance provided a sufficient amount is given, but at the same time there is a great nitrogenous loss, and there is always the danger of causing disturbances due to an increased amount of thyroid in the blood, some of which may be serious. It can cause faintness and loss of strength, and a debility which may not be recovered from in a considerable length of time. If weight is being added, especially in women, after 45, small doses of thyroid may prevent it. If the fat is already present, it may take considerable dosage to reduce it. The large doses which were once used for this purpose are not justifiable, and a patient under thyroid treatment for obesity should be very carefully watched, and the administration should cease as soon as any unpleasant symptoms appear. When weight is put on in younger life, especially in women, thyroid is the most efficient treatment, and the dose required is generally not large. The value of combining such treatment with a diet free from sugar and with a diminished amount of carbohydrates, and with physical exercise, should not be overlooked. The dose of thyroid should be 0.20 gm. (3 grains), at first three times a day for a week, then twice a day for another week, and after this once a day will probably be sufficient. To be sure that the thyroid is active, 0.25 gm. (4 grains) of sodium iodid should be administered once during each twenty-four hours. The patient may not begin to lose weight for at least two weeks, and after that some weight should be lost every week, and patients may lose weight even after the treatment has been stopped. The loss of two or three pounds a week should

be considered sufficient and satisfactory. If the excessive weight is hereditary, or has persisted for years, the fat will again return on cessation of the treatment, and in these patients great loss of weight will not be caused by the treatment without the necessity for more thyroid being administered than is safe.

If undesirable fat begins to be deposited before the age of 40, unless there is a marked family tendency to such excessive weight, the thyroid is probably undersecreting. If such deposits of fat occur on the hips, over and under the clavicles, on the upper arms, around the breasts in women, with a feeling of oppression, dyspnea on exertion, and especially if menstruation has ceased, the diagnosis is absolute, that the thyroid is secreting insufficiently. If this condition just described further develops, *adipositas dolorosa* is in evidence, the only difference being that of degree and that the fatty parts are painful. The thyroid is always found to contain a large amount of connective tissue and to be subsecreting in this disease. In the rare instances of general and localized *lipomatosis* the thyroid is probably not perfectly active, although other signs of its inactivity may not be present. Thyroid will always improve the condition of the skin even if it does not inhibit the advance of the disease.

An ordinary *goiter* represents an excess of colloid material or cystic degeneration. The portion of the gland so affected is diseased and undersecreting, but the rest of the gland is generally secreting a sufficient amount for the organism so that symptoms referable to the thyroid are not present. A primary thyroid hyperactivity or hyperplasia may have been present before the colloid excess occurred.

Whether the tendency for the residents of certain regions to develop is due to an absence of sufficient iodine in the water or to some other cause has not been determined. In some regions almost all the women (women being the more susceptible) have enlarged thyroids. But few of them probably, however, show symptoms of thyroidism. Strangers, especially women, going to these regions often readily and quickly develop goiters. Removal from these regions and the administration of small doses of iodine generally quickly cause improvement. Most such patients are very susceptible to thyroid feeding, and will often quickly show symptoms of hyperthyroidism under its administration. Boiling the drinking-water in these regions has sometimes seemed to inhibit the enlargement of the thyroid gland.

Simple goiters are more frequently operated on than formerly, probably because all operations are becoming more popular, but perhaps these large glands caused greater discomfort and disturbance than was supposed. The operation is not as serious when a portion of these glands is removed as when the patient has Graves' disease, but it can never be termed a simple operation. Sudden heart failure may occur during the anesthesia, and any other operation that it is necessary to perform on a patient who has goiter should be done under the most careful anesthesia.

Many *eczemas* of early childhood are often incurable until minute doses of thyroid are administered. These are especially the type that occur around the orifices of the body, and when little fissures or cracks in the skin occur. The troublesome *eczemas* of old age often will not heal with local treatment until small doses of thyroid are added to that treatment. Sometimes the results obtained by such treatment of these patients is most satisfactory

Hysteria of the melancholic depressant type where there is apathy, unwillingness to talk, and general depression, may be improved and cured by the administration of small doses of thyroid. The border-line between this kind of hysteria and beginning melancholia is hard to determine, but the cerebral stimulation caused by thyroid will sometimes prevent the development of insanity. Whether actual melancholic insanity is benefited by thyroid is doubtful, but it certainly is a treatment sufficiently logical to be tried in every case. Dr. A. H. Peabody (*Boston Med. and Surg. Jour.*, Aug. 14, 1910), has shown that 75 per cent. of patients who die with mental disease have abnormal thyroids.

There have been various and many suppositions as to the cause of the persistent *vomiting of pregnancy*. It is certain that if the vomiting persists the patient develops an acidosis, and this cause alone may continue the condition or actually cause death. Whether it is purely reflex or whether there is a metabolic poisoning of the system of which vomiting is a consequence, it seems certain that any method that allows the mother to metabolize her food better, and eliminate the nitrogen excretory products properly, will be of benefit to her. Whether there is often or occasionally a subsecretion of the thyroid during the early months of pregnancy when vomiting is so likely to be in evidence is not known, but many instances have been reported in which the administration of small doses of thyroid has improved such a serious condition. It is certain that the thyroid will increase the nitrogenous output in the urine. It is also certain that the thyroid should hypersecrete during pregnancy. If it does not do so it is acting abnormally, and the vomiting of pregnancy may be an indicator of such subsecretion.

It is certainly advisable, when a woman has given birth to one or more children who have shown subthyroid activity, to administer to her thyroid gland substance during her next pregnancy. Such treatment is logical, and has been successful in producing healthy children. If it is inadvisable to give small doses of thyroid to a pregnant woman or if its results are unsatisfactory, small doses of iodine may be substituted, when it is decided that the patient's own thyroid is not secreting properly.

Many obstetricians now believe that one of the best treatments for *eclampsia* is thyroid. In instances in which it is successful the poisoning is probably a nitrogen poisoning, and eclampsia can occur without serious kidney defect. When a pregnant woman is found to have signs of subsecretion of the thyroid she certainly is in danger of eclampsia at parturition, and the previous administration of thyroid is certainly indicated. A dose of three grains a day, at least during the last month of pregnancy, is advisable. If eclampsia has developed, 1 gm. (15 grains) of thyroid should be given at once and repeated in two hours.

Epileptic attacks developing during some disturbance of menstruation, whether at the time of puberty or at the time of the menopause, and especially if repeated only at the times of the menstrual periods, just before or just after, or at the time when the menstrual period should occur and does not, shows that the cause has something to do with the thyroid. The thyroid gland hypersecretes normally at and before menstruation; if it does not do so, something in the system cannot work as perfectly physiologically. In the kind of epilepsy just described thyroid is the treatment. It should be

administered in small doses, 3 to 5 grains, daily (the size of the dose depending on the symptoms of the physiologic action of the thyroid), during the interval between the periods. When the attack is expected, for a day or two before, bromid treatment may be added. If the thyroid acts unpleasantly, causing palpitation or loss of weight, it need not be given throughout the whole four weeks of the interval, but may be omitted during the first two weeks. Many instances are on record in which this kind of epilepsy has been cured by such treatment.

More or less complete insufficiency of the thyroid in adults causes *myxedema*. This is a rare disease in men, and occurs in more than 80 per cent. of all cases in women, and mostly in those who have borne children. It would seem from such statistical facts, that the gland is inclined to excessively atrophy because it has previously been stimulated, in women, from the periodicity of its increased secretion on account of menstruation, and from its overwork during pregnancy. Myxedema in its full development is, in this country, a rare disease. Partial myxedema, hypothyroidism, is frequent and often unrecognized. In myxedema there are all kinds of nervous disturbances and circulatory disturbances, joint and muscle pains, headaches, itching and tingling. The skin may be dry and harsh. Later, deposits of fat generally occur all over the body. The face is round, full, dull and apathetic. There is a great deposition of mucin in the tissues of the skin giving a feeling of edema but with no pitting. The taste is impaired and perverted. The patient may complain of a bitter, a sour, or some other disagreeable taste, and the digestion is impaired. The patient also may complain of noting a disagreeable odor. There is sluggish mentality, the memory is impaired, and the general disposition may be entirely abnormal to the individual. The patient sleeps a great deal, even in the daytime. There may be hallucinations, even bordering on melancholia. The temperature is generally subnormal, the pulse slow, and the blood anemic, although there may be a tendency to hemorrhages, either from the uterus, the nose, the gums, the bowels, or into the skin. One patient about 50 years old, during the incidence of the menopause, had an attack of profuse bleeding from the nostrils, ears, gums, intestines and bladder, almost to exsanguination. She was cured by thyroid feeding after every other known treatment had been administered and failed.

In myxedema the external genitalia are swollen, amenorrhea is generally present, and the sexual desire is lost. The urine often shows albumin, and may show casts. If the disease is not arrested by proper treatment death is likely to occur from progressive anemia, kidney insufficiency or cardiac weakness. The disease is slow in its progress, but death may occur in five or six years.

The almost invariably successful treatment is thyroid; all of the above symptoms disappearing. The dose should not be large, but if for any reason the treatment is rapidly pushed, the patient should be in bed lest sudden heart failure occur from the large doses of thyroid. As soon as the patient improves, the dose should not be large; a dose of 3 grains of the dried gland substance a day is sufficient, and even this may subsequently be given but every other day, or even less frequently. Sometimes the thyroid gland of such a patient may be stimulated or may recuperate, or perhaps a supernumerary thyroid may develop so that active thyroid medication is needed only intermittently.

In *operative myxedema* in which the thyroid gland has been removed totally, or so much has been removed that the secretion of the remaining portion is insufficient, or in some instances of true myxedema, in which the patient cannot live without continued thyroid treatment, transplantation or implantation of thyroid gland tissue into various organs of the body has been tried, sometimes with success. This same implantation has been tried in cretins, and there are records of success. The younger the patient, the more successful, perhaps, is the treatment, but the whole subject of such transplantation is as yet purely experimental.

Hypothyroidism and partial myxedema, easily recognized when the physician once becomes used to looking for it, is hardly recognized at all by the majority of practitioners. Any one, two or three of the symptoms above described as characteristic of myxedema may be present in a patient, and be due to a subsecretion of the thyroid. It is hardly necessary to enumerate these conditions. Suffice it to say that the unusual addition of weight, irregular fatty deposits, drying of the skin, slowing of the pulse, sleepiness, mental apathy and stupidity, gastro-intestinal disturbances that are unexplainable by organic disease, an abnormal desire for sugar, urinary defects in evidence with some of these other conditions, all point to subsecretion of the thyroid. The treatment is either small doses of thyroid, or an iodid, or both. Premature falling of the hair, or the hair becoming brittle and readily breaking, irregular and unexplainable skin eruptions, especially of the dry, scaly varieties, may many times be improved by judicious thyroid feeding. Sometimes there are joint pains, and in some instances arthritis deformans has been thought to be caused by disturbed thyroid activity, as in these instances administration of thyroid has been of marked benefit. This, however, is not generally the case.

In *cretinous children* the thyroid is either absent, or, if present, contains a small amount of colloid material or is cystic, and there is almost entire absence of thyroid secretion. The curative action of thyroid in cretinism is a demonstrated fact, and the sooner the diagnosis of cretinism is made, the greater the amount of success which will attend the use of thyroid. Unfortunately the diagnosis of cretinism can rarely be made until the child is from 6 months to a year old, and if there is not total absence of thyroid secretion, an infantile myxedema cannot be determined until the child is 2 or 3 years old. If a cretin or a patient with infantile myxedema is not treated until he is several years old the results of such treatment are much less satisfactory. The dose for an infant is not more than .065 gm. (1 grain) of the official thyroid powder, two or three times a day. If the cretin is older, the dose may be larger. Its unfavorable action would be shown by increased cardiac rapidity and loss of appetite. Its favorable action is shown by a diminution of the myxedema; in other words, the puffiness of the skin becomes less, and there is an actual loss of weight. The mental powers should increase, and the hair, nails, teeth and bones should normally grow. The thyroid feeding, as soon as improvement has positively taken place, should then be slightly diminished, and a smaller dose given daily for months and perhaps for years. If unpleasant symptoms of thyroid action occur, the thyroid should be

stopped for a week and then again begun at a smaller dose.

UNCLASSIFIED USES OF THYROID

Thyroid has been used with success in some instances of hemophilia and purpura hemorrhagica, as well as in the irregular hemorrhages of the menopause.

It has been used in chronic rheumatism as well as in arthritis deformans, and has many times been successful in gouty rheumatism, especially where the attacks showed a general disturbance of metabolism, such as at one time an asthmatic attack, at another an indigestion attack, and at another a typical gouty joint attack. Small doses given for a considerable time are often successful in this kind of metabolic disturbance.

Sometimes thyroid acts as a diuretic, and it certainly is an antidote to nitrogenous poisoning in insufficient kidney action. Even uremic convulsions are sometimes kept in abeyance by the administration of thyroid. During a uremic attack the dose of thyroid should be large, as 10 grains of the dried extract three times a day. Such treatment sometimes apparently prevents convulsions, and in some instances seems to aid in saving life.

Thyroid has been used in various skin diseases, sometimes with success. The indication seems to be to stimulate extra secretion of the skin. If there is an acute inflammation or hyperemia, thyroid would not be indicated. Conditions in which it has been successful are the dry chronic eczemas, sometimes in psoriasis, ichthyosis, and in some instances scleroderma.

If not otherwise contra-indicated, whenever there is excessive connective tissue development in any organ—in other words, a sclerosis or a cirrhosis—a small dose of thyroid daily is of benefit. The dose should be so small that it could not cause evident signs of its physiologic activity. In many of these instances small doses of iodid, given daily for long periods, may be of as much benefit.

Some clinicians have certified to, and even proved, in certain instances, the value of thyroid in inhibiting or causing resorption of carcinomatous growths. This is especially true of uterine carcinoma. The majority of investigators, however, have not found this treatment successful.

THE ADMINISTRATION OF THYROID

Unless thyroid is administered in large doses to combat an intoxication or toxemia, as in puerperal eclampsia or uremia, a therapeutic dose should cause no evident symptoms. In other words, if thyroid is to be administered continuously for its continued physiologic effect it should give no more symptoms than does the normal thyroid secretion. The amount administered per day should be small enough to represent the amount that would reach the blood from a normal thyroid gland. This means in the course of twenty-four hours very little thyroid secretion. If the amount that we administer causes symptoms of thyroidism such as palpitation, hot flashes, headache and sleeplessness, or any of the other symptoms mentioned as symptoms of Graves' disease, the amount given is excessive and should be diminished. It should also be recognized that the administration of thyroid for a short time, even in small doses, will doubtless stimulate a temporarily sluggish thyroid gland to more perfect action. Consequently, a given dose not at first too large becomes gradually too large, and later not needed. It also seems to have been proved that small doses of iodine, as represented by an iodid, is a stimulant to a sluggish thyroid, and should perhaps be the treat-

ment first given when there are evidences of hyposecretion of the thyroid. It has been shown that the thyroid may become active, if it obtains a little more iodine. If 0.10 or 0.20 gm. (1½ to 3 grains) of iodid a day does not soon render the thyroid more active, then thyroid substance should be given. The signs of excessive thyroid administration which are not as self-evident as those above mentioned are loss of appetite, loss of weight, tendency to perspire too freely, and too low blood tension.

Large doses of thyroid may cause nausea, dizziness, and, if quickly absorbed, faintness. There is probably no direct acute poisoning from thyroid, although large amounts have been known to cause convulsions and even death from shock, *i. e.*, by the toxic effect on the heart and the enormous vasodilator effect, as has been seen in operations for Graves' disease when the thyroid has been too much manipulated and a large amount of its secretion has been squeezed into the circulation.

The treatment of acute thyroid intoxication would be the hypodermatic or intravenous use of epinephrin or other suprarenal vasopressor substance, the administration of atropin and strychnin. Possibly good treatment would be a venesection from one arm while physiologic saline was transfused into the other arm.

Contra-Indications.—Any symptoms similar to those of Graves' disease should ordinarily prohibit the use of thyroid. Also, if during the administration of thyroid excessive nervousness, sleeplessness, palpitation, and loss of weight occur, the administration should be stopped. Ordinarily a poor condition of the circulation and a soft and weak pulse should prevent its use. Serious nervous and cerebral excitation should also ordinarily prevent its use.

Official Preparation.—Glandulae thyroidae siccae, desiccated thyroid glands, is a yellow powder prepared from the thyroid glands of sheep. It has a disagreeable, meaty smell, and is partially soluble in water. This preparation of course contains the active principle of the thyroid gland, but its activity depends on the amount of iodine content, and this is variable. The dose varies from 0.03 gm. (½ grain) to 1 gm. (15 grains), depending on the frequency and the object for which it is used. Thyroid may also be obtained in tablets which vary in size and strength.

Unofficial Preparations.—Iodothyron is an artificial preparation recommended by Baumann to represent thyroid substance, and occurs as a brown powder, which contains 9 per cent. of iodine and 0.5 per cent. of phosphorus. This preparation has not been found so active or so efficient as thyroid gland substance, and consequently should not be used when thyroid is indicated, provided thyroid substance can be obtained. The dose is slightly larger than that of the above official preparation.

Various antithyroid preparations may be obtained. These are of course indicated when there is too much thyroid secretion. One preparation is termed "thyroidectin," and is prepared from the blood of thyroidectomized animals. It is a reddish-brown powder, and may be obtained in capsules each of which contains 5 grains. The dose is one to two capsules, three times a day.

Moebius' antithyroidin is a serum obtained from the blood of thyroidectomized animals, the dose of which is from 2 to 10 drops, three times a day.

The milk of thyroidectomized goats may be administered fresh from the animal.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 DEARBORN AVENUE . . . CHICAGO, ILL.

Cable Address "Medic, Chicago"

Subscription price Five dollars per annum in advance

[For other information see second page following reading matter]

SATURDAY, DECEMBER 24, 1910

RELATIVE IMPORTANCE OF BOVINE AND HUMAN TUBERCLE BACILLI IN HUMAN TUBERCULOSIS

Since Koch's sensational announcement in 1901, to the effect that human and bovine tuberculosis are not identical, and that the occurrence of bovine tuberculosis in man is so rare that no special protective measures are indicated with respect thereto, numerous investigations have been made in regard to the relationship of bovine and human tubercle bacilli. An especially valuable study of this question has been made recently in the research laboratory of the department of health of New York City.¹ Park and Krumwiede point out that it is of great importance to know as definitely as possible the actual percentage of bovine infection in man, because if bovine tuberculosis occurs to an appreciable extent steps must be taken to prevent the milk-supply, especially of large cities, from carrying tubercle bacilli. In order to contribute to the solution of the problem in question, the New York investigators have studied carefully the types of bacilli obtained from a large number of unselected cases of different types of tuberculosis and representing well the average conditions of exposure to infection. An enormous amount of work has been done and the results secured are of great value. The most improved technical methods were used.

Park and Krumwiede conclude that tubercle bacilli isolated from man fall into two groups, the human and

the bovine. Each type presents peculiar cultural and biologic characteristics, most of the cultures grouping themselves around two extremes. There is no conclusive evidence in favor of any rapid change of type. The actual number of cases examined is 436—the largest number so far covered in a single investigation; 297 occurred in persons over 16 years of age—278 being pulmonary—and of these cases only one, a case of renal infection, gave bacilli of the bovine type. Children between 5 and 16 years furnish 54 cases, nine being of the bovine type so far as the bacilli go. Eighty-four cases were in children under 5 years, and of these twenty-two had bovine bacilli.

These results are in general harmony with results obtained previously. Their cases, added to cases similarly studied and recorded in literature, give a total of 1,040 cases of human tuberculosis from which pure cultures of tubercle bacilli have been obtained and identified as either bovine or human in type. Dividing these

1,040 cases into three groups with respect to the age of the patients, we find that Park and Krumwiede place 686 cases in the first group, which comprises the patients of 16 years and over, and nine of these patients gave bacilli of the bovine type; in the second group, which covers the ages between 5 and 16, are 132 cases, thirty-three with bovine bacilli; and in the third group, which includes the children under 5, are 120 cases, fifty-nine of which are of the bovine bacillary type.

If not a single case of pulmonary tuberculosis have bacilli of undoubted bovine type been found; there are 568 cases of pul-

monary tuberculosis in the first group and of these one case figures as furnishing bacilli of questionable bovine type.

The larger proportion of the cases with bovine type consists of the infections of the abdomen and of the glands of the neck. In 15 per cent. of the fatal cases in children under 5 bovine bacilli were found.

It thus becomes evident, from the results which have been briefly outlined here, that the bovine type of the tubercle bacillus plays a significant and by no means a negligible part in the etiology of tuberculosis in children and that the efforts at prevention of this disease clearly must include the sources of bovine bacilli.

A Merry Christmas to All! Let no one slight the ancient custom of mirth and cheer; but if there be any whose existence has grown stale—who have ceased to renew the fresh wonder of life by sharing its simple joys with children and the child-like—who have forgotten or ignored that wisdom, deeper than the learning of the schools, which makes life worth while—to such we wish a Merry Christmas in double and triple measure. This is the day of all others to observe what Stevenson called the most underrated duty in the world—the duty of happiness. Beauty for ashes, the oil of joy for mourning, the garment of praise for the spirit of heaviness—a Merry Christmas!

1. Park, William H., and Krumwiede, Charles, Jr.: The Relative Importance of the Bovine and Human Types of Tubercle Bacilli in the Different Forms of Human Tuberculosis, Jour. Med. Research, 1910, xxiii, 205.

WILLIAM PRYOR LETCHWORTH, REFORMER
AND PHILANTHROPIST

In Mr. William Pryor Letchworth, who has just passed away at the age of eighty-eight years, the medical profession has lost a helper of unusual spirit. He stood between science and that helpless portion of the population that needs state care, and taught the people of New York State how to spend their money so as to give the best possible scientific and humanitarian aid to its dependents.

In his early life a business man, he earned a fortune, and all those who were associated with him shared his prosperity. Then, retiring from business, he devoted nearly fifty years of his life to practical philanthropy. Seldom does one find such business acumen, such scientific grasp of conditions and such brotherly love combined as salient traits in one man; and these, combined with a love of the fine arts, and the power to attract kindred souls, formed a character whose qualities strengthened the fibers of our civic life.

Mr. Letchworth was for ten years, from 1878, president of the State Board of Charities, and from that time until his death every branch of the work has felt the effect of his intelligence and persistent effort, and out of his wise administration have grown changes for the better in the care of the poor in county houses, the blind, orphan and destitute children, and juvenile delinquents.

He had always been keenly alive to the suffering and wrongs of the insane and epileptics as they were cared for in years gone by in public institutions. In order to understand the subject thoroughly, he spent two years in Europe, visiting institutions and hospitals in every country, and when in 1886 he was appointed chairman of a commission to select the site for an asylum for the insane in northern New York, he not only chose what experts pronounce to be the finest site for such an institution in this country, but suggested many ideas which led to improvement in the comfort of the patients.

Perhaps the work with which his name will always be most intimately associated is Craig Colony for Epileptics, which grew practically out of his ideas. Imbued with the ideas of Bielefeld, Germany, where the epileptic lives a useful life in a village of epileptics, Mr. Letchworth guided the state in establishing in the Genesee valley that remarkable community, composed wholly of epileptics and their helpers, who live in a model colony, doing farm and garden work, housework, brick-making, and learning and practicing the trades needed in village life.

The value of a work like Mr. Letchworth's lies in its power of coordinating other men's work. He was like the expert critics employed by great business concerns to detect wasteful and inefficient methods, and substitute time-saving and labor-saving systems. The philosopher, who criticizes the lack of coordination in the loose business of life, does great service to his genera-

tion; but rarely does one meet a philosopher who leads the way to practical reform. This was what Mr. Letchworth did for his state in every public enterprise that had to do with the unfortunate. He found out how to remedy existing evils, and then applied his brains and his fortune to making needed reforms go through.

"THERE'S A REASON"

Grape-Nuts is a breakfast food and Postum Cereal is a substitute for coffee, both manufactured by the Postum Cereal Company, Battle Creek, Mich. This concern has applied the "patent medicine" methods of advertising to the exploitation of food products. Are you threatened with appendicitis? Use Grape-Nuts! Have you "heart trouble and dizzy headaches?" Try Postum Cereal! Do you suffer with "loose teeth?" Eat Grape-Nuts! And so on. Not, of course, that the recommendations are so crudely made as those just given. In fact, like most "patent medicine" advertising, the most dangerous and mendacious claims are those made by implication. For instance, the company does not say frankly that Grape-Nuts is a "brain food"; not at all. Instead: "No one, until the inventor of Grape-Nuts, thought of making a special food for the brain and nerves." It is probable that the Postum Cereal concern has in its advertisements given greater publicity to more pseudo-scientific twaddle than was ever before inflicted on a long-suffering but patient public. But "There's a Reason." It has sold the goods!

Five years ago *Collier's Weekly* refused to accept the advertising of the Postum Cereal Company on the ground that the products were being exploited by "patent medicine" methods if not actually as "patent medicines." In July, 1907, that publication called attention to the following statement made by the Postum concern:

"It is a practical certainty that when a man has approaching symptoms of appendicitis, the attack can be avoided by discontinuing all food except Grape-Nuts and by properly washing out the intestines."

Collier's characterized such claims as "lying and, potentially, deadly lying." The manufacturer, as a "come-back," had advertisements printed all over the country accusing that publication of attacking his product "for the purpose of forcing him to advertise." As this practically amounted to charging *Collier's* with attempting to blackmail the Postum Cereal Company into advertising, the owner of that weekly at once brought suit for libel. The verdict that has just been returned in Mr. Collier's favor is said to be the largest ever rendered in a libel suit in this country.

Collier's is to be congratulated. It is a common thing for the manufacturers of "patent medicines" and similar products, when their preparations or methods are criticized, to intimate that the journals exposing them have had an ulterior motive in so doing. It is

seldom, however, that such manufacturers are so commercially tactless as to make their charges definite, and in black and white.

The Postum Cereal Company, which is said to spend a million a year in advertising, is attempting to offset the result of the verdict by an advertising campaign in which the actual cause of the suit is carefully kept in the background while the points regarding the products themselves are greatly magnified. As a matter of fact, the products, as such, did not enter into the case at all, the methods of exploitation and the claims made for them being the essential matter.

Why does not the Postum Cereal Company explain that the Food and Drugs Act has made it necessary for it to modify the claims made on the Grape-Nuts package? Why does it not mention that some of its testimonials have been rewritten and paid for? Why does it carefully conceal the fact that the "famous physician" who wrote the Postum testimonial is a "poor old broken-down homeopath, who is now working in a printer's establishment" and who received ten dollars for it? These are points that the public is entitled to know so that it may place a just estimate on the worth of the testimony offered. Why is the Postum Cereal Company silent? Well, again: "There's a Reason."

THE DEPARTMENT OF AGRICULTURE AND ITS WORK

When a Department of Agriculture was proposed, nearly twenty-five years ago, exactly the same objections were raised to its establishment that are now being made to the organization of a federal department of health, except that, as no great fortunes were being made by selling nostrums and cure-alls to or for cows, horses, pigs and chickens, the opposition to the establishment of a department of agriculture did not come from quacks, fakers and swindlers. With this exception, however, the objections were the same: the rights of the state were being invaded; the government was taking up work which did not belong to it; the project was simply an excuse for the expenditure of large sums of money; the people did not approve of it; its establishment would be of no value, etc., etc. The manifold and highly valuable activities of the United States Department of Agriculture at present constitute a striking refutation of the objections made to its establishment. A copy of Circular No. 721 of the Department of Agriculture shows the bulletins, circulars and reprints issued by the Department in the single month of November, 1910. These publications are of interest not only to the farmer but also to the farmer's wife and children, and in many cases, to the entire community. In the list are found such topics as these: some insects injurious to forests; life-history of the codling-moth; field studies of the crown-gall and hairy-root of the apple-tree; experiments in blueberry culture; insects

which kill forest trees, character and extent of their depredations and methods of control; directions for the use of black-leg vaccine; a review of some experimental work in pig-feeding; the tapeworms of American chickens and turkeys; tuberculosis of hogs, its cause and suppression.

Twenty-five years from now, when the United States shall have taken its place with other civilized nations in public health work and when the federal government has come to recognize officially the fact that the life of a human being is as much a matter of government concern as the life of domestic animals, we shall probably have a national Department of Health issuing a monthly list of publications with titles something like these: some parasites injurious to school children; life-history of the typhoid bacillus; field study of infantile poliomyelitis; experiments in child culture; bacteria which kill factory employees, character and extent of their depredations and methods of control; directions for the use of typhoid vaccine; a review of some experimental work in infant-feeding; the tapeworms of American citizens; tuberculosis of children, its cause and suppression.

Such work will bring even more benefit to the people in the next twenty years than the splendid work of the Department of Agriculture has secured in the past twenty years.

Current Comment

OPTOMETRY BILLS IN STATE LEGISLATURES

Legislatures in thirty-two states will convene the first week in January. In about eighteen of these states, according to the statements made in "optometry" publications, bills providing for the appointment of boards of examiners in "optometry" will be introduced, on the plea that they are intended for the protection of the public against incompetent and untrained spectacle fitters and will supplement medical practice acts. The plan of campaign usually followed by the promoters of these bills is to secure, before the bill is introduced, the endorsement of as many physicians as possible, and then to assert before legislative committees that the bill "has the endorsement of the leading physicians of the state."¹ If the real purpose of the bills was to require a higher standard of training and education among opticians, there would be no objection to them, provided schools of instruction for opticians were properly supervised. Experience in every state in which these bills have become laws, however, has shown that as soon as the "optometrist" received the sanction of the state, in the form of a license, he immediately placed himself before the public as a "Doctor of Optometry" and as one competent, not only to correct errors of refraction by lenses, but also to treat any diseases of the eye, no matter what the cause. With the development of this business a number of purely commercial "schools"

1. See page 2253, this issue.

have sprung up, many of them diploma mills, giving "correspondence courses." These "colleges" are turning out large numbers of "graduates." Instead of being a movement for the protection of the eyesight of the people, as claimed by its supporters, it has become a campaign for the recognition, by the state, of a horde of uneducated, untrained men, who, under the title of "Doctors of Optometry" claim to be competent to treat all diseases of the human eye—a work which to-day requires not only a complete course in modern medicine, but special and additional training as well. This pernicious legislative crusade should be opposed by physicians everywhere and the real facts should be placed before the legislatures and the public. Especially should physicians refrain from signing petitions or endorsing bills without realizing their true import. This caution is particularly necessary at present in view of the activity of the advocates of these measures.

THE NEW CHILDREN'S JOURNAL

An announcement was recently made in these columns concerning the new journal to be published by the American Medical Association—the *American Journal of Diseases of Children*.¹ The initial number is now on the press and will be issued promptly on the first of the year. In its articles, in the character of its editorial board and in its mechanical features, this journal will be the equal and a worthy companion of the other special journal published by the American Medical Association, *The Archives of Internal Medicine*. It is not a commercial enterprise—it is merely another effort of the Association to advance scientific medicine, and especially scientific medicine in America. Already an encouraging number of subscriptions have been received for the new journal. One progressive physician in sending in his subscription says: "I take great pride in the *Archives of Internal Medicine*, in *THE JOURNAL* of the American Medical Association and in other publications coming from your press, and I want your baby book from the start." In order that his file of the new journal may be complete, every physician who contemplates taking it should likewise begin his subscription with the first issue, and thus avoid the annoyance of ordering back numbers, which are not always easily supplied.

MEDICAL ADVERTISING IN LAY JOURNALS

As has often been said—and truthfully—printer's ink is the life-blood of quackery. Debar the advertisements of medical charlatans from newspapers and magazines and these frauds would become a negligible evil. To physicians who know the falsity of the quack's claims, the cruelty of his promises and the fraudulence of his methods, it is an ever-present wonder how reputable and honest publishers can accept the advertising of the nostrum monger and the quack. In many cases there is no doubt that newspaper and magazine owners purposely close their eyes to the evils of this kind of advertising copy because of the enormous revenue it brings in. In many more cases, however, the advertisements are accepted in good faith and in the belief that the claims

made, while doubtless exaggerated, are not more so than those made by advertisers in other lines of business. These remarks are prompted by looking at two pages from the *Agricultural Epitomist* sent us by a correspondent. On one of the pages is a half-page advertisement of as bold and impudent a medical swindle as often appears. It deals with "Professor Samuels," whose methods and claims are discussed in the Pharmacology Department¹ of this issue. On the other page is an editorial comment under the heading "Advertising Talks" in which the following statement occurs: "You know advertised articles are all right because they have stood the test—and besides, the advertisers are backed by your publisher's guarantee." To physicians it may seem unthinkable that a rational human being could honestly be willing to "guarantee" such a fake as the Samuels "treatment" of all diseases "through the eye." Yet we believe it is done in good faith. Samuels doubtless submitted to the publisher a bushel or two of testimonials and to the lay mind a testimonial carries with it a conviction that no amount of argument can overthrow. We believe that in this case, as in many other similar ones, what the publisher lacks is judgment rather than principle.

RECOMMENDATIONS OF THE SURGEON-GENERAL OF THE NAVY

The annual report of the Surgeon-General of the United States Navy, recently issued, forms a volume of nearly 200 pages and reviews the work of the Bureau of Medicine and Surgery for the past year. The substance of the report is found in the twenty-one recommendations which form its conclusion. Many of these relate to purely technical matters connected with the administration of the Navy, but some of them are of general medical and scientific interest. Among the recommendations are: that the ability to swim well be required hereafter as a prerequisite for officers and men in the Navy and Marine Corps; that a naval medical reserve corps be established; that dentists commissioned as officers of the lower grades be provided; that venereal prophylaxis, as practiced in Asiatic and Atlantic fleets, be enforced throughout the entire service, both ashore and afloat; that vaccination against typhoid fever be extended to the entire personnel of the Navy under the age of 50 years; that the bubbling-spring device for drinking-fountains be adopted for the entire service; and that Congress be asked for an appropriation to build two suitable hospital ships. The report contains much interesting material, including condensed reports from naval medical officers in all parts of the world.

Differential Diagnosis of Syphilis and Psoriasis. During the course of an eruption of psoriasis it is not unusual to find lesions on the penis, glans, and scrotum, in men, and on the vulva in women. The lesions in these situations are atypical owing to the moisture of the parts, the scales being soft and fragile, not hard, dry, or scaly, as in ordinary psoriasis. These lesions may be mistaken for mucous syphilides, but the presence of patches of typical psoriasis on the knees, elbows, etc., will settle the diagnosis.—C. F. Marshall, in the *Practitioner*.

1. See advertising page 37.

1. Page 2245.

Medical News

ARKANSAS

The New Sanatorium.—The new Arkansas Tuberculosis Sanatorium, Booneville, is nearly filled to its capacity. At the beginning of the month there was room only for ten additional patients. The capacity of the institution is 74.

Suggest Removal of Hospital.—The board of trustees for the State Charitable Institutions will, it is reported, recommend to the governor and legislature the removal of the State Hospital for the Treatment of Nervous Diseases from Little Rock.

County Election.—At the annual meeting of the Prairie County Medical Society, held in Hazen, Dr. James C. Gilliam, Des Arc, was elected president; Dr. H. T. Rhodes, vice-president; Dr. James Parker, Deval Bluff, secretary, and Dr. William W. Hipolite, Deval Bluff, treasurer.

Antituberculosis Society Organized.—The Antituberculosis Society of Jefferson County was organized at Pine Bluff, December 1. J. L. Caldwell presided at the meeting and Ephraim Frisch acted as secretary. Drs. John S. Jenkins, William S. Stewart, William H. Blankenship, all of Pine Bluff, make up the committee for medical aid.

GEORGIA

Ambulance for Hospital.—The Atlanta *Georgian* gave a benefit performance at the Grand Opera House, December 23, the proceeds of which are to be applied to the purchase of an automobile ambulance for the Grady Hospital.

Physician Imprisoned.—For failure to pay the fine of \$1,000 imposed on him in the Chatham Superior Court for illegal prescription of cocaine, Dr. Walter W. Lee, Savannah, is said to have been committed to jail, November 25.

Money for State College.—Citizens of Augusta have subscribed \$27,845 for new buildings for the Medical College of Georgia, Augusta, and for the hospital connected with the institution. The citizens have agreed to raise \$50,000 toward the new buildings. A mass meeting was held in Augusta, December 11, to promote this worthy object.

Personal.—Dr. Howard J. Williams, Macon, has been appointed a member of the advisory board of the Southern Health Conference.—Dr. Thomas J. Collier Griffin, who was operated on recently in Atlanta, is reported to be greatly improved.—Dr. John P. Atkinson, Milledgeville, has been appointed counselor of the Sixth District Medical Society, vice Dr. T. Ellis Drewry, Griffin, resigned.

ILLINOIS

Hospital Site Donated. Walter Farwell, Lake Forest, has donated to the recently organized Lake Forest Hospital Association an acre of land for a site for the hospital to be erected next spring.

Personal.—Dr. George M. French, Peoria, has been appointed supreme medical director of the Court of Honor, vice Dr. James E. White, deceased.—Dr. Robert C. Bradley, Peoria, has been reelected physician of Peoria County.—Dr. E. E. Nyström has been named assistant physician of Peoria County.

State Board and Anterior Poliomyelitis.—The September issue of the Bulletin of the State Board of Health is devoted to the consideration of acute poliomyelitis, and includes articles by Dr. Israel Strauss, New York City, on "Pathology;" by Dr. Simon Flexner, New York City, on "Experimental Poliomyelitis;" "A Review of the Literature of 3,523 Cases," by Dr. Frank E. Coulter, Omaha; "Acute Poliomyelitis," by Dr. J. S. Fowler, Edinburgh, Scotland; "Surgical Treatment of Infantile Paralysis," by Dr. Max Herz, Sydney, Australia, and "Reports of Epidemics," by Drs. John M. Armstrong, St. Paul; Colin K. Russel, Montreal, and C. A. Anderson, St. Louis, Mo.

Chicago

Personal. Dr. Frank Allport is spending several weeks in New York and other eastern cities studying the work done in the various eye and ear hospitals.—Dr. Oscar C. Willhite has resigned as superintendent of the Cook County Institutions.

Dr. Holt in Chicago.—Dr. L. Emmett Holt, professor of diseases of children in the Medical Department of Columbia University, New York City, gave the annual address before the Chicago Pediatric Society, December 17, on "A Study of 300 Cases of Acute Meningitis in Infants and Young Children."

Resolution on Illinois State Board of Health.—The secretary of the Illinois State Board of Health recently requested the Chicago Medical Society to investigate the charges which had been made against the state board. The council decided that it had no official jurisdiction over the State Board of Health or its members and adopted the following resolution:

Resolved, That it is the sense of the council of the Chicago Medical Society that any official action on its part on the question of the attacks made on the state board would be undignified and unjustified by the powers of this body, as well as an implied reflection on the state board, which would be unwarranted by any evidence thus far submitted against said board.

INDIANA

Charges Against Physician Dismissed.—The State Board of Medical Examination and Registration, at its meeting in Indianapolis, December 6, dismissed for want of sustaining evidence, an affidavit filed against Dr. George M. Freeman, Shoals, in which he was charged with criminal practice.

Prevention of Ophthalmia of the Newborn.—A number of physicians of the state met December 15, at the office of Dr. John N. Hurty, secretary of the State Board of Health, and decided to support a bill requiring compulsory treatment of the eyes of all infants at birth by physicians and midwives. The draft of a bill for that purpose was intrusted to a committee composed of Drs. John N. Taylor, Crawfordsville; Moses S. Canfield, Frankfort; E. Grove Anthony, Indianapolis, and George F. Keiper, Lafayette.

Antituberculosis Propaganda.—The Indianapolis Board of Health, to arouse interest in the scientific methods of prevention of tuberculosis, arranged a mass meeting, December 12. Dr. Charles O. Probst, Columbus, secretary of the Ohio State Board of Health, delivered the principal address, illustrated with stereopticon views, which showed the different stages of the malady, methods of stamping out the disease, and also illustrations of the open-air school rooms which are in successful operation in many large cities. The mayor presided and addresses were delivered by Dr. Charles S. Woods, city sanitarian, and others.—The Indiana Branch of the American Red Cross Society has built several cottages at the Indianapolis City Hospital Tuberculosis Colony, and similar cottages in other cities in the state, and has also assumed charge of twenty-five individual tuberculosis cases.

MARYLAND

Baltimore

Well-Known Chemist Dies.—Mr. Louis Dohme, head of the firm of Sharp and Dohme, manufacturing chemists, died in Baltimore, December 12, from neuritis, aged 72. He was a graduate of the Department of Pharmacy of the University of Maryland.

The Johns Hopkins Fund.—The Johns Hopkins Fund now amounts to \$610,495. In order to secure the \$250,000 offered by the General Education Board of New York, it is necessary to increase this amount to \$750,000 by January 1. The money raised is intended to meet the expenses of new buildings, and the removal of the institution to the suburban site at Homewood.

New Staff of Bayview.—The reorganization of the Medical Department of Bayview will take effect January 1. Dr. Thomas R. Boggs has been appointed physician-in-chief; Dr. Arthur M. Shipley, surgeon-in-chief; Dr. Gordon Wilson, physician-in-chief of the Tuberculosis Hospital; Dr. H. D. Purdon, physician-in-chief of the Hospital for the Insane, and Dr. Milton C. Winternitz, pathologist-in-chief.

Personal.—Dr. Caleb W. G. Rohrer has been elected a member of the Royal Society of Arts, London.—Dr. Thomas R. Boggs has resigned as resident physician of Johns Hopkins Hospital and Dr. Frank J. Sladen has succeeded him. Dr. Franklin Webb Gridith, first assistant gynecologist, has resigned and has been succeeded by Dr. John A. Sperry.—Dr. William J. Schmidt has been appointed assistant bacteriologist to the health department, vice Dr. Frederick V. Beidler, Halethorp, resigned.

MISSOURI

Acquitted of Assault.—Dr. Thomas J. Massey, Lockwood, charged with assault on a stockman of that place, was acquitted by a jury, December 2.

Adopts Firework Ordinance.—An ordinance has been passed by the city council of Kansas City prohibiting the use of fireworks in that city except at public exhibitions which are to be regulated under special permits.

Drinking Cups to Go.—The Board of Education of Kansas City, at its regular meeting, December 1, voted to abolish drinking cups in the ward schools. Bubbling fountains are to be installed to take their place.

Seek New Location for Tuberculosis Hospital.—Because of the inadequate supply of drinking water and the absence of sewerage facilities at the Buehanan County Farm, the county court has decided not to permit the location of the proposed tuberculosis hospital at that place. The president of the local antituberculosis society has been advised of the decision.

St. Louis

Hospital Completed.—The directors of the Barnard Free Skin and Cancer Hospital (St. Louis Skin and Cancer Hospital) announce that the new hospital has been completed, and that formal dedicatory exercises and inspection were held December 20.

Vaccine Virus Pure.—The report of the city bacteriologist and Dr. George Dock of Washington University states that the investigators examined forty-five tubes of vaccine virus, and found nothing to justify the charge that three cases of tetanus among school children had been due to the virus.

St. Louis Medical Society Election.—The annual election of the St. Louis Medical Society, November 25, resulted as follows: president, Dr. Robert E. Schlueter; secretary, Dr. Frederick C. E. Kuhlman; councilors, Drs. Carroll Smith, John McH. Dean and Joseph Grindon, and delegates to the state association, Drs. J. Henry Amerland, William W. Graves, George Homan, Cyrus E. Burford, Vilray P. Blair, Richard H. Fuhrman, Robert M. Funkhouser, Albert F. Koetter and Clarence M. Nicholson.

KENTUCKY

Personal.—Dr. Dunning S. Wilson, director of the Louisville Tuberculosis Dispensary for three years, has been elected to succeed Dr. A. M. Foster as medical officer of the tuberculosis sanatoria of Louisville at Hazelwood and Waverly Hills. This will place Dr. Wilson in control of the entire tuberculosis work of the city.—The following physicians of Paducah have been elected to office: Dr. H. P. Lynn, city physician; Dr. R. L. Fisher, meat and milk inspector, and Drs. Benjamin F. Bradbury and James T. Reddick, members of the board of health.

New Vital Statistics Law.—The new vital statistics law for Kentucky goes into effect January 1. Dr. W. Lueian Heizer, New Haven, has been appointed state registrar with headquarters at Bowling Green. Announcement has been made of the appointment of registrars for the various magisterial districts in Jefferson County. Dr. William E. Gary, the milk and dairy expert of Louisville, now connected with the city health department, will be the Louisville registrar. Dr. Benjamin W. Smock, county health officer, will have general supervision over the various registrars in the county.—Undertakers will hereafter receive burial permits from the registrar instead of from the health office as formerly. The registrar will receive 25 cents for each permit issued.—Physicians will receive 25 cents for each birth and death return.—County registrars will report at stated intervals to the state registrar, who will file the reports with the county clerk, to be kept in a fire-proof vault in his office. The county clerk is to receive a fee of 50 cents for each certified copy of a birth or death certificate. Registrars must deposit fees with the county treasurer, who will make payments once a year, by order of the fiscal court, on a voucher to be made out by the state auditor.

NEW YORK

Personal. Dr. Clayton K. Haskell, surgeon-in-chief of the State Soldiers' and Sailors' Home, Bath, resigned, December 10.—Dr. Bradley F. Many, Port Jefferson, while making a professional call early in the morning of December 5, narrowly escaped death from exposure in a blinding snowstorm.

Health Lecturers Appointed.—State Health Commissioner Eugene H. Porter has appointed Dr. H. L. Wheeler of New York and Dr. W. A. White of Phelps as lecturers and consultants on oral hygiene to the State Department of Health. Drs. Wheeler and White with the medical officers of the state department will deliver a series of lectures throughout the state on various subjects pertaining to public health.

New List of Reportable Diseases.—The list of diseases that should be reported to the State Department of Health has been amplified and now includes the following: anterior poliomyelitis, anthrax, bubonic plague, cancer, cerebrospinal men-

ingitis, cholera, diphtheria, hydrophobia, leprosy, measles, ophthalmia neonatorum, pellagra, pneumonia, scarlet fever, small-pox, tetanus, pulmonary or laryngeal tuberculosis, typhoid fever, typhus fever, whooping cough and yellow fever.

New York City

Personal.—Dr. Abraham Jacobi has received the honorary degree of M.D. from the University of Bonn, from which he obtained his first degree fifty-nine years ago; he has also been elected an honorary member of the Medical Society of Berlin on the occasion of its semi-centennial celebration.—Dr. Eugene L. Fisk, medical director of the Provident Saving Life Assurance Society, has been elected secretary of the organization.

Verdict Against Physicians.—An unusual case has just been heard before the Queens County Supreme Court, where action was brought against Drs. Pedro Francko and T. Grover de la Hoyde for performing an unauthorized autopsy on the body of a woman who died in St. Joseph's Hospital. The action is said to have been undefended and the jury rendered a verdict of \$8,000 damages. It is stated that this is the first case of its kind tried in this state.

Hospital Bureau of Standards and Supplies.—The executive committee of this organization has presented the first annual report for the fiscal year ended September 30, 1910. This bureau was established under an agreement to which at the present time about fourteen of the largest hospitals in the city are parties. The object of the bureau is standardization and savings in the purchase of hospital and institutional supplies. The result of their first seven months' work confirms the soundness of the principle on which this organization was founded, namely, that standardization and combination in purchasing are of benefit to hospitals as well as in the business world. Very considerable savings have been effected on purchases made under agreements negotiated by the bureau. As time goes on and more institutions enter the membership, the usefulness of the bureau will become more evident. The committee confidently recommends the bureau to hospitals which have not already become affiliated. There is also a non-resident membership contemplated for hospitals outside of the city of New York.

NORTH CAROLINA

Personal.—Dr. William P. Ivey, Lenoir, was seriously injured in a runaway accident, December 8.—Dr. Buxton B. Williams, Greensboro, has had plans prepared for a three-story sanitarium.

The Betterment of Professional Conditions.—The State Board of Health and the State Board of Medical Examiners have organized a joint committee which is conducting a vigorous campaign for the betterment of professional conditions in the state. Dr. Richard H. Lewis, Raleigh, and Dr. George G. Thomas, Wilmington, represent the State Board of Health, while the State Board of Examiners is represented by Drs. Lewis B. McBrayer, Asheville, Benjamin K. Hays, Oxford, and James L. Nicholson, Richlands. Dr. McBrayer is secretary of the joint committee. An active canvass is being made to secure additional enactments providing for higher educational requirements of prospective students of medicine, the repeal of the clause in the present medical law which permits licensing of illiterate doctors for "limited districts," and increased appropriations to render more efficient the work of the State Board of Health.

OHIO

Returned from Europe.—Drs. Henry J. Gerstenberger and Harry B. Kurtz, Cleveland, have returned from Europe.—Dr. L. Loring Brock, Washington Court House, who has been in Europe for several months, sailed for home, December 10.

Personal.—Dr. Paul Bethards, Toledo, has been elected fleet surgeon of the Interlake Yachting Association.—Dr. Claude E. Hoover, Edgerton, has been appointed surgeon for the Lake Shore System at Cleveland.—Dr. John Costello, Sidney, has been selected as superintendent of the new tuberculosis hospital at Lima for Shelby, Allen, Auglaize, Mercer and VanWert Counties.—Dr. John C. George, first assistant physician at Dayton State Hospital, has resigned and will practice in Lima.—Dr. David Gillard, Port Clinton, has resigned as local surgeon for the Lake Shore System, and has been succeeded by Dr. Howard M. Montgomery.—The office of Dr. Ezra Burnett, Delphos, was damaged by water in a fire, December 2.—Dr. John J. Thomas has been appointed a member of the health board of Cleveland, vice Dr. Edward F. Cushing, resigned.—Dr. Ira E. Seward has succeeded Dr. Henry Baldwin as health officer of Springfield.

Ill and Injured.—Dr. Clifford T. Okey, Columbus, is seriously ill in Mount Carmel Hospital with pneumonia.—Dr. David M. Smith, Newark, slipped on an icy pavement, December 3, breaking his right leg above the knee.—Dr. John W. Alexander is reported to be seriously ill at his home in Newark.—Dr. Renwick H. Montgomery, Youngstown, is reported to be critically ill as the result of cerebral hemorrhage.—Dr. P. Letherman, Outville, sustained severe cuts on the head in a collision between his buggy and another carriage at Pata-skala, December 3.—Dr. August Schumacher, Hamilton, who has been seriously ill with ptomain poisoning, is reported to be convalescent.—Dr. Elmer C. Radenbaugh, West Salem, who underwent operation in Wooster City Hospital a few weeks ago, has recovered and resumed practice.—Dr. Upton M. Carnes, Canton, is said to have been adjudged insane and ordered to be committed to the Massillon State Hospital.

The Oxford Liquor Case.—Dr. Hugh M. Moore, banker and druggist of Oxford, charged by the president of Miami University with having sold the liquor which figured in a Thanksgiving poker party given by students, is said to have been found guilty in the mayor's court, and fined \$50 and costs. The court found no fault with the defendant for having a prescription for liquor nor for having it filled in the store in which he was part owner. The court held that the violation of the law was in the defendant having filled the prescription when he was not a druggist or pharmacist within the meaning of the code, which gives the following definition: "one who has practiced pharmacy for a period of four years, or has received an equivalent training, or has been examined by the State Board of Pharmacy of Ohio." The defendant's testimony was to the effect that the registered pharmacist employed in the store was absent when he filled the prescription. A motion has been filed for a new trial.

Cleveland

Dance for Charity.—From a ball in the Colonial Club, St. Vincent's Charity Hospital, Cleveland, received over \$5,000.

Endowment for Medical Library.—By the will of the late Dr. Rosenwasser, a bequest of \$10,000 was left to the Cleveland Medical Library. The proceeds are to be used in purchasing medical books and periodicals. Dr. Rosenwasser also left his library for the use of the association.

Agreement Regarding Milk.—Because farmers who have had milk refused by one city have been accustomed to ship it to another city, the departments of health of Cleveland, Cincinnati, Pittsburg, Columbus, Youngstown, Lorain and Akron, cities which draw their milk from the same territory, have agreed that no milk or cream refused by any city represented, because of faulty conditions at the dairy or any violation of the conditions imposed by the codes of these cities, shall be accepted by any of the other cities represented.

Robb Memorial Services.—Memorial services were held recently for Mrs. Isabel Hampton Robb. The plan announced was to provide a memorial hall to serve as headquarters of the various organizations for trained nurses of the city, containing an auditorium, library, offices, restaurant and living accommodation. Dr. Charles F. Hoover announced that the \$6,000 already subscribed will be used as a fund for lectures to be delivered before nurses by medical men, and for popular lectures on hygiene for mothers and children. Dr. William H. Welch, Baltimore, paid a glowing tribute to the memory of Mrs. Robb, who he said, probably did more than any other one person in reforming and organizing the profession of trained nurse.

Cincinnati

Honan in Cincinnati.—Dr. J. H. Honan, Bad Nauheim, Germany, formerly president of the Anglo-American Medical Society, Berlin, addressed the Cincinnati Academy of Medicine recently on "Weak Heart, Its Causes and Treatment."

Personal.—Dr. E. Otis Smith has been appointed cystoscopist and Dr. O. V. Hulman, curator to the Cincinnati Hospital.—Dr. Edward A. Fox, for many years staff physician of the Hamilton County Infirmary, has resigned.

Department of Health Reorganized.—The Cincinnati Department of Health has reorganized under seven subdepartments, to be known as those of the board of health, health officers, medical inspection and relief, schools, infectious diseases, outdoor relief and tuberculosis. At the head of each of the last five divisions will be an officer who will devote his entire time to the work.

Elections.—The Cincinnati Society for Medical Research, at its annual meeting, December 1, elected the following officers:

president, Dr. William Wherry; vice-president, Dr. Simon P. Kramer; secretary-treasurer, Dr. Jacob L. Tueeliter, and executive committee, Drs. Paul G. Woolley and Irving Fisler.—At the annual election of the Cincinnati Polyclinic and Postgraduate School the following officers were elected: president, Dr. Charles T. Souther; vice-president, Dr. Adolf F. Morgenstern; secretary-treasurer, Dr. Oscar W. Stark, and director of clinics, Dr. Albert E. Hussey.

PENNSYLVANIA

Medical Club Election.—At the annual meeting of the Oil City Medical Club, held December 1, the following officers were elected: president, Dr. John L. Hadley; vice-president, Dr. Winnie K. Monnt; secretary, Dr. Sylvester W. Sellew, and treasurer, Dr. Frank B. Jackson.

Personal.—Dr. Edward Martin, the newly elected professor of surgery at the University of Pennsylvania, represented that institution at the annual banquet of the Colorado alumni at Denver on December 17 and at the banquet of the Pacific Southwest alumni at Los Angeles December 22.—Dr. Thomas Veiel, of Stuttgart, Germany, and Dr. William F. Blake, of San Francisco, have been visitors to Philadelphia during the present week.

Annex for Tuberculosis Hospital.—The College Club of Pittsburg, on November 30, held a meeting in support of the project of establishing a tuberculosis annex of the Woman's Hospital for tuberculosis patients. The proposed annex will provide five rooms for private patients, two of which are to be at the disposal of the College Club. The cost of the new annex is estimated at \$5,000. Donations and pledges amounting to \$1,200 have already been received.

Fine for Munyon.—December 16, the Munyon Homeopathic Home Remedy Company is said to have paid a fine of \$609 imposed by Judge McPherson in the U. S. District Court, for misbranding certain "specifics." Special agent Jenkins of the government food and drug bureau, Dr. Rudderman, of Nashville, Tenn., a government analytical chemist, and other government officials analyzed Munyon's Asthma Cure, Munyon's Blood Cure, the Munyon's Special Liquid Blood Cure, etc., the latter claiming to cure any number of blood affections. Dr. Edward M. Gramm, a homeopath, testified that the remedies contained nothing that would effect a cure of the ills advertised on the labels.

Philadelphia

Officers Elected.—The annual meeting of the Philadelphia Medical Examiners' Association was held and the following officers were elected: president, Dr. A. T. Gaillard; vice-president, Dr. Francis S. Ferris; secretary, Dr. Joseph D. Farrar, and treasurer, Dr. George D. Morton.—At a meeting of the West Philadelphia Medical Association, held December 5, the following officers were elected for 1911: president, Dr. Hiram L. Lutz; vice-president, Dr. Charles P. Pike; corresponding secretary, Dr. Harry G. Hudson; financial secretary, Dr. William Miller, and treasurer, Dr. Edmund L. Graf.—At the quarterly meeting of the Physicians' Motor Club of Philadelphia, on November 22, the following officers were elected: president, Dr. Sigmund L. Gans; vice-presidents, Drs. L. Webster Fox, S. Solis Cohen, and Edward E. Montgomery; secretary, Dr. Sylvester J. Dechan, and treasurer, Dr. James G. Taylor.

SOUTH CAROLINA

Personal.—Dr. William J. Burdell, Lugoff, has been made medical secretary of the Southern Division of the Esperanto Association of North America.—Dr. Jesse F. Cleveland, Spartanburg, was seriously injured in a collision between a carriage and a passenger train, recently.

Statue for Marion Sims.—The State Medical Society has started a movement to erect on the State House grounds, Columbia, a statue of Dr. J. Marion Sims. The proposed monument is to cost \$10,000, of which the medical society will furnish \$2,500, and the legislature will be asked to contribute \$5,000.

TENNESSEE

Personal.—Dr. John B. S. Woolford, Chattanooga, has returned from abroad.—Dr. Henry L. Williford, Memphis, while being held up by a negro highwayman, November 23, killed the robber by cutting his throat.—Rev. William Kelly, Nashville, for the past ten years a medical missionary in China, is visiting his home.

Prevention of Blindness.—The exhibit for the prevention of blindness from the Russell Sage Foundation has been

shown in Memphis, Jackson, Humboldt, Nashville and Chattanooga. It was secured through Dr. Elizabeth C. Kane, Memphis, chairman of the Health Department of the Tennessee Federation of Women's Clubs.

TEXAS

Personal.—Dr. William M. Brumby, Austin, has resigned as state health officer and president of the State Board of Health to become medical director of the Equitable Life Insurance Company of Texas, San Antonio.—Dr. Ralph Steiner, Austin, has been offered the position of state health officer vacated by the resignation of Dr. William M. Brumby.—Dr. Charles P. Brewer, Fort Worth, narrowly escaped death in a fire which did about \$8,000 damage to his property in Fort Worth recently.—Dr. C. C. Green has succeeded Dr. Frank R. Ross as assistant health officer of Houston.—Dr. E. E. Best, Cameron, has been appointed health officer of Milam county.—Dr. W. S. Winter, Jr., has been appointed assistant post surgeon of Port Arthur.

GENERAL NEWS

Examination for Anatomists.—The United States Civil Service Commission announces examinations Jan. 18, 1911, at various places throughout the United States to secure eligibles from which to make certification to fill a vacancy in the position of male anatomist at \$1,600 per annum in the Army, medical museum, office of the surgeon general, and vacancies requiring similar qualifications as they may occur. Application should be made either to the United States Civil Service Commission, Washington, D. C., or to any local board of examiners.

Report of the Surgeon-General of the Navy.—The annual report of the Surgeon-General of the United States Navy, Chief of the Bureau of Medicine and Surgery, to the Secretary of the Navy for the fiscal year of 1910, shows a generally diminished damage ratio from disease, injuries, invalidings, and deaths as compared with the previous year and the average of the previous decade. The death rate of 5 per 1,000 is lower than has been previously recorded. The total admission ratio dropped from 725.36 to 698.25; the ratio of daily average of patients from 29.17 to 28.52; the average number of sick days for each individual from 10.56 to 10.41, and the ratio of total discharges from disability from 35.49 to 30.59. The total damage from disease alone in percentage of sick was 3.952, which is lower than for any year since 1898. These results are attributed to the increasingly recognized functions of the medical department to prevent the occurrence of disability rather than to await its inception to effect a cure. The establishment of a naval medical reserve corps is recommended to act as a recruiting body for the regular establishment. The prominent hygienic problems of the service are stated to be contagious and venereal diseases. The proportion of contagious diseases is lower than in former years but there exists what is considered a serious situation in regard to venereal disease, there having been more than 100 primary admissions for this class of affections during the first three months of the year, with an average complement of 1881 who have recently entered the service free from such disease. He advises consistent enforcement of venereal prophylaxis at training stations the same as on board ships. The surgeon-general disapproves of the physical test by riding, and suggests as a substitute the Swedish system of training. The admission rate for pulmonary tuberculosis has declined from 6.26 to 5.60.

MANILA LETTER

MANILA, Nov. 5, 1910.

Pharmacy in the Philippines

Now that the Philippine Medical School is thoroughly established and is well under way in offering scientific instruction to its students, and the medical department of Santo Tomas University has shown signs of improvement, it has been thought well to take up the question of the Filipino pharmacist. The question of his efficiency and the local facilities for training pharmacists has been studied with a view of recommending necessary improvements in the existing courses in the three Manila schools of pharmacy, as well as looking toward the establishment of a school of pharmacy in connection with the Philippine Medical School and the University of the Philippines.

In the Philippines, pharmacy is considered one of the learned professions; the pharmacist is in rank next to the physician,

and, like the latter, has too often proved ill trained for many of the simple duties of his trade. In many of the towns of the provinces he forms an important factor in the social scale and has sometimes engaged in politics.

In Manila there are good pharmacies, but with very few exceptions the provinces are without efficient or competent pharmacists. The training in the local schools of pharmacy is based on the Spanish system and is not in accord with the modern European methods. Thus we are facing the necessity of having the prescriptions of American and American-trained physicians sent to Manila to be filled. These prescriptions are sometimes written by Manila physicians, sent to the provinces and then returned to Manila to be filled. This state of affairs almost compels the graduates of the Philippine Medical School to be their own pharmacists in the provinces. Such a condition hampers the work of the bureau of health and will defeat many of the efforts of modern medical education in the Islands until improvement is brought about.

With the possible exception of one school—the school of pharmacy of Santo Tomas University—the institutions in Manila are in nowise prepared to train competent pharmacists. Even the graduates of the Santo Tomas school have great difficulty in passing the examinations of the board of pharmaceutical examiners, and radical changes must be made in this school to make it an efficient institution.

In July, 1909, twenty-three candidates entered the examinations of the board of pharmaceutical examiners. Only one passed. At the 1910 examination, twenty-six candidates were entered; not a single candidate passed. The highest grade given was 53 per cent.

The legal requirements are not to be considered drastic. They were made to suit the conditions of the country and are just as liberal as is compatible with public safety in the matter of fairly well-trained pharmacists. Any student who has had a moderately good training in pharmacy should have no trouble in passing the examinations.

If the educational facilities for training pharmacists are not soon improved it will probably be necessary to relax the legal requirements somewhat, otherwise the drug business will be monopolized by a small number of pharmacists. The Filipino is quick to take advantage and is decidedly mercenary when he controls the situation. For this reason it is not advisable to enforce rigidly the regulations covering the practice of midwifery in these islands. It was found in Manila that the few competent midwives would quickly run up their charges to exorbitant rates when the ban was put on their less capable sisters in the profession. The Filipino pharmacist, as well as the Filipino physician, usually regulates his charges by the necessity for his services in a particular case. In an emergency he is often a robber. As an example: one of the medical health officers had occasion to require immediately 2 liters of saline solution in an emergency case. He dispatched a messenger to the local *botica* (drug store) on a hurry-up call for the saline. The bill presented for the 2 liters was 16 pesos (\$8.00).

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Dec. 3, 1910.

The Health of Children

The report for 1909 of the chief medical officer of the Board of Education, Dr. George Meredith, is a most important document. It covers the first complete year during which the children entering and leaving the public elementary schools of England and Wales have been subjected to systematic medical examination. It brings together a mass of new and authentic data on the physical condition of the rising generation and has an important bearing on the question of national degeneration, about which so much has been written and so little proved in recent years. The children attending the schools in all number 6,000,000. This comprised the whole of the children of the working class and a large part of the children of the middle class, the remaining children being sent to private schools. About 10 per cent. suffer from serious defects in vision, from 3 to 5 per cent. from defective hearing, 1 to 3 per cent. have suppurating ears, 8 per cent. have adenoids or enlarged tonsils of sufficient degree to obstruct the nose or throat and to require surgical treatment, 20 to 40 per cent. suffer from extensive decay of the teeth, 40 per cent. have unclean heads, 1 per cent. suffer from ring-worm, 1 per cent. from tuberculosis of a readily recognizable

form, and 0.5 to 2 per cent. from heart disease. In cases in which disease is discovered measures are taken for its treatment. The fact is brought to the notice of the parents, the parents are assisted in the application of remedial measures and in case of persistent neglect are punished. Notwithstanding the prevalence and serious character of dental disease there is good hope of considerable success in dealing with it, for it seems to be largely due to total neglect of cleanliness of the mouth in childhood, and the necessity for such cleanliness is being more and more impressed on both children and parents by teachers, nurses and health officers. Dental clinics are being established, at which early conservative treatment is begun. The report marks an epoch in the history of education in this country and gives official recognition to the fact, long ignored, that before educating children their physical fitness must be insured.

New Theory as to the Spread of Sleeping-Sickness

Evidence is being brought forward that sleeping-sickness is spread by another fly than the *Glossina palpalis*. The latest fact on this point comes from northwestern Rhodesia, particularly from a valley in which a tributary of the Zambesi flows, where a number of cases of sleeping-sickness have occurred among both whites and natives. In this district no *Glossina palpalis* has been found, and the nearest point at which the fly lives is 400 miles distant. Up to the present all preventive measures taken by the various governments have been in regard to this fly, whose location has been clearly defined. An elaborate map of Africa has been prepared in which the various *Glossina palpalis* areas have been specially colored, and wherever possible, the belt infected by this creature has been cleared and the inhabitants removed to a healthy zone. But if this new theory be adopted future measures will have to be more extensive. The newly suspected fly is another species of tsetse fly, known as the *Glossina morsitans*, which is found in regions much further south than the *Glossina palpalis*, where the latter is unknown.

Florence Nightingale's Will

Miss Florence Nightingale's remarkable character is shown by the directions which she gave as to the disposal of her body. She willed her body to medical science for dissection and requested that, if possible, no memorial, or one of the simplest character, should mark the place of burial; also that the burial services should be extremely simple.

An Actuarial Study of the Influence of Sanatoriums on Pulmonary Tuberculosis

Two actuaries, Mr. W. P. Elderton and Mr. S. J. Perry, have made an important investigation, which even in the voluminous literature of tuberculosis is absolutely new. They have made an actuarial study of the influence of sanatoriums on the expectation of life of the subjects of tuberculosis. The material used was collected by Dr. Noel Bardswell in this country and by Drs. Lawrason Brown and Pope in America. The figures are analyzed and the expectation of life is compared with that given in the Registrar-General's English life-table. It is found that even in cases of tuberculosis in which the treatment has been most successful the expectation of life is much shortened. A comparison is also made between the results obtained before the introduction of the sanatorium treatment and those obtained since it has been adopted. Difficulties were found in making this comparison, but the surprising conclusion is reached that the figures show no superiority in the results of sanatorium treatment. The authors freely admit that their results require confirmation in the light of fuller statistics. Even so, their importance is obvious.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Dec. 2, 1910.

Prizes of the Academy of Sciences

The Académie des sciences has awarded three Montyon prizes in medicine and surgery, each of \$500 (2,500 francs): one to Drs. G. Martin, Leboeuf and Roubaud for their work, "Report of the Commission on the Study of Sleeping-Sickness in the French Congo, 1906-08;" the second to Prof. J. Dejerine and Dr. André Thomas of Paris, for their work on diseases of the spinal cord; the third to Dr. E. Perroncito, professor in the Turin medical college, for his work on the diseases of the miners from the St. Gothard to the Simplon.

Three prizes of \$300 (1,500 francs) have been awarded: the first to Dr. C. Mantoux of Cannes, for his work on the intradermal reaction to tuberculin; the second to Dr. P. Emile Weil of Paris, for his work on hemophilia; the third to Dr. G. Moussu, professor of the veterinary school at Alfort and to M. Monvoisin, for their works on the milk of tuberculous cows. The Barbier prize, \$400 (2,000 francs), has been divided between Dr. A. Thiroux, physician to the colonial troops and director of the bacteriologic laboratory of St. Louis, Senegal, for his work on sleeping-sickness and the animal trypanosomiasis in Senegal, and M. H. Bierry of the laboratory of experimental physiology of the Sorbonne, for all of his works. The Bréant prize, \$20,000 (100,000 francs), intended to reward the discoverer of a cure for Asiatic cholera, has of course not been awarded. Out of the interest of this sum, a prize of \$700 (3,500 francs) has been awarded to Dr. Jules Bordet, director of the Pasteur Institute of Brabant, for his "Chemical Theories of Immunity" and "Study of the Serum of Vaccinated Animals, Toxins and Antitoxins," and a prize of \$300 (1,500 francs) to Dr. A. Taurelli Salimbeni, head of the laboratory at the Pasteur Institute of Paris, for his work on cholera and the vibrios. The Godard prize, \$200 (1,000 francs), has been awarded to Drs. L. Ambard and E. Papin of Paris, for their "Study of Urinary Concentrations." The Dugate prize, \$500 (2,500 francs), has been awarded to Dr. Séverin leard of Marseilles, for his memoir entitled "Report of Deaths in Hospitals in France and Abroad; Utility of Early Necropsy and Necessity for an Early Diagnosis of Real Death, Permitting Early Necropsy." The Bellion prize, \$280 (1,400 francs), has been shared between Dr. Imbeaux, chief engineer of bridges and roads at Nancy, for his "Statistical and Descriptive Annual Report of the Distribution of Water," and M. Frois, labor inspector, and M. Sartory, secretary of the Commission of Industrial Hygiene, for their memoir entitled: "Lyes and Organic Powders in Industry." The prize of Baron Larrey, \$150 (750 francs), has been divided between Dr. Chavigny, agrégé professor at the school of military medicine at Val-de-Grâce, for his work on military psychiatry, and Dr. Miramond de La Roquette, military physician at Nancy, for his work on the scapular girdle. The Mège prize, \$2,000 (10,000 francs), has not been awarded. A prize from the interest has been awarded to Mlle. J. Joteyko, of the laboratory of psychophysiology at the University of Brussels, and Mlle. Stefanowska, for their work on muscular function and the psychophysiology of pain.

In physiology the Montyon prize of experimental physiology, \$150 (750 francs), has been divided between Prof. C. Livon of Marseilles, for his works on experimental physiology, and M. Marin Molliard, for his "Organic Nutrition of the Higher Vegetables." The Philippeaux prize, \$180 (900 francs), has been awarded to Dr. Maurice Aribus, professor of physiology at the University of Lausanne, for his "Sero-Anaphylaxis of the Rabbit." The Lallemand prize, \$360 (1,800 francs), has been divided between M. René Legendre, for his "Nerve Cellule of *Helix Pomatia*," and M. Aldo Perroncito, for his "Cellular Elements in the Process of Degeneration of the Nerves." The Martin-Damourette prize, \$280 (1,400 francs), for a work on therapeutic physiology, has been awarded to Dr. E. Lagnesse, professor of histology at the Lille medical school, for his work on the pancreas.

Juvenile Crime

In a report to the General Council of the Department of the Seine, M. Ambroise Rendu published suggestive statistics among minors. Out of every 1,000 crimes against persons, four are committed by minors under 16 years, and 164 by minors aged from 16 to 20. Out of every 1,000 crimes against property, two are committed by minors under 16, and 178 by minors aged from 16 to 20. In 1905, 3,805 boys and 566 girls under 16 were before the courts; in 1909, there were 4,517 boys and 703 girls. Believing that it is time to combat this proportion of crime among minors, M. Ambroise Rendu has invited the general council to pass the following resolutions: (1) that minors arrested for any offense should be transported in special conveyances without contact with other arrested persons; (2) that minors' cases should be tried before a special magistrate; (3) that such cases should be tried in *chambre de conseil*, that is, not publicly, but with the aid of a representative of a society for the protection of children.

Contamination of Oysters

While the oyster is believed to possess the power of selecting its food by repelling unsuitable material, the water which it respire penetrates quite freely, unfiltered, and with all its impurities. If this be true, the danger from infection from

contaminated oysters would arise much less from the contents of the digestive tube than from the liquid which bathes the respiratory organs and remains in the shells until the oysters are eaten. From a communication made in one of the last sessions of the Académie des sciences by M. Fabre-Domergue, it appears, however, that oysters are capable, in an impure medium, of ingesting a massive dose of detritus of stercoial origin, which may contain germs of infectious intestinal diseases. More importance, then, should be attached to the bacteriologic analysis of the oysters themselves, their intestinal contents and their liquor—too much neglected up to the present in France—than to the water of the beds, the degree of infection of which varies, moreover, in large degree from one time to another.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Dec. 1, 1910.

Personal

Professor Erb celebrated his seventieth birthday November 30. This distinguished clinician, who still enjoys remarkable physical and mental activity, resigned his teaching position some years ago.

Professor La Valette St. George, professor of anatomy at Bonn, died November 30 at the age of 79. He was a pupil of Kölliker and John Müller, joined the Bonn faculty in 1858, became regular professor in 1865 and head of the anatomic department in Bonn in 1875. His most important work was in the field of comparative anatomy, especially the history of evolution. In 1907 he resigned his professorship.

Professor Eberth, director of the pathologic institute at Halle, will resign his position at the end of the winter semester, on account of his advanced age.

Privat-docent Dr. Heineke has been appointed director of the university surgical polyclinic at Leipsic.

Law Against Quackery and Nostrums

The principal feature of the proposed law, the bill for which, as I have mentioned, has been recently placed before the Reichstag by the government, is to compel the quacks to announce themselves to the authorities and to subject themselves to control by which they are required to keep business records in which a report is made of their business transactions. The following are to be forbidden by the law: any treatment that is not founded on personal investigation, such as treatment by mail, etc., treatment by mystic processes, especially faith healing; the treatment of diseases dangerous to the community, which are included under the imperial infectious-diseases act, that is, cholera, plague, leprosy, typhus, small-pox and yellow fever; treatment of all diseases or injuries of the sexual organs, especially venereal diseases, the latter even when they affect other parts of the body; the treatment of cancer; treatment by hypnosis; the treatment by the use of narcotics which may extend beyond the part treated, and treatment by hypodermic or intravenous injection. The imperial upper house (*Bundesrat*) can prohibit the treatment of other diseases. Furthermore, quacks are not to be permitted to administer medicines themselves nor shall they refer their customers to special sources as to supply. The trade of the quack is to be forbidden if the facts justify the assumption that by the pursuit of his trade the life of a human being or animal is endangered or health injured or that the customers are being swindled. Further, their occupation can be forbidden if they are convicted of a punishable transaction in the course of their business or if their civil rights are forfeited in any other misdemeanor. Against fraudulent secret remedies, it is provided that any one shall be punished with imprisonment up to one year and with a fine up to \$250 (1,000 marks), who shall in public advertisements which concern the prevention, mitigation or cure of disease in man or animals or tonic remedies for man or animals or infant food, make statements which are not scientifically true and are calculated to deceive the public. If the transaction is only negligent, the imprisonment shall be limited to only three months and the fine to \$150 (600 marks). It may also be provided that the verdict shall be published at the cost of the convicted. I will report on the other details when the law has been passed. It is at least to be hoped that it will be passed, although in the discussion so far, objections against a number of the provisions have been raised by all of the speakers. The bill is next to be submitted to a committee of the delegates for consideration.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Dec. 1, 1910.

Warning Against Certain Scholarships for Medical Students

The scarcity of practitioners in the country has had unpleasant results, and several efforts have been made to induce good men to undertake country practice. But as the people are not very rich and the appointments are not too well paid, the country magistrates have always had difficulty in obtaining adequate medical help. The party now in power has besides made it a special point to appoint only doctors who fulfil certain national and religious requirements rather than those of scientific education. The existence and development of a powerful medical organization, which soon began to pay special attention to the country appointments, still further embarrassed the ruling party by boycotting all appointments below a certain sum. In order to counteract the effect of these and similar measures, a number of scholarships valued each at from 600 to 1,000 kronen (\$120 to \$200) a year, have been offered to medical students from their third university year, under the condition that these men will pledge themselves to enter the services of the country magistrates after having completed their study. They would, of course, be sent where the low payment deters regular doctors from settling, and they would have to obey, being under a contract. A warning has been issued by the medical organization, explaining matters to the medical students, and showing how such a contract, being agreed on for at least ten years, would mean actual sweating and ruin for the young doctor. Hitherto the plan of scholarships has not been very successful.

Centralization of Public Charity

For several months efforts have been made to bring about a complete change of the mode of administration of public charitable institutes, including hospitals in Lower Austria (Vienna Letter, *THE JOURNAL*, Feb. 5, 1910, p. 479). The pretext is the unsatisfactory financial condition of the phantom Vienna "hospital fund," which was long since exhausted in reality, but which preserves a fictitious existence and still keeps the hospitals running by means of loans. The fund is in the hands of the government of Lower Austria, and its yearly deficit amounts at present to some 1,500,000 kronen. As the legal responsibility for the expenses of the hospitals is not fixed on the general government, the municipality or the diet, the latter has offered to take this matter into its own hands under the condition that besides a loan of 10,000,000 a tax of 5 per cent. on all rates be granted for this purpose. This appears not impossible, but the other conditions have quite a different bearing. The diet intends to form a corporation of thirty-two men, in which only two representatives of medical men will sit, the remainder being elected or appointed by the general government, the diet and the city of Vienna. The latter two authorities belong to the well-known reactionary and antimicrobial party at present in power. The above-mentioned managers are to be given the supreme control over all hospital directors both in Vienna and in the country, and even over the clinics. The appointment of hospital directors as well as of members of the hospital staff is to be in their hands. They will be bound nominally to elect a candidate out of three men nominated by the hospital staff, but this of course does not preclude other possibilities. It is also intended to make the appointments of hospital doctors permanent, for life, the service to occupy a man's whole time, so that a large number of graduates from the university would be excluded from practical learning. Such plans interfere seriously with the future of the medical profession in this country, as it is well known that nepotism and friendship have a great deal to do with this political party.

As soon as the outlines of this plan became known in medical circles, much indignation and opposition were aroused. A protest meeting, in which all hospital directors as well as university professors were present or were represented, took place a short time ago, and an urgent appeal was directed to the government to call its attention to the danger threatening the population. On the other hand, the proposed tax of 5 per cent. on all taxes means a heavy addition to the heavy burden now weighing on the rate-payers. Large sums of money are involved, as the hospitals coming under the scope of the plan have over 16,000 beds. The resistance offered by a large section of the population will perhaps be successful in warding off this attack.

Pharmacology

"PROFESSOR" SAMUELS AND HIS EYE WATER

One of the latest comets to flash across the firmament of quackery is "Professor" H. Samuels, who hails from Wichita, Kansas. Samuels claims that he is "the only living person" who "treats through the eye" the following diseases:

- | | | |
|-------------|-----------|------------------|
| Consumption | Paralysis | Bright's Disease |
| Fits | Blindness | Morphin Habit |
| Cataracts | Eczema | Heart Trouble |

These are but a title of the numerous ailments that this new apostle of quackery offers to "cure." Samuels has been lavishly spending his easily made money in advertising space. One-third of a city daily's page is no unusual amount of space for him to use for a single advertisement.

The business is conducted along the lines of the typical mail-order fake. A series of "follow-up" circular letters so printed as to simulate individual type-written letters, "symptom blanks," the inevitable and ubiquitous testimonials—these and such other paraphernalia as go to make up the stock-in-trade of the quack, are used by Samuels in his process of swindling the sick and humbugging the helpless. He emphasizes two points in all his advertising claptrap. First he wishes to treat only "hard cases, cases that the regular doctor can do nothing for;" second, he wants it generally known that he has been arrested many times for irregular practice.

Samuels' "remedy" consists of an "eye water" which is claimed to have cured ovarian tumor, "paralysis of the optic nerve," deafness, tuberculosis and various other ills. Two specimens of the "eye water" alleged to be used by Samuels have been sent in by correspondents, from whom we learn that \$25.00 an ounce is charged for the stuff. A cursory examination of both samples has been made in the Association laboratory and our chemists report as follows:

"Each of the two samples of the solution alleged to be used by Professor Samuels was a colorless, slightly turbid liquid having a salty taste. Each gave tests for sodium, chlorid, sugar and a trace of sulphate. In neither were metals such as arsenic, copper, lead, iron, etc., present and in neither could any potent alkaloids be detected.

"One of the samples examined was too small to make a quantitative test practicable. Examination of the larger sample showed that the sodium chlorid and sugar were each present in about the same quantity, viz., 7.5 grams in 100 c.c. (about 35 grains to the fluid ounce).

"The following formula gives a solution which is practically identical with the larger sample examined:

- Table salt10 ounces
- Sugar10 ounces
- Hydant water 1 gallon

"Approximate value 6 cents a gallon; alleged selling price \$25.00 an ounce."

The absurdity of attempting to cure consumption, the morphin habit, ovarian tumor and scores of other pathologic conditions, by merely dropping a weak solution of salt and sugar in the eye, would seem sufficiently apparent to render quackery of that sort unprofitable. So it would be, were it not for the credulity and unflinching optimism of the chronically ill toward all new "treatments." Samuels' reasons for wanting to "treat" chronic diseases are evident. The quack who attempted to relieve a man's toothache or headache by

dropping a little salt water in his eye and charging \$25.00 for the process, would find few victims. But with sufferers from chronic diseases the case is different. Ninety-nine consumptives out of a hundred will, for the first few weeks, agree that they have been benefited after having experimented with some new "treatment." And the less scientific the treatment and the more wildly improbable the claims made for it, the greater will be the alleged benefit derived from it.

To devote more space to this humbug would be to dignify it. Suffice it to say the whole business is founded on falsehood and fraud. Any man who will take money from a consumptive, an epileptic or a morphin habitué under pretense of curing his disease with such an inert mixture as that just described is an unconscionable scoundrel.

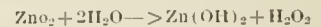
It is a sorry commentary on our civilization that the incurably ill cannot, apparently, be protected against their own credulity and the wiles of those who would fatten on their misfortune and profit by their sufferings.

[CONTRIBUTION FROM THE CHEMICAL LABORATORY OF THE AMERICAN MEDICAL ASSOCIATION]

MAGNESIUM PEROXID
W. A. Puckner and W. S. Hilpert

A number of peroxids such as zinc peroxid, magnesium peroxid and sodium peroxid have been offered to the profession as substitutes for the hydrogen peroxid solution of the Pharmacopeia and have received considerable attention of late. They are claimed to possess the oxygen-producing properties of the Aqua Hydrogenii Dioxidii, modified by the relative stability of the compounds and the metallic salts which are produced in their decomposition. The commercial products are usually mixtures containing but a limited amount of real peroxid; for example, commercial "magnesium peroxid" contains but about 15 per cent. of magnesium peroxid while commercial "sodium peroxid" contains about 75 per cent. of sodium peroxid.

The different peroxids vary considerably in their stability, their solubility and their ease of decomposition in solution. In solutions of acids the peroxids are decomposed, forming hydrogen peroxid and the salt of the metallic radicle of the peroxid. In this way the entire active oxygen-content of the peroxid is quickly made available in the form of hydrogen peroxid in solution. Water dissolves only minute quantities of these peroxids but it does decompose them with varying degrees of readiness. Thus zinc peroxid, although very insoluble, is decomposed by water into zinc hydroxid and hydrogen peroxid as follows:



ALKALINITY FAVORS DECOMPOSITION

It is well known that hydrogen peroxid is supposed to decompose with the formation of water and oxygen (H₂O₂ → H₂O + O). The decomposition of hydrogen peroxid in this manner is retarded, or takes place only to a slight extent, in the presence of acid, as is illustrated by the use of acids to preserve the commercial hydrogen peroxid solutions. On the other hand alkali favors the decomposition of hydrogen peroxid to water and oxygen and the rapidity with which hydrogen peroxid is decomposed is in direct proportion to the amount or strength of the alkali.

When sodium peroxid is decomposed by water a very strong alkali, sodium hydroxid (caustic soda), is formed and therefore the ready decomposition of the hydrogen peroxid is favored and hence the sodium peroxid has strong oxidizing

"Boston American" OCTOBER 1, 1910

PROF. SAMUELS ORIGINATES PECULIAR METHOD OF TREATMENT HIS PHENOMENAL SUCCESS CAUSES ADMIRATION OF DOCTORS

ARRESTED MANY TIMES

Not Assured by Aches and Pains nor Pains in Continence in a Week
 Professor H. Samuels, of Wichita, Kansas, has been arrested many times for irregular practice. He claims to be "the only living person" who "treats through the eye" the following diseases: Consumption, Paralysis, Bright's Disease, Fits, Blindness, Morphin Habit, Cataracts, Eczema, Heart Trouble.

These are but a title of the numerous ailments that this new apostle of quackery offers to "cure." Samuels has been lavishly spending his easily made money in advertising space. One-third of a city daily's page is no unusual amount of space for him to use for a single advertisement.

The business is conducted along the lines of the typical mail-order fake. A series of "follow-up" circular letters so printed as to simulate individual type-written letters, "symptom blanks," the inevitable and ubiquitous testimonials—these and such other paraphernalia as go to make up the stock-in-trade of the quack, are used by Samuels in his process of swindling the sick and humbugging the helpless. He emphasizes two points in all his advertising claptrap. First he wishes to treat only "hard cases, cases that the regular doctor can do nothing for;" second, he wants it generally known that he has been arrested many times for irregular practice.

Samuels' "remedy" consists of an "eye water" which is claimed to have cured ovarian tumor, "paralysis of the optic nerve," deafness, tuberculosis and various other ills. Two specimens of the "eye water" alleged to be used by Samuels have been sent in by correspondents, from whom we learn that \$25.00 an ounce is charged for the stuff. A cursory examination of both samples has been made in the Association laboratory and our chemists report as follows:

"Each of the two samples of the solution alleged to be used by Professor Samuels was a colorless, slightly turbid liquid having a salty taste. Each gave tests for sodium, chlorid, sugar and a trace of sulphate. In neither were metals such as arsenic, copper, lead, iron, etc., present and in neither could any potent alkaloids be detected.

"One of the samples examined was too small to make a quantitative test practicable. Examination of the larger sample showed that the sodium chlorid and sugar were each present in about the same quantity, viz., 7.5 grams in 100 c.c. (about 35 grains to the fluid ounce).

"The following formula gives a solution which is practically identical with the larger sample examined:

- Table salt10 ounces
- Sugar10 ounces
- Hydant water 1 gallon

"Approximate value 6 cents a gallon; alleged selling price \$25.00 an ounce."

The absurdity of attempting to cure consumption, the morphin habit, ovarian tumor and scores of other pathologic conditions, by merely dropping a weak solution of salt and sugar in the eye, would seem sufficiently apparent to render quackery of that sort unprofitable. So it would be, were it not for the credulity and unflinching optimism of the chronically ill toward all new "treatments." Samuels' reasons for wanting to "treat" chronic diseases are evident. The quack who attempted to relieve a man's toothache or headache by

Photographic reproduction (greatly reduced) of a two-column advertisement of "Professor" Samuels.—From the Boston American.

powers. Magnesium peroxid in contact with water also forms an alkaline body, magnesium hydroxid, but which is a much weaker alkali than sodium hydroxid and correspondingly less active in decomposing the hydrogen peroxid present; for this reason magnesium peroxid is not so powerful an oxidizing agent as sodium peroxid. Zinc peroxid forms the weakest alkaline solution of all and is the least powerful oxidizer of the peroxids under consideration.

From this it appears that the energy of the oxidizing powers of different peroxids varies in direct ratio to the alkalinity of the solution produced in their decomposition. The variation in the alkalinity of the solutions formed, affects the therapeutic uses of the peroxid. Sodium peroxid is not desirable for therapeutic use because of the formation of the strongly alkaline solution of sodium hydroxid (caustic soda). Magnesium and zinc peroxids, on the other hand, yield weakly alkaline solutions and are for that reason more desirable.

ADVANTAGES CLAIMED

The advantages claimed for the peroxids of sodium, magnesium and zinc are that they can be used for the extemporaneous preparation of an oxidizing solution and that zinc and magnesium peroxids in contact with the moist surface of a wound or mucous membrane slowly liberate oxygen, *in situ*, at the point where it is most needed.

The claims regarding the value of these peroxids made by the manufacturers of these products, however, are not confined to such statements as the above, but are much more extravagant, wonderful properties being ascribed to the preparations.

A firm, which specializes in the manufacture of peroxids and which has advocated their promiscuous introduction in toilet preparations for the cleansing, bleaching and beautifying of the feet, teeth, face, hands, and nails and for the "rejuvenation of the skin," has made the following statements in advertising pamphlets:

"Biologically, magnesium peroxid may be found to be a useful factor in cell formation, inasmuch as oxygen is essential for the growth of the protoplasm."

It has also been stated that it is "... a preventative of typhoid fever." Zinc peroxid has been claimed to be a "preventative of tetanus" and also "a skin food."

MAGNESIUM PEROXID AS FOUND ON THE MARKET

Magnesium peroxid is one of the preparations which was recommended for inclusion with the next pharmacopeia, by the Section on Stomatology of the American Medical Association, at the Sixtieth Annual Session, at Atlantic City, June 1909, and it is for this reason, of special interest to physicians. To determine the composition and state of purity of the available brands of commercial magnesium peroxid, their chemical examination was taken up by us in the Association laboratory.

The results of a preliminary examination of specimens of magnesium peroxid were submitted together with a tentative description to the firms whose labels appeared on the specimens. In view of the results found and of the criticism with which the descriptions met it was considered advisable to take up again the examination of magnesium peroxid, with the special object of determining the keeping quality of the product. Accordingly fresh specimens were purchased and also solicited directly from the firms marketing the product. In response to the request the Mallinckrodt Chemical Works, Powers, Weightman, Rosengarten Co., and the Roessler and Hasslacher Chemical Co. sent specimens, for which appreciation is at this time expressed. Specimens bearing the labels of these firms were purchased at the same time on the open market and were examined with the submitted specimens. At the same time samples of each of the six specimens were placed in small vials which were completely filled and tightly stoppered, and samples of the specimens purchased on the open market were placed in wide-mouth bottles with loosely-fitting stoppers and all set aside for six months, at the end of which time they were all again examined.

RESULTS OF EXAMINATION

Physically, the six specimens were practically identical, each being a light, white, tasteless and odorless powder, practically insoluble in water. Each sample was soluble in dilute acids, yielding a solution which responded to tests for peroxid, magnesium, chlorids and small quantities of sulphates, iron and calcium. The specimens also responded to tests for carbonate. In no case were heavy metals, such as lead, copper, arsenic, etc., found.

As the value of magnesium peroxid depends chiefly on its peroxid content, assays were made to determine the total available oxygen in each specimen and the results calculated to magnesium peroxid. The following table contains the magnesium peroxid content calculated from the available oxygen found both at the time the specimens were received and again six months later:

Brand ¹	Source	MgO ₂ content as received	MgO ₂ content 6 months later ²	
			A	B
R. & H.	Market R. & H.	14.66	14.44	14.33
		25.18	18.26	.....
Mall.	Market Mall.	17.43	17.15	16.90
		15.56	15.28	.....
P. W. R.	Market P. W. R.	12.17	11.20	11.50
		15.45	14.63	.....

1. "R. & H." refers to the Roessler and Hasslacher Chemical Co., "Mall." refers to Mallinckrodt Chemical Works and "P. W. R." refers to Powers, Weightman, Rosengarten Co.

2. A—Specimens kept in vials completely filled and tightly stoppered. B—Specimens kept in vials partially filled and loosely stoppered.

These results show that the obtainable specimens of magnesium peroxid vary widely in their peroxid content and that the specimen containing a large amount of peroxid deteriorated rapidly on keeping; and that magnesium peroxid keeps equally well whether stored in completely filled, well stoppered bottles or in partially-filled, loosely-stoppered bottles.

THE CHLORID CONTENT

In making the qualitative test for chloride it was found that some specimens contained relatively large quantities of this impurity and accordingly the chlorid content was quantitatively determined with the following results:

Brand	Source	Chlorid (Cl) Per cent.
R. & H.	Market	6.89
	R. & H.	0.21
Mall.	Market	1.65
	Mall.	0.16
P. W. R.	Market	Trace
	P. W. R.	2.56

The results of this examination show that while the chlorid content varies rather widely, one specimen is practically free from this impurity. It is also interesting to note that, with the exception of one brand, the specimens sent by the firms contained less chlorid than the specimens purchased on the market.

WHAT THE RESULTS SHOW

The results as a whole show that the commercial magnesium peroxids vary considerably both as to composition and stability and they also show that magnesium peroxid of an acceptable state of purity and stability can be manufactured. The above examination demonstrates the need of a standard for magnesium peroxid and accordingly a tentative minimal standard of 15 per cent. real magnesium peroxid (MgO₂) with limits for permissible amounts of impurities was submitted to the three firms whose products were examined. In reply the Mallinckrodt Chemical Works pointed out "that magnesium peroxid deteriorates quite rapidly after manufacture until it reaches about 15 per cent., at which point it remains constant and stable," a condition practically found. Regarding the same point the Roessler and Hasslacher Chemical Co. wrote: "The amount of 15 per cent. magnesium peroxid is rather low to stamp it as standard," yet a specimen bearing the label of this firm, purchased on the market, was found to contain somewhat less than this amount.

A SUGGESTED STANDARD

Considering the available data together with the results of this examination it is recommended that magnesium peroxid be required to comply with the following provisional description:

Physical Characteristics.—Magnesium peroxid is a white, tasteless, odorless and amorphous powder, practically insoluble in water, but soluble in dilute acids.

Chemical Characteristics.—If about 1 gm. magnesium peroxid be dissolved in 25 c.c. dilute nitric acid and 2 c.c. tenth-normal silver nitrate added to the solution and the resulting precipitate filtered off, the further addition of a few drops of silver nitrate solution to the filtrate should not produce a turbidity (limit of chlorids).

If about 1 gm. magnesium peroxid be exposed to the full heat of a Bunsen flame for five minutes, then dissolved in 25 c.c. dilute hydrochloric acid and the solution made up to 100 c.c., a solution will result which will conform to the following tests:

Ten c.c. of the solution saturated with hydrogen sulphid should yield no precipitate, nor become colored (limit of heavy metals).

Ten c.c. of the solution to which 10 c.c. ammonium chlorid solution and ammonium hydroxid in excess have been added, should yield not more than a turbidity on the addition of ammonium carbonate (limit of calcium).

Ten c.c. of the solution should yield not more than a turbidity on the addition of barium chlorid solution (limit of sulphates).

Ten c.c. of the solution should not immediately give a blue color on the addition of a drop of potassium ferrocyanid solution (limit of iron).

If 0.2 to 0.3 gm. magnesium peroxid, weighed into a flask, be dissolved with 20 c.c. dilute sulphuric acid, the solution diluted with 50 c.c. water, the titration of this solution with tenth-normal potassium permanganate should indicate the presence of not less than 15 per cent. magnesium peroxid, MgO_2 . (1 c.c. tenth-normal potassium permanganate is equivalent to 0.00279 gm. MgO_2 .)

Marriages

SIDNEY H. STRETT, M.D., Baltimore, to Miss Mae Green, at Baltimore, November 23.

FRANK L. SUTTON, M.D., to Miss Mary Russell, both of Sedalia, Mo., December 1.

JAMES FITZGIBBON, M.D., to Miss Alice Barbian, both of Racine, Wis., November 24.

HAILEY BEACH LODER, M.D., Boston, to Miss Beatrice Byers, at Indianapolis, December 17.

BJARNE RAVN, M.D., Scandinavia, Wis., to Miss Myrtle Frogner, of Iola, Wis., December 1.

HOWELL SHOENER ZULICK, M.D., to Miss Marguerite Patton, both of Philadelphia, December 7.

CLAUDE WATSON, M.D., Nebraska City, Neb., to Mrs. Sarah Wodehouse of Lincoln, December 7.

CHARLES J. OVERMAN, M.D., Marion, Ind., to Miss Anna Mary Johnson of Urbana, O., December 14.

WILLIAM BARNETT OWEN, M.D., Louisville, to Miss Emily Vance of Lexington, Ky., December 8.

MOSES LANE STRATHERN, M.D., Faribault, Minn., to Miss Anna Ellis of Ishpeming, Mich., recently.

JOSEPH LOUIS RANSOFF, M.D., Cincinnati, to Miss Doris Kaufman of Paris, France, December 11.

ARTHUR CLYDE THORPE, M.D., to Miss Florence Chase, both of Los Angeles, at Lankershim, Cal., November 30.

WILLIAM CAMPBELL POSY, M.D., Philadelphia, to Miss Haddassah Hamilton Felton of Chicago, December 14.

IRA CARLETON CHASE, M.D., Fort Worth, Tex., to Miss Helene Irene Keatinge of New York City, December 15.

DAVID B. KNOX, M.D., Georgetown, Ky., to Miss Susan Parrish Phelps, of Richmond, Ky., at Lexington, December 8.

Deaths

Henry Hutchinson, M.D. Hahnemann Medical College, Philadelphia, 1874; of St. Paul; a member of the State Board of Health since 1894, and for the last nine years its president; a member of the staff of the St. Paul City and County Hospital, St. Luke and St. Joseph's hospitals; a member of the American Public Health Association and Minnesota State Sanitary Association; professor of theory and practice of medicine in the College of Homeopathic Medicine and Surgery of the University of Minnesota; died suddenly in a hotel in Mustapha Superior, Algiers, North Africa, December 1, from heart disease, aged 61.

Alpheus Albert Deering, M.D. Medical School of Maine, Brunswick, 1868; a member of the American Medical Association; once secretary of the Iowa State Medical Society, and for twenty years secretary of the Central District Medical Association; district surgeon of the Chicago and Northwestern Railway Company at Boone, Iowa; formerly postmaster of Boone, a director of the Ericson Library and the Eleanor Moore Hospital; died in the latter institution, December 3, after an operation for disease of the kidneys, aged 65.

Clarke Gapen, M.D. Northwestern University Medical School, Chicago, 1875; a member of the American Medical Association; formerly professor of medical jurisprudence in the Wisconsin State University and College of Physicians and Surgeons, Chicago; for three years superintendent of the Kankakee State Hospital; formerly commissioner of health of Omaha; died at his home in Madison, Wis., December 17, from disease of the heart and kidneys, aged 60.

Ole Tollefson Hoftoe, M.D. Rush Medical College, 1885; a member of the American Medical Association; for several years local surgeon of the Chicago, Milwaukee and St. Paul Railway Company, at Lanesboro, Minn.; and afterward a practitioner of Abererombie, N. Dak., for ten years, and for three years coroner of Richland county; died at his home in New London, Minn., November 13, from carcinoma of the stomach, aged 56.

Thomas M. Chaney, M.D. University of Maryland, Baltimore, 1866; a member of the American Medical Association; acting assistant surgeon in the Army from 1866 to 1867; until five years ago a practitioner of Baltimore; and since then a resident of Chaney; president of the Calvert County Medical Society; died at his home, December 6, from neurasthenia, aged 69.

George E. Goodfellow, M.D. University of Wooster, Cleveland, 1876; of Tucson, Ariz.; a member of the American Medical Association; for five years chief surgeon of the Southern Pacific Railroad lines in Mexico; a surgeon in the Spanish-American War with service in Cuba; died in the Angelus Hospital, Los Angeles, December 7, aged 54.

Thomas Robinson Little, M.D. University of Pennsylvania, Philadelphia, 1900; a member of the American Medical Association; medical director of the Southern Life and Trust Company; died at his home in Greensboro, N. C., in November, from edema of the lungs, consequent on asthma, from which he had suffered for several years, aged 36.

Thomas Coit Fanning, M.D. New York University, New York City, 1861; formerly assistant at the Walters Park (Pa.) Sanitarium; for two terms a member of the board of trustees of Tarrytown, N. Y., and afterward water commissioner; died at Stamford Hall, Stamford, Conn., November 4, from cerebral hemorrhage, aged 70.

E. Lawrence Herriott, M.D. University of Nashville, Tenn., 1860; a member of the American Medical Association; acting assistant surgeon, U. S. Army, during the Civil War; until three years ago a practitioner of Jacksonville, Ill., when he moved to San Antonio, Tex.; died at his home in that city, November 30, aged 77.

Michael F. Gallagher, M.D. Georgetown University, Washington, D. C., 1889; Bertillon identification expert in the Department of Commerce and Labor, Washington; and a member of the Microscopical Society of the District of Columbia; died at his home in Washington, November 25, from angina pectoris, aged 52.

Horace Babcock, M.D. University of Buffalo, 1851; a practitioner of Wisconsin until 1862, when he entered the United States service as surgeon of the Second Wisconsin Volunteer Infantry; after the Civil War, a resident and practitioner of Gowanda, N. Y.; died at his home in that place, December 3, aged 86.

Walter Henry Wentworth M.D. College of Physicians and Surgeons, New York City, 1863; acting assistant surgeon, U.

S. Navy during the Civil War; and for many years a practitioner of Pittsfield, Mass.; died suddenly at his home in Providence, R. I., December 7, from cerebral hemorrhage, aged 69.

Asa King Warren, M.D. University of Michigan, Ann Arbor, 1856; for 30 years a member of the board of trustees of Olivet (Mich.) College; for two terms state representative and for one term senator; treasurer of Eaton county; died at his home in Charlotte, December 9, from nephritis, aged 80.

Charles O. Chester, M.D. University of Buffalo, N. Y., 1876; of Buffalo; a member of the Medical Society of the County of Erie; formerly surgeon of the Charity Eye and Ear Dispensary; a specialist on diseases of the nose and throat; died in the Buffalo State Hospital, November 22, from paresis, aged 54.

Benjamin Coffin Taher, a practitioner of Illinois for twenty-five years; then a resident of California, and for the last twenty years a practitioner of Texas, and a member of the State Board of Health; died at the home of his daughter in Dennison, November 12, from senile debility, aged 97.

Frederick William Kirkham, M.D. University of Cambridge, England, 1882; L.R.C.S., Edinburgh, 1882; L.R.C.P., Edinburgh, 1889; a member of the State Medical Association of Texas; county physician of Cameron county; died at his home in Brownsville, September 19, from uremia, aged 51.

Francis Marion Charles, M.D. Howard University, Washington, D. C., 1894; a veteran of the Civil War; and since 1891 a clerk in the office of the Civil Service Commissioner, Washington, D. C.; died at his home in Washington, November 29, from cerebral hemorrhage, aged 66.

James Edgar White, M.D. Rush Medical College, 1883; one of the organizers and supreme medical director of the Court of Honor; until 1906 a practitioner of Urbana, Ill.; died at his home in Springfield, Ill., December 10, from cerebral hemorrhage, aged 55.

Robert E. VanNaten, M.D. Eclectic Medical College of Philadelphia, 1863; a veteran of the Civil War; postmaster of Cooperstown, Pa., for sixteen years and a school director for twenty-six years; died at his home, December 4, from angina pectoris, aged 70.

Oliver J. Thibodo, M.D. Queen's University, Kingston, Ont., 1857; a pioneer practitioner of Phoenix, Ariz.; for many years a surgeon on transatlantic steamers; died at the home of his daughter in Los Angeles, November 26, from cerebral hemorrhage, aged 76.

Frederick B. McNeal, M.D. Bellevue Hospital Medical College, 1867; a veteran of the Civil War; elected state dairy and food commissioner of Ohio in 1891 and reelected in 1893; died at his home in Troy, November 30, from pneumonia, aged 70.

Henry Hammond Gallison, M.D. Harvard Medical School, 1872; a member of the American Medical Association; and an artist of considerable distinction; died at his home in Cambridge, Mass., October 12, from cerebral hemorrhage, aged 60.

John A. Swope, M.D. Pennsylvania Medical College, Gettysburg, about 1850; representative from Pennsylvania in the forty-eighth and forty-ninth congresses, and later a resident of Washington; died at his home in that city, December 6, aged 82.

Crawford E. Phillips, M.D. Bennett Medical College, Chicago, 1886; a member of the American Medical Association; formerly of Wilton, Wis.; died September 17, at the home of his son in Scott's Mills, Ore., from pneumonia, aged 57.

Simon Peter Burkhardt, M.D. Philadelphia University of Medicine and Surgery, 1872; a practitioner of Blair, Center, and Clearfield counties, Pa.; died at the home of his daughter in Altoona, November 22, from senile debility, aged 75.

Amos Buiton Heard, M.D. Detroit Medical College, 1872; a veteran of the Civil War; for several terms a member of the borough health board of Northeast, Pa.; died at his home, November 17, from valvular heart disease, aged 75.

William C. Van Buskirk, M.D. New York University, New York City, 1854; M. C. P. and S., Ont., 1877; first mayor and for thirty-five years medical health officer of St. Thomas, Ont.; died at his home, November 10, aged 86.

Benjamin Franklin Spurgeon, M.D. University of Louisville, Ky., 1874; a member of the Medical Society of the State of California; died at his home in Chico, November 23, from disease of the kidney and bladder, aged 57.

Joseph C. Rauth, M.D. Detroit College of Medicine, 1903; a member of the Ohio State Medical Association; coroner of

Wyandot County; died at his home in Upper Sandusky, December 8, from typhoid fever, aged 35.

Rudolf S. Dubs, M.D. University of Berlin, Germany, 1893; a member of the American Medical Association; physician to the Bethesda Home; died at his home in Chicago, December 18, from pleuropneumonia, aged 44.

Richard L. Cook, M.D. Medical School of Maine, Brunswick, 1860; of Sturgeon Bay, Wis.; a surgeon of volunteers during the Civil War; died suddenly in the Union Hotel, Sturgeon Bay, December 9, aged 77.

Horace Fabian Kilgore (license, Minn., 1883, exemption certificate); for more than thirty years a practitioner of Luverne, Minn.; died in Lemon City, Fla., September 6, from hemorrhage of the bowels, aged 76.

Ruffin Coleman, M.D. University of Nashville, Tenn., 1869; of Bouvoir, Miss.; a Confederate veteran; died in the Soldiers' Home, Mountain Creek, Ala., Sept. 24, 1909, from disease of the intestine, aged 64.

Bruce Wallace, M.D. Memphis (Tenn.) Hospital Medical College, 1882; a member of the State Medical Association of Texas; died at his home in Houston, July 31, from heart disease, aged 52.

William Francis Hussey, M.D. Tufts Medical School, Boston, 1905; a member of the Massachusetts Medical Society; died at his home in Roslindale, Boston, December 2, from heart disease, aged 29.

David Foss, M.D. Berkshire Medical College, Pittsfield, Mass., 1861; of Newburyport, Mass.; died in the Homeopathic Hospital, in that city, December 2, after a surgical operation, aged 73.

Everett Grover Cleveland Snider, M.D. University of Louisville, 1910; an intern in St. Vincent's Infirmary, Little Rock, Ark.; died in that institution, October 17, from typhoid fever, aged 26.

Frederick Ghostley, M.D. Minneapolis College of Physicians and Surgeons, 1909; who recently assumed charge of a hospital at International Falls; died at Anoka, Minn., May 3, aged 26.

John S. Watson, M.D. Bennett Medical College, Chicago, 1875; for many years a practitioner of Minooka, Ill.; died at his drug store in that place, December 9, from myocarditis, aged 65.

Job Byron Marcus Dickens, M.D. Eclectic Medical College of the City of New York, 1871; died at his home in Newburyport, Mass., December 3, from cerebral hemorrhage, aged 65.

John S. Shrawder, M.D. Jefferson Medical College, 1865; one of the earliest inventors of motor vehicles; died at his home in Collegeville, Pa., December 4, from acute gastritis, aged 71.

John Hugh Walsh, M.D. Medico-Chirurgical College of Philadelphia, 1908; died at his home in Philadelphia, November 28, from tuberculosis of the lungs, aged 34.

A. Procter Sherwin, M.D. New York Homeopathic Medical College, New York City, 1885; died at his home in Suffield, Conn., November 22, from pneumonia, aged 50.

James A. Cullop, M.D. Kentucky School of Medicine, Louisville, 1893; died at his home in Haskell, November 20, from pneumonia.

Correspondence

Prevention of Perforation in Submucous Resection of the Nasal Septum

To the Editor:—Concerning my article, published November 19, Dr. Albert Bardes suggests (THE JOURNAL, November 26, p. 1910) that we "incise the mucous membrane and perichondrium at B instead of at A and retract. Then dissect forward the tissue anterior to the incision and incise the cartilage at A. This allows the flap B to A to cover the stump of cartilage."

It apparently has not occurred to Dr. Bardes that, if his directions are followed exactly, there will be no stump of cartilage to be covered by the flap B to A. In my article I stated that "this projecting ledge of cartilage was found not only to be completely covered over, but also to appear to aid very materially in holding the edges of the wound in close apposition, acting somewhat as a natural splint." Sev-

eral months ago I did a submucous resection in practically the manner described by Dr. Bardes. This one trial showed me that I was immeasurably increasing the difficulty of the operation, and at the same time doing away with the projecting ledge of cartilage, which I had found of such value. Dr. Bardes concludes his remarks with this sentence: "If this is not done the incised membrane undergoes cicatricial retraction and leaves a dry and crusted surface, besides delaying healing." On the contrary, in my cases, more rapid healing and less crusting has been obtained by the method described than by any previous method used.

I must add, however, that my best results have been in three cases in which I have operated within the last few days, in each of which fine silk sutures approximated the edges of the wound.

RICHARD M. NELSON, M.D.,
Colon Hospital, Cristobal, C. Z.

Uniform Size and Card Index for Reprints and Advertisers

To the Editor:—I wish to suggest that THE JOURNAL use its influence to get some uniformity in the size of folio to be used in reprints of various sorts whether put out by authors or (other?) advertisers. If an index card of uniform size were adopted at the same time by advertisers and publishers and sent out with their articles a great deal that goes into the doctor's waste-paper basket would be preserved, indexed and used. I am by no means the originator of this idea but think it worth being called to the attention of the A. M. A. again.

F. W. STARR, Stanley, Wis.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SODIUM CITRATE IN FURUNCULOSIS

To the Editor:—In reply to a communication in this department (Nov. 26, 1910, p. 1911) permit me to inform your correspondent that the formula for sodium citrate, as used in furunculosis in the inoculation department of St. Mary's Hospital, London, where Sir Almoth E. Wright is director and where I was formerly an assistant, is:

Sodii citratis	gr. 2
Sodii chloridi	gr. 20
Aquæ	ʒ 1
Miscæ, Sig.: Apply externally as directed.	

The preferable method of applying this solution is to cut a hole in a piece of oiled silk, or waxed paper, which is just large enough to allow the opening of the furuncle to stick through. Place over this hole a piece of cotton soaked in the solution and cover it with another piece of waxed paper and keep the dressing in place with strips of adhesive. When irritation becomes objectionable leave off for a few hours and resume when it subsides.

F. J. CLEMENGER, Asheville, N. C.

COMPATIBILITIES OF SILVER NITRATE, ALKALIES AND ALKALOIDS

To the Editor:—1. Kindly tell me what exipient I should use in silver nitrate pills. How is it that the silver does not act on the hyoscyamus that is so often prescribed with it?

2. We are told that alkalies and alkaloids should not be combined in a single prescription. If this is the case, should codein be prescribed with potassium iodid or ammonium chlorid? F. A. N.

ANSWER.—1. Silver nitrate should be prescribed in pill form with an inert vegetable powder, such as powdered licorice, with a little gum tragacanth as exipient. These pills should be freshly made. They have the advantage of being readily soluble, but, as silver nitrate acts on organic matter, they are liable to change in time. To obviate this it has been proposed to use wax or paraffin, which produces a mass that does not readily undergo chemical change, but is likely to be only slowly active on account of the insolubility of the exipient. The use of an inorganic powder, such as potassium nitrate or pure precipitated silicic acid, has been suggested. It is probable that kaolin would answer for this purpose and might be made adhesive by a small amount of tragacanth paste. It is probable that silver nitrate acts to some extent on hyoscyamus, if in solution, but if in the dry form, as in pills, there may be little or

no change. In the stomach the silver nitrate probably would combine with the organic matter of the stomach secretion rather than with hyoscyamus.

2. Alkalies are incompatible with the salts of alkaloids because they precipitate the alkaloid from solution. The salts of the alkali metals are usually not alkaline, and do not precipitate the alkaloids as a rule. As an exception, we may note that iodids do precipitate solutions of the salts of some alkaloids. Potassium iodid is not an alkali, but a neutral salt. It will not precipitate solutions of codein, but it is usually safest to prescribe potassium iodid by itself. Ammonium chlorid is a neutral salt and does not precipitate alkaloids. It can, therefore, be used with solutions of salts of codein or with those of other alkaloids without danger of precipitation of the alkaloid.

The Public Service

Medical Department, U. S. Army

Changes for the week ended Dec. 17, 1910.

Mason, George L., D.S., December 2, reported for temporary duty at Fort William H. Harrison, Mont.

Bartlett, C. J., capt., December 9, granted leave of absence for one month and fifteen days.

Huntington, P. W., capt., December 9, orders relieving him from duty in the Philippine Islands revoked.

Eife, James D., capt., December 9, on arrival at San Francisco will proceed to Fort Slocum, N. Y., for duty.

Cutliffe, William O., M.R.C., December 13, reports departure from treatment at Walter Reed General Hospital, Takoma Park, D. C., on three months' leave of absence on surgeon's certificate of disability.

Wing, Franklin F., D.S., December 7, ordered to proceed from Fort D. A. Russell, Wyo., to Fort Crook, Neb.; thence to Fort Omaha, Neb.; thence to Fort Des Moines, Iowa, for temporary duty.

McFord, Donald P., M.R.C., December 10, relieved from duty at Fort Ward, Wash., and ordered to Fort George Wright, Wash., for duty.

Demmer, Charles C., lieutenant, December 10, relieved from duty at Fort Thomas, Ky., and ordered to Schofield Barracks, H. I., for duty on transport sailing from San Francisco March 5, 1911.

The following named officers of the Medical Corps are detailed to take the course of instruction at the Army Field Service School for Medical Officers, Fort Leavenworth, Kan., beginning about April 1, 1911: Reynolds, Frederick P., major; Fautleroy, Powell C., major; Clayton, Jere B., major; Bispham, William N., major; Bevans, James L., captain; Thompson, Henry D., captain.

Ramsey, William H., C.S., December 8, left Omaha on thirty days' leave of absence.

Craig, Charles F., capt., December 12, detailed to represent the Army at the meeting of the American Association for the Advancement of Science, to be held at Minneapolis, Minn., Dec. 27 to 30, 1910.

Kelly, John P., M.R.C., December 12, on arrival at San Francisco will proceed to his home. Lieutenant Kelly is relieved from active duty in the Medical Reserve Corps, to take effect on the expiration of his leave of absence.

Edwards, George M., lieutenant, December 13, will make one visit per week for a period not to exceed two months, beginning Dec. 19, 1910, to New York City, for the purpose of making a special study of eye refraction.

Hefebower, R. C., lieutenant, December 14, relieved from duty at Fort Hamilton, N. Y., and ordered to Army General Hospital, Fort Bayard, N. Mex., for duty.

Long, Charles J., D.S., December 9, reported for duty at Fort Andrews, Mass.

Birmingham, H. P., lieutenant-col., and Kean, Jefferson R., lieutenant-col., December 14, detailed members of an Army retiring board to meet at Washington, D. C.

Brown, Henry L., capt., December 8, left Fort Morgan, Ala., on fifteen days' leave of absence.

Talbot, E. M., capt., December 13, left Fort D. A. Russell, Wyo., on eighteen days' leave of absence.

Weed, Mark D., lieutenant, December 13, left Walter Reed General Hospital, Takoma Park, D. C., on ten days' leave of absence.

Medical Corps, U. S. Navy

Changes for the week ended Dec. 17, 1910.

White, E. C., P. A. surgeon, detached from the naval hospital, Mare Island, Cal., and ordered to the *Ficksburg*.

Bello, J. A., asst.-surgeon, detached from the *Ficksburg* and ordered to duty at the naval hospital, Mare Island, Cal.

Woodward, J. S., P. A. surgeon, ordered to duty at the naval hospital, Mare Island, Cal.

Smith, H. L., P. A. surgeon, detached from the naval hospital, Mare Island, Cal., and ordered home to await orders.

U. S. Public Health and Marine-Hospital Service

Changes for the seven days ended Dec. 14, 1910.

Brown, R. W., surgeon, relieved from duty at Vineyard Haven, Mass., and directed to proceed to Hongkong, China, for duty.

McVay, G. W., P. A. surgeon, orders to proceed to Honolulu, T. H., revoked.

De Vallin, H., P. A. surgeon, relieved from duty at Havana, Cuba, and, on the return of P. A. Surgeon J. S. Duggess, from leave of

absence, from temporary duty at Chicago, and directed to proceed to San Francisco and report to Surgeon Rupert Blue for duty.

Thompson, L. R., asst.-surgeon, directed to proceed to Almena, Wis., on special temporary duty.

Brooks, S. P., acting asst.-surgeon, granted seven days' leave of absence from Dec. 12, 1910, under paragraph 210, Service Regulations.

Foster, S. B., acting asst.-surgeon, granted fifteen days' leave of absence from Dec. 17, 1910.

Tarbell, B. C., acting asst.-surgeon, leave of absence for thirty days from Dec. 1, 1910, revoked.

Board of medical officers convened to meet at Fort Trumbull, New London, Conn., Dec. 9, 1910, for the physical examination of cadets of the Revenue Cutter Service, to determine their physical fitness for promotion. Detail for the board: Passed Assistant Surgeon G. L. Collins, chairman; Assistant Surgeon H. J. Warner, recorder.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

REFRACTING OPTICIANS, THE PUBLIC AND THE MEDICAL PROFESSION

James Thorington, M.D.

PHILADELPHIA

When opticians first applied to the state legislatures for regulation, the medical profession paid little attention, considering it a move to regulate a trade. Soon, however, the opticians commenced calling themselves "optometrists," and their trade a "profession"; i. e., "optometry." Then "optometry boards of examiners" took the right to ask medical questions and thereby made themselves a medical examining board. This fact was and is conspicuously evident as shown in the numerous medical questions asked in examinations given by these "optometry boards."

As soon as the medical profession had its attention drawn to this inroad of the non-medically trained on the field of the profession and the American Medical Association had passed resolutions¹ against further enactment of such vicious legislation, then such states as Massachusetts, Connecticut, Missouri, Texas, Ohio, Illinois and Maryland defeated the attempts of the so-called "optometrists."

It is important at this time to call the attention of the medical profession to the fact that refracting opticians have commenced their campaign. Petitions in favor of optometry legislation are being circulated among business men and physicians. The *Keystone Magazine*, for December, 1910, prints some of these petitions beginning: "To the Members of the Legislature: We the undersigned business men in your district, etc." and "To the Members of the Legislature: We the undersigned physicians in your district, etc."

A new legislative campaign is to be conducted in order to get optometry laws enacted in the twenty-four states that have no such laws as yet.² Unquestionably, a number of these bills will be submitted to the legislatures in a number of states during the coming winter. So far from having the endorsement of any physician, they should be met with rigid disapproval and condemnation. There is no necessity or justification, either legal or economic, for any such laws, nor can any argument in favor of them be made which is not founded on sophistry.³ Just as soon as "refracting opticians" receive "recognition" by the passage of an optometry bill, they immediately assume and advertise themselves as on an equality with members of the medical profession, whereas they are not medically trained, and the public is correspondingly deceived. This fact is well evidenced in an optician's circular at hand from which we quote the following:

"We are to-day approved and accepted as STANDARDS by special optometry laws in twenty-four states which now recognize the practice of optometry equally with that of medicine."⁴

The optometry bill, so-called, legalizes prescribing for eyes by men who are not members of the medical profession, such as opticians, lens-grinders and jewelers. A very considerable proportion of defective eyes are the result of disease or abnormal conditions of the body. This being the case, a bill which licenses an optician to prescribe for conditions which can be recognized and treated only after years of study and training in medicine, may legalize the doing of an irreparable injury. Under the provisions of this bill, practically any man who has made and ground glasses for a period of two years before the passage of this bill can be admitted as a licensed refracting optician. Under this license, without even a smattering of medical knowledge, he can prescribe for the eyes of a man who is suffering from Bright's disease, or from rheumatic troubles, which diseases, and others also, directly affect the eyes, although he knows nothing about the particular disease or the general principles of anatomy, physiology and pathology. Moreover, this bill not only licenses a host of incompetents but it takes away from them all chance of prescribing correctly. Under the provisions of this bill, opticians are not allowed to put drops in their customers' eyes. It is the almost unanimous consensus of opinion among the text-book writers and ocular authorities that the majority of individuals under 35 years of age cannot have their eyes accurately measured for glasses without the use of drops.

By allowing non-medically trained persons to prescribe without this safeguard, inaccurate and harmful measures are legalized by statute. It is the province of the optician to grind lenses in accordance with the prescription of a trained doctor. He has no more business to prescribe for diseases of the eye or to attempt to treat abnormal conditions of the eye than has a shoemaker or glovemaker to treat diseases of the feet and hands. The medical profession, the better class of opticians and the majority of the thinking members of the laity are opposed to these bills because they do not believe in creating a doctor by statute rather than by study and training, and, especially, because the proposed bill not only legalizes incompetent men but also legalizes incompetent methods which are against the weight of all medical authority. For the above reasons the bill has failed to pass in a number of states, namely, Massachusetts, Connecticut, Pennsylvania, Illinois, Maryland, Texas, New Jersey, Missouri and Ohio. In most states where it has passed it was rushed through before the public had been aroused to its evils. It is to be hoped that no measures will become a law which will put the eyes of citizens beyond the pale of medical assistance.⁴

The purpose of this article is to endeavor to explain to the general practitioner that it is his personal duty to himself, his patients and to the medical profession, to oppose, in every way possible, the entrance into the practice of medicine of those who are not medically trained but who would practice on the body as a whole or specialize on any particular organ. As refracting opticians attempt to do the work of ophthalmologists, the great majority of general practitioners immediately get the impression that the passage of optometry legislation does not concern them, though it should be opposed by the ophthalmologists themselves. When it comes to an argument before committees on legislature, the members of the legislature conceive the idea, as general practitioners do not appear with the ophthalmologists in opposition to optometry bills, that it is a case of jealous rivalry. The true explanation of the successful passage of optometry bills in several states is found in the fact that the medical profession did not offer unanimous opposition. Disapproval has been left entirely to ophthalmologists. Naturally ophthalmologists have led the opposition, but only to explain, in detail, the folly of trying to treat the eye without taking the rest of the body into consideration, the impossibility of treating it adequately under such conditions, and also the irreparable harm that may follow from allowing non-medically trained individuals to prescribe for and diagnose diseases of this very important organ. If members of the medical profession had joined ophthalmologists in this endeavor to keep out of the profession those who are not qualified by a course of medical training and a state medical license, the refracting opticians would never have made any inroad into the profession. General practitioners could

1. The Attitude of Physicians on Optometry Laws, THE JOURNAL A. M. A., Oct. 3, 1908, p. 1169.

2. New York Times, Sept. 4, 1910.

3. Pennsylvania Med. Jour., October, 1910.

4. Thorington: Philadelphia Public Ledger, Feb. 19, 1909.

assist the cause of the medical profession if they would instruct their patients in the difference between an examination of their eyes by a specialist who is a doctor and one by the optician or jeweler who parades under the new name of "optometrist" and has never qualified in medicine. General practitioners also could assist by explaining to members of the legislature the interest of the commonwealth in having the eyes of the public, and particularly of children, protected by the members of the profession, and the importance of eyesight to the welfare of the community; also the fact that commercialism does not govern the practice of ophthalmologists, whereas it is a most conspicuous element in the work of the refracting optician.

This communication has been prompted especially by the reading of the excellent illustration of the dangers of optometry by Dr. Janeway.⁵

Surely every ophthalmologist can relate similar instances by the score. Only to-day, a telegraph operator was referred from a neighboring city with a history that he had purchased six pairs of glasses in the last eighteen months prescribed by opticians on account of a severe pain in the right eye. His eyes were found to be practically standard and no glasses necessary. Transillumination and inspection by a rhinologist revealed pus in the right frontal sinus as well as the right antrum, together with nasal polypi.

Instances of glasses having been prescribed by opticians when glasses should not have been ordered are not infrequently seen in private practice and in the clinic. This unfortunate condition of affairs can never cease until the profession demands protection for the citizens of the commonwealth; but the profession must unite and stay united in this demand. It would be a misfortune if the attempt should be neglected too long. If we do not bestir ourselves we shall find our profession sinking every year into deeper depths of restriction and degradation. Doctors do not need to regret the competition of each other, for, if this be fair, it is a stimulus rather than a hurt. The competition that really hurts is from the outside; it is the competition of persons who have never been trained or educated in medicine but who ignorantly attempt to treat patients and to heal the sick.⁶

Society Proceedings

PHYSICIANS' CLUB OF CHICAGO

Regular Meeting held Dec. 2, 1910

DR. JAMES B. HERRICK in the Chair

MEDICAL EDUCATION IN ILLINOIS

The Relation of the University to Medical Education

DR. EDMUND J. JAMES, president of the University of Illinois: I became interested in the subject of education thirty-five years ago when a student of public administration in a German university. Organized society is greatly interested in the health of its citizens, because good health on the part of the body physical is the basis of any good health in the body politic or body social. The health of the citizens depends largely on a sound sanitary policy on the part of the state. A sound sanitary policy can not be carried out by the state without controlling and regulating in many ways the external acts of members of the society. The supreme importance of the medical profession in the history of human society is shown by the records of human experience. As the state developed a definite policy in regard to public health, it came face to face with two aspects of this very necessary development. First, a need of the results of medical education and research in order to carry out a definite policy in public health so far as it interfered with the regulation of the life of the people or the promotion of its common interests, and, second, the necessity of providing for the promotion of the health of its individual citizens outside of the realm of government interference. In order to carry out its sanitary policy, the state needed well-trained servants. The medical men who are going to be good advisers of the government in its sanitary policy, must be men of wide outlook and of great experience. They must be statesmen as well as physicians. Therefore the physician should be a man of liberal education. Twenty-five years ago Dr. William Pepper, provost of University of Pennsylvania, appointed a general university committee to take up the subject of the better integration of the professional schools of the university with the college and technical schools. I was associated with the subcommittee on the medical school, and recommended at that time that the university require for admission to its medical school a completion of the sophomore year in the college of liberal arts, and that a medical course of five years be inaugurated, the first two of which, corresponding to the last two of the college course, should be given to the study of the underlying sciences of medicine—chemistry, physics, biology, anatomy and physiology; that the last year should be devoted to hospital work and the two intermediate years to clinical instruction. I was convinced that, on the whole, the Germans had worked out the best scheme of medical instruction. This scheme consisted, first, in a very thorough, vigorous, intellect-developing secondary school course, extending in theory from the ninth to the eighteenth year of age, extending in practice from the ninth to the nineteenth or twentieth. With this preliminary education the student was permitted to begin his medical study. At that time it was possible for him to complete the entire course in a period of four years. That period has since been extended to five years. But even in that day the desirability of a student spending a year in hospitals immediately on passing the state examination for the practice of medicine was so generally felt that every aspiring young-ster took such a year, if it were feasible for him to arrange it.

The future physician should be an educated and cultured gentleman, able to do his part as a thoughtful citizen of a democracy in the support and development of our social and political institutions. Physicians, if of the right type and inspired with the right ideals, may do more to raise social and political standards than members of any other profession.

He should be trained in a thoroughly scientific way. On the basis of this scientific training should be reared the superstructure of the practical application of this knowledge to the treatment of human disease. If the university will set before the community and insist on a standard of; first, a liberal

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Fifth Month—Third Weekly Meeting

II. INFLAMMATIONS OF THE SKIN (CONTINUED)

- DERMATITIS SEBORRHOICA: Symptoms, lesions, locations, course, Treatment.
- IMPETIGO CONTAGIOSA: Symptoms, lesions, characteristics, Diagnosis.
- DERMATITIS HERPETIFORMIS: Symptoms, Varied lesions, course, Diagnosis.
- HERPES SIMPLEX: Locations, lesions.
- HERPES ZOSTER: Lesions, Regional distribution, Treatment.
- LICHEN PLANUS: Symptoms and diagnosis, Treatment.
- LICHEN RUBER ACUMINATUS: Symptoms.
- ACNE: Age, frequency, characteristics, distribution, course, Acne punctata, a. papulosa, a. pustulosa, Acne indurata, Treatment: General, local, vaccine.
- ACNE ROSACEA: Age, frequency, location, Rosacea, followed by acne, Third stage.
- SYCOSIS VULGARIS: Sex, age, lesion, distribution, Treatment.
- PSORIASIS: Frequency, age, sex, heredity, Primary lesions, development, distribution, Psoriasis punctata, p. guttata, p. nummularis, p. circinata, p. gyrata, Treatment.
- PITYRIASIS RUBRA: Symptoms, diagnosis.
- PITYRIASIS ROSEA: Symptoms, diagnosis.

5. Janeway, T. C.: THE JOURNAL A. M. A., Nov. 19, 1910, p. 1828.

6. Whery, William P.: Before the Fort Wayne (Ind.) Medical Society, January, 1909.

education; second, a thoroughly scientific training; third, a practical training, then it will have done all that it can do toward preparing and sustaining a medical profession for this great work in the community and the state. I have been greatly pleased with every passing year to see some approximation toward this ideal. I believe that it is fundamental to any possible organization of medical education in this city or this state, that the State of Illinois as a unit should get behind this cause. The state should be supporting medical research and training just as completely and fully as it is supporting agricultural research and training, or engineering research and training, or legal research and training. If we all pull together and get the state to take this initial step, we shall have made the most important advance in this subject which has been thus far registered. For my part I am willing to sacrifice some other things in which I am greatly interested, or at least to postpone adequate provision for these things, in order to make this great step in advance.

If the commonwealth of Illinois will begin the policy of supporting medical research and medical training through the University of Illinois, I believe we shall have made another great step forward toward the time when the City of Chicago will be a recognized center of medical research, medical training and medical skill second to none in this country or, indeed, in the world.

How Can Illinois Obtain Higher Standards of Medical Education?

DR. F. F. WESEROOK, dean of the College of Medicine and Surgery of the University of Minnesota: The health of the individual is not his concern alone; public health is the concern of the public. The state has an interest in every man's condition of health. The means which the individual employs to preserve his health or to cure disease is the business of the public just as much as is the financial standing required for taxation or compulsory schooling of the individual. The public should demand that it be protected against dishonesty, ignorance and incompetence on the part of those whom it would trust with the care of its personal and public health. Everything in which medicine plays a part is public business.

The physician should be a teacher. He should be trained what to teach and how to teach. The honest scientific medical man should always be able to make clear and logical to the layman the basis of his action or his advice in both private or public practice. To bring about results in the various lines of medical activity, we must supervise, first, the foundation of instruction preparatory for medicine. Second, there is the medical training. No matter what specialty is provided, a general knowledge of medicine is essential. Third, a further training in the particular specialty to be taken up.

As to pre-medical training, a knowledge of physics, biology and chemistry is very essential and the acquirement of a modern language is desirable. A knowledge of ethics and of psychology is useful; also a knowledge of the duties of the individual to society as a whole, and that means a knowledge of economics. This is necessary for the individual whose later studies are to be confined to pathologic or perverted structures and functions, whose practical work in life will consist in giving advice and treatment which may call for a readjustment of the habits of the individual. Since medicine of the future will require a great many trained specialists, the medical college should be prepared to offer all students some broad general instruction in many lines not heretofore included in the medical curriculum. The student should receive sufficient information to select wisely his future field of activity and acquire his knowledge and experience before entering that particular field. We must have special training for those who are to become specialists in certain branches, such as surgeons, medical health officers, medical school inspectors, sanitarians, superintendents of hospitals, and medico-legal experts. For all these specialties the university should be the clearing house. A university education is surely a state function, and a state university can and should be made the experimental arm of the state service.

In Minnesota our course has been increased, so that now we have two years of academic work and five years of medical

work. All students who take the fifth year must spend it in a hospital approved by the state. These hospitals will be standardized and required to have certain laboratory facilities, to keep proper clinical records, and to do scientific work. We expect also to have courses in public health and medical school inspection in the university. We hope to have a department of hygiene developed under the auspices of the medical college, and, if the need should arise for it, to have a school or college of public health as distinguished from a school of medicine.

DISCUSSION

DR. ARTHUR DEAN BEVAN: I have been asked to open the discussion on these papers on the subject of the needs of Illinois in medical education, and the method of obtaining higher standards of medical education. Before we answer either of these questions, let us see what medical education means to-day not only here in Illinois, but in the United States and in the world. Medicine of to-day is a different proposition from what it was twenty years ago. At that time it was a mass of empirical facts, with very little scientific basis. To-day medicine is just as much a science as is chemistry, physics, or any of the sciences taught in a university, and it has developed into a great mass of useful knowledge. To-day medicine demands a thorough training in order to convert a student into a competent practitioner, a competent medical teacher, or a competent research man. That training as a minimum means a thorough secondary school training; a thorough training in the pre-medical branches of chemistry, physics and biology; a thorough training in the medical school, mostly laboratory work in anatomy, physiology, pharmacology and pathology; a thorough training in the clinical branches of medicine, obstetrics, surgery, and all the specialties. It means, furthermore, besides the course in a medical school, a training that the student can acquire only by spending at least one year as an intern in a hospital. That is practically the conception of medicine to-day in Germany, in Austria and in England. It is the conception also in most of our better schools.

Here, in this country, we have 130 medical colleges. A few years ago we had 166. Of these 130 medical colleges thirty-eight this year required of their students this preliminary training in the pre-medical sciences in addition to the four-year high school course. In these thirty-eight medical schools most of the students also obtain a year's experience in a hospital. I should like to see the hospital year made compulsory by every medical school.

I have shown the general conception of what medicine is to-day, and what a medical education means. Let us turn to the State of Illinois. All the medical schools in Illinois are located in Chicago, and this state has more medical schools than any other state or country in the world. There are now sixteen institutions in Chicago which turn out graduates who bear the title of doctor. Of these sixteen colleges, there are five which turn out doctors who legally, at least, are limited in their practice, and there still remain eleven schools which turn out doctors of medicine. Of these eleven medical schools, even on a very lenient marking only six could be included in Classes A and B by the Council on Medical Education which for nearly six years has been conducting an extensive study of medical education in the United States. Only three of these were accepted according to the Carnegie Foundation report. There are, therefore, on this very lenient marking five medical schools in Chicago which the Council on Medical Education could not under any circumstances include among acceptable colleges. These five medical schools are deficient in most or all of the following: Their preliminary requirements do not meet the standard of the medical practice act; their medical course is not strictly graded; the number of expert teachers is too limited or entirely wanting; adequate laboratory facilities are lacking or not used; important laboratory branches are not taught; dispensary and hospital clinical facilities are seriously deficient, absent or not used, or the school is to a large extent a commercial enterprise conducted for what profit or prestige there may be in it for its professors, or it is kept alive by the employment of misleading advertisements or by methods inconsistent with the maintenance of fair educational standards.

In other states reasonably high standards of medical education have been adopted and the present standards are strictly adhered to. A number of low-grade worthless colleges have been closed. In many other states there has been marked progress in obtaining better educational standards and better methods of regulating medical licensure. Illinois needs in medical education these things: fewer and better medical colleges; a more strict enforcement of the present requirements; a four-year high school education as a minimum standard for admission to medical colleges, and later a year or two of college work should be added to the preliminary requirement, this to include physics, chemistry and biology. As an additional safeguard, a thorough and practical examination should be required of every candidate for license. With these changes, the other problems concerning laboratory, dispensary and hospital facilities, would more rapidly approach solution. Illinois should not lag behind, but should be a leader in upholding right standards of medical education.

All this is not so much an indictment of the state board, which is shown by existing conditions to be inefficient, as it is an indictment of the entire educational system of the medical profession and of the people of the state. The solution of this problem is simple. We need a university education to provide educated medical men for the State of Illinois, and we simply demand the protection by an efficient state board against the worthless commercial medical college and the diploma mill.

MR. ARTHUR HERBERT WILDE (Northwestern University, representing President Harris): Northwestern University takes pride in its medical school. It was the first to establish a three-year systematic course of instruction, and also a four-year course, and it did this at great sacrifices. We all stand for higher medical education. That involves several things. First, it involves better prepared students. Northwestern University will require in the Fall of the coming year (1911) a two-year college course as a preparation for the medical course. These two years of college work will better prepare the student for his life work. Besides the well-prepared student, however, we must have well-prepared teachers. We want also more of the German patience and spirit of investigation. We must have complete laboratory facilities such as few schools possess at the present time. We must have certain enthusiasm for the work. I really believe we never shall prepare students and teachers and good laboratory men without the real spirit of higher medical education which is found in enthusiasm. Every school ought to have such laboratory equipment as the University of Chicago provides for Rush Medical College. It ought to have such endowment as Northwestern University has just received from Mr. Patten, who has given two hundred thousand dollars for the purpose of advancing medical research work, and every medical school should have also such enthusiasm as has been infused into the medical school of the University of Illinois by President James. Every school must have endowments. Medical schools are going to furnish a more expensive education, and this expense must be provided for by resources entirely outside of the fees of students. As to the request that is being made by the state university of the legislature Northwestern would say that an appropriation of one hundred thousand dollars is too small. If the state university takes up medical education in a thorough-going manner, it ought to ask a much larger grant.

The state university in its expansion work in medical education might provide lecturers to go from place to place and give lectures in preventive medicine, or first aid to the injured, or some preliminary steps that should be known in every household before a doctor arrives. Public sanitation and domestic sanitation should be taught the people as freely as they are taught agriculture. The City of Chicago should have a Pasteur institute or a Rockefeller institute of research, something as great as either. The resources for the establishment of such an institution in this state are as great as can be found anywhere in the world. The faculty or trustees of Northwestern University would welcome and appreciate as much as any one a college or institute of medical research within the present state university. We have a hearty interest with you in the progress of medical study and medical research, for we are here for the common purpose of enlighten-

ment of the state, and we want to serve our day and generation in our way just as faithfully as we hope the other institutions will serve it in their way.

DR. HARRY PRATT JUDSON, president of the University of Chicago: When we consider the training of young men for medicine in the coming days, we must bear in mind that we have made a tremendous advance in science in the last few decades. Never in the history of the world has science moved so rapidly as now. A young man who is to be a physician must, therefore, have a sound training. A highly trained expert medical man is much more than a mere practitioner. He knows what is going on and how to lend a hand in the right place in the development of modern progressive society, and there will be, therefore, from the highly trained physicians of the future those who will be leaders of social development. There will be, I fancy, a smaller number of men whose genius lies along the lines of scientific medical research. Of course, physicians in general will do more or less of that, but there will be some few who are so trained and who are so expert, and whose enthusiasm is so great, that they will devote themselves, heart and soul, to this one fascinating, fruitful line of medical development. We need such men. In the years to come the advance of medical science will lie largely in the hands of such men. The amount of training to be given young men in these lines cannot be adequate with less than two years of college work as a foundation, and that I believe to be the minimum to-day in the minds of the best men who are connected with our medical schools. It is more important that medical schools should have a small number of properly prepared students than that they should have a large number of ill-trained students. The men who take more time in preparation will be the men of standing in the community.

REV. H. S. SPALDING (Loyola University): With regard to raising the standard of education, we believe in it. We look on Germany as the country that fits in perfectly with our system of education, and any standard that reaches toward that will meet with our approval. I want to say for Loyola University that we have as high ideals as any, and we are willing to work with you and for you in the enforcement of preliminary standards.

MR. W. D. ATMATTER (member of the Legislature of Illinois): This demand for a higher education is serious and ennobling. The king of the corn market (Mr. Patten) gave two hundred thousand dollars to Northwestern University for higher medical education, and I propose that the State of Illinois, which yields a larger corn crop than any other state, should at least give that much for this worthy purpose.

MR. WALTER CLYDE JONES (state senator): I was surprised to find how important it is that the advocates of legislation and its opponents should be in Springfield. If the Illinois State Medical Society and other medical associations are in favor of definite legislation, it is important not only to educate public opinion so that the people will support the physician, but also to send men to the legislature to appear before committees of that body to educate them. It is impossible for any member of the legislature to grasp the important features of the innumerable bills presented unless specialists in the particular subject matter appear before the committees.

DR. G. W. WEBSTER, president of the Illinois State Board of Health: A few years ago I read a paper before the National Confederation of State Medical Examining and Licensing Boards, in which I proposed that the entrance requirements of medical schools should be one year of work in addition to the high school course. It was adopted. I had a conference at the same time with the Council on Medical Education of the American Medical Association in Boston, and told them what was to be done. It was generally understood that this one-year requirement was to be demanded as soon as the conditions would warrant it. In order to prevent the State Board of Health from demanding any such standard, the Legislature of the State of Illinois, at the last General Assembly, took out of the hands of the State Board of Health the power and authority to establish entrance requirements to medical schools. That standard was established by the people of the State of Illinois through the legislature, and was made a high school education. The State Board of Health has no

authority or power to raise that standard in any way. If you want to raise the standard to two years' work in college as an entrance requirement, in which I heartily believe, the first step is to repeal that part of the medical practice act which makes a high school diploma or a high school certificate an entrance requirement, and either leave it in the hands of the State Board of Health to make the standard what it should be, or else through the legislature make the standard such a standard as you demand.

DR. JAMES A. EGAN, secretary of the Illinois State Board of Health, Springfield: There has been considerable said to-night regarding the State Board of Health's lack of enforcement of the law and of the structure of the law. The State Board of Health has limitations of power which have not been brought out, neither has reference been made to the law under which the State Board of Health operates, except in the remarks made by Dr. Webster. Reference was made to the report of the Carnegie Foundation and to the work of the Council on Medical Education of the American Medical Association, whose reports differ on Illinois. Mr. Flexner came into Illinois and dropped off in Chicago in April, 1909, inspected thirty-four schools in the state; inspected our medical schools, and condemned every school in Illinois, except one. He even found fault with that particular school. He condemned the College of Physicians and Surgeons, the Northwestern University Medical School, and other schools, and pronounced Illinois "a plague spot," for the reason that these schools prepared students in contravention to the state laws. Of the schools condemned by him, four of them are now recognized by the Council on Medical Education of the American Medical Association. Who is right, Mr. Flexner or the Council?

Taking up the matter of preliminary education, Mr. Flexner states that "scarcely more than thirty of the one hundred and fifty-five medical schools of the United States enforce a definite entrance requirement." He states further that "similar conditions are repeated in Canada where out of the eight medical schools, three are without enforced preliminary requirements." Mr. Flexner's strictures on the teaching facilities are no less severe. According to his report, only some thirty of the one hundred and fifty-five medical schools "are now fairly equipped with the necessary laboratories." "Fewer than thirty enjoy acceptable hospital facilities." He states further that only about twelve of the one hundred and fifty-five medical schools of the country "have the clinical facilities that they need." It would appear from those statements that conditions found in Illinois are duplicated in other states.

DR. JOSEPH ZEISLER: I believe there are a great many who will agree with me when I say the Flexner report was in many ways one of the most important, one of the most helpful things, that could have happened to the progress of medical education in Illinois and elsewhere. Flexner may have been a little bitter or severe in some instances, but was the report really unjust, when we compare the status of medical education in some of the best schools in this country with that elsewhere, as, for instance, in Berlin, Vienna, Bonn, etc.? Do we not occupy a much inferior position, taking the average medical school in this country, as compared with European schools? I do not wish to enlarge on this thought, except to say that I believe this report, although it struck the school with which I am connected, was a good thing. Let me cite one single instance of medical education in Chicago. I have had occasion for four years to watch the medical career of a person who went through a college in Chicago which has the right to turn out doctors. It was an evening school. That person could not write English grammatically, nor German grammatically. He is a most illiterate person, yet he was accepted by that college, passed through school by paying ten dollars every month, received the degree of "doctor of medicine," and came up for the state board examination. Gentlemen, it is up to the state board, in the examination of persons who are absolutely unfit, to exercise that check which is absolutely necessary for the protection of the people of the State of Illinois. I ask you, gentlemen, does the State Board of Health of Illinois exercise such a check? Is it not possible for such people to slip through on a written examination, which means very little indeed, and be let loose on the populace?

ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES

*Nineteenth Annual Meeting, held at Richmond, Va.,
Oct. 31-Nov. 4, 1910*

(Concluded from page 2174)

Venereal Prophylaxis

COL. L. MERVIN MAUS, M.C., U. S. Army: The collapsible tube containing 25 per cent. calomel and 75 per cent. lard has been in use in the Department of the Lakes for several months with gratifying results. The great prevalence of venereal disease in the Army led to the adoption of the "K" package, which was large and cumbersome, and which the men would frequently not use, but would throw away. The collapsible tube has a capacity of one dram only, is small, compact and neat. At the military tournament held in Chicago in July these tubes were supplied to the troops with the result that although they were in the city two weeks and surrounded by and having intercourse with the lowest class of prostitutes, not one of the men was infected, as demonstrated by a physical examination made after their return to their home stations. During the time of the maneuver camp at and near Fort Benjamin Harrison, Ind. I had another excellent opportunity to observe the effects of the tubes as regards prophylaxis. The troops of the regular establishment at this camp consisted of twenty-one companies of infantry, eleven troops of cavalry, one company of engineers and one-half a company hospital corps. Each man had a physical examination a few days previous to their arrival, and a test was submitted of those suffering from venereal diseases. All the organizations were supplied with tubes and the men were instructed as to their use. At the close of camp the following statistics were obtained: 504 men had had sexual intercourse 1,301 times, using the tube after each contact. Of these men three reported gonorrhoea and of these one made contradictory statements and the other two claimed that they had used the tube but did not understand it. In addition reports were received from 302 men who had had sexual intercourse 763 times and had not used the tube. As a result one man contracted syphilis, twenty-six gonorrhoea and twelve chancroids. The proportion of disease in those who used the tubes was $\frac{1}{2}$ of 1 per cent., while among those who did not use them there was 13 per cent. of infection. These facts are exceedingly significant, and I recommend that the War Department issue orders to the following effect:

1. That monthly lectures on general military and personal hygiene be required of medical officers to commands, not only for the purpose of educating the officers and men on those subjects, but to enable them to preserve their health against contagious and other preventable diseases.
2. That weekly physical inspections of companies or detachments be made by an instructed non-commissioned officer, under the direction of the company commander, in undershirts, drawers and bare feet, immediately after the Saturday morning inspection for detection of personal uncleanness, physical defects, condition of the teeth and feet and contagious diseases, all men suffering from physical disqualification or diseases to be ordered at once to the hospital for the action of the surgeon.
3. That three antiseptic tubes be made a part of the kit of the soldier and that the men be instructed in their use, with such orders as may be necessary.
4. That soldiers found suffering from contagious diseases rendered preventable by the use of the antiseptic measures prescribed, be regarded as having disobeyed a sanitary order and held guilty of violation of the sixty-second article of war.

Pneumonia in the Mexican Army

LIEUT. COL. ENRIQUE JURADO Y GAMA, C.M.M.M., director of the Military Hospital at San Luis Potosi: Pneumonia is a serious disease which has not diminished in spite of the progress of medicine; among armies pneumonia causes great mortality; most often pneumonia effects a spontaneous cure by the successful struggle of the organism; hyperpyrexia and biologic and chemical changes produced in the tissues are the principal causes of the happy termination of the disease; prophylactic treatment of pneumonia is indispensable; there is

no specific remedy for the disease; blisters and antimony salts are useless and dangerous; bleeding is a powerful resource that must be applied in many cases and in different stages of pneumonia; digitalis, strychnin and cardiac tonics have hitherto proved most successful; morphin employed in the form and under the circumstances I have detailed, namely, on the fourth or fifth day, hypodermically, mitigates the exaggerated irritability of the respiratory centers, soothes the orthopnea, subdues pain and slows the respirations, which become deep and regular.

The Navy and Tuberculosis

MEDICAL INSPECTOR C. T. HIBBETT, U. S. Navy, described the U. S. Navy Hospital for Tuberculosis, located near Las Animas, Colo., on the site of the abandoned Fort Lyon, which now has a capacity of 225. He advocates the immediate extension of the sanatorium to quarters for at least 500 patients, and the enlargement of the power-plant to provide for a further extension to accommodate 1,000 patients. The extension of living quarters should be in the line of iron bed cottages for ambulance patients. He further suggests that the general government establish a tuberculosis colony on such site as may be carefully selected for all its official patients, this colony to embrace patients from the Army, Navy, Public Health and Marine-Hospital Service and Civilian employees. For this purpose a tract of several thousand acres would be required, and on this all sorts of farming procedures could be carried on. Educational systems should be substituted for militarism in the government of the institutions, and the men should be instructed as to their preparation for future farm or other open-air life.

Camps of Instruction

A lively discussion followed the reading of the various reports from officers of the organized militia on the camps of instruction in which they served. Lieut. Col. Junius F. Lynch, Surgeon-General of Virginia, was unsparing in his denunciation of joint camps of instruction, calling attention to the unprepared condition of the grounds, delays and inefficiency on the part of the quartermaster's department, the lack of working incinerators and the failure of civilian employees to operate the incinerators which were in working order. He claimed that too much was expected of the organized militia and too little was done for them. He believed that state camps were preferable, and that in these camps, instruction could be given by officers of the regular establishment.

CAPTAIN HENRY D. THOMASON, M.C., U. S. Army, in charge of the Medical Department of the Division of Militia Affairs of the War Department, expressed the opinion that the benefit to be derived from joint camps of regulars and militia were too patent to require demonstration. The massing of regular and volunteer troops is for the best interests of both, and by such instruction the unfortunate sanitary conditions which prevailed several years ago in volunteer camps are now avoided.

Africa and the Tsetse Fly

MAJOR LOUIS LIVINGSTON SEAMAN, U.S.V., New York City, gave a public lecture illustrated by stereopticon views on "The Sleeping Sickness and a Hunting Safari in Africa," in which he described the horrible cruelties practiced in German territorial possessions in Africa, and spoke hopefully of the time when the "Cape to Cairo" railroad and British rule would put a stop to these atrocities. In certain parts of the country the tsetse fly, whose bite transmits the sleeping sickness from the sick individual to a well person, abounds, but only within 150 yards of rivers or streams, not going beyond these limits. The fly is dangerous only where the sleeping sickness prevails. It is the transmitting agency. The incubation period of the disease is seventeen days. The infected person or animal loses animation, becomes weak, enervated and emaciated, and finally the sense of pain is dulled or lost.

Bubonic Plague

PASSED ASSISTANT SURGEON WILLIAM COLBY RUCKER, U. S. P. H. & M.-H. Service, narrated in a most interesting manner the fight made in California against the bubonic plague and

the connection of the rat and ground squirrel with the disease. The ground squirrel is the reservoir of plague germs but does not transmit the disease to human beings, but by its bite infects the rat, which in its turn, acting as a germ carrier, bites and infects a human being, who in due course comes down with bubonic plague. For this reason he advocates the extermination of both rats and ground squirrels, but considers the latter as a far greater menace to the community, as ground squirrels exist throughout the country, as rats are everywhere found, and as all that is necessary to start a season of bubonic plague anywhere is an infected ground squirrel or human being. He deplored the fact that for commercial reasons the presence of bubonic plague in California was kept secret so long and asserted that the disease has been smoldering in the United States for a decade. In his opinion the ratproofing of buildings was the most important factor in the solution of the bubonic plague problem.

MAJOR PAUL F. STRAUB, General Staff U. S. Army, told of the experiences with rats and bubonic plague in Manila, where a force of 200 men was organized to trap and kill rats, millions of which were destroyed.

Paybill for Marine-Hospital Corps

The association adopted resolutions asking that the paybill of the United States Public Health and Marine-Hospital Service be revised to correspond with those already in force for the Army and Navy.

Iodin in Military Surgery

COL. NICOMEDES ANTELO, Chief of the Surgical Service at the Military Hospital, Buenos Aires, delegate from the Argentine Republic, who was delayed in reaching Richmond, had prepared a paper on the use of tincture of iodine in the surgery of war. It was read. The following were his conclusions: 1. Tincture of iodine is the ideal skin antiseptic in military surgery. 2. It is desirable to add to the individual first-aid package a receptacle containing tincture of iodine to sterilize the skin at the wound of entrance and exit. 3. In sanitary formations, when a surgeon is present, the field of operation, in case of need, should be sterilized by the Grossich method, that is, washing the region of operation on the previous evening, an aseptic application to be retained until the patient is placed on the operating table and the application of one coat of tincture of iodine at the beginning of the anesthesia, and another when the patient is anesthetized. The hands should be treated with tincture of iodine and then decolorized with sodium hyposulphite. Meissner's method, washing with soap and afterward with alcohol at 90 F. for five minutes, should be employed when it is impracticable to use the Grossich method. 4. The supply of tincture of iodine to the sanitary formations at the front, should be calculated in accordance with its use as described.

AMERICAN ASSOCIATION FOR THE STUDY AND PREVENTION OF INFANT MORTALITY

First Annual Meeting, held at Baltimore, Nov. 9-11, 1910

(Concluded from page 2177)

Municipal, State and Federal Prevention of Infant Mortality

DR. WILLIAM H. WELCH, Baltimore: The United States is particularly far behind other countries in organized attempts to solve the problem of infant mortality. The apathy in this respect is another of the many examples of the way this country suffers from the lack of a thoroughly organized and complete bureau or department of public health under the national government. Municipal health boards have only recently, and only in a very few instances, taken up work in this field with any energy or thoroughness. Work begun by private initiative can often be taken over later more successfully by municipal or state boards of health than if they were called on to initiate the undertakings. It is important to train and supervise midwives and regulate their practice. Between 80 and 90 per cent. of births in a certain class of

the population are attended by midwives. The Maryland midwifery act specifies qualifications and requires registration. Its administration is in the hands of the State Board of Health. A school for the training of midwives is a great need in this country.

Report of the Committee on Birth Registration

DR. CRESSY L. WILLIUR, Washington: Much has been done and can be done in the absence of reliable vital statistics to cut down the infant death-rate, but accurate vital statistics are indispensable to the development of an intelligent campaign of prevention. The paramount duty of an association for study and prevention of infant mortality to build up such an "intelligence department" is to give true and exact information for the guidance of active workers in this field of preventive medicine. Infant mortality cannot be stated, as adult mortality is, in ratio to the enumerated population. The infant death-rate must be computed as the ratio of number of deaths of infants under 1 year of age (exclusive of stillbirths) for every 1,000 children born alive. Births must therefore be registered as regularly as deaths. Because we do not register births in the United States, it is impossible to compute a death-rate for babies in any state or in any city in the United States in such a way as to be comparable with the infant death-rate of any other civilized country. Accurate vital statistics of infantile mortality are needed for individual cities, rural districts, states and nation as a whole. Accurate statement requires complete and satisfactory registration of both births and deaths. There is accurate registration of deaths for only about one-half of the total population of the country (55.3 per cent.) and even in states in which there are fairly good registration laws, the equally important or even more important registration of births is neglected. The blame is sometimes placed by health officers on physicians or midwives for failing or neglecting to register births. This is unfair, because the physicians and midwives are not charged with the enforcement of the registration laws, but to obey them. Only a few states have even approximately complete registration of births (90 per cent., or one birth omitted for every ten that occur). Tentative list, New England, Pennsylvania, Michigan and District of Columbia, Ohio and Missouri. Enforcement of the law an essential part of effective administration of any system of birth registration. Model law in force in Pennsylvania since 1905; Ohio, 1908; Missouri since 1909.

What the Obstetrician Can Do to Prevent Infant Mortality

DR. J. WHITRIDGE WILLIAMS, Baltimore: The obstetrician should care for the mother and child not only at the time of labor and the few weeks immediately following it, but should observe the patient throughout the entire course of pregnancy, and as long after delivery as may be necessary to insure her return to normal health. Pregnancy ending in an abortion or by the birth of a dead child is an economic and biologic waste. The live-born child must be put in the most favorable conditions for its further development. The obstetrician may prevent infantile mortality by prophylactic measures before and during pregnancy, by the proper conduct of labor, and by the care of the child during the first month of life.

The Duty of the Municipality in Relation to Infant Mortality

DR. JOSEPH S. NEFF, Philadelphia: Diarrhea and enteritis are terms suggesting no alarm, yet in 1909, in the registration area of the United States in every 100,000 population, 72.3 infants died from these causes, 70 per cent. of these deaths being preventable. In the same year tuberculosis, pneumonia and diarrhea and enteritis caused 43 per cent. of the total deaths from disease without creating any marked public comment. Assuming the mortality in the non-registration area in the United States for 1909 to be the same as in the registration area, much more publicity was given to 19,419 deaths from typhoid fever, in that year's record, than to the mortality of infants, which was 253,268, or a much larger mortality

than in any other age period or from any single disease. More time and money has been devoted toward preventing the spread of tuberculosis of the lungs than toward any other health effort, yet the total mortality from that cause last year was 50 per cent. less than the mortality among infants. For economic reasons there is no better investment for a commonwealth than to care properly for the defective classes and provide institutional care for the feeble-minded women during the child-bearing period. I favor the passage of sterilization laws to prevent the illegitimate propagation of the species of the criminal and defective classes. The necessity for safeguarding against an inferior or polluted milk supply is evident. As an example for the benefit of the city councils, a campaign of education was conducted in Philadelphia in the section of the city thickly congested with a foreign population. Through a corps of physicians and professional nurses home instruction was given mothers in the care and feeding of their babies. Results showed 36 per cent. less infant mortality in the districts covered by the municipal nurses than in the rest of the city as compared with the preceding year, notwithstanding the fact that last summer was the most trying one on babies from weather conditions the city has had with one exception in thirteen years.

The Necessity for More Minute Study of the Causes of Infant Mortality

DR. JOHN S. FULTON, Baltimore: The report on infant mortality for 1908, given by the United States Census Bureau, shows that the total deaths in the registration area, under age of 1 year, were 136,432. Causes of earliest death were prematurity, malformation, injuries sustained at birth and syphilis. Convulsions are charged with 5,295 deaths under 1 year. Next come 76,903 deaths caused by whooping cough, diarrhea, diseases of the mouth, suffocation, acute bronchitis, broncho-pneumonia, measles, tuberculous meningitis, meningitis, diphtheria, scarlet fever, tetanus and pneumonia. Total number of deaths from diarrhea was 37,049. Largely through assistance of confederates, bronchitis and pneumonia killed 19,144 infants in the registration area in 1908. A study of sickness month by month, through the first year, will show that nurslings are naturally better defended than their older brothers and sisters from the infections of childhood, and due advantage being taken of this circumstance, these infections, together with bronchitis and pneumonia, can practically be ruled out of the mortality of the first year.

A Statistical Survey of Infant Mortality's Urgent Call for Action

MR. EDWARD BUNNELL PHELPS, New York City: Infant mortality approximately averages about 130 deaths to each 1,000 living births in all civilized countries on the basis of the latest available official data—being almost half again as high in certain European countries. This single fact, the death of at least thirteen out of every 100 babies born alive, constitutes the moving cause for the organization of this Association and similar movements now taking shape in various foreign countries. Owing to the lack of national statistics of births, except in census years, the annual infant death-rates for this country as a whole are not yet available, but there can be little doubt that the infant death-rate in this country has undergone at least a slight decrease in the last decade. Despite that probable fact, as official returns for the city of New York and the state of Connecticut demonstrate, in the third quarter of the current year the infant death-rate of 169 per 1,000 births then registered in the city of New York was precisely the same as that for the corresponding quarter of 1909, and the infant mortality of the entire state of Connecticut was 193 per 1,000 births in the third quarter of 1910, as against 192 per 1,000 births in those months of 1909.

Medical Prevention of Infant Mortality

DR. L. EMMETT HOLT, New York: Excessive infant mortality is one of the large problems of society. It can never be completely solved because its two most important underlying causes, poverty and ignorance, will never be removed. At most

only partial success is possible. Desired results can be reached only by the cooperation of many agencies. At the outset there is needed an intelligent and comprehensive view of the subject as a whole. This will make it possible to separate the causes which are preventable from those which are, in a sense, inevitable. We must first know the facts of infant mortality. This means better vital statistics in the city and country. We need especially complete birth reports, more accurate statements regarding the causes of death, especially in stillbirths and deaths in the early weeks of life. What is more difficult to get at is the causes which underlie these facts. This must be the work of the medical profession. It is only by discovering and influencing the underlying causes that marked results can be accomplished. It is the duty of the profession to concentrate public attention on the large factors which contribute to infant mortality, to insist on a more thorough study of these and suggest means by which they may be reduced. A broad, unified, comprehensive plan should be made at the outset in which all philanthropic agencies shall work together for the accomplishment of the main purpose.

Do Medical Schools Adequately Train Students for the Prevention of Infant Mortality?

DR. IRA S. WILE, New York: Medical schools fail to give adequate training of medical students to enable them to fight the conditions giving rise to such a tremendous portion of the total mortality. Pediatrics is, at present, treated generally under the head of general medicine, though infant mortality involves many conditions which are not comparable with any ailments in adult life. It is generally admitted that one-half of the infant deaths are preventable. Medical schools do not give sufficient attention to the subject of hygiene or prophylaxis. Education is conceded to be the greatest factor in the prevention of infant mortality. Medical schools do not so train men as to make them capable of teaching nurses, interns, mothers or philanthropists. The Council on Medical Education failed to make adequate provision for hygiene or pediatrics in mapping out its ideal medical curriculum. There is a total failure to grasp the underlying social conditions on which infant mortality rests in large part and which physicians must be able to attack in order to prevent infant deaths. The social causes of death are not considered in medical schools. The present teaching of pediatrics is inadequate, the teaching of hygiene is still more lacking, the teaching of the relation of infant diseases to social conditions does not exist. The problems of prevention lie in these three fields and, as they are scarcely entered by medical schools to-day, there results the constant addition to the medical profession of men ill trained and incapable of being of great service in the work of preventing infant mortality.

DISCUSSION

DR. WILLIAM H. WELCH, Baltimore: There is no question that the great need of our medical schools in this country is the establishment of satisfactory training in preventive medicine and public hygiene. We hear equally urgent pleas for almost every subject in medicine. We cannot send the student out adequately trained in any branch; the most that we can hope to do is to give him broad general principles and put him in a way to continue his education. He will not by any possibility be trained in public health or in any aspect thereof when he passes from the medical school, but he should know the importance of the subject, and if his interest lies in that direction, he should be in a position to carry out his functions. But it would be a great misfortune if a medical school without adequate facilities pretended to train men in public health. These results cannot be obtained without large resources.

DR. FRANK WARNER, Colorado: I was surprised to learn that the record of the midwife in New York in the prevention of ophthalmia neonatorum is better than that of the physician. If the result of the teaching already instituted is that the physician does worse than the untrained midwife, what may we look for when the teaching is still greater?

DR. BAKER: One reason why there is less ophthalmia neonatorum among the New York midwives' cases than among the physicians' cases is the fact that during the past two years silver nitrate solution has been used by the former in the eyes of all new-born babies, and as far as I have been able to investigate, this practice is not so prevalent among the medical profession.

DR. W. D. HOSKINS, Indiana: It seems to me that some further explanation might be made of the statement that teachers of diseases of children are the ones deserving of criticism for the lack of time and opportunity in the courses. I rather question the wisdom of such criticism. It is not that these teachers would not like to have more time, greater facilities and better opportunities to elaborate on these preventive measures, but it is impossible to accomplish better results in a short time and with limited means. As far as I have been able to observe they are careful, skilful men who comprehend the magnitude of the social problem, as well as the details of their teaching. And, as far as I have been able to observe, the students who are going out comprehend these things in a greater measure than we might infer from Dr. Wile's paper. As with other specialties, it is impossible to give the department of pediatrics all the time wanted, but a creditable showing is being made by practically all of the medical schools. As far as I know, Johns Hopkins is the only one in which the subject is elective.

DR. IRA S. WILE, New York: I trust that Dr. Welch has not misunderstood that I am advocating that institutions give courses in public health simply to teach how to prevent infant mortality. Since between 40 and 50 per cent. of infant mortality is preventable, the stress of work should be put on preventive medicine. As to there being less ophthalmia among midwives than among physicians, this may be due to the fact that pediatricists do not talk so much about this subject. As to the criticism of Dr. Hoskins, I found that the average time given in a course of pediatrics was sixty hours, the greatest 120 hours, the smallest none. I am not blaming individuals; I am criticizing schools that fail to give this course in their curriculum.

Erroneous Ideas of Infant Mortality and Methods of Reducing It

DR. S. W. NEWMAYER, Philadelphia: In most campaigns there is an effort to educate the mother with a well child, the care of the sick infant being overlooked. Every department of health should have its "publicity bureau," under the charge of a competent newspaper editor, one with at least a working knowledge of medical subjects, especially of those which relate to public health. Gastro-enteritis, which causes most infant deaths, is chiefly due to improper feeding. The feeding of the infant is the responsibility of the physician attending at birth, but is more often left entirely to the mother. The efficiency of health departments in reducing infant mortality would be greatly augmented by the employment of a corps of visiting nurses, or of specially trained physicians, who could give the necessary instruction to mothers in their homes or who could give individual care to the sick babies. The objections made to such measures, on the ground of paternalism, are unfounded. If the infant is not receiving proper nourishment and care, whether through ignorance or neglect, it is the duty of the municipality to give all the personal care and attention it can give.

Vaccine Treatment in the Prevention of Dysentery in Infants

DR. WILLIAM PALMER LUCAS, Boston: In the series of cases studied at the Infants' Hospital, Boston, 100 infants received vaccine in graded doses, from one to three injections being given to each patient of a vaccine made up of the Flexner-Harris dysentery bacillus. The vaccine was not used as a means of treatment, but simply as a preventive measure. All of the patients were infants who had had no sign of dysentery at the time of receiving the injections. The reactions in these cases were studied, and a close watch was kept to see if they developed any acute intestinal trouble throughout the summer. One or more bacteri-

ologic examinations were made of each of these cases, and also a parallel series of cases was studied bacteriologically to see how frequently the dysentery organism occurred in this class of cases. The work is merely suggestive and no definite conclusions can be drawn. No bad results were obtained.

The Education of the Father an Important Factor in the Prevention of Infant Mortality

DR. WILLIAM PALMER LUCAS, Boston: We must not overlook the importance of educating the fathers, especially of the poor, congested districts, along the lines of the principles underlying the prevention of infant mortality, for, as the social worker has learned, the father in the families of our foreign population is the actual head of the household. There were several classes formed during this past year under the direction of the Milk and Baby Hygiene Association for the instruction of the fathers in the districts in which several of the milk stations were situated. These met with a fair amount of success and this form of work promises to be of considerable value in gaining the confidence of the family which is of great help in obtaining the best results in a case of sickness among them.

DISCUSSION

DR. HERMAN SCHWARZ: With regard to the education of the fathers, the following figures are interesting: In 210 families where both parents could read, 710 children were born, and there were 135 deaths, or 190 deaths per thousand born; where the parents were illiterate, the death-rate was even higher, so it is shown by statistics that the care of the children is better where one or other parent, or both, could read; it does not seem to make much difference which parent can read. In families where neither parent can read and where there is intense ignorance, the death-rate is much greater.

MRS. WILLIAM LLOYD PUTNAM, Boston: I believe that the fathers are ready for education. Last year a committee of the Municipal League carried on an exhibit every afternoon and evening in Boston. We had a mother with her baby, a doctor and a nurse, and the doctor lectured to the crowds that collected. At times it was interesting to see that there were three or four times as many young men present as women, evidently young fathers. It was evident that these young men were there because they were fathers and anxious to learn.

The Possibilities of Maternal Nursing in the Prevention of Infant Mortality

DR. THOMAS S. SOUTHWORTH, New York: Maternal nursing not only offers new-born infants the best chance of surviving the first year, but lessens the mortality of succeeding years. There are sufficient and insufficient reasons for putting the baby on the bottle. Few women refuse to nurse, but too many who are anxious to do so are prevented from doing so by ignorance or bad advice or misinterpretation of the baby's condition. The stools and behavior of infants getting scanty breast milk lead to a mistaken belief that the milk is bad. Early weaning of infants is unjustifiable until intelligent effort has been made to build up the mother and utilize the breast milk as a part, if not all, of the infant's food. There is no adequate investigation and little scientific or popular knowledge of the function of human lactation. Responsibility for this rests on the state, the educator, and largely on the hospitals for infants and nursing mothers, for these latter do not, as a rule, make the best use of their opportunities for encouraging and disseminating knowledge on this subject.

Method of Determining the Influence of Medical Philanthropy in Reducing the Morbidity and Mortality of Infants

DR. HENRY L. COIT, Newark: Agencies employed for the reduction of infant mortality have directed their efforts along different lines. These are: medical work in hospital wards and clinics where infants are treated; milk dispensaries and consultations independent of hospital supervision; philanthropic association work aside from hospitals and dispensaries; municipal agencies which employ nurses to teach infant

hygiene in the home, and state and federal agencies which, by ordinance and law, attempt to influence mortality by determining statistics, regulating the food supply and making more sanitary the homes of the poor. The value of each of these methods of work and their effect on mortality have been variously estimated by those who are engaged in this work with a tendency to over-estimate the value of the special feature in which they are interested. When these various methods of work are combined under the same direction or supervision, it would be desirable if some simple system could be formulated for the collection of facts and statistics which would show the relative value of each kind of work in its influence on the reduction of infant mortality. Statistics are of no value unless they determine how far we have influenced or improved the conditions affecting the care, the physical condition and the living powers of infants. The percentage plan of scoring has been employed to determine the status of social, scientific and commercial investigations; but no comprehensive scoring plan has been adopted which would include in its scope all the conditions which influence the care, the physical condition and the living powers of the infant. The method herewith presented, which consists of a statistical score card, is designed for a careful collection of facts to determine the influence of environment, of management, of nourishment and of morbidity on the viability of the infant and by a graphic chart to show the improvement in viability during a given time through the activities of medical philanthropy and educational work directed to the betterment of the conditions which influence infant mortality.

Educational Prevention of Infant Mortality

DR. HELEN C. PUTNAM, Providence, R. I.: In a democracy, governmental, medical or philanthropic prevention of infant mortality must have intelligent popular cooperation to be successful. This means popular elementary education in the essentials of hygiene, sanitation and the laws of life. Public schools are the universal agent for laying this foundation and we are dissatisfied with their results, our vital statistics being the test. The annual reports of most normal schools emphasize the claim that they are professional. Their health practices and instruction are no better than we find in public schools. They have the same humanitarian need to be standardized as medical schools. Their annual reports exaggerate the value of their instruction in the foregoing respects as often as medical schools exaggerate, according to the Carnegie Foundation Report. Not one of the forty normal schools studied had well-balanced courses in healthfulness of school and of home, in health of the individual and of the community. Their work is largely determined by examinations for licenses to teach. Ninety-three per cent. of the questions are on anatomy. Less than 7 per cent. are on function or on health. I have seen examination papers with none. Students say frankly they do not think the instruction worth while. Examining boards—the pace-makers—can promptly bring normal instruction up to modern needs by suitable questions and tests formulated by health officers, biologists, and school or visiting nurses.

Resolution

The following resolution was passed by the Association: Healthy parents, right customs and wholesome environment being essential factors in preventing infant mortality, be it

Resolved, That boards licensing teachers for public schools should give as detailed tests in elementary hygiene, sanitation, and biology as are given in mathematics or language.

The Study of School Sanitation and Hygiene

DR. HERBERT BURNHAM DAVIS, Pennsylvania: Good parentage is sometimes handicapped by school as well as by home conditions. Dental examinations of children in the practice school by a dentist and medical examinations by a physician are attended by our normal students, who assist in making the records. Through discussion and study of these records an attempt is made to plan a simple outline for examinations by the teacher in an isolated school. Practical demonstrations are given in using disinfectants, cleaning floors, ventilating. Study of backward children in a psychological clinic is

important, as is that of mechanical factors in school seats causing restlessness and physical defects. All this work has a definite practical direction by practical methods. Normal schools should require all this from every pupil and also studies of sanitary law, sex instruction in public schools, industrial hygiene, and hygiene of the home.

DISCUSSION

DR. HELEN C. PUTNAM, Providence: I have visited at least 600 schools and there were only 210 thermometers, 70 of which were broken and out of order, and the remaining registered in winter weather from 71 degrees to 80. Also bear in mind that there are schools in this country, practice schools connected with normal schools, which are sending out thousands of trained teachers, where I have found the floors oiled with an oil that was put on thick to hold the dirt that fell on them. While it kept down the dust, this was educating the child in an atmosphere filled with the odor of oil, and teaching him to go into the schools without cleaning his feet. These are indications that standard methods of teaching should be urged in this Association.

DR. C. E. A. WINSLOW, New York: From the sanitary standpoint, teachers should have a fundamental training in biology and physiology; second, there should be a course on the relation of the individual to his environment in the spread of disease; third, there should be a practical course, such as has been so admirably described, in school hygiene and sanitation. A method of determining the carbon dioxide in the air should be taught. This course should include also inspection of school buildings, a study of the waste disposal systems, the lighting, desks, etc., of as many schools as possible. We have gone in these campaigns for public health about as far as we can go without the aid of the teachers in the public schools. Some of the schools have already made great progress in solving this problem.

MISS MOORE, Trenton: Every year I find in my class in biology students who are addicted to certain habits, such as sucking the end of their pens or pencils, chewing the finger nails, etc. A good deal of discussion was given in the class of the possibilities for danger in such practices, but frequent lapses would occur. With the cooperation of the class, some experiments were tried. The relation of germs to disease was illustrated by drawing the chewed end of a pencil across the surface of agar, or by making thumb prints on the agar, etc. The results were demonstrated. Altogether, the demonstrations served their purpose in not only emphasizing and giving force to the discussions on this subject, but in introducing into the discussion an element of reality, of tangibility—an element very desirable, as I found, in our campaign against dirt.

DR. HELEN C. PUTNAM, Providence: The chief organisms in dust, those that cause disease, are rather promptly killed by air and sunshine. In the public schools with high temperatures and dusty atmospheres, tuberculosis is invited. The death rate from tuberculosis among teachers is very much above that in any other profession. Reports show that between one-fourth and one-half of the children have latent tuberculosis. Children who die from scarlet fever or diphtheria, where tuberculosis is not suspected, have by examination been found to conceal tuberculosis. The Roentgen ray and the tuberculin test also often reveal latent tuberculosis.

DR. C. O. PROBST, Columbus, O.: It is a question whether the school teacher will be able to fulfil all that we expect of the public schools in teaching health matters. I am inclined to think that we must have a specialist, a school physician, who must have medical education and also special knowledge of the child. I do not believe it possible for a public school teacher to recognize beginning cases of scarlet fever, diphtheria, or other contagious disease. There should be a daily inspection of the schools, and a school physician could accomplish much. I think the day will come when in every large school building in this country, there will be, along with the superintendent, the school physician, devoting all his time and attention to looking after the physical welfare of the child, even to the extent of interrupting its studies when he considers it necessary for the child's health.

The Study of Home-Making

PROF. FLORA ROSE, New York: Home economics where well taught goes straight to the root of infant mortality. It instructs directly, openly, specifically in those things relating to the welfare of homes. Our educational system should consider every pupil as a potential parent. We have normal courses in caring for and feeding babies; we consider mortality rates as affected by abnormal industrial conditions, disease, heredity, environment. We have propaganda work through lectures even to remote country districts; and through free literature dealing with care of infants and of homes. Many urgent requests for instruction in these subjects come to departments of home economics. When graduates are more numerous they will effectively mould public standards of home-making and parenthood, and they are already becoming valuable instruments in preventing infant mortality.

PROF. ABBY L. MARLATT, Wisconsin: In Wisconsin "humanities" comes in the junior year when the students have laid a foundation of bacteriology, biology and physiology along with their household management. We discuss heredity, the influence on the child of alcoholism and other drug habits in the parents, the relation of social evils and their diseases to infant and child mortality and degeneracy; methods in different countries for saving babies; the French system of pensioning expectant and new mothers so that they may be properly housed and fed; education for better parenthood, prevention of vice and of drug habits, of bad housing, and political mismanagement that allows it. We also discuss adolescence, child labor, and vital statistics as related to home-making. The central thought of our four years' course is—conservation of human life by improving homes and cities and individuals so that future generations may reach higher levels of efficiency than those preceding them. The University of Wisconsin is at the head of the state's public school system, and this department is closely related to "domestic science" for the children which we consider very much more than "cooking and sewing."

DISCUSSION

DR. CHARLES FORD LANGWORTHY, Washington: In every state there is an agricultural college which is quite largely supported by government funds, and of the fifty odd colleges of that sort in the United States two-thirds give courses in home economics. It seems to me that of the problems concerned with infant mortality none could be more important than these matters of proper food. We must have fundamental facts available regarding nutrition, and our work has been to gather these facts. This information has been published in leaflets. We have been trying to perfect an instrument with which to study the relative ease of digestion of different foods. Another thing which I should like to do is to study the great problem of overwork, and to study more thoroughly the problems of increasing the efficiency of the housekeeper so that she would not be broken down from overwork.

The Study of Biologic Science

PROF. JESSIE PHELPS, Michigan: We have offered for three years a course in physiology of sex and development. Such biologic instruction is to establish through teachers and schools higher ideals of parenthood. Two hundred and fifty-one have elected it, and nearly all are teaching. The plan is to give scientific setting for personal and sex problems which every teacher has to meet in school. About one-half the time is spent on life histories of familiar plants and animals from lowest to highest, including man, so that the principle of evolution is deeply instilled. Much time is given to the embryology of the chick with demonstration of incubated eggs. This method allows exposition of all the cardinal doctrines of biology and gives a setting for the facts of human reproduction, fundamental character of reproductive processes throughout Nature, place of individual in race, advantages of sex, origin of sex, heredity, continuity of germ plasma, and evidences of evolution. The basic facts of embryology are necessitated by such a treatment, and the way is thus opened for

introduction of the more important topics of human sexual hygiene, standards of courtship and marriage, parenthood, eugenics, diseases spread by prostitution, children's vices, and instruction of children in matters of sex. Graduates are urged to form parent's clubs. They report finding applications for Nature study not before realized, and appreciating much better the far-reaching effects of school sanitation and children's habits.

DR. WILLARD S. SMALL, Washington: Vitality, endurance and healthy functioning are what schools must promote. Biologic science should be studied for this purpose through every year of the normal course, whether two, three or four years. Emphasis should be on processes rather than on anatomy. Study of school hygiene must have it as a background to be effective. Normal school-room practices and care of buildings must be models of hygienic observance as part of the preparation of the teacher. Physical health profoundly affects moral health.

DR. LLEWELLYS F. BARKER, Baltimore: The healthiest mode of approach to questions related to sex is through a study of plant and animal life. The two great factors of life, heredity and environment, can be brought before students in a wholly unobjectionable way, and the analogy of human life is so obvious that the principles learned will almost surely be transferred in due time by the learner to the human domain. Observation and experiment, even if limited to a few fundamental points, will be far more fruitful than didactic lectures. Let the teachers-to-be observe for themselves the influence of external conditions in causing changes in the structure of plants and animals, let them note the responses of living substances to heat, light, oxygen, food substances, poisons and infectious agents, and they will quickly realize the importance of a well-regulated environment for the welfare of human life. Again, let them study pollen and ovule microscopically, observe the process of plant fertilization, and the development of the plant embryo, or permit them to watch frogs' eggs, fish eggs, hen's eggs, and to follow the embryos through their various stages and you have chosen the easiest way to initiate them normally into a knowledge of the mysteries of sex, of impregnation and conception, of birth and development. Experimental hybridizing in sweet peas or in colonies of mice quickly opens the mind to the significance of heredity, and surely nothing is more likely to awaken conscience to the duty and privilege of the human race, of improving the quality of the children born than some acquaintance with the laws of heredity, and especially with the rules of Mendel regarding the inheritance of particular qualities.

If the teachers of our schools knew that drunkards, lunatics, idiots, prostitutes, and habitual criminals are such because in the majority of instances they have been born with defective nervous systems; and if they knew that such drunkards, lunatics, idiots, prostitutes, and habitual criminals are more likely to breed their kind than to have healthy offspring, we should have taken a large step forward in that education of public opinion, which will be necessary before we can pass laws which will prohibit parenthood to the notoriously unfit. If the same teachers knew that a family record of "good stock" on the husband's side and on the wife's side is the best guarantee for the birth of physically, mentally and morally healthy children, they could do much toward the development of that same opinion about marriage which those who have the good of the people at heart hope may soon displace the abnormal ideas now prevalent, not only among young people, but among their parents, who should know and teach their children better.

DISCUSSION

DR. HELEN C. PUTNAM, Providence: I must take issue with Dr. Barker on one important point. He emphasized the need of teaching women teachers and I think that most educational efforts teach women more than boys and men; I think the balance should be even. In the public schools we must make a special effort to have the boys receive something comparable to what the girls receive in their domestic science work, in order that the boys may become good home makers also.

State Boards of Registration

COMING EXAMINATIONS

- ALABAMA: Montgomery, January 10. Chairman, Dr. W. H. Sanders, Montgomery.
- ARIZONA: Phoenix, January 3-4. Sec., Dr. Ancil Martin.
- COLORADO: Denver, January 3. Sec., Dr. S. D. Van Meter, 1723 Tremont Place, Denver.
- DISTRICT OF COLUMBIA: The District Bldg., Washington, January 10. Sec., Dr. George C. Ober, 125 B St., S. E.
- ILLINOIS: Coliseum Annex, Chicago, January 11-13. Sec., Dr. J. A. Egau, Springfield.
- INDIANA: 120 State House, Indianapolis, January 10-12. Sec., Dr. W. T. Gott.
- MINNESOTA: State University, Minneapolis, January 3. Sec., Dr. W. S. Fullerton, 214 American National Bank Bldg., St. Paul.
- NEW HAMPSHIRE: State House, Concord, January 3-4. Regent, Mr. Henry C. Morrison.
- NEW MEXICO: Santa Fe, January 9-10. Sec., Dr. J. A. Massie.
- NEW YORK: New York City, Albany, Syracuse and Buffalo, January 31 to February 3. Chief of Examinations Division, Mr. Charles F. Wheelock, Albany.
- NORTH DAKOTA: Grand Forks, January 3-5. Sec., Dr. H. M. Wheeler.
- OKLAHOMA: McAlester, January 3. Sec., Dr. Frank P. Davis, Enid.
- OREGON: Portland, January 3. Sec., Dr. E. B. McDaniel, Electric Building.
- RHODE ISLAND: State House, Providence, January 5. Sec., Dr. Gardner T. Swarts.
- SOUTH DAKOTA: Aberdeen, January 11-12. Sec., Dr. F. W. Freyberg, Mitchell.
- VERMONT: Montpelier, January 10-12. Sec., Dr. W. Scott Nay, Underhill.
- WASHINGTON: Spokane, January 3. Sec., Dr. F. P. Witter, 207 Traders' Block.
- WISCONSIN: Milwaukee, January 10-12. Sec., Dr. John M. Beffel, 3200 Clybourn St.

South Carolina June Report

Dr. A. Earle Boozer, Secretary of the State Board of Medical Examiners, reports the written examination held at Columbia, June 14-16, 1910. The number of subjects examined in was 18; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 105, of whom 61 passed and 44 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Atlanta College of Physicians and Surgeons	(1910) 79, 79, 82, 83		83
Medical College of Georgia	(1910) 75, 76, 77, 78		78
Atlanta School of Medicine	(1908) 76; (1910) 76,		83
Atlanta Medical College	(1898)		83
Tulane University of Louisiana	(1910) 78,		85
University of Louisville	(1909)		75
Johns Hopkins University Medical Department	(1910)		85
Baltimore Medical College	(1907) 75; (1910)		81
Woman's Medical College of Baltimore	(1910)		77
University of Maryland	(1910)		78
Harvard Medical School	(1878)		75
Long Island College Hospital	(1905)		86
Jefferson Medical College	(1910)		81
Medical College of the State of South Carolina	(1907) 78; (1909) 75, 75, 75, 76, 79, 80, 83; (1910) 75, 75, 75, 76, 76, 76, 78, 79, 79, 80, 80, 81, 81, 82, 82, 83, 83, 84, 85, 85, 85, 85, 85, 85, 86.		84
Vanderbilt University	(1910)		84
University of Nashville	(1910)		86
University of the South	(1908)		81
Medical College of Virginia	(1910)		84
FAILED			
Howard University, Washington, D. C.	(1907) 72; (1909)		70
George Washington University	(1908)		70
Atlanta College of Physicians and Surgeons	(1908)		73
Atlanta School of Medicine	(1910)		67
University of Georgia	(1908) 64, 69; (1910)		70
University of Louisville	(1908) 63, 72; (1909)		70
Maryland Medical College	(1904) 58; (1905)		45
College of Physicians and Surgeons, Baltimore	(1910)		59
University of Maryland	(1909)* (1910)		71
Leonard School of Medicine	(1901) 69; (1906) 65; (1908) 72; (1909) 70		60
North Carolina Medical College	(1908) 67; (1910)		71
Medical College of the State of South Carolina	(1901)* (1908) 50, 67; (1909)* (1910) 65, 66, 67, 68, 69, 71, 72, 72, 73.		50
Chattanooga Medical College	(1907)		58
Mohary Medical College	(1909) 60; (1910)		62
Vanderbilt University	(1908) 69; (1910)		71
University of West Tennessee	(1910)		64
University of the South	(1906)*		53
Gate City Medical College	(1909)		53

* Grade not given.

Iowa September Report

Dr. Guilford H. Sumner, Secretary of the Iowa State Board of Medical Examiners, reports the written examination held at Des Moines, Sept. 12-14, 1910. The number of subjects examined in was 8; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 14, of whom 11 passed and 3 failed. Sixteen candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery.....		(1909)	80
Northwestern University Medical School.....		(1910)	84
Illinois Medical College.....		(1907)	80
Hahnemann Medical College and Hospital, Chicago.....		(1905)	79
Rush Medical College.....		(1910)	90
State University of Iowa, College of Medicine.....		(1910)	93
University Medical College, Kansas City.....	77	(1910)	85
Cornell University Medical College.....		(1908)	90
Jefferson Medical College.....		(1910)	89
University of Pennsylvania.....		(1910)	91
FAILED			
Keokuk Medical College.....		(1898)	68.1
State University of Iowa, College of Medicine.....		(1906)	74.2
Ensworth Medical College.....		(1910)	73.6

LICENSED THROUGH RECIPROCITY

College.	Year Grad.	Reciprocity with
American College of Medicine and Surgery.....	(1906)	Illinois
Northwestern University Medical School.....	(1907)	(2, 1909)
(2, 1910)		Illinois
Rush Medical College.....	(1908)	Illinois
Hahnemann Med. College and Hospital, Chicago.....	(1905)	Illinois
College of Physicians and Surgeons, Chicago.....	(1910)	Illinois
Keokuk Medical College.....	(1894)	Wisconsin
Ensworth Medical College.....	(1904)	Kansas
St. Louis University.....	(1910)	Illinois
University of Nebraska.....	(1908)	Nebraska
Creighton Medical College.....	(1907)	Nebraska
Belleve Hospital Medical College.....	(1868)	Minnesota
Medical College of Ohio.....	(1909)	Ohio

* Second examination.
† Sixth examination.

Mississippi October Report

Dr. S. H. McLean, Secretary of the Mississippi State Board of Health, reports the written examination held at Jackson, Oct. 11-12, 1910. The number of subjects examined in was 8; total number of questions asked, 64; percentage required to pass 75. The total number of candidates examined was 70, of whom 26 passed, including 8 non-graduates and 1 osteopath, and 44 failed, including 18 nongraduates. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Examined.
Kentucky School of Medicine.....		(1892)	1
Tulane University of Louisiana.....		(1910)	1
College of Physicians and Surgeons, Baltimore.....		(1910)	1
Mississippi Medical College.....		(1909) (2, 1910)	3
Jefferson Medical College.....		(1910)	1
College of Physicians and Surgeons, Memphis.....		(1910)	1
Memphis Hospital Medical College.....		(1910)	4
Vanderbilt University.....		(1909)	1
University of Nashville.....		(1902) (1909) (1910)	3

FAILED

Howard University, Washington, D. C.....		(1910)	1
Atlanta School of Medicine.....		(1910)	1
Louisville National Medical College.....		(1910)	2
Louisville Medical College.....		(1904)	1
University of Louisville.....		(1910)	1
Mississippi Medical College.....		(1907) (1909) (4, 1910)	6
Memphis Hospital Medical College (1891) (1891) (1906) (1908) (1909) (4, 1910).....			9
McHerry Medical College.....		(1907)	1
University of Nashville.....		(1898)	1
University of the South.....		(1900) (1909)	2
College of Physicians and Surgeons, Memphis.....		(1908)	1

Arkansas Homeopathic November Report

Dr. P. C. Williams, Secretary of the Homeopathic Board of Arkansas, reports the written examination held at Little Rock, Nov. 8, 1910. The number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 2, both of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Kansas City Hahnemann Medical College.....		(1909)	80.7
Cleveland Homeopathic Medical College.....		(1903)	83.3

Book Notices

A TEXT-BOOK OF PHYSIOLOGY. By Isaac Ott, M.D., Professor of Physiology in the Medico-Chirurgical College of Philadelphia. Third Edition. Price, \$3.50 net. Cloth. Pp. 891, with 393 illustrations. Philadelphia: F. A. Davis Co., 1909.

The order in which the author has arranged the subject matter in this book is commendable. The first chapter is devoted to a full discussion of the structure and function of the cell, including its various metabolic changes, and reproduction. The succeeding chapters take up in order the chemical constituents of the body, food, digestion, absorption, blood, circulation, respiration, secretion, metabolism, animal heat, muscles, the nervous system, special senses, and reproduction. From a pedagogic standpoint the above order is most desirable, each chapter laying the foundation for the succeeding one.

Such tables as that at the end of the chapter on digestion are of pedagogic value. It is entitled "Résumé of Action of the Digestive and Liver Ferments."

The practitioner of medicine will be especially interested in the subchapter on blood devoted to "Medicolegal Tests;" also the subchapter on "Immunity" discussed from a standpoint of the physicians and giving the latest data on zymoids, anti-toxins, agglutinins, precipitins, cytotoxins and opsonins.

The subchapter on internal secretions is unusually full and valuable. The author fails to mention, however, the important work of Brown-Séquard, Poehl, Zoth, Morris, Glass, Loewy and Richter showing conclusively that there is an internal secretion produced by the testes and ovaries, as well as by the thyroid, suprarenals and pituitary. The chapter on metabolism is well arranged; the author has caught the spirit of the modern notions on animal nutrition. The subchapter on animal heat is especially good. The chapters on the central nervous system, the special senses, and reproduction are well presented to give the student to get a good working knowledge of these subjects; but do not present striking characteristics.

CONFIDENCES. Talks With a Young Girl Concerning Herself. By Edith B. Lowry, M.D. Cloth. Price, 50 cents. Pp. 94. Chicago: Forbes & Co., 1910.

Beginning with the blossoming of flowers from the seed, in this book the child's mind is led to the birds, their eggs and nests, and then to the human organs and processes, for the explanation of the elementary facts about the girl's sexual life. The language is inconsistent at times; that is, part of the book is almost in "baby-talk," while other parts are scientific and contain rather long words. This is no material disadvantage, however, as the chapters are in the form of heart-to-heart talks and can be adapted by the parent to the age of the child.

The plan of the book is good in that the account of sexual matters is interwoven with the explanation of objects of nature in which the child is interested and also with hints about general hygiene. This excellent plan will guard against the possibility of the sexual facts assuming too much prominence. The wise parent can add to the general remarks, using this book for a frame-work and not telling the whole story at one time.

Part of the book is most elementary; that is, it aims at being the very first information the little girl may receive; other parts need not be presented until just before puberty, perhaps. There is no attempt at details of anatomy. The only criticism we have on the book is the absence of explanation of the male in the animal world and in the human family, although a foundation has been laid for it in the description of the work of the pollen in flowers. It is true that the male can be ignored for a time, but it will not be long before the girl will ask—of the parent if there is the proper family confidence, or else of a companion—why boys are different from girls. Then the parent would gladly turn to this book again if it offered help on this question, which may be harder to answer wisely than those which have come before. In addition, we feel that social conditions are such that a girl is not adequately safeguarded unless she understands not only herself but the male. We recommend the book.

A SYSTEM OF MEDICINE. By Many Writers. Edited by Sir Clifford Allbutt, M.D., Regius Professor of Physic in the University of Cambridge, and Humphry D. Rolleston, M.D., Senior Physician, St. George's Hospital. Vol. VII. Diseases of the Muscles, the Trophoneuroses, Diseases of the Nerves, Vertebral Column, and Spinal Cord. Cloth. Price, \$6 net. Pp. 900, with 98 illustrations. New York: Macmillan Co., 1910.

In this volume are discussed the diseases of muscles, including amyotonia congenita, myasthenia gravis, family periodic paralysis and the neuritic type of progressive muscular atrophy, the trophoneuroses, diseases of the nervous system, nerves, spinal cord and meninges. The advances made in neurology during the past ten years are reflected in the section on diseases of the nervous system. The introduction to neuropathology by Mott and the article on medical ophthalmology by Gowers are new. Diseases of the cauda equina and of the sympathetic nervous system are also included here. Herpes zoster is classed as a nervous affection. Many changes and additions have been made in the articles on myelitis, paraplegia, caisson disease, Landry's paralysis, ataxia and syphilis. Chronic anterior poliomyelitis and amyotrophic lateral sclerosis are described under the caption, "Motor Neuron Disease." The neurologist will be pleased with the presentation of his special subject, because everything new up to the time of publication receives a full measure of attention. The typographic and mechanical part of the book is in keeping with that of previous volumes.

A TEXT-BOOK OF BACTERIOLOGY. A Practical Treatise for Students and Practitioners of Medicine. By Philip H. Hiss, Jr., M.D., Professor of Bacteriology, College of Physicians and Surgeons, Columbia University, and Hans Zinsser, M.D., Associate Professor in Charge of Bacteriology, Leland Stanford, Jr., University, Palo Alto, Cal. Cloth. Price, \$3.75. Pp. 745, with 156 illustrations. New York: D. Appleton & Co., 1910.

This book might well have the title "Medical Bacteriology," inasmuch as the subject is discussed from the medical standpoint—the actual relation of bacteriology to medicine. Only one section of about fifty pages is devoted to the bacteria in air, soil, water, and milk—non-pathogenic organisms. The remaining 660 pages are devoted to the pathogenic germs, their morphology, biology, and methods of study. Thirty pages are devoted to diseases of unknown etiology, such as rabies, small-pox, acute anterior poliomyelitis, measles, scarlet fever, yellow fever, and foot and mouth diseases which are probably of bacterial origin, but in which the germ is as yet ultra-microscopic. The book is adapted more to advanced courses in bacteriology than to introductory courses. The language used is highly technical and the discourse exceedingly technical. The student of medicine who has been properly prepared to carry on the study as outlined in the book will profit from it—but the unprepared and especially the practitioner who wishes to review the subject will find it rather difficult to use the book as a text. Nevertheless it should be recommended for what it is—an excellent medical bacteriology.

WALSH'S PHYSICIANS' COMBINED CALL-BOOK AND TABLET. Flexible Leather, with Flap and Pocket. Price, \$1.50. Washington, D. C.: Ralph Walsh, M.D., 1807 H Street N. W.

WALSH'S PHYSICIANS' HANDY LEDGER. A Companion to Walsh's Physicians' Combined Call-Book and Tablet. Half Leather. Price, \$3.50. Pp. 600. Washington, D. C.: Ralph Walsh, M.D., 1807 H Street N. W.

The Walsh system of medical bookkeeping employs a pocket call-book in the usual form used by physicians, which contains, in addition to the pages for entries, an obstetric record and cash account; an obstetric table; table of eruptive fevers; table of changes in the Pharmacopœia; dose table; table of metric equivalents; and a table of poisons and antidotes. To be used in connection with this is a ledger, each page of which, in addition to the space for the name and residence of the debtor, is arranged so that the transactions for each month are shown on a single line, the particular service being indicated under the date by a character. It also contains space for dates and amounts of payments. The books make a condensed but comprehensive system of bookkeeping for the physician, which can be commenced any month of the year.

HISTORY OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA. 1817-1909. Cloth. Price, \$3. Pp. 499, with illustrations. Washington: Medical Society of District of Columbia, 1909.

This book has been prepared by a committee of the society from presidential addresses, volumes of transactions, manu-

script and printed records of the society, as well as from current medical periodicals. A large number of photographs contributed by members appear throughout the book, as well as pictures of the various meeting places of the society, and other Washington buildings of historic and medical interest. Two hundred pages are devoted to a history of the society from its organization in 1817 to the present time. The rest of the book is devoted to a list of members arranged in the order of election, with a short biographical sketch of each. An appendix contains the original constitution and by-laws, together with all additions and changes, and the membership of various committees. A copious index of both persons and subjects makes the material in the volume accessible for ready reference. The book is of value not only to members of the Medical Society of the District of Columbia, but also to all interested in medical history. The society is to be congratulated on the volume which its committee has produced.

Medicolegal

Construction of Washington Medical Practice Act as to Persons Entitled to Licenses by Prior Practice—Titles to be Used—Exempting Former Illegal Practitioners—"Practice"

The Supreme Court of Washington affirms, in re Christensen and others (109 Pac. R. 1040), judgments reversing decisions of the Board of Medical Examiners and directing a license to be issued to each of the applicants, who had been for more than two years prior to March 18, 1909, the date of the approval of the law, a resident of the state, and had for the same period been in continuous practice, in one locality in the state, of his or her respective mode of treatment.

This law, the court says, purports to cover the entire subject matter of licensing practitioners of medicine and other modes of treating the sick or afflicted. It does not purport to amend any prior existing law, and expressly repeals all laws in anywise conflicting with its provisions. In section 4 it provides: "Any person who treats the sick or afflicted may register his or her diploma with the board of medical examiners, and receive a license to practice his or her respective mode of treatment, by paying a fee of \$10. * * * Provided, that he or she show evidence satisfactory to said board that he or she had been legally engaged in such practice prior to the passage of this act, in the state of Washington, and is a graduate of a legally incorporated school or college * * * ; or by having been in continuous practice in one locality in this state for the past two years. * * * " Section 6, which refers to those licensed on examination, requires the applicant to file "satisfactory testimonials of good moral character, and a diploma * * * ." Section 20: "All persons receiving a certificate or license under this act shall use no deception in the use of titles of his or her mode of treating the sick, but shall use only such titles as are designated by his or her diploma; or those not having a diploma shall use only such title as he or she holds license to practice. * * * "

It was contended in behalf of the Board of Medical Examiners that an applicant must, in addition to showing two years' practice in one locality, have a diploma and register the same with the board before he would be entitled to a license under the provisions of the last clause above quoted from section 4. It must be conceded that the provisions of this law are somewhat involved, and that the question of its meaning is not free from doubt. However, the court is of the opinion that one who has been in continuous practice in one locality in the state of Washington for two years prior to the enactment of this law is not required to furnish further evidence of his qualifications by a diploma, and that such a person would be entitled to a license regardless of the fact of his ever having a diploma.

By section 20 it clearly appears that the legislature had in mind that at least some of those entitled to a license under this law should not be required to show their qualifications by diplomas. It was contended that the words "those not having

a diploma" referred only to a licensee under section 6 on examination, who is required to produce a diploma from a medical school of a certain standing "or satisfactory evidence of having possessed such diploma." But the court cannot agree with that contention. It seems to the court that if a person ever had such a diploma, and is basing his right to a license on it, as he must under section 6, he will be governed in using his title as a practitioner by that which is designated in such diploma, whether he has physical possession of such diploma at that time or not. In other words, if he has or ever had a diploma, and is granted a license on it, then its designation of his title will govern, whether it has any present physical existence or not. He is not one of those mentioned in section 20 as "not having a diploma." The only licensees mentioned in this law that these words could possibly refer to are those who are entitled to licenses by virtue of practice in one locality in the state for two years as provided in section 4. It is quite common, in laws regulating professions and vocations and prescribing qualifications to be possessed by those entering on them, to exempt those already engaged in them from showing any qualifications other than the fact that such persons are already so engaged, or have been so engaged for a certain time. This seems to have been the policy pursued by the Washington territorial and state legislatures. And it has been held that such a provision is not such a discrimination as violates any constitutional right of those seeking to enter such professions or vocations.

It appeared that some of the applicants here were engaged in the practice of medicine and surgery for the two years prior to the passage of this law without having a license required by the law as then existing. This, it was contended, excluded such a person from the right to a license, because he was not legally engaged in practice and therefore was not engaged in practice at all within the meaning of the two years' practice clause of section 4. But it has been noticed that the law here involved is a new and independent act complete in itself, and repeals all former laws on the subject. That part of section 4 following the word "provided" refers to two classes who may receive licenses. The first are persons who have been "legally engaged in such practice prior to the passage of this act." The second are those persons who have been in "continuous practice" in one locality for two years. It may be difficult to see a reason for the legislature exempting one class from the effect of their unlawful acts, and not the other; but the use of the word "legally" in referring to one class, and omitting it in referring to the other, clearly indicates the legislative intent to give the license privilege to the second class, even though they have violated a previously existing license law. The offense was in any event purely statutory, merely a misdemeanor, did not involve moral turpitude, and there is nothing so extraordinary in granting the license privilege by the legislature to those engaged in practice for two years, even though such persons did thereby violate the then existing license law, as to suggest that the court should attribute to the word "practice," as here used without qualification, any other than its ordinary meaning.

In *re Harold* (109 Pac. R. 1043), decided at the same time that the foregoing decision was rendered, it appeared that the applicant became a resident of the state of Washington, January 1, 1909, having been prior thereto a resident of the state of Indiana and engaged in the practice of medicine and surgery therein. Since then, and until after the enactment of this law, he was engaged in the practice of medicine and surgery in the state of Washington without having a license so to do as provided by the then existing law. In addition to showing such practice in the state of Washington he presented his diploma and evidence showing graduation from a school having the curriculum specified in section 4 of the law.

It was contended in his behalf that, by his showing of graduation from a school having the required curriculum of study and his practice in the state of Washington prior to the enactment of the law, he had thereby complied with all of its requirements, relating to a certain class, entitling him to a license; while it was contended in behalf of the Board

of Medical Examiners that since he was not legally engaged in the practice in the state of Washington prior to the enactment of the law he was not entitled to a license, except he prove his qualifications as required by other provisions of the law. Here the court holds that the board was right.

It is manifest, the court says, that at the time this applicant was engaged in the practice of medicine and surgery in the state of Washington from January 1, 1909, until the time of the enactment of this law without having a license so to do, he was violating the plain provisions of the then existing law regulating the licensing of physicians and surgeons. This being true, it needed no argument to demonstrate that he was not "legally engaged in such practice prior to the passage of this act." The court finds nothing in the law warranting its giving to the word "legally" any other than its ordinary meaning. In the decision in *re Christensen* and others the court recognized that the legislature acted advisedly in using the word "legally" in this clause and omitting it from the two-years' practice clause. The court concludes that within the meaning of the law this applicant was not engaged in such practice prior to the enactment of the law as would aid him in procuring a license thereunder.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

New York Medical Journal

December 3

- 1 "606," or Dioxidiamidarsenbenzol (Salvarsan). E. G. Balenger, Atlanta, Ga.
- 2 Hospital Day Address. C. W. Burr, Philadelphia.
- 3 Differential Diagnosis of Typhoid. P. H. Markley, Camden, N. J.
- 4 Present Status of the Psychoneuroses and of Psychotherapy. E. E. Mayer, Pittsburg.
- 5 *Acute Primary Polymyositis. C. F. Clowe, Schenectady, N. Y.
- 6 Vaccine Therapy in Acute Infections. E. Martin, Kings Park, N. Y.
- 7 Surgical Treatment of Non-Malignant Ovaries. R. F. Ward, New York.
- 8 Pelvic Peritonitis Complicated by Postoperative Hysteria. J. D. Whitall, Philadelphia.
- 9 Hepatic Syphilis. M. Goldsmith, Pittsburg.

5. **Acute Primary Polymyositis.**—The occurrence of a primary polymyositis or an inflammation of the muscular tissue in general, says Clowe, has been disputed by many observers. By a certain number also the condition has been held to be always a local one. Recently, however, a number of cases have been placed on record, and the clinical picture is so definite a one that there seems to be no room for doubt that the disease may be accepted as a clinical entity. The picture is a clear cut one. A woman, aged 28, family and personal history unimportant, quite of her usual strength, complained of constant pain and weakness in her arms and shoulders. There was a pronounced wrist-drop. By Thanksgiving her trouble had increased and she showed signs of considerable trouble in her legs. After a careful examination made at this time the diagnosis was made. By December 10 the patient could not walk and had marked pain and soreness in all the muscles of the legs and arms. Those most affected were the biceps, flexors of the hand and wrist, the calf muscles and the thigh. The muscles were hard and of a peculiar rubbery feeling. There was at this time no rise in temperature; electric reactions and normal reflexes were present but weak. Appetite was good, bowels were regular but moved with difficulty on account of weakness, needing to be assisted by an enema. Patient slept well but was much annoyed by not being able to turn herself in bed or adjust the bedding. Also was much tired by the effort of holding up her head and trunk.

During January and February the patient improved gradually. Strength returned slowly but contracture became marked. If the hand was extended on the wrist the fingers were greatly flexed and if the fingers were extended the wrist was flexed. The same condition prevailed in the legs. She could only walk by wearing very high heeled shoes. If her shoes were removed, on standing she could not get her heels

on the floor. Examination at various times showed a normal blood-count; no eosinophilia; no bacteriemia at any time; urine normal. During the stage of great weakness she suffered from hyperidrosis. In March and April improvement was more marked; contractions were much lessened. She could walk and use her hands fairly well to sew and feed herself; could comb her hair. There was still more weakness of the extensors than of the flexors; some of the muscles were markedly atrophied. The patient had gained about 10 pounds in weight.

Medical Record, New York

December 10

- 10 Electric Sleep and Analgesia. L. G. Rabinovitch, New York.
- 11 Treatment of Facial Neuralgia by Alcohol Injections. O. Killiani, New York.
- 12 Importance in Scarletina of an Early Bacterial Examination of the Secretion from the Postnasal Region. E. C. Schultze, New York.
- 13 Fractures of the Skull. A. M. Pond, Dubuque, Iowa.
- 14 Phenol Injections in Hemorrhoids and Goiter. H. Schiemann, New York.
- 15 Analysis of Over Thirty-Two Thousand Cases of Scarlet Fever. A. K. Saffom, Philadelphia.

Boston Medical and Surgical Journal

December 8

- 16 What Medical Societies Can Do for the Health of the People. J. Ritchie, Jr., Boston.
- 17 *Transmission of Bacteria by Flies with Special Relation to an Epidemic of Bacillary Dysentery. S. T. Orton and W. L. Dodd, Boston.
- 18 *Brown Séquard's Epilepsy in the Guinea-Pig. A. E. Taft, Palmer, Mass.

17. **Transmission of Bacteria by Flies.**—An organism conforming to the Shiga type of *B. dysenteriae* was recovered from ten out of fifteen cases examined by Orton and Dodd.

B. prodigiosus planted in the laundry was recovered from flies caught in traps in the scullery and five screened ward dining rooms at an interval of from two to six days after the original plant.

It proves impracticable in most insane hospitals to keep the flies from access to fecal matter and from food when they are present outside in large numbers and, therefore, the best prophylaxis against fly-borne epidemics is in cleaning up the breeding places of the fly to reduce its numbers or eradicate it.

The typhoid fly—*Musca domestica*—breeds in tremendous numbers in decaying vegetable waste of varying sorts, and a search for maggot-infested places with subsequent attention thereto offers the best line of attack.

The house fly's egg to adult cycle is ten days, so that vegetable waste should be cared for at least once a week during fly season.

Horse manure may be treated by chemical means, but it is probable that, if it is kept dry and in the dark, but little breeding will take place. Mixing with many times its bulk of cow manure may prove effective. The authors urge that when possible, all waste material should be ploughed into the land without accumulating. Spreading over the land will probably suffice to reduce the pest markedly.

In hospitals surrounded by considerable ground it is probable that the great majority of flies are home grown, and the extermination of their breeding places is an object which cannot be overlooked.

18. **Epilepsy in the Guinea Pig.**—The work of this report was undertaken by Taft to observe more particularly the transmission from parent to offspring of the "epileptic" and associated conditions. It has been continued during a period of eighteen months, and is based on observations made on 195 animals. Of this number, 68 were subjected to a lesion of the sciatic nerve. The remainder were the normal animals used, and the succeeding generations.

Taft found that lesions occurring in the cord or principal nerve trunks of guinea pigs produce a tendency to convulsions resembling epilepsy in the human subject. The attacks, however, have not been proved spontaneous, but may be elicited by irritation of a specific zone of skin on the side of the face and neck corresponding to the injured nerve. In this series 97 per cent. of the animals in which the sciatic nerve was resected developed convulsions; the remainder, 3 per cent., showed only the scratch reflex. The scratch reflex, the first

manifestation of the nervous lesion, developed at the end of a period averaging eighteen days after the division of the nerve. The complete convulsion appeared on an average of one month and nine days following the injury to the nerve and eighteen days after the development of the scratch reflex. Age proved not to be an absolute factor in relation to the time of development of the convulsions.

The zone of irritation varies in extent. The sensitive area is at first limited to the skin over the side of the face. This extends progressively with the further development of the convulsive tendency to include the shoulder and often some distance beyond the border of the scapula. The degree of sensitiveness varies in individual cases. Sometimes merely touching the hair will produce an attack, while in others definite moulding of the skin is required. Trophic changes occur in the zone of irritation, manifested often by falling of the hair, leaving the skin exposed; or it may be the hair becomes brittle and breaks off, thus causing a roughening of the coat. In extreme cases the skin may ulcerate. As a rule, parasites accumulate over the area and there is some anesthesia. The convulsion follows irritation of the sensitive zone and is preceded by the scratch reflex. Following this, the animal falls on its back with eyes closed, insensible, and all its muscles in a state of tonic, followed by clonic, convulsion. The attack is usually brief, but may be spontaneously repeated several times. For some time following the return of consciousness the animal is somewhat stupid and dazed. It was found that the animals would in most cases respond to repeated irritation, though some could be made to react only once without an interval of some hours to a day or more. Severity of attacks depended on the size and physical condition mainly, though no rule could be applied to all cases. Those developing the attack most quickly were subject to the most severe convulsions. The effect of convulsions was productive of a marked loss of flesh, and this bore no relation to the quantity or quality of food given. Lessened reproduction was also universal, and in almost every instance of birth of young they were not alive or died immediately after birth. This was proved not to be due directly to the division of the nerve, for by limiting attacks to not more than one each week, perfectly normal offsprings were born. This would seem to show a marked disturbance in metabolism due to frequent convulsions. The study of 128 offspring of epileptic animals to observe the transmission of epilepsy, reported by Brown-Séquard to have been seen in his series, was absolutely negative. Four young were very weak at birth and died on the second day, but showed no other symptoms. The fact that convulsions in the offspring of epileptic animals always, in Brown-Séquard's experience, existed with a lack of toes, makes it seem possible that there may have been some prenatal injury which would produce the same effect as a division of the nerve. The thirteen young of the second and third generations were also negative.

Virginia Medical Semi-Monthly, Richmond

November 25

- 19 Diseases a Municipality Can Control and How to Do It. R. K. Flannagan, Richmond.
- 20 Autotoxemia. R. C. M. Lewis, Marion, Ohio.
- 21 Symptoms and Treatment of Uncinariasis. J. R. Perkins, Spencer.
- 22 Early Instruction of Academic Students of Both Sexes as to the Dangers of Alcoholism and Its Associated Evils. V. W. Harrison, Richmond.
- 23 Probable Hydrophobia. E. W. Brown, Washington.
- 24 Diphtheria-Membranous Croup. L. Lofton, Emporia.
- 25 Arteriosclerosis; Diagnosis and Treatment. J. C. Walton, Richmond.

Lancet-Clinic, Cincinnati

December 3

- 26 Money in Its Relation to Surgery and Medicine. C. S. Bond, Richmond, Ind.
- 27 Typhoid. D. E. Barnett, Homer, Ind.
- 28 An Unusual Case. W. H. Ketchum, Hopkinsville, Ky.
- 29 The General Practitioner and the Specialist. G. Pigman, Liberty, Ind.

Journal of Cutaneous Diseases, New York

October

- 30 Technic of an Efficient Procedure for the Removal and Cure of Superficial Malignant Growths. S. Sherwell, Brooklyn, N. Y.
- 31 Multiple Neurofibromata. D. Erdlander, San Francisco.
- 32 Mycosis Fungoides. B. Roman, New York

Bulletin of the Manila Medical Society

October

- 33 Occurrence of the Double-Pored Tapeworm in Man. D. G. Willets, Manila.
- 34 *Production of Immune Bodies without Reaction After Inoculation with Cattle-Plague Blood. E. H. Ruediger, Manila.
- 35 Gangosa in Guam. J. Garrison, U. S. Navy.
- 36 *Case of Recurring Abscesses of the Liver. R. Brooks, U. S. Army.
- 37 Rabies. E. R. Whitmore, Manila.

34. **Production of Immune Bodies.**—According to the results obtained by others and those reported by Ruediger, it seems that animals that do not react after inoculation with cattle-plague blood may produce serum which in immunizing value is equal to, or nearly equal to, serum obtained from animals in which inoculation with cattle plague blood is followed by a good reaction.

36. **Recurring Abscesses of the Liver.**—In March, 1906, an abscess of the liver developed in Brooks' case, which ruptured into the pleural cavity. This was drained through an incision made by resecting a portion of the sixth rib in the right axilla. According to the patient's statement, the pus was of a red color and of a viscid consistency. At the end of three months he was returned to duty and remained well for some time. In October, 1909, the patient was admitted to the hospital again with fever, hepatic tenderness and enlargement of the liver. A diagnosis of liver abscess was made and the pus drained by resecting a portion of the seventh rib in the posterior axillary line. A large quantity of reddish glutinous pus was evacuated, which was not examined microscopically. After a tardy but uneventful recovery he was returned to duty in March, 1910. August, 1910, he was admitted to the hospital with a temperature of 100 F. and a swelling about the size of a lemon in the epigastric region, which moved up and down during respiration. Liver abscess was again recognized and the pus liberated through a median incision. At the time of the operation the liver was adherent to the parietal peritoneum and an abscess of the left lobe was found. The pus presented the same qualities as on the former occasions. On microscopic examination no amebas were found and no growths were obtained on the ordinary culture media. The recurring abscesses in this case are explained by Brooks by assuming that man may become a dysentery carrier for a number of years without any clinical manifestations of intestinal disease, or what appears to be more rational, by assuming that the parasites are capable of remaining latent in one or more hidden foci of infection, and from time to time resuming a pathogenic action.

Detroit Medical Journal

November

- 38 Salvarsan (Dioxydiamidarsenobenzol) in Treatment of Syphilis. H. R. Varney and R. C. Jamieson, Detroit.
- 39 Abortive Treatment of Gonorrhoea. W. E. Keane, Detroit.
- 40 Management and Treatment of Acute Gonorrhoea. J. C. Dodds, Detroit.
- 41 Chronic Urethritis; Diagnosis and Treatment. W. C. Martin, Detroit.

Memphis Medical Monthly

October

- 42 Recurrences in Malaria. Their Cause and Prevention. W. H. Deaderick, Marianna, Ark.
- 43 *Prophylaxis and Treatment of the Pernicious Forms of Malaria. H. L. Sutherland, Rosedale, Miss.
- 44 Uterinarians. J. H. McNeill, Olive Branch, Miss.
- 45 Fibroid Tumors of the Uterus. Their Treatment. J. H. Carter, Memphis.
- 46 Iritis. R. Fagin, Memphis.

43. **Pernicious Malaria.** As a prophylactic measure against the recurrence of fever, not by a reinfection but because the quinin did not destroy all the parasites, and by rapid multiplication gain sufficient force in a week or ten days to produce a fever, Sutherland pins his faith more on the daily use of quinin than on any other measures, and he thinks 2 grains, three times a day, is sufficient. A prescription which he has used for many years, is:

	gm. or "c.	
R		
Quinin sulphate	5	2
Aromatic sulphuric acid	3	1
Tincture chlorid of Iron	3	4
Water q. s.	3	8
S. Teaspoonful in water three times a day.		

He would not recommend to a person who had not had malaria the daily use of quinin as a prophylactic measure, unless it be to one who was making a visit of a week or two into a malarious section.

Atlanta Journal-Record of Medicine

November

- 47 When Should an External Urethrotomy be Done? T. M. McIntosh, Thomasville, Ga.
- 48 Headaches and Neuralgias Due to Diseases of the Nose and Accessory Sinuses. H. M. Loken, Atlanta, Ga.
- 49 Chronic Non-Suppurative Middle Ear Diseases. G. H. Cooper, Opelika, Ga.
- 50 Variations in Appendicitis. F. K. Boland, Atlanta.
- 51 Vaginal Cesarean Section. R. R. Kime, Atlanta.
- 52 Anterior Poliomyelitis. T. Toebel, Atlanta.
- 53 Pulmonary Tuberculosis Treated by Artificial Pneumothorax. M. E. Lapham, Highlands, N. C.

Wisconsin Medical Journal, Milwaukee

November

- 54 *Serum Treatment of Homophilia. A. J. Patek, Milwaukee.
- 55 *Tincture of Iodin as a Skin Antiseptic. M. W. Dvorak, La Crosse.
- 56 Id. W. H. Brown, Madison.
- 57 Place and Value of the Splint in Minor Surgery. J. C. Hancock, Dubuque, Iowa.
- 58 Progress of Surgery During the Middle Ages. T. L. Harrington, Milwaukee.

54 and 55. Abstracted in THE JOURNAL, July 23, 1910, pp. 343 and 344.

Montreal Medical Journal

November

- 59 Tuberculosis of the Kidney. W. Hutchinson, Montreal.
- 60 Treatment of Tabes Dorsalis. T. A. Williams, Washington, D. C.
- 61 Sarcoma of the Choroid. G. H. Thompson, North Adams, Mass.
- 62 Should Eclamptic Mothers Nurse Their New-Born? J. R. Goodall, Montreal.
- 63 *Strangulated Hernia. E. J. Williams, Sherbrooke, Que.
- 64 Fatigue: Normal and Abnormal; Its Significance to the Physician. D. M. Brown, Montreal.
- 65 Uses of the Roentgen Rays in Surgery. W. A. Wilkins, Montreal.

63. **Strangulated Hernia.**—The patient was a male infant, aged 14 months, who had suffered from a left-sided inguinal hernia since birth. Strangulation had been present for thirty-six hours, and after an unsuccessful attempt to reduce it, with the patient under chloroform, Williams decided to operate. On opening up the inguinal canal and the sac, the contents were found to be cecum and appendix, which latter measured 3 inches in length. After the removal of the appendix and replacement of the intestine into the abdominal cavity the congenital sac was obliterated by a continuous catgut suture and an operation for radical cure was performed. The patient made an uneventful recovery, and did not seem to suffer any inconvenience from the operation at any time.

Alabama Medical Journal, Birmingham

November

- 66 Gonorrhoea Treated with Gonococcus Vaccine. C. W. Shropshire, Birmingham.
- 67 Sympathetic Ophthalmia. H. C. Crelly, Birmingham.
- 68 Non-Surgical Treatment of Cancer. I. H. Lamb, Washington, D. C.

Washington Medical Annals

November

- 69 *Case of "Wandering" or Parasitic Fibrocystic Tumor of the Uterus. I. S. Stone, Washington D. C.

69. **Wandering Tumor of the Uterus.**—In this case a diagnosis of ovarian tumor was made and operation done. After the trocar had evacuated more than a quart of fluid, a growth was discovered, the posterior portion of which was solid or semi-solid; no adhesions or pedicle nor any attachment to either uterus or ovary. Comparatively slight pressure on the flanks caused the sudden expulsion of the tumor. The only place of attachment found was a point near the right parovarium, or between the ovary and fimbriated extremity of the tube. This attachment did not contain large vessels such as are seen in pedicles, and needed neither ligature nor suture; the raw surfaces were closed with fine sutures, as usually done

for the prevention of adhesions. The recovery of the patient was prompt and uneventful. Stone is of the opinion that this tumor was one of parasitic or migratory character, having its origin within the muscular wall of the uterus. Its solid portion was precisely similar to the typical uterine fibromyoma, and its microscopic examination confirmed this observation. The tumor had separated from its uterine attachment by torsion of its pedicle and strangulation of its vascular supply, which ultimately resulted in atrophy of the pedicle and its complete absorption.

Journal of Advanced Therapeutics, New York

November

- 70 Psoriasis. H. McIntosh, Boston.
71 Electricity as an Aid in the Treatment of So-Called Functional Diseases. F. B. Bishop, Washington, D. C.
72 Physical Forces in Tuberculosis. C. Pope, Louisville, Ky.

St. Paul Medical Journal

December

- 73 *Rationale of Transverse Abdominal Incisions. S. S. Hesselgrave, St. Paul.
74 Pathology and Treatment of Puerperal Infection. J. L. Rothrock, St. Paul.
75 Bovine Tuberculosis as a Public Welfare Problem. M. H. Reynolds, St. Paul.

73. **Transverse Abdominal Incisions.**—Hesselgrave claims to get much better results since he began using the transverse incision and since the only important change he has made in the technic is the direction of the incision, he thinks it only fair to ascribe the improvement to the direction of the incision. The vertical incision is poorly supplied with arteries and veins to feed the wound and carry away the debris, and when the recti muscles are forcibly retracted for some time the bruising of the wound margin is a factor in wound reaction and the cause of the "soreness" always complained of after an operation done by this method. The absence of this complaint and the ability of patients to move themselves about unaided directly after the operation are noticeable features of the transverse incision.

The most important advantages of the transverse incision to the operator are: 1. Easier and less tiring operating on account of the direct access to the field of operation and the better view of the area involved. 2. Simplicity, one does not have to learn a multitude of incisions running every which way. It is only necessary to learn the anatomy of the cross section of the abdominal wall above and below the semilunar fold of Douglas and to make an effort to keep the incision within the limits of the semilunar lines. 3. One is never embarrassed for want of space, for if more room is needed than originally thought it can be obtained by extending the incision in one direction or the other, or, if need be, in both directions.

Some of the most important advantages to the patient are: 1. Better looking scar. 2. Stronger union of the aponeuroses. 3. Less pain. This is especially noticeable when the recti muscles are cut, and is due to the absence of spasm of the recti. 4. Less wound reaction. This is due to the fact that the wound margins are not contused by retractors, and to the technic of closing the skin into which no needle nor thread penetrates. 5. Less anesthetic is needed, particularly when the recti muscles are cut, because we have no rigidity to overcome. 6. Greater protection is offered the intestines, which are retained within the cavity surrounded by their normal envelope. 7. Less gauze packing is necessary and we should never hear of a yard piece being left in the abdomen since they are all within reach of the eye. 8. In cases of pendulous abdomen a long lozenge-shaped incision will do away with the skin and fat in this deformity as a preliminary to the proposed operation. 9. Shaving off the pubic hair is not necessary and everyone who has been subjected to this measure has been grateful for its discontinuance.

Yale Medical Journal

November

- 76 Home Treatment of Neurasthenia. M. Mallhouse, New Haven, Conn.
77 Institutional Treatment of Neurasthenia. W. N. Thompson, Hartford, Conn.
78 Sanatorium Treatment of Neurasthenia. F. R. Hallock, Cromwell, Conn.

Journal of the Michigan State Medical Society, Battle Creek

December

- 79 *Use of Cancer Residue. J. W. Vaughan, Detroit.
80 *Pelvic Infections. B. R. Schenck, Detroit.
81 *Value of Vaginal Incision in Acute Pelvic Infections. R. Peterson, Ann Arbor.
82 *Management of Breast Feeding. T. B. Cooley, Detroit.
83 Operative Treatment of Convergent Strabismus. R. Connor, Detroit.
84 Coccygodynia. Errors in Diagnosis and Treatment. A. S. Youngs, Kalamazoo.

79. **Cancer Residue.**—The attempt has been made by Vaughan to find proof with regard to the formation of a specific ferment by the injection of the non-toxic proteid of the cancer-cell, through a study of the various blood-elements, particularly the leukocytes, and some interesting findings have been recorded. The cases on which he made his observations, all belong to the inoperable group, cases of uterine, ovarian and breast carcinoma. From a study of the cases cited, and their blood-findings, certain definite conclusions can be drawn. Especially is this true since the clinical course of the disease seems to progress either favorably or unfavorably in direct ratio to the changes in percentage of the white blood-cells that injections of cancer residue produce. Thus, if the percentage of mononuclear cells increases markedly following a residue injection, a more favorable prognosis can be given than if no such reaction is obtained. Many cases in which to the examining eye it appears that all cancer cells can be removed, are in reality inoperable cases, and evidence of this truth is only too frequently shown after operative treatment has been applied. Such cases, however, are regarded by Vaughan as the ideal ones in which to apply the use of cancer residue, since the number of cancer cells remaining in the host after removal of the tumor is sufficiently small so that their total destruction should be assured.

During four and one-half years of trial there has not been a known recurrence in cases belonging to this group. With inoperable cancer, to which group all cases reported here belong, the amount of cancer tissue may be so large that a too rapid splitting up of the malignant cells may be a menace to the patient. Vaughan has had several cases which, after prolonged treatment and large injections, have shown gastrointestinal disturbances such as diarrhea and vomiting, together with rapid pulse-rate and slightly subnormal temperature. However, since a study of his cases and others shows that large doses do not cause the tumor cells to disappear with the rapidity that small injections do, Vaughan is more prone to attribute these untoward symptoms to the size of the injection. Nevertheless, since every proteid contains a toxic group, it can easily be imagined that too rapid destruction of a large amount of cancer tissue would be of danger to the patient. For this reason, in many instances, he has removed as much malignant tissue as possible before beginning residue treatment. In every case that this has been done, the skin incision has healed by primary union, regardless of whether cancer tissue was macroscopically left or not; consequently Vaughan can see no logical reason why such a procedure should not be adopted.

He impresses the following facts: 1. The injections should always be small in amount, preferably 5 to 10 minims of a ½ to 1 per cent. solution. 2. Injections, according to present knowledge, should be controlled by daily differential leukocyte counts. 3. Injections should be made only when the percentage of mononuclear cells is on the decrease. 4. A good blood-reaction, by which is meant an increase of from 10 per cent. up of mononuclear cells following residue injection, tends toward a favorable prognosis. 5. If the blood-count does not respond, smaller doses should first be tried; if this fails to produce the desired change, different residues should be used until one is found which brings about this result.

80 and 81. Abstracted in THE JOURNAL, Nov. 5, 1910, p. 1675.

82. Abstracted in THE JOURNAL, Oct. 29, 1910, p. 1585.

Pennsylvania Medical Journal, Athens

November

- 85 *Fractures of the Shaft of the Femur. End Results. W. L. Estes, South Bethlehem.
86 Barriers to Progress in the Care of the Insane. W. K. Walker, Pittsburg.
87 State Supervision of the Insane. T. H. Weisenburg, Philadelphia.

- 88 State and County Care of the Indigent Insane. C. W. Burr, Philadelphia.
89 Treatment of Alcoholic and Other Drug Addictions. C. C. Wholey, Pittsburg.
90 Status of the Refracting Optician. W. W. Blair, Pittsburg.
91 *Diagnosis of Duodenal Ulcer with Indications for Operative Treatment. J. H. Gibbon, Philadelphia.
92 *Removal of the Pyloric Portion of the Stomach in Ulcer and Cancer. C. H. Frazier, Philadelphia.
93 The Cancer Problem and the Physician. H. H. Herbst, Allentown.

85. Abstracted in THE JOURNAL, Nov. 12, 1910, p. 1757.

91 and 92. Abstracted in THE JOURNAL, Nov. 19, 1910, p. 1838.

New Orleans Medical and Surgical Journal

December

- 94 *A Neurodermatologic Case. H. E. Menage, New Orleans.
95 Intracapsular Fracture of the Femur. C. Maes, New Orleans.
96 Ciliary Muscles and Accommodation. T. J. Dimitry, New Orleans.

94. **Neurodermatologic Case.**—A critical analysis of this most interesting case forces Menage to place it in the category of the so-called hysterical gangrene, spontaneous gangrene of the skin, disseminated gangrene of the skin, and dermatitis factitia or artefacta. The diagnosis he made is hysterical gangrene, but of self-inflicted type, as differentiated from the spontaneous class. When first seen the patient, aged 19, presented ulcers on the lower lids and lesions of the conjunctivæ, which apparently had resisted, in a great measure, all lines of treatment. The lesions would improve, almost get well, then suddenly, without known cause, become as bad as ever, if not worse. A tentative diagnosis of tuberculosis of the lids was suggested, but subsequently proved incorrect by the negative tuberculin test applied. As subsequently observed, the ulcers proved to be the result of spontaneous circumscribed and discrete gangrenous patches; the process being complete in an incredibly short space of time. The first crop of the lesions made its appearance about November of last year, above and below the right knee. When Menage saw them, about twenty-four hours after their appearance, they consisted of large, deeply-seated, irregularly-shaped areas of coal-black, hard, gangrenous skin, surrounded by little or no inflammation. The outline, although irregular, was clean-cut and appeared to have been stamped. There were no especial subjective symptoms, no febrile reaction, and no general disturbances of any kind. The patches measured in size, irregularly, from a split pea, to one two and one-half by two inches. In the course of time the sloughs separated, leaving clean, deep-seated, granulating ulcers, which appeared quite healthy. Within a short time, probably two weeks, after the first series, another appeared on the left leg, in about the same relative location and having the same characteristics, except in configuration. From that time to this date the patient has been under observation, more or less constantly, and new lesions have been seen to develop on almost all accessible parts of the body; none, however, quite as severe as in the first and second outbreaks. Menage is not able to say how and with what the patient causes these lesions, or whether the injury is caused with premeditation or unconsciously during a period of somnambulistic or sub-conscious personality.

American Journal of Physiology, Boston

December

- 97 Nervous Mechanism of the Righting Movements of the Starfish. A. R. Moore, San Francisco.
98 Effect of Lesions of the Dorsal Nerve on the Reflex Excitability of the Spinal Cord. C. Brooks, Chicago.
99 Study of Faradic Stimulation. E. G. Martin, Boston.
100 Dynamics of Cell Division. J. F. McClelland, New York.
101 Relation of Afferent Impulses to the Vasomotor Centers. W. T. Porter, R. Richardson and F. H. Pratt, Boston.

Louisville Monthly Journal

December

- 102 Neuritis in Relation to Typhoid. C. Thompson, Louisville.
103 Chorea. B. C. Frazier, Louisville.

Journal of the Minnesota State Medical Association and the Northwestern Lancet, Minneapolis

December

- 104 *Metastatic Gonorrhœal Conjunctivitis. W. R. Murray, Minneapolis.

- 105 Diplomas in Public Health. F. F. Wesbrook, Minneapolis.
106 Organization of Sub-Sections in County Medical Societies. A. S. Hamilton, Minneapolis.
107 Patulous Processus Vaginalis the Predisposing Cause of Oblique Inguinal Hernia. F. R. Wright, Minneapolis.

104. Abstracted in THE JOURNAL, Nov. 19, 1910, p. 1832.

Mississippi Medical Monthly, Vicksburg

December

- 108 Pneumonia. C. M. Watson, Florence, Ala.
109 Pellagra. J. W. Lipscomb, Columbus.
110 Vaccination and Vaccine Virus. J. T. Longino, Jonestown.
111 General and Local Treatment of Chronic Catarrh of the Nose and Throat. F. J. Underwood, Nettletown.

Interstate Medical Journal, St. Louis

December

- 112 Duty of the Community Toward Its Consumptives. G. McConnell, Philadelphia.
113 Appendicitis Complicating Typhoid. L. M. Warfield, Milwaukee, Wis.
114 Trypanosomiasis in the Belgian Congo. L. Hollebeke, Brussels, Belgium.
115 *Results of Carl Spengler's "I. K." (Immune Bodies) in the Treatment of Pulmonary Tuberculosis. O. H. Benker, St. Louis.
116 Roentgen-Ray Ink. E. H. Skinner, Kansas City.
117 Advantages of Local Care and Treatment of Tuberculosis. L. F. Flick, Philadelphia.
118 *Treatment of Acne Vulgaris with Acne-Bacillus Suspensions. M. F. Engman, St. Louis.

115. **Carl Spengler's "I. K."**—Benker has used Carl Spengler's "I. K." (Immune Bodies) in eight cases. One patient improved considerably in the subjective state, the lung process slightly improving and the tubercle bacilli disappearing from the sputum. In case 2, the subjective state was aggravated as well as the lung process. The temperature increased from 100 to 102 F. The sputum showed no change either in appearance or quantity of bacterial contents. The six patients in stage III died. The lung process grew progressively worse. The sputum did not show the slightest changes, though three cases were ameliorated in the subjective state.

118. **Acne Vulgaris.**—The treatment of acne vulgaris with suspensions of acne bacillus has proved, in Engman's hands, since a proper technic has been adopted, the most brilliant therapeutic agent yet seen in dermatology. Some of the cases respond as does the membrane in diphtheria to its antitoxin; nothing else in medicine can compare with its action in favorable cases. There is only one drawback in these very favorable cases and that is the lesions undergo such complete and rapid involution that deeper and more marked scars supervene. Nothing demonstrates Wright's negative phase better than these suspensions in acne. Invariably two or more new lesions appear within forty-eight hours after the injection. If a large dose is given, a numerous crop can be produced, and the negative phase prolonged for days. By repeated large doses, a mild case can be aggravated or converted into a severe one with large cystic lesions; and, furthermore, the positive phase in such instances is not clinically evident. Such a patient remains for some time extremely sensitive to any dosage. Such has been Engman's experience with doses of 50,000,000 at seven-day intervals, an experience repeated several times by him. Mild cases stand a larger dose than severe ones; in the latter, continuous small doses give the best results.

Maryland Medical Journal, Baltimore

December

- 119 Poliomyelitis in America. T. A. Williams, Washington, D. C.
120 Frequency, Distribution and Importance of Uncinariasis in North Carolina. W. S. Rankin, Raleigh, N. C.
121 The Whys and Wherefores of Tuberculosis in Our State Prisons. T. Cooke, Jr., Baltimore.
122 Salvarsan (Ehrlich's "606"). A. Samuels, Baltimore.

120. Abstracted in THE JOURNAL, May 21, 1910, p. 1720.

Medical Herald, St. Joseph

December

- 123 *Progress in Obstetrics. A. B. Somers, Omaha, Neb.
124 *Fatigue. G. H. Moody, San Antonio, Texas.
125 Perforating Wounds of the Uterus. P. Flindley, Omaha.

123. **Progress in Obstetrics.**—Somers holds that in order to be a good obstetrician one must be a good waiter and never

undertake to expedite matters, only for cause, and lack of time is never a cause. Intelligent, watchful care of the obstetric woman and her child from earliest pregnancy will effect a largely diminished list of mortality and morbidity for mother and child. Infection is the greatest danger to which the obstetric woman is exposed, hence careful surgical asepsis is the field of greatest promise for beneficial results. The obstetrician's duties are not well performed until the mother is restored to her normal condition of health and the baby is established on a diet that produces a satisfactory gain in weight from week to week.

124. Abstracted in THE JOURNAL, Nov. 5, 1910, p. 1677.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

November 19

- 1 Tubercle, Syphilis and Malignant Disease. R. Morison.
- 2 Roentgen Ray Appearances of Thoracic Aneurysm. A. C. Jordan.
- 3 Miner's Nystagmus. H. S. Elworthy.
- 4 The Cause of Neuroathic States. C. R. Jeffrey.
- 5 Lactic Acid Therapy. O. Grünbaum.
- 6 Bacteriology of Sour Milk. R. T. Hewlett.
- 7 Limitations of Curdled Milk Therapy. A. Bryce.
- 8 *Influence of Sour Milk on Metabolism. V. Harley.
- 9 *New Facts Concerning Chrysarobin. P. G. Unna.
- 10 Action of Lime Salts. H. Meyer.
- 11 *Treatment of Morphinomania by the "Combined" Method. H. C. Miller.
- 12 Comparative Therapeutic Value of the Organic and Inorganic Compounds of Certain Elementary Bodies. J. M. Fortescue-Brickdale.
- 13 Action of Hydrastin and Cotarnin. P. P. Laidlaw.
- 14 Effects of Digitalis on the Human Heart. K. F. Wenckebach and J. MacKenzie.
- 15 Therapeutic Use of Digitalis. H. H. Turnbull.
- 16 Active Principles of Ergot. H. H. Dale.
- 17 *Treatment of Lobar Pneumonia. A. J. Mathison.
- 18 Direct Methods of Examining the Air and Food Passages. C. von Eicken and D. R. Paterson.
- 19 Removal of the Tonsils. G. S. Hett.
- 20 Enucleation of the Tonsil. D. McKenzie and S. Thomson.

8. **Influence of Sour Milk on Metabolism.**—The conclusions drawn by Harley from analyses on metabolism when a small quantity of sour milk is given in addition to the ordinary mixed diet can be placed under two heads: First, the influence on increased intestinal putrefaction: The quantity of the aromatic sulphates is seen to be decreased, although this is not in any considerable quantity, but in none of the cases were the aromatic sulphates very large to commence with. The increased indican in the urine also appeared to be somewhat decreased in quantity. In all the cases the stools became much less offensive in odor when a small quantity of sour milk had been added to the diet. The results of Schmidt's fermentation test further indicated a decrease in the intestinal putrefaction, and the marked alkaline condition of the stools tended to become either neutral or even acid. The chemical analyses gave indications that there was a decrease in the intestinal putrefaction. Secondly, the influence on the absorption of food: The quantity of nitrogen in the stools is certainly increased by the addition of sour milk to the diet, and this increase in the quantity of nitrogen present causes the apparent decrease in the absorption of nitrogen by the bowel. It must be here remembered that the nitrogen contained in the stools is not really the nitrogen in the food, which remains undigested; but is the nitrogen contained in the various secretions that are eliminated into the bowel, together with mucus, epithelial cells, and the remains of numerous bacteria in the intestine; so that, although the nitrogen absorption may apparently be decreased, there is in all probability no real decrease in the absorption of nitrogen. The fat, however, in the stools, appeared to be slightly increased in quantity in two cases. The analytic results of the absorption of the food after the addition of small quantities of sour milk to an ordinary diet do not apparently point to any better absorption of food.

9. **Chrysarobin.**—Unna proposes a generous use of chrysarobin siccatis and of ointments containing, besides chrysarobin, oleates of lead. After a year's experience, he recommends this

form of treatment of psoriasis as an especially quick and thorough one.

11. **Treatment of Morphinomania.**—The details of the treatment which Miller recommends are as follows: 1. A course of nine weeks in a nursing home or similar institution. He considers this period as long as desirable and yet short enough to bring the cure within the reach of most patients. 2. Examine the patient and make sure there is nothing to contra-indicate the treatment. 3. Explain to the patient very fully the nature of the cure. Let him see that you do not mean to treat him as a criminal, but that you want to help him. Explain that you will allow him practically as much morphin as he asks for during the first three days, and that by the end of that time he will be sound asleep, and free of the craving. 4. During the first three days of treatment, the patient should get a diminishing number of injections of diminishing strength, and on the third day the injections should be per rectum. 5. Before each injection he has to take a draught containing 5 grams of sodium bromid. The total for the three days should work out at about 100 grams. By the end of the third day both bromid and morphin are stopped, and the patient will be in a comatose or semicomatose condition which will last for three to six days more. 6. During all this time the patient is roused to take milk at regular intervals, and to be placed on the commode to empty bowel and bladder. 7. When the effects of the bromid begin to pass off there will be in all probability a certain amount of mental confusion, including hallucinations, delusions of persecution and so on. These will pass off soon. 8. As soon as the patient appears to be sufficiently sensible, efforts should be made to hypnotize him, and the lethargic state he is in will materially assist. Suitable suggestions must be made without waste of time, lest the craving should reassert itself before the mind is sufficiently influenced. This is the critical point of the whole cure. 9. As soon as possible the patients should be brought into one room and hypnotized collectively. This Miller considers of very great importance, as would any one who has seen the method practiced abroad. All the most successful exponents of treatment by suggestion on the Continent lay great stress on the value of this method.

Bertillon, Van Renterghem, the late Dr. Wetterstrand, and many others. It serves two purposes: (a) to facilitate the hypnotization of obstinate patients; (b) to enhance the effect on all that respond. 10. During this period, that is, from the second to the end of the seventh week, the patients should be strictly supervised, and no access to drugs allowed. Everything is done to make life interesting, and to promote the general health of the patient. 11. During the eighth and ninth weeks the patients should be allowed to keep their morphin and syringes. The hypnotic sittings should be reduced in number, and should have special reference toward teaching the patient to put himself to sleep, that is, autohypnosis. Autohypnosis is, says Miller, a mental knack or trick that can be acquired through hypnotic suggestion by all but a certain percentage of mental invertebrates. Once acquired, this power will serve to give the patient in the future a ready refuge from worry or pain, or anything else that might lead to thoughts of morphin.

17. **Treatment of Lobar Pneumonia.**—The central fact in this paper is the employment of a certain drug combination in twenty cases of lobar pneumonia, with no mortality, but with abortion of four of the cases. The treatment advocated is the administration from the time of diagnosis of a combination of creosote and potassium iodid. Mathison gives, from the time of diagnosis, the following prescription, and to minors one of strength proportionate to their age: Potassium iodid, 1 dram; creosote, ½ dram; rectified spirit, 2 drams; liquid extract of liquorice, 3 drams, or 4 drams of the older Pharmacopœia preparation. Water to 6 ounces. A tablespoonful to be taken every four hours. In this combination the antiseptic action of creosote limits the extension of the pneumonic process. It directly opposes the invaders, probably by making the circulation an unsuitable haunt for them, and perhaps also by digesting enzymes. The iodid, stimulating cell action, loosens the exudate. The fluxion is diminished by the quieting effect both drugs have on the heart, by their

combined diuretic action, and by the reduction of blood-pressure by the iodid.

Dublin Journal of Medical Science

November

- 21 *Syphilitic Reinfection. H. FitzGibbon.
22 Sterilization of Certain Degenerates. R. R. Rentoul.
23 Catalogue of the Library of the Royal College of Surgeons of England. V. G. Plarr.

21. **Syphilitic Reinfection.**—The patient whose case is cited by FitzGibbon received syphilitic infection in June or July, 1906, which was followed by the development of complete syphilis early in August that year. He recovered under treatment by intramuscular injection of mercurial cream within twelve months. There was an interval of perfect health from any symptoms from syphilis from April, 1907, until October, 1909, during which time no treatment was undergone. About this time he exposed himself to the risk of infection, which was followed by a characteristic chancre, and the subsequent sequelæ usual in recently acquired syphilis, such as inguinal adenitis, sore throat, etc., which left no doubt of the case being one of reinfection of syphilis which must have taken place in the end of October, 1909, about the time that the patient admitted the exposure to have taken place. The dates of the respective infections were approximately July, 1906, and October, 1909, leaving only an interval of three years and three months between the first infection and the date of the reinfection. The possibility of a second syphilitic infection taking place in a person who has previously contracted syphilis and recovered from it has long since been proved beyond question by the number of cases which have been recorded on reliable authority, but the interval between the first and second infections has always exceeded five years. FitzGibbon regards his case, therefore, as quite exceptional in view of the shortness of the interval which intervened between the first attack of complete syphilis and the second infection.

British Journal of Children's Diseases, London

November

- 24 Data and Tests in the Study of the Exceptional Child. M. P. E. Groszmann.
25 Auricular and Peri-Auricular Dermoids, Fistulas and Tumors of Congenital Origin. J. H. Evans.
26 *A Case of Lymphosarcoma. G. F. Vincent.

26. **Lymphosarcoma.**—Vincent first saw this patient, a boy, aged 9 years, on July 9. His mother noticed on the night previous while giving him his bath that his abdomen was enlarged; that he had vomited once or twice, and that the bowels had acted three times that day. She said that two or three weeks before this some friends had remarked to her that he was not looking well and seemed paler and somewhat thinner, but she had not noticed it herself. When Vincent saw him the temperature was 97 F. and the pulse 100. The stomach appeared to be distended and the costal arches were pushed forward. A considerable amount of free fluid could be detected in the abdomen, and percussion did not give rise to any pain. On July 10, his temperature was 97 F. and pulse 104, and the distention of epigastric and hypogastric regions was more pronounced. He complained of a slight pain occasionally in the right hypochondrium and had some difficulty in micturition. He vomited once and the bowels acted three or four times during the night. He measured over the epigastrium 26 inches, over the umbilicus 23½ inches, and from the xiphoid cartilage to the umbilicus 6½ inches. On July 11, temperature was 97 F. and pulse 108. He did not complain of any pain, but lay in bed reading. An incision was made in the mid-line, when about 4 pints of clear fluid came away. On inserting the finger Vincent felt a large swelling about 3 by 2 inches attached to the anti-mesenteric border of the ileo-cæcic flexure, with several swellings the size of a marble dotted over the intestine above and below this; also a swelling the size of a hen's egg surrounding the gall-bladder. Through the incision he pulled out the growth with a portion of the intestine, but in doing so it broke, for it was very brittle, although its walls appeared to be about ½ inch thick. As the gall-bladder and a large part of the intestine were involved, Vincent decided not to proceed further with the operation. He was also suffering considerably from shock,

and vomited about half a teacupful of coffee grounds. Vincent replaced the swelling, put in a large drainage tube, and sent him back to bed. He died in thirty-six hours. The necropsy showed the growths on the intestine and gall-bladder mentioned, also large nodules on the lesser curvature of stomach and duodenum.

Annales des Maladies des Org. Génito-urinaires, Paris

October 15, XXVIII, No. 29, pp. 1825-1920

- 27 *Hydronephrosis with Horseshoe Kidney. (Sur trois nouveaux cas de rein en fer à cheval.) E. Papin and E. Christian.
28 *Cancer of the Prostate. H. Young (Baltimore).

27. **Horseshoe Kidney.**—Papin and Christian report three additional cases, with hydronephrosis in two of them. They have also found nine operative cases on record of hydronephrosis with horseshoe kidney with operative treatment and fifteen cases in which the trouble was first noted at necropsy. Bilateral hydronephrosis in a horseshoe kidney has never been encountered during life. The heminephrectomy in the nine operative cases was successful in all but one; in this the fact that the kidney was of the horseshoe type was not recognized until the attempt had been made to remove the whole kidney mass. Fatal hemorrhage followed from laceration of a large vessel. Albarran did a ureteropyeloneostomy with successful outcome in one of the cases, establishing the possibility and advantages of more conservative measures than the usual heminephrectomy.

28. See THE JOURNAL, March 5, 1910, page 784.

Archives des Maladies de l'App. Digestif, Paris

October, IV, No. 10, pp. 561-624

- 29 *Hypersecretion in Fasting Stomach in Relation to Ulcer. W. Oettinger.
30 The Psychic Gastric Secretion in a Gastrostomized Patient. R. Hertz and S. Sterling.

29. **Hypersecretion in Fasting Stomach.**—Oettinger regards pure gastric hypersecretion in the fasting stomach as a sign of disturbance both in the secretory and motor functioning, and says that in at least 72 per cent. of the cases it is the result of an ulcer or ulceration in the stomach. If besides the hypersecretion there is also stagnation of stomach content, the conditions favor autodigestion of the stomach wall. Among seventy-five patients with more or less gastric juice in the fasting stomach, he found fifty-four with "occult" blood in the stool. The hyperacid conditions in the stomach are liable to entail secondarily spasmodic contraction of the pylorus, or gastroptosis or the effect of corsets may aid in the vicious circle. Even in all the twenty-one cases in which the stools were free from blood, there was a history of more or less gastric discomfort, loss of weight, etc., or actual pain.

Archives de Médecine des Enfants, Paris

November, XIII, No. 11, pp. 801-880

- 31 *Pathology of the Thymus. A. B. Marfan.
32 *Glioma of Base of Brain. A. Halipré.

31. **Pathology of the Thymus.**—Marfan concludes from his research that some chronic infection or intoxication is generally responsible for simple hyperplasia of the thymus. Syphilis and tuberculosis are the principal factors, and tentative antisiphilitic treatment may prove successful even in the absence of a known history of syphilis. If no benefit is derived from it, general treatment for glandular enlargement should be instituted. Injection of adreulin, 2 to 4 drop^s a day of the 1 per thousand solution, seems to have a favorable action on hyperplasia of lymphoid tissue in general, and Marfan suggests its use in case of hypertrophy of the thymus. With threatening symptoms from compression of the air passages, radiotherapy, thymectomy or intubation may be considered. If there is no immediate urgency, radiotherapy might be given a fair trial. Friedländer has reported entire subsidence in an eight weeks' lapse of severe respiratory disturbances under twelve Roentgen-ray exposures in thirty days, and Myers has reported similar success in another case, although he had to make forty-seven exposures in the course of three months to realize this result. In emergencies, intubation with a long tube reaching nearly to the bifurcation may

relieve the little patient of all disturbances. Inhalation of oxygen, injections of camphorated oil and artificial respiration may also prove useful. Thymectomy, however, is a relatively simple operation and is indicated in all cases of intense and lasting compression. A number of successful cases are on record.

32. **Glioma at Base of Brain.**—The special feature of Haliprè's case was that the functioning of the third pair was not interfered with by the large, soft, three-lobed glioma in the base of the brain, involving the internal capsule. The optic nerves embedded in the tumor were completely destroyed, but the right third nerve, although traversing the tumor, was apparently intact and no symptoms had been observed from it. The patient was a girl of 11; the first symptoms of the tumor had been observed four years before death. They consisted at first mainly in convulsions and hemiparesis, all improving under bromids.

Bulletin de l'Académie de Médecine, Paris

November 8, LXXIV, No. 35, pp. 239-260

- 33 *Mortality from Tuberculosis in France. A. Robin.
34 The Activity of the New Organic Arsenical Preparations. A. Gautier.

33. Summarized in Paris Letter, December 3, page 1994.

Lyon Médical, Lyons

October 16, CXV, No. 42, p. 626-688

- 35 The Adams-Stokes Syndrome. L. Gallavardin.
October 22, No. 43, pp. 689-728
36 Salvarsan (Ehrlich's "606") in Syphilis. Coignet and A. Jambon.

October 30, No. 44, pp. 729-768

- 37 The Arterial Supply of the Thyroid. A. Latarjet and H. Alamartine.

November 6, No. 45, pp. 769-804

- 38 Tubercle Bacilli Not Found in Urine with Pulmonary Tuberculous Lesions Alone. Giuliani and Faysse.

November 13, No. 46, pp. 805-844

- 38 Measurements of Uterus in Diagnosis of Local Cancer. (Les renseignements fournis par l'hystéromètre dans le diagnostic du cancer du corps de l'utérus.) H. Violet.

Obstétrique, Paris

October, III, X, S., No. 19, pp. 769-888

- 40 *Spontaneous Delivery with Rachitic Contracted Pelvis. M. Marioton.

40. **Spontaneous Delivery with Contracted Pelvis.**—Marioton reviews the experiences in this line at the Clinique Tarnier at Paris, in charge of Bar, with 180 cases during the last two years, striving to determine the probabilities for delivery without assistance in the various grades of rachitic contracted pelvis. This anomaly seems to have grown less and less frequent during the last half century, not only at this clinic, but according to the reports from six other maternities of Paris. The maternal mortality was as low for the women with contracted pelvis—when delivery was spontaneously terminated—as for women with normal pelvis. The mortality was only 0.6 per cent., while the general obstetric mortality is now estimated at 0.5 per cent. The statistics from various clinics and the management of the cases are tabulated for comparison. The data show that with a minimum conjugate diameter (*diamètre promonto-pubien minimum*, estimated by subtracting 1.5 cm. from the diagonal conjugate), of over 9 cm., delivery is spontaneously completed in 80 per cent. of all cases: below 8 cm. this rarely occurs—not in over 25 per cent. Between these limits of 8 and 9 cm. (3¼ and 3½ inches) is the debatable ground. The dividing line seems to lie between 8.5 and 8.6 up to 8.9 cm. Below 8.5, assistance is generally necessary in more than 50 per cent. of the cases. The statistics cited show that spontaneous delivery occurs 10 to 11 per cent. more frequently in women who have already borne children. With pelvis over 8.6 cm., the fetal mortality scarcely surpassed that with normal pelvis, being about 9 per cent., while with pelvis of less than 8 cm. fully 30 per cent. of the fetuses succumbed. The influence of preceding births did not seem to affect the fetal mortality, but infants weighing not much over 5 pounds died in a proportion ranging from 22.85 to 80 per cent., irrespective of the degree of contraction of the pelvis. With infants weighing from 5 to 6 pounds and a trifle over, the mortality was from 6 to 8

per cent., increasing to 20 per cent. with pelvis between 8.1 and 8.5 cm. Under 5 and 6 pounds, with a conjugate diameter of 8 cm., the mortality is a little less than for the heavier children, but it amounted to 33 and 50 per cent. The data presented show that the fact of the contracted pelvis *in itself* does not render the prognosis for the mother any more serious.

Revue de Chirurgie, Paris

November 10, XXX, No. 11, pp. 945-1080

- 41 The Pain With Echinococcus Disease of the Liver. (Douleur dans les kystes hydatiques.) E. Quénu.
42 *Treatment of Surgical Tuberculosis of Bones and Joints. (Des progrès réalisés dans le traitement chirurgical des tuberculoses ostéoarticulaires.) P. Vignard and R. Armand.

42. **Treatment of Surgical Tuberculosis of Bones and Joints.**—Vignard and Armand conclude their long article, which is accompanied by thirty-one skiagraphs of some of the cases reported, with the statement that the natural tendency toward a cure of tuberculosis, especially in the joints in the young, imposes the necessity for prolonged immobilization as the best treatment in such cases. Local injections may be advisable as an adjuvant, especially in residual abscesses after healing over of the bone lesions. They have no action on the latter, as it is impossible for them to reach all parts of the lesion effectually, and the fluid injected has no effect on bone tissue. Whenever a focus of tuberculous osteitis is accessible, it should be cleared out, and operative treatment is also indicated for a joint lesion if no turn for the better is apparent after five or ten months of immobilization. The operation should be concluded by plugging the cavity left in bone or joint with Mosetig filling. Everything must be done to avoid the necessity for drainage, at least for any length of time. Treatment on these principles is applicable only in cases in which there is no fistula and the kidneys are sound.

Revue de Médecine, Paris

November, XXX, No. 11, pp. 857-936

- 43 Experimental Bacillary Arthritis with Effusion. (Contribution à l'étude pathogénique des arthropathies bacillaires.) L. Landouzy, H. Cougerot and H. Sahn.
44 *Central Nervous System of Children with Inherited Taints. II. (Le système nerveux central d'enfants issus de parents en état morbide.) G. Catola.

44. **Nervous System with Inherited Taints.**—The conception of an inherited predisposition to disease is sustained by the histologic findings in the central nervous system in eight children examined by Catola. The mothers had had tuberculosis, nephritis, pernicious anemia or syphilis, and the nerve tissue in the children showed imperfect or otherwise abnormal structure. The toxins seem to be able to induce hypoplasia or hyperplasia, affording an anatomic basis for the predisposition to disease in such families.

Semaine Médicale, Paris

November 23, XXX, No. 47, pp. 553-564

- 45 *Diffuse Calcification of Connective and Subcutaneous Tissue. (La calcinose généralisée et ses formes anatomiques interstitielle et sous-cutanée.) J. Lhermitte.

45. **Diffuse Calcification of Connective and Subcutaneous Tissue.**—Lhermitte calls attention to an anatomic-clinical syndrome characterized by infiltration with lime of the subcutaneous and connective tissue. This generalized calcinosis, as he calls it, is liable to affect both sexes, but is most frequent between the ages of 8 and 20. None of the specific infections seems to have anything to do with it, unless possibly syphilis. Krause and Trappe noticed marked improvement in their case under mercurial treatment, although there were no signs of syphilis and the Wassermann reaction was negative. Mercurial treatment was even more effectual in Stradiotti's case in which there was a history of untreated syphilis in youth; at the age of 44 a profusion of subcutaneous nodules containing lime subsided under mercurial treatment. The data reported seem to indicate further a close connection between this diffuse calcinosis and scleroderma. In a number of the cases on record there was irregular, pronounced enlargement of the thyroid. In many cases local trauma seemed to be responsible for the first development of the subcutaneous form of the affection. The interstitial or muscle-

tendon type is less frequent, but much more serious. The two forms have been observed together in some cases, and both are liable to be accompanied by vasomotor disturbances, sclerema, changes in the skin and pigmentation.

Berliner klinische Wochenschrift

October 31, XLVII, No. 44, pp. 2005-2044

- 46 Semicentennial of Berlin Medical Society. H. Senator.
47 Diagnosis of Nasal Diphtheria in Young Infants. Blochmann.
48 *Direct Determination of Free Acid in the Stomach. (Ein neues Verfahren zum direkten Nachweis der freien Säure im Magen.) E. Fuld.
49 Iodin Cachexia with Arteriosclerosis. M. Emmerich.
50 The Retrojugular Glands in Early Diagnosis of Experimental Tuberculosis. G. Kiralyfi.
51 Standards for Normal Heart Outlines in Radiography. M. L. Dorn.
52 Von Dungen's Modification of Wassermann Test. R. Frühwald and F. Weiler.
53 Technique for Vein Anesthesia. A. Schlesinger.
54 Biology of Tubercle Bacilli. H. Aronson.
55 *Roentgen Fluoroscopy Without Fluorescent Screen. (Röntgen-durchleuchtung ohne Schirm.) A. Bauer.
November 7, No. 45, pp. 2045-2088
56 Salvarsan (Ehrlich's "606") in Nervous Diseases. Frenkel-Helden.
57 The Muscle Findings in Cerebral and Spinal Muscular Atrophy. F. H. Levy.
58 *Occurrence and Diagnostic Importance of Peptid-Splitting Enzyme in Stomach Content. L. Kuttner and G. Pulvermacher.
59 Morphologic Changes in Blood with Simple and Exophthalmic Goiter. U. Carpi.
60 Factors Involved in Production of Fever. (Zur Beleuchtung der Hyperthermie.) S. Widerøe.
61 Tuberculosis of Adult Knee-Joint. (Tuberkulose des erwachsenen Kniegelenks mit einer neuen Theorie und Operationsmethode.) L. W. Ely.
62 Acute Myeloid Leukemia with Green Bone Marrow. S. M. Zypkin. (Commenced in No. 44.)
63 Infanticide. (Der Kindesmord.) Marx.

48. **Test for Free Acid in Stomach Content.**—One hour after a test breakfast the patient drinks a swallow of an aqueous solution of sodium bicarbonate while the physician is auscultating him. The arrival of the fluid in the stomach can be readily heard and also, in a few minutes, the sounds of effervescence in case there is hydrochloric acid present in the stomach content. Fuld has not been able to find any effervescence auscultation test previously described in the literature. The effervescence can be detected also by Roentgen-ray examination, and if the patient is told to stand up there is generally an eructation. The only source of error liable is when there is gas already in the stomach from fermentation. This possibility should be excluded by auscultation before giving the soda. The method is so simple and easy that the test can be repeatedly applied without inconvenience to the patient. The amount of acid present can be approximately estimated by having the patient take another sip of the soda solution. If there is no further effervescence, the first sip must have neutralized all the free acid. With hyperacidity several sips are necessary to accomplish this. He estimates at 75 per cent. the proportion of cases of gastric cancer in which the secretion of hydrochloric acid has been arrested. Consequently the above simple means for determining the presence or absence of free acid in the stomach should be included, he declares, in every routine examination of a patient passing middle life, just as the urine is examined for albumin and sugar.

55. **Screenless Fluoroscopy.** Bauer applies to the skin, instead of to the screen, the coating of fluorescent paint. This is done by drawing over the part a tricot cover coated with the platino-cyanid of barium. The result is surprising and fascinating, as the parts thus become luminous, free from the drawbacks of projection of the object on a plane surface. The chemical is applied to the inside of the tricot cuff or bandage, which is then drawn over or wound around the part to be examined. It then becomes actually transparent, so far as the soft parts are concerned, while the bones stand out in normal relief.

58. **Peptid Splitting Ferment in Stomach Content.**—Kuttner and Pulvermacher state that the findings with the glycol-tryptophan test (described in THE JOURNAL, Jan. 1, 1910, page 86) and their modification of it failed to confirm the assumption that the findings can be utilized in the diagnosis of stomach affections, especially of gastric cancer. However, the findings seem to throw light on the functioning of the pancreas, and the test may prove useful for this purpose.

Deutsches Archiv für klinische Medizin, Leipzig

C, Nos. 5-6, pp. 429-610. Last indexed Nov. 12, p. 1770

- 64 Orthodiagraphic Examination of the Heart in the Tuberculosis. (Herzgrösse bei Tuberkulösen.) R. Beck.
65 Histology of the Intestine with Pernicious Anemia. V. Schlaepfer.
66 *Leukocyte Count in Different Parts of the Circulation at the Same Time. (Leukozytenzählung und Inhomogenität.) V. Ellermann and A. Erläunders.
67 Infantile Splenic Anemia from Leishman's Bodies. (Kala-Azar?) R. Jemna.
68 *Chronic Intestinal Disease and Bone Disease. (Chronische Darmstörungen und Knochenkrankung.) E. Koll.
69 *Parasitic Hemoptysis. L. Abend.
70 Action on Size of Heart of Experimental Anemia. H. Lüdke and L. Schüller.
71 Acute Leukemia with Paratyphoid B. Infection. F. Voswinkel and G. A. Duzzelt.
72 Albuminous Expectorations After Thoracocentesis. W. Boyer.
73 Experimental Production of Blood Picture Simulating Leukemia. H. Lüdke.
74 *Carbohydrate Metabolism. (Kohlenhydratstoffwechsel.) L. Wacker and F. Poly.
75 *Study of Fever. (Klinische und experimentelle Untersuchungen über Genese und Verlauf des Fiebers.) H. Lüdke and J. Sturm.
76 *Hemolytic Test for Gastric Cancer. III. E. Gräfe and W. Röhmer.
77 Alternating Pulse. J. Strashurger.
78 Induced Electric Phenomena in Human Body. (Induzierte elektrische Phänomene am menschlichen Körper und darauf beruhendes Tönen der Haut.) J. Müller.

66. Summarized in these columns, Sept. 24, 1910, page 1156.

68. **Chronic Intestinal Disease and Bone Disease.**—In the first of the four cases reported by Koll. intestinal disturbances had persisted for years, with fetid diarrhea at times. In each case the bones showed marked and progressive disturbances in development, softening or hyperplasia and abnormal development of the epiphyses. In two of the cases there does not seem to be any doubt that the bowel trouble was mainly responsible for the abnormal conditions in the bones; the cure of the latter as the bowel trouble was cured confirms this assumption. There is every probability that the same factor was responsible in the other two cases. The patients were women between 18 and 29 years old and one man of 73. The diarrhea began in early childhood in three of the cases and at the age of 24 in the other, and it had recurred at intervals during the years since, the features of the diarrhea indicating some affection of the small and upper large intestine. There was a suspicion of tuberculous infection as the cause of the intestinal trouble in each case, confirmed by necropsy in one, but the complete recovery in two other cases scarcely sustains this assumption. The bone anomalies suggested osteomalacia in one case, rachitis in two and acromegaly in the other. The facts observed suggest that bone affections of this kind should be regarded not so much from the standpoint of strict differential diagnosis, but should be considered as the local manifestations of some constitutional chemical process of intoxication.

69. **Parasitic Hemoptysis.**—The patient in Abend's case was a miller 44 years old, who had been living in the United States for twenty years, working on railroad construction and in mills, and coughing up blood occasionally during the last ten years. Each morning he spit up a little blood, but never at other times, and he had no dyspnea nor pain, but sometimes a sense of oppression and formication in the region of the left lower ribs, with occasional vertigo. Otherwise he felt well, and after thus expectorating blood for about twenty-four years, suddenly it ceased and the man has been well since. Abend found in the sputum the ova of some parasite, which he believes is the *Distomum pulmonale*, and the Roentgen rays show several small pinhead oval shadows in the center of the lung, similar to the miliary nodules which Miura found in some cases of supposed distomiasis. No fatal hemorrhage from this cause is on record.

74. **Carbohydrate Metabolism.**—Wacker and Poly report research on the normal sugar content of the human blood, sugar in various parts of the vascular regions in the dog and rabbit, hyperglycemia and the permeability of the kidneys for sugar, chemical regulation of body temperature, fever and action of antipyretics and the sugar content of the blood in pathologic conditions in 126 patients.

75. **Research on Fever.**—The findings in eighty cases of various acute infectious diseases are compared and certain

laws are seen to prevail indicating a close connection between the course of the fever and the bacterial content of the blood. These assumptions were confirmed by experiments on animals. It proved possible to prevent fatal collapse in animals after injection of bacterial toxins by keeping them extra warm just before and following the injections, thus preventing the reduction of temperature otherwise constant after the injections. Anything tending to induce hypersusceptibility may upset the temperature balance. Disturbances in the temperature regulation and formation of antibodies are signs of the altered reaction capacity of the organism, but the central nervous system is the chief point of attack for the toxins and endotoxins. When the nervous centers are intensely affected, phenomena of collapse follow, drop in temperature and blood-pressure, and inability to produce antibodies; when the nerve-centers are only moderately affected, the temperature rises and antibodies are produced unhindered.

76. **Diagnosis of Gastric Cancer from Hemolysis by Stomach Content.**—Gräfe and Röhmer say that the presence of oleic acid in the stomach content, which is responsible for the hemolysis observed, is not specific for cancer, but it indicates something wrong, and in conjunction with other symptoms is proving a valuable aid in differentiation of malignant disease. A previous communication on the subject was summarized in THE JOURNAL, Oct. 29, 1910, page 1602.

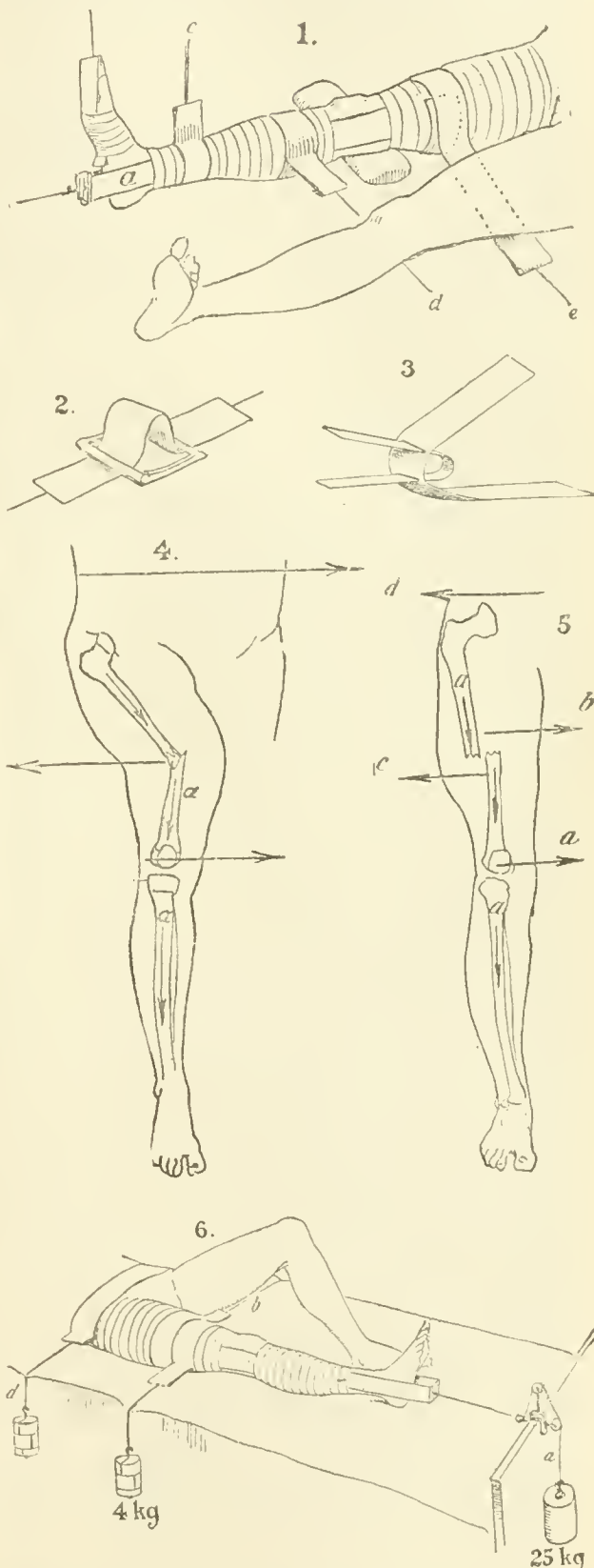
Deutsche medizinische Wochenschrift, Berlin

November 17, XXXVI, No. 46, pp. 2129-2176

- 79 *Extension Treatment of Fractures. (Behandlung der Frakturen mit Streckverbänden.) B. Bardenheuer and R. Graessner.
- 80 *Convulsions After Orthopedic Operations. (Krampfanfälle nach orthopädischen Operationen.) A. Codivilla.
- 81 *Functional Tests of the Kidneys. (Bedeutung der funktionellen Nierenuntersuchung.) L. Casper.
- 82 Disadvantages of Endotin in Treatment of Tuberculosis. (Zur Behandlung der Tuberkulose mit eiweissfreien Tuberkulinpräparaten.) G. Joehmann and B. Möllers.
- 83 Cause of Dilatation of the Heart and High Blood-Pressure with Arteriosclerosis in the Aorta. (Zur Entstehung der Herzhypertrophie und Blutdrucksteigerung bei Aortensklerosen.) A. Bittorf.
- 84 Salvarsan (Ehrlich's "606") in Syphilis. J. Hecker.
- 85 Action of Salvarsan (Ehrlich's "606") on Spirochetes in Mouth. P. H. Gerber.
- 86 Dietetic Treatment of Diabetes. (Ernährungstherapie des Diabetes mellitus.) G. Graul.

79. **Extension in Treatment of Fractures.**—Bardenheuer presents here the conclusions of his years of pioneer work in this line, describing the technic for continuous elastic traction in various directions, which he regards as the best means to restore normal functioning to fractured limbs. The contraction of the muscles is often the chief hindrance to reduction of the fracture, and consequently, he says, extension should be applied as early as possible after the fracture, and it should be strong enough to overcome the elastic inflammatory retraction of the muscles. As the muscles act not only lengthwise of the limb, but also concentrically, traction must be exerted from the sides as well as from the end of the limb, and be adapted to counteract any tendency to rotation. By exact apposition of the stumps the tendency to production of callus is reduced to the minimum, which is extremely important for the future functioning of the limb; the aim should be to reduce the healing of the stumps to a linear scar, just as in the healing of a skin wound. Healing by primary intention of a skin wound is always the shorter process, and it is the same with healing of the fracture. Forceful reduction is rendered unnecessary with the extension technic, as this gradually brings the stumps into their normal position, unless the displacement is extreme. When it has to be done he gives ether. A good functional result can be anticipated only when the elasticity of the muscles and of all the tissues is maintained unimpaired. They lose their elasticity more and more the longer they are inactive, and most so when there is concomitant inflammation. By the elastic traction of his extension technic the retracted muscles are stretched while the stumps having been restored to normal position, there is no further irritation from them on the soft parts and resulting inflammation is prevented, checked or its consequences attenuated. He commences active motion with a fractured wrist as early as the fourth day, the fifth with fractured ankle, the

third week with fractured knee, exercising the joint for half an hour twice a day. The excursions should be merely what can be done without pain. The weights are removed when the limb is being exercised. The patient lies on a hair mat-



press, or a board can be placed under the limb. The adhesive plaster must be non-irritating, 6 cm. wide for the lengthwise strips and half this width wound around the limb. The front of the tibia and the malleoli are protected by folded gauze;

cotton becomes lumpy. The extension is applied to the region of the stumps with counterextension for the farther end of the bone, as in Figure 4. He advocates extension on these principles for all simple fractures of the extremities: for dislocations after reduction, as the Roentgen rays show that dislocations are almost always accompanied by more or less splitting off of bone or lacerations, and also for all compound fractures of the extremities if the skin has been merely pierced by the bone, or if the soft parts are not seriously injured and there is reason to assume absence of infection. He disapproves of plaster casts in all cases of fracture, except when needed for transportation of the patient, especially in war: for the delirious, to prevent self-injury; for exceptional circumstances in which a walking apparatus is required; for after-treatment of fractured bones that have been surgically united—in both these last classes the plaster cast must be made removable to permit exercise of the limb—and, lastly, for compound fractures when the size, location, extent and nature of the injury may require immobilization in a solid cast.

Figure 1 shows the extension for fracture of the leg not far below the knee; Figure 2 shows the device by which downward traction can be applied from each side; Figure 3 the plaster crossed to pull split-off parts of bone into apposition. Figure 4 shows the direction of traction, and Figure 6 shows the same in application, while Figure 5 calls for traction in different directions. He uses a spring extension apparatus for fracture of the arm. The traction applied to the waist is to keep the patient from moving around.

80. Convulsions After Orthopedic Operations.—Codivilla has encountered nine cases of this kind, Schanz ten, and Hoffa, Drehmann and others have reported some fatal cases. The convulsions are a severe complication of the operation, and Codivilla thinks that there can be no doubt that they are the result of traction on the nerve terminals by the extension applied to complete the operative correction of the deformity in question. The excessive traction on the soft parts and nerves of the hips affects by reflex action the central nervous system, entailing a condition which leads to the outbreak of actual epileptic convulsions. Neri has confirmed by experiments on animals the correctness of this view of the traction on the nerves in the region as the cause for the convulsions, especially the continuous traction on the sciatic nerve. Children and adults with a predisposition to nervous disturbances are particularly liable to be affected. The main point in treatment of the attack or in prevention is to relieve the traction on the soft parts, either by loosening the extension or by placing the hip in a position to prevent the excessive traction on the soft parts. He advises a preliminary course of bromid for epileptics and all persons inclined to be unusually nervous, and, when the soft parts have to be stretched, to do this very cautiously and gradually. In his cases the convulsions did not develop until several days after the operation; they were usually preceded by prodromal manifestations: more or less headache, the patient is particularly restless at night and unable to sleep, with occasional painful spasm in the limb. Children do not cry but moan almost uninterruptedly, while older patients keep sighing and complain of distress, and there may be a tendency to delirium, especially at night. The pulse is slow and tense, the pupils mydriatic, the light reaction sluggish and incomplete, and the pupils may be unequal. The patients may complain of abdominal pain and difficulty in urinating. This prodromal stage may last for hours or days and may subside without development of actual convulsions. The convulsions generally begin mild and brief, but grow gradually worse until the spasms are practically continuous. During the pauses the patient may regain consciousness, but generally there is more or less apathy or stupor. The convulsions resemble an epileptic seizure in every particular, he states. Schanz ascribes them to fat embolism, but there are numerous arguments against this view.

81. Tests of Kidney Functioning.—In this postgraduate lecture Casper finds the great advances made in functional tests of the kidneys which have revolutionized the prognosis of nephrectomy. He adds that the tests are also proving of great

value in determining the indications for prostatectomy, as the chances for a successful outcome are better the sounder the kidneys.

Medizinische Klinik, Berlin

November 20, VI, No. 47, pp. 1845-1884

- 87 *Menus for Dietetic Treatment in Health Resorts. (Diät in Kurorten und Anstalten.) W. Schlesinger.
88 Focal Reaction and Hypersusceptibility in Tuberculin Treatment of Pulmonary Tuberculosis. (Herdreaktion und Ueberempfindlichkeit bei der Tuberkulinbehandlung der Lungentuberkulose.) J. W. Sanzon.
89 Treatment of Eczema in Infants. Galewsky.

87. Special Diets at Health Resorts and in Institutions.—Schlesinger commends the introduction at Homburg and some other watering places of special menus for certain classes of visitors in search of health, saying that these special diets represent a great advance. But he thinks that the menus provided might be improved on, and he suggests menus for four diets graduated to the digestive capacity of the individual rather than to the special organ which may be diseased. The menus outlined are comprehensive enough for ample individualization for indications and tastes. Diet 1 is a fluid diet for the very sick. Diet 2 is designed to spare the stomach all extra work; all the articles are passed through a sieve or very finely chopped, and extensive use is made of beaten whites of eggs which serve the useful purpose of keeping the particles of the food apart and rendering them still more porous as the dish is cooked. Meat is allowed only at noon. Diet 3 is mainly a milk and vegetable diet, free from meat and extractives, and Diet 4 is for diabetics, excluding sugar and flour. All the menus are arranged for three meals a day, plus two light lunches.

Monatsschrift für Kinderheilkunde, Leipsic

IX, Nos. 5-6, pp. 255-342. Last indexed Oct. 4, p. 1238

- 90 *Blood-Pressure in Children. (Blutdruck im Kindesalter.) W. Kaupé.
91 *Salt Fever. (Zur Theorie des Salzfiebers.) P. Heim and K. John.
92 Food Requirements of Prematurely Born Children. (Zur Physiologie des neugeborenen Kindes. I.) W. Berk.
93 Carbohydrates in Infant Feeding. (Rolle der Kohlehydrate bei der Ernährung des Säuglings.) L. Langstein.
94 Protest Against Permitting the Exhibiting of Infants in Incubators. (Ein Zeichen der Zeit.) A. Czerny.

90. Blood-Pressure in Children.—Kaupé's findings parallel those of Seiler and Kriss already mentioned in THE JOURNAL, Sept. 3, 1910, page 893.

91. Salt Fever.—It seems evident from the research reported that "salt fever" is the result of heat congestion in the interior as the water normally eliminated in perspiration is drawn away from the skin by the influence of the salt. Drinking water restores the proper balance. The fever with the retained water is only an indirect result—the salt in itself not raising the temperature.

Münchener medizinische Wochenschrift

November 15, LVII, No. 46, pp. 2393-2448

- 95 Immunization of Animals Against Tuberculosis. Ruppel.
96 *Arthropods in Transmission of Disease. (Arthropoden als Krankheitsüberträger.) R. Müller.
97 Salvarsan (Ehrlich's "606") in Syphilis of the Nervous System. G. Treupel.
98 *Idea.* H. Willige.
99 Unfavorable Experiences with Trypsin in Surgical Tuberculosis. P. Sohler.
100 Staining Technique for Determination of Certain Organic Oxidizing Substances. (Fehler den farbchemischen Nachweis einiger oxydierender Substanzen des Körpers.) W. Loele.
101 *Experiences with Spinal Anesthesia. (Anwendung der Lumbalanästhesie in der Universitäts-Frauenklinik in Leipzig.) E. Zweifel.
102 Skelograph of Flat-Foot. (Der Plattfuss im Röntgenbilde.) G. Muskat.
103 Chart for Calories in Infant Feeding. (Zur kalorimetrischen Bewertung der Säuglingsnahrung.) H. v. Mettenheimer.
104 Diphtheria Antitoxin in Treatment of Hemophilia Two Cases. H. Krauss.
105 Multiple Osteomas of the Trachea. S. Levinger.
106 Typhoid at Augsburg. (Vorkommen von Unterleibstypus in der Stadt Augsburg.) F. Böhm.

96. Transmission of Disease by Insects, Etc.—Müller gives a nearly two-column list of arthropods, insects, spiders, etc., important from a medical point of view as transmitters of disease, and discusses what has been learned on the subject to date.

101. **Spinal Anesthesia.**—Zweifel states that the spinal technic has been applied in 1,500 cases at Leipsic without a fatality. It is generally combined with the preliminary scopolamin-morphin technic, and this is all that the patients remember of the operation, asking as they rouse, hours after the operation, when it is going to begin. The only by-effects of consequence were headache and pain in the back of the neck in about 5 or 6 per cent. of the patients. The headache persisted on an average for two days; it was aggravated in some cases by the slightest movement of the head. One patient still had headache when dismissed from the hospital six weeks after the operation. Headache developed in 8 per cent. of the eighty-eight vaginal operations, and only in 2 per cent. of the 231 abdominal operations. In a case of herniotomy and one of the Alexander-Alams operation, the cerebrospinal fluid spurted in a strong jet, and both these patients suffered from constant vomiting and intense headache for one or two days, the pain persisting in one case for two weeks. The disturbances in these cases were evidently the result of the changes in the pressure in the fluid, and the technic should not permit such fluctuations in the pressure.

Therapeutische Monatshefte, Berlin

November, XXIV, No. 11, pp. 593-668

- 107 History of and Experiences with Arsacetin. Heinrich.
108 Procyonase in Treatment of Soft Chancre. A. Hatzfeld.
109 *Gymnastic Treatment of Abdominal Ptosis or Constipation. (Zur Therapie der asthenischen Zustände der Unterleibsorgane.) J. Oldevig.
110 *Danger of Castor Oil in Phosphorus Poisoning. (Unbrauchbarkeit des Rizinusöls als Abführmittel bei Phosphorvergiftung.) M. Rothmann.
111 Transplantation of the Biceps Femoris. (Verpflanzung des Musculus biceps femoris zur Hebung pathologischer Ausserrotation des Oberschenkels bei spinaler Kinderlähmung.) A. Hildebrandt.

109. **Exercises in Treatment of Asthenic Conditions in the Abdomen.**—Oldevig emphasizes the necessity for toning up the muscles as the best means for restoring normal conditions in case of ptosis of the viscera, constipation or other abdominal disturbances in which weakness of the abdominal muscles can be a factor. Exercise is the only way to strengthen the muscles, and if the muscle can be exercised singly, the greater the effect. By exercising the muscles which are under control of the will, we are able to influence the organs which are beyond this control. The special exercise which he has found most effectual in cases of ptosis, tendency to hernia and constipation, is with the patient reclining, his arms at his side and one foot laid over the other. He then lifts his pelvis as high as possible, and while he is doing this an attendant opposes resistance to this raising of the pelvis; seated on the long, low bench beside the patient he places his hands on the crests of the ilium and presses downward as the patient lifts the pelvis. When the pelvis is raised as high as the patient can bring it against the resistance of the attendant, then the attendant presses it back down on the table, the patient striving to resist this downward movement. The patient breathes deeply before he commences the exercise, and it is done during slow expiration, although it may take a little practice to do this at first. After the exercise has been done three or four times the patient rests. The exercise has a tendency to increase the heart action and the supply of the blood to the head. When the exercise is correctly done the isolated group of muscles being exercised feel as if a firm, funnel-shaped bandage were wound around the entire pelvis from the perineum to the lower part of the thorax.

110. **Extra Solubility of Phosphorus in Castor Oil.**—The research reported confirms the dangers of giving castor oil in case of acute phosphorus poisoning, as the phosphorus is thus rendered more soluble and larger amounts are absorbed. The same applies also probably to other drugs soluble in oil, nitrobenzol, santonin, cantharidin, etc.

Therapie der Gegenwart, Berlin

November, LI, No. 11, pp. 481-528

- 112 *Digitalis. E. v. Leyden.
113 *Prognosis of Exophthalmic Goiter. (Prognose der Basedowschen Krankheit.) L. Syllaba.
114 *Treatment of Obesity. (Neue Gesichtspunkte für Entfettungskuren mittels diätetischer Küche.) W. Sternberg.
115 *Principles in the Treatment of Hernia. F. Karewski.

112. **Digitalis.**—This is a lecture delivered by von Leyden eleven years ago, but not previously published. He urges to refrain from giving digitalis unless there is urgent need for it, and not to give it too early. It seems to be established that digitalis acts only on the left ventricle; when the right ventricle is weak digitalis acts injuriously rather than usefully, possibly increasing the dyspnea. Consequently he regards this drug as contra-indicated with mitral stenosis, with emphysema and kyphoscoliosis. If it works under these conditions it is only on account of the secondary weakness of the left ventricle. He assumes that digitalis acts only on the musculature of the heart, and consequently will have little action if a large part of the muscle is degenerated. With chronic myocarditis it frequently fails completely. Even with valvular defects, its lack of action may be explained by the isolated myocarditic foci accompanying the endocarditic process. He regards the action of digitalis as uncertain and dubious when there is fever, preferring to give 5 or 8 drops twice a day of tincture of strophanthus.

113. **Prognosis of Exophthalmic Goiter.**—Syllaba makes an important contribution to this subject by his study of fifty-one cases in which the history of the patients has been followed for several years, the series commencing with 1895. Treatment was exclusively medical with two exceptions, and the ultimate outcome is 19.6 per cent. improved and 33.3 cured, that is, favorable in 52.9 per cent. He reviews the experiences of others with non-operative treatment, all confirming his experience that over half of the patients with exophthalmic goiter can be permanently improved and that one-third are completely cured, or at most left with a little exophthalmos. In his seventeen cases of complete cures there were four or five in which the exophthalmic goiter was comparatively mild, but in the others the syndrome was very severe. In the two cases in which an adjuvant operation was performed there was recurrence after two years in one case and the other patient died five months afterward from asystolia; she had been left with postoperative tetany and recurrent paralysis, in addition to her previous disturbances. In the various cases treatment had been manifold and various; any medical measure may cure and all may fail. One patient is improved by one method, another may be uninfluenced by the whole arsenal. In three cases the symptoms flared up under iodine treatment, in one given internally and in the others after prolonged local applications. This experience and that of others confirm the fact that iodine seems to be a poison for patients with exophthalmic goiter. He urges the necessity for careful study of every case of exophthalmic goiter under medical treatment and perpetually thereafter, not losing sight of these patients. Only by systematic series of protracted observations will it be possible to form a correct judgment in regard to the comparative merits of operative and medical measures. There is nothing on record to date giving long enough study of the medical cases for anything like a just appreciation. He begs that practitioners and institutions will keep a register of all patients with exophthalmic goiter and supervise the condition at regular intervals thereafter, even when all is apparently well with them.

114. **Treatment of Obesity.**—Sternberg's suggestions for improving the traditional routine in the matter of diet have been frequently mentioned in these columns. He here asserts that the subjective phase of dietetics has been neglected altogether too much in the past. It deserves special attention in the dietetic treatment of obesity, particularly measures to reduce the appetite. It is a familiar fact that candy and other sweets taken between meals or just before a meal spoil the appetite for everything except more sweets. Coffee has also a pronounced effect in reducing the appetite, making the individual feel that he has eaten sufficiently. Tradition utilizes these properties by permitting sweets and coffee only at the end of a hearty meal, but in the obese this practice should be reversed. The sweets and the coffee should be taken first, and they will enable the individual to feel satisfied with a much smaller meal than otherwise his appetite would call for. He suggests that mannite is particularly useful for the sweets in cases of obesity, as it has a laxative action. He quotes Pliny to show that the action of sweets in reducing

the craving for food was known in ancient times, licorice being recommended to relieve hunger and thirst. This, Sternberg says, is the more important, as sugar was not known to Pliny, and honey and licorice were about the only sweets known. Alcohol seems to have the opposite effect to coffee and sweets in this respect, as it stimulates the appetite. Drugs to deaden the sensibility of the tongue also have an inhibiting action on the appetite. He questioned the employees in chocolate factories and found that all were unanimous in saying that if they nibbled or tasted chocolate not long before dinner they spoiled their appetite for the meal. The data cited are useful hints in treatment of the obese, as also from the opposite standpoint for individuals whose appetite needs fostering.

115. **Principles in the Treatment of Hernia.** Karewski discusses the general principles and the special indications, emphasizing in particular the importance of examining all the points where hernia is possible in every case of violent abdominal pain, vomiting and tympanites for which no other cause is apparent, as an unsuspected hernia may be the cause of the mischief, not forgetting the obturator foramen and the sacrosciatic notch.

Zentralblatt für Gynäkologie, Leipsic

November 19, XXXIV, No. 47, pp. 1529-1552

- 116 Carcinoma of the Stump of the Cervix Five Years After Supravaginal Amputation of the Myomatous Uterus. (Karzinom des Cervixstumpfes nach der Chrobak'schen (Myomoperation.) E. Weisse.
- 117 Successful Decapsulation of the Kidney in Eclampsia Continuing After Delivery. (Nierenenthielung wegen Eklampsie.) H. Bollenhagen.
- 118 *Advantages of Atropin in Treatment of Dysmenorrhœa. R. Drenkhahn.
- 119 Non-Sensibility of Internal Genital Organs. P. Bröse.

118. **Atropin in Treatment of Dysmenorrhœa.** Drenkhahn reports a number of cases of dysmenorrhœa in which injection into the cervical canal of 1 mg. atropin dissolved in 1 c.c. water arrested at once the colic spasms in the uterus or prevented their development. If there is no speculum or syringe at hand, the same effect can be realized by introducing a small cotton wad, moistened with a 1 per cent. solution of atropin and pressed far back against the posterior vault of the vagina. This simple measure has proved effectual in his experience of fifteen years. Its efficacy is explained by Schindler's experimental research on ninety-three animals, showing how atropin paralyzes the automatic action of the uterus and its mechanical excitability. Drenkhahn's experience has shown that even a single application of the atropin may cure a chronic tendency to dysmenorrhœa when there are no morbid changes in the genital organs. He adds that mild acute and chronic inflammatory conditions in the uterus may yield promptly to sitz baths or other measures when the uterus is under the influence of atropin, when otherwise the affections are refractory to all treatment. He wonders that more attention is not paid to atropin as a means of enforcing rest for the uterus in morbid conditions, and states that his communication is for the purpose of rescuing atropin from the neglect into which it seems to have fallen in respect to the treatment of painful affections of the uterus.

Riforma Medica, Naples

November 7, XXV, No. 45, pp. 1233-1260

- 120 Clinical Forum of Gastric Ulcer. G. Rommo.
- 121 Action of Caffein on the Kidneys. (L'azione sul rene della caffeina ad uso protracto.) A. Tomaselli.
- 122 Polycystic Kidneys. (Contributo allo studio isto-patogenetico del rene policistico.) L. Ferrannini.

Hospitalstidende, Copenhagen

October 26, LIII, No. 43, pp. 1201-1224

- 123 *Hypophysis Disease. (Bidrag til Hypophyselidelsens operative Behandling.) E. Schmiegelow. Commenced in No. 42.

123. **Operative Treatment of Hypophysis Tumors.** Schmiegelow summarizes the literature to date on the transnasal removal of hypophysis tumors, including West's contribution to the subject and thirteen cases that have been reported by Eiselsberg, Hochenegg, Kocher and others. He then reports a case from his own experience; the patient was a woman of 27, healthy until puberty, when acromegaly developed. At the age of 23 she began to have headache,

gradually becoming accompanied by complete atrophy of the right optic nerve. Trouble was beginning in the left eye, when the cystic tumor in the hypophysis was successfully removed by the transnasal route. The headache ceased at once and vision in the left eye returned to normal. All was proceeding favorably until three weeks after the operation, when acute edema of the brain developed, proving rapidly fatal. Kocher has had a similar experience, his patient, a woman of 30, dying suddenly four weeks after the operation, and Schloffer also lost a patient from this cause nearly three months after the successful operation. The pressure of the tumor on the veins in the base of the brain had evidently compromised the circulation in the region and in the brain generally. In Schmiegelow's case and in a number on record the temperature ran up very high as the acute edema developed in the brain and a fulminating meningitis was suspected, but the meninges were found comparatively intact. The rise in temperature is probably the result of irritation of the thalamus from the mechanical compression. His patient died too soon for any marked influence on the acromegaly to be apparent, but during the last week she had commented on the improvement in her hands. In conclusion, Schmiegelow calls attention to the invaluable service rendered by peroral intubation during the hour-and-a-half-long operation. The tube was introduced after the patient was under the influence of ether. The anesthesia was then continued with chloroform. The intubation permitted the throat around the tube and the mouth to be packed with sponges, while respiration proceeded regularly and amply, there was no tendency to cough or vomit, and the hemorrhage was minimal.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

PRELIMINARY REPORT ON THE KILLING OF RATS AND RAT FLEAS BY HYDROCYANIC ACID GAS. By Capt. W. D. H. Stevenson, M.B. (Bombay Bacteriologic Laboratory). Scientific Memoirs, by Officers of the Medical and Sanitary Departments of the Government of India, New Series No. 38. Issued Under the Authority of the Government of India by the Sanitary Commissioner with the Government of India. Boards. Price, 8 annas. Pp. 28. Calcutta: Superintendent Government Printing, India, 1910.

THE RACIAL ANATOMY OF THE PHILIPPINE ISLANDERS. Introducing New Methods of Anthropology and Showing Their Application to the Filipinos, with a Classification of Human Ears and a Scheme for the Heredity of Anatomical Characters in Man. By Robert Bennett Bean, M.D., Associate Professor of Anatomy, Tulane University of Louisiana, New Orleans. Cloth. Price, \$2 net. Pp. 236, with 26 illustrations. Philadelphia: J. B. Lippincott Co., 1910.

AMERICAN RED CROSS ABRIDGED TEXT-BOOK ON FIRST AID. General Edition. A Manual of Instruction. By Major Charles Lynch, Medical Corps, United States Army. Prepared for and Endorsed by the American Red Cross. Paper. Price, 30 cents. Pp. 183, with 55 illustrations. Philadelphia: P. Blakiston's Son & Co., 1910.

THE DISEASES OF CHINA, INCLUDING FORMOSA AND KOREA. By W. Hamilton Jefferys, M.D., Univ. of Pennsylvania, Medical Missionary in China, and James L. Maxwell, M.D., London, Medical Missionary in Formosa. Cloth. Price, \$6 net. Pp. 716, with 360 illustrations. Philadelphia: P. Blakiston's Son & Co., 1910.

ANNUAL REPORT OF THE SURGEON-GENERAL, U. S. NAVY, CHIEF OF THE BUREAU OF MEDICINE AND SURGERY, TO THE SECRETARY OF THE NAVY. For the Fiscal Year 1910. Navy Department, Bureau of Medicine and Surgery. Paper. Pp. 179. Washington: Government Printing Office, 1910.

LESSONS ON THE EYE. For the Use of Undergraduate Students. By Frank L. Henderson, M.D., ex-President of the St. Louis Medical Society (1905). Fourth Edition. Cloth. Price, \$1.50 net. Pp. 238, with 138 illustrations. Philadelphia: P. Blakiston's Son & Co., 1910.

FIRST NATIONAL CONFERENCE ON INDUSTRIAL DISEASES [PROCEEDINGS], Chicago, June 10, 1910. Publication No. 10, American Association for Labor Legislation. Paper. Pp. 52. New York: American Association for Labor Legislation, 1 Madison Ave., 1910.

THE NON-SURGICAL TREATMENT OF DUODENAL ULCER. By George Horschell, M.D., London, Lately Senior Physician to the Kensington General Hospital. Paper. Price, 1 shilling. Pp. 39. London: Henry J. Glaisner, 55 Wigmore Street, W., 1910.

ABSTRACT OF PROCEEDINGS, UNITED STATES PHARMACEUTICAL CONVENTION, 1910. Compiled and Edited by the Secretary of the Convention. Paper. Pp. 110. H. M. Whelpley, M.D., Secretary, 2342 Ablon Place, St. Louis.

THE PROBLEM OF RACE BETTERMENT. By J. Ewing Mears, M.D. Cloth. Price, 50 cents. Pp. 45. Philadelphia: William J. Jordan, 1910.

The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOL. LV, No. 27

CHICAGO, ILLINOIS

DECEMBER 31, 1910

ENTEROPTOSIS IN CHILDREN *

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CHICAGO

The term "enteroptosis," as commonly used, refers to a sinking of the abdominal viscera below their normal positions. Prior to Glénaud's communication on this subject displacements of the abdominal organs had formed the subject of numerous contributions. Since that time the literature has grown to an enormous extent, but deals altogether with enteroptosis in the adult. Isolated reports of nephroptosis occurring in children are to be found in the literature, but apparently the subject in general has not received any consideration from pediatricists. Albu, however, included in a paper on enteroptosis a chapter on children. Thanks to the writings of Stiller, Mathes, Richard R. Smith, and others, it is now generally recognized by those interested in this work that the local displacements of the abdominal organs are manifestations of a general status to which the term "habitus enteroptoticus" is applied. This habitus may be recognized by virtue of a body-form characteristic of this class of individuals. It is regarded as a congenital and hereditary anomaly and not as an acquired defect.

If we accept this view of enteroptosis it is self-evident that we should be able to trace this habitus into childhood and even into infancy. An investigation as to the occurrence of this habitus in children is not only indicated but actually necessary for the establishment of the above conception. On the other hand, if it can be shown that this constitutional tendency is the result of conditions occurring subsequent to birth, such as nutritional diseases, etc., it may be possible through prophylactic measures to obviate its development. We occasionally see adults not presenting this habitus who are the subjects of enteroptosis due to bad hygiene, chiefly in child-bearing, but the enteroptosis never attains a high degree, in these cases, in contrast to the congenital type in which the displacements may attain the extreme. In this paper cases of the acquired type will be excluded.

It is necessary for us to have a clear conception of this body form which may be gained from the following description. It is the general make-up of the individual that decides whether he or she belongs to this group. While this habitus is more frequent in females it is often seen in males. Such individuals are slender, of frail bony structure, thin musculature and have little adipose tissue; the chest is long and narrow with small upper and lower apertures. Occasionally the chest is comparatively broad but very shallow. The lower ribs are more or less vertical in direction and the epigastric

angle is narrow. The tenth rib may or may not fluctuate; a floating tenth rib is rare. The abdomen is usually flat with occasionally slight bulging below the umbilicus, while sometimes the lower part of the abdomen may be prominent. Becker and Lenhoff studied the body forms of a number of women in the hope of reducing the recognition of the habitus enteroptoticus to a mathematical certainty. As a result of their investigation they stated that if the jugulo-pubic index, obtained by dividing the jugulo-pubic measurement by that of the circumference of the chest at the waist line and multiplying the result by 100, equals or exceeds 77, the individual belongs to the enteroptotic group and will be found to have a palpable kidney. This index may be 77 or higher, but not infrequently it is below this figure. The lumbar lordosis is usually less marked than normal. The foot is more or less flattened. The individuals presenting such a picture will, in a large number of cases, present some evidence of visceral ptosis as well.

Stiller holds a fluctuating or floating tenth rib as a sign of hypoplasia of the thorax and considers an individual with such a rib as of the enteroptotic type which he also regards as synonymous with the habitus-neurasthenicus. While we all recognize that many of the enteroptotic habit may present one or both of these stigmata, there are many people of the same type who do not show either one. There is no index or sign that is pathognomonic of this habitus. In fact, adherence to such points in the study of this subject interferes with a clear conception of it. In other words, as above stated, it is the whole makeup of the individual and no one point that decides the classification.

Before taking up the results of an inquiry into the occurrence of enteroptosis in children we should recall some points in the body form of the infant and also of the child up to puberty. We are all familiar with the large head, the short and not very thick neck, the short thorax and comparatively large lower aperture, the short middle zone of the trunk, and the large abdomen of the infant. When we examine the abdomen we invariably find the lower edge of the liver palpable, not infrequently extending close to the navel. The reasons for this are not to be sought alone in the relatively large size of the liver, but also in the comparatively short middle zone of the trunk. The middle zone is the space bounded above by the diaphragm and laterally by the costal arches. As the costal arches at this time are very short they do not cover well the organs of the upper part of the abdomen. The right kidney is frequently palpable, practically throughout its whole extent, and occasionally the left is to be felt. It is impracticable to outline the stomach and colon satisfactorily unless we resort to the bismuth meal and x-ray, or distend the stomach with gas. The peculiarities mentioned may be found in the

* Chairman's address in the Section on Diseases of Children of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

normal infant and therefore, cannot be looked on as evidence of enteroptosis.

In the growth and development of the infant's body, the middle zone increases in length so that the costal arch extends over the liver until the edge of the latter is felt at or a little below the border of the ribs. Later we are likewise unable to palpate the kidney, and what Albu refers to as enteroptosis of the new-born disappears by the normal growth and development of the infant. In the first months of life in a healthy, breast-fed infant we rarely see any suggestion of the enteroptotic habit. On the other hand, in the frail bodies of infants suffering from various degrees of malnutrition we often see many of its characteristics, to such an extent,

fancy up to the fifth year. 2. A first period of stretching out or elongation, extending from the fifth to the eighth year. 3. A second period of fulness, from the eighth to the eleventh year. 4. A second period of stretching out, from the eleventh to the fourteenth year. In the periods of fulness, the rounding out of the body predominates over the gain in height and *vice versa*, in the periods of stretching out, the gain in height predominates over the rounding out. In the course of my investigations into the existence of the habitus enteroptoticus and the displacements of the abdominal organs I examined from 300 to 400 children. The majority of them were healthy. A small number were dispensary patients with minor disorders. Accu-



Fig. 1.

Fig. 1.—Well-developed girl of 12 years, representing what may be termed the normal type. (Photo from Stratz.)

Fig. 2.—Slender girl of 11 years, with long thorax and narrow epigastric angle, flat epigastric region, flat foot and slight bulging

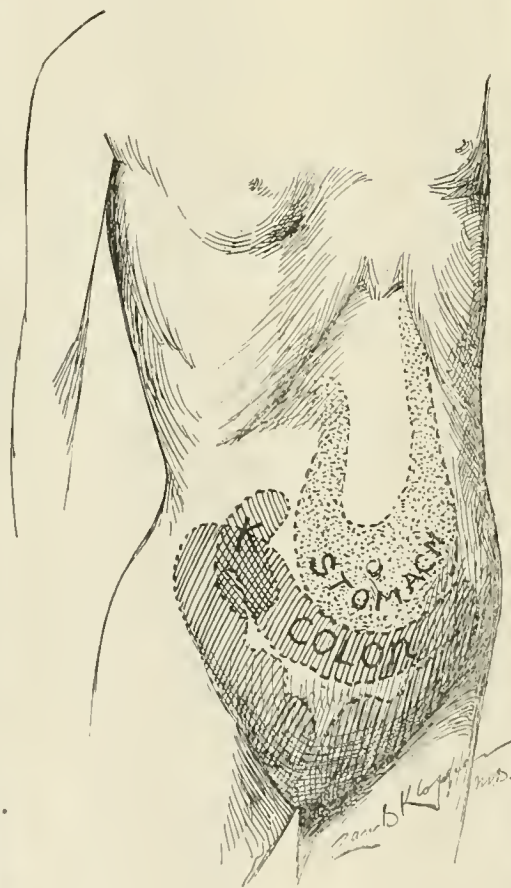


Fig. 3.

of the abdomen below the navel—a typical case of the enteroptotic habit. (Photo from Stratz.)

Fig. 3.—Diagrammatic representation of the enteroptotic habit and displacement of abdominal organs in a girl of 11 years.



Fig. 2.

in fact that one might think at this early time that one recognized in them the future subjects of enteroptosis. If it could be established that the enteroptotic habit had its foundation in periods of malnutrition which result from nutritional or other diseases, it would furnish us with important information as to the etiology; but I have not been able to establish this.

In older children conditions are somewhat different. Before discussing my results of the examination of the latter I wish to call attention to Stratz' observations on the growing periods of children. He enumerates four such periods: 1. A first period of fulness, from in-

rate data were kept of only 155 children between the ages of 6 and 14 years. The history of each child as to past diseases, nutritional disturbances, etc., so far as practicable, was taken. Every child received a careful physical examination in which the following points were noted: Condition of nutrition, musculature, bony structure, especially with reference to spine and thorax, form and development of the latter, direction of the lower ribs, the epigastric angle, the mobility of the tenth rib, the jugulo-pubic and thoracic measurements, contour of the abdomen, pedal arch, etc. Thorough examination of the abdomen for organ displacements was

made. The stomach of each child was inflated with carbon dioxide made by using sodium bicarbonate and tartaric acid. A simple means of determining the lower border of the distended stomach is to rub the hand quickly downward from the xiphoid cartilage. The difference in tension on leaving the stomach is immediately perceived. The line at which the change is noted will mark the lower border. Sometimes the outline of the distended stomach is evident on inspection.

Early in this work it became evident that no one sign, such as a fluctuating tenth rib, a narrow epigastric angle, or a high index, could be depended on to decide

early rachitis, and yet children with such an angle may present the general make-up of this habitus. The above description of the habitus enteroptoticus as seen in the adult is not often seen in its entirety in very young children; yet we often see, even in the first years of life, children of such frail structures and atonic condition that they might be properly grouped in this class. On the other hand, in late childhood, corresponding to the second elongation period of Stratz, at the approach of and with the development of puberty, fully one-third of the females and about one-sixth of the males exhibit the characteristic habitus enteroptoticus.



Fig. 4.

Fig. 4.—Girl of 14 years presenting the enteroptotic habit. She has a marked gastropnoxis, coloptosis and nephroptosis, and has neurasthenic symptoms.



Fig. 5.

Fig. 5.—Girl of 14 years, showing the enteroptotic habit, but without downward displacement of abdominal organs.

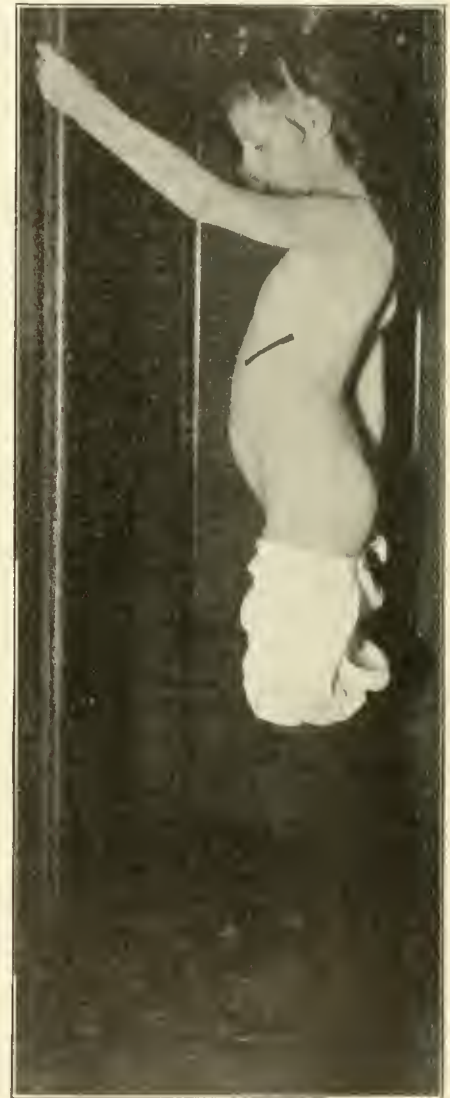


Fig. 6.

Fig. 6.—Girl of 12 years, lacking many of the characteristics of the enteroptotic habit, but having nephroptosis and neurasthenic symptoms.

the existence of the habitus enteroptoticus in a child at any age. Only by keeping in mind the general picture of this condition could a correct judgment be reached. Fully 50 per cent. of all children have a movable tenth rib. It is rarely found unattached to the costal arch so as to deserve the designation floating. Some children with a narrow chest, a sharp epigastric angle, and a typical habitus asthenicus, have a firmly fixed tenth rib. A broad epigastric angle is frequently found in children as the result of flaring of the ribs due to an

The following are results of the examination of 155 children, 50 girls and 105 boys: The edge of the liver was palpable in the nipple line in 35 of the girls either at the border of the ribs or one or two finger's breadths below it on inspiration. The same condition was found in 82 boys. The right kidney was dislocated downward in three girls, in one of whom it was also displaced forward and palpable throughout. In six others the lower pole of the right kidney was palpable on deep inspira-

tion. In one boy the right kidney was dislocated and palpable throughout its extent. In five others the lower pole of the right kidney only was palpable on deep inspiration. In 40 per cent. of the children examined the lower border of the stomach distended with gas extended to or within a half inch of the umbilicus. The position of the stomach was determined in several girls by means of the x-ray, a bismuth meal being given and a skiagraph taken immediately afterward. Three of the girls, two of whom had a dislocated right kidney and one a right kidney palpable for half its extent, showed the lower border of the stomach below the umbilicus. The ages of the first two were respectively 14 and 12 years and that of the third 12 years. In the vast majority of children throughout infancy and childhood the edge of the liver can be palpated in inspiration at or below the costal arch; and even when it is felt the width of two or three fingers below the costal arch we are not justified in assuming hepatoptosis. It will be noted that in three girls and in only one boy a right-sided nephroptosis was found. These children were 12 or more years of age. In several children of all ages the lower pole of the right kidney was apparently palpable on deep inspiration. Too great stress must not be laid on this fact, for on account of the difficulty of the examination the possibility of error is considerable. In no case was the left kidney palpable. In the three girls above mentioned the habitus enteroptoticus, as well as the displacement of the abdominal organs, was well marked.

During my examination of the children I inquired as far as practicable into the condition of their nutrition during infancy and early childhood with the view of learning if possible whether disturbances of nutrition might have some bearing on their future development. It seems quite possible that infants who suffer from malnutrition, marasmus, rachitis, etc., may undergo a greater or less degree of underdevelopment in all tissues and that they may ultimately rank in the enteroptosis class. Likewise prolonged periods of low nutrition at any stage of child life might form a foundation for the development of this abnormality. For reasons quite apparent an accurate history of the conditions in early childhood was seldom obtainable. On account of the unsatisfactory results of this inquiry a close relation between early nutritional disease and the enteroptotic habit could not be clearly made out in many instances. We usually find, however, that the older children in whom this condition is present have always been undernourished and present a greater or less degree of underdevelopment.

From my own observations I am convinced that the evidences of the enteroptotic habit are observable throughout childhood, but in more pronounced form in late childhood approaching and in the period of puberty. In the first days of life palpable kidneys and liver are not to be regarded as signs of enteroptosis as these findings are common at this period of life. Beyond the first year and up to late childhood palpable kidneys and displaced stomachs are exceptional although signs of this habitus were evident in some of the children examined. On the other hand, coinciding with the development of the adult type of this habitus with the approach and in the period of puberty the displacement of the abdominal viscera become less exceptional; in fact, the actual ptoses, I believe, are practically first seen at the period of puberty.

72 Madison Street.

THE APPROXIMATION OF WIDELY SEPARATED WOUND MARGINS

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In the closure of wounds, the margins of which are widely separated, as in those in which there is an extensive skin defect, sutures which will bring together the wound edges, or skin margins, and hold them coapted, resisting the sometimes unavoidable tension without cutting out, are obviously helpful.

For the purpose of relaxing the tissues immediately along the wound margin heavy interrupted sutures are usually passed at a distance of one inch or more from the wound line on each side, and these, to some extent, take the strain from the coaptation sutures.

Such relaxation sutures, however, do not differ essentially from the coaptation sutures applied closely along the wound margin. Their slight advantage consists in the fact that they are usually of heavier material and,

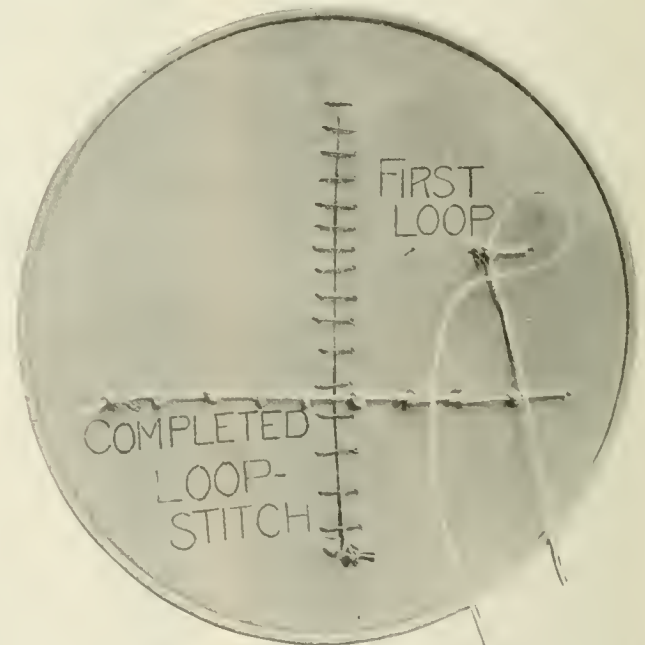


Fig. 1.—Manikin to show running loop relaxation suture crossing breast amputation wound line. Tension is on ten points instead of two.

passing through the skin at a greater distance from the wound, the likelihood of their cutting out is lessened, since they may cut for a considerable distance without splitting the skin quite to the wound edge.

Such relaxation sutures, while they doubtless possess some value, are often unsatisfactory if the retraction on the edges of the wound be great.

The ingenious running suture employed by Charles Mayo after breast amputations, in which the wound margins must be brought together under tension, is at once a coaptation and a relaxation suture. The manner of its application and its usefulness are well known.

This continuous suture is open to the objections applying to other continuous sutures. If the continuous suture breaks at any point the wound margins must fall apart, unless the closure is otherwise reinforced. Here dependence is placed on a single strand. Infection, if it should occur, tends to travel along a continuous suture. These perhaps somewhat captious objections do not apply so clearly to interrupted sutures.

By most surgeons it is felt that accurate approximation of wound edges, particularly after operations for malignant disease, is very desirable. Until more is known of the origin and nature of cancer, the lurking possibilities of a granulating surface with its embryonal cell elements will occasion uneasiness until healed over. Even skin grafts with their active cell proliferation can hardly have the confidence which is given to normal skin. The practice of approximating the wound edges by separating the skin from its attachments over a large area with consequent diminution of blood-supply is not infrequently followed by sloughing, which greatly increases the difficulties which militate against primary covering of the defect.

Clearly it should be the maxim of every surgeon to have no thought of the covering of the defect while engaged in the radical removal of every vestige of malignant or suspected tissue. The manner of repairing the defect is a matter of no importance until the operation proper is complete. When a thorough operation, however, has been completed, at least a part of the defect can

much the same manner as a seamstress introduces the "chain-stitch," but differ from the chain stitch in that each loop is secured by a "hard" knot before the next loop is taken.

Beginning about two and one-half inches from the wound margin the needle is passed under the skin in the direction of the wound edge and brought out about 1 cm. nearer the wound edge than it entered. The long suture is drawn through to a point near its middle and tied with a reef or hard knot, as if one were tying off a blood-vessel, the knot falling over the aperture of exit or the opening nearer the wound line. In other words, the suture is passed under the skin for 1 cm. and both ends are tied over the opening next to the wound. The needle is then passed back through the hole under the knot for the second loop and the long ends are tied again over the opening at which the needle emerges. The loops are carried across the wound line and as many are taken on the opposite side as the tension which is to be overcome makes necessary.

It is my practice to apply several such chain sutures after breast amputations if there is considerable traction on the coaptation sutures. Three, about one inch apart, placed where the traction is usually greatest, that is, near the middle of the wound line, usually suffice.

This chain suture may be utilized in drawing the internal oblique and transversalis muscles to Poupart's ligament in cases of very wide inguinal hernia. Likewise the conjoined tendon may be drawn and held to Poupart's ligament if several loops of the chain-stitch be applied across it. Whereas an ordinary suture in hernia with wide separation often simply splits off a narrow ribbon from the edge where the needle perforates the internal oblique and transversalis muscles, the chain suture will pull over the whole muscle mass without injury.

The splitting of the conjoined tendon for the purpose of relaxation, and the division of the rectus sheath with or without transplantation of the belly of the rectus, while they are helpful practices in some cases, may be dispensed with often, if the chain suture here described be used.

331 North Delaware Street.

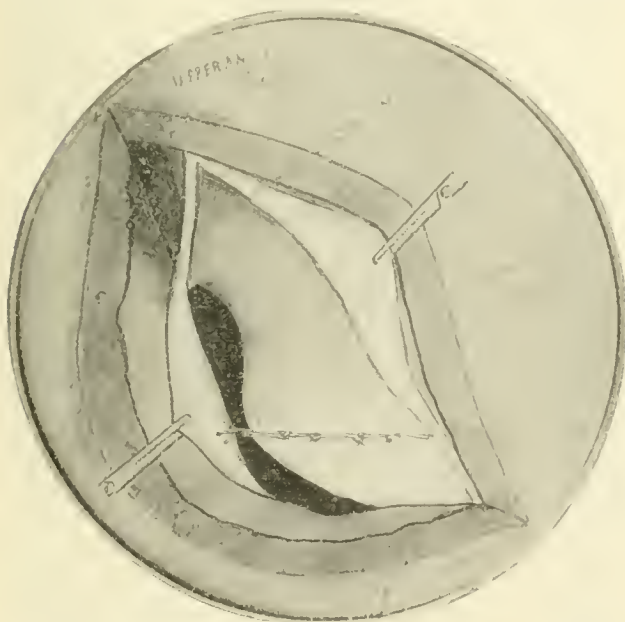


Fig. 2.—Manikin showing use of running loop relaxation suture in drawing the obliquus internus and transversalis and conjoined tendon to Poupart's ligament in wide inguinal hernias, likelihood of splitting being lessened by distribution of tension over several points.

always be covered by precise coaptation of wound margins without unsafe tension.

The running-loop suture shown in Figure 1 holds the margins together more firmly than any relaxation suture with which I am familiar; moreover, it will not cut out unless the pull be very great indeed, for here the tension is distributed over many points instead of two, as in the case of the ordinary relaxation sutures. In the case of the running-loop suture shown on the manikin in Figure 1 there are ten loops; therefore the tension is divided among ten points, and if several sutures of this character be used to reinforce the coaptation sutures, the wound margins, for example after a breast amputation, may be brought together under tension without subsequent separation and without cutting out of the sutures.

In breast surgery these relaxation sutures can be applied best after the wound edges have been coapted in the customary manner. They are introduced in

TUMOR OF THE SPINAL CORD

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Although the literature on spinal tumors has been enriched by numbers of excellent observations in the past three or four years, it is still worth while to record carefully studied cases.

REPORT OF CASE

History.—A woman aged 33, a native of Scotland, entered the University of California Hospital Feb. 2, 1910. She had been very delicate as a child but since then unusually well, apart from frequent attacks of tonsillitis. Three years previously she was thrown from a buggy and fell on her back but was not confined to bed and had no pain afterward. The present trouble began in October, 1908, when she would be awakened regularly about 4 a. m. with pain across the back, just above the level of the iliac crests. This was not very severe, did not radiate and disappeared as soon as she got out of bed. About the beginning of 1909 the pain disappeared and she felt very well until one day in spring—about March—she jumped down three feet from a porch. Right after this

the pain in the back returned and she began to have pain in the lower abdomen, on both sides alike, running diagonally downward from the rib border to the pubes. This pain was not severe and disappeared in a few weeks. In July, 1909, she noticed lameness and stiffness in the left leg. Disturbance of sensation was not noted, but, after a fall, painless ulcers developed below the left knee and were weeks in healing. Both legs were awkward and she fell frequently, finding it difficult to keep her balance. After taking electrical treatment in October, 1909, there had been frequent incontinence of urine and feces. Since November there had been rapidly increasing weakness and stiffness of the left leg and frequent pain down the front of the left thigh. Weakness and rigidity of the right leg had been noted only a week before entrance and walking had become almost impossible. The patient's family history was excellent. There was nothing to suggest syphilis.

Examination.—The important nervous signs were as follows:

1. An ataxic paraplegia that on entrance rendered standing or walking very difficult and two weeks later impossible.

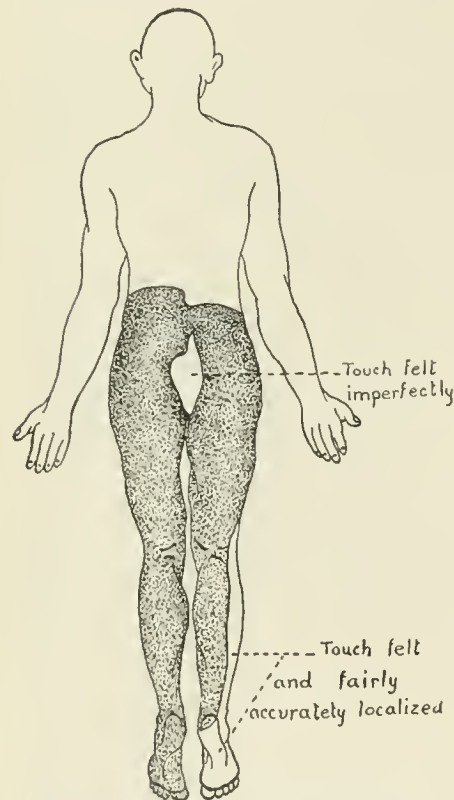


Fig. 1.—Diagram of modifications in sensation, posteriorly; dark portion represents anesthetic area.

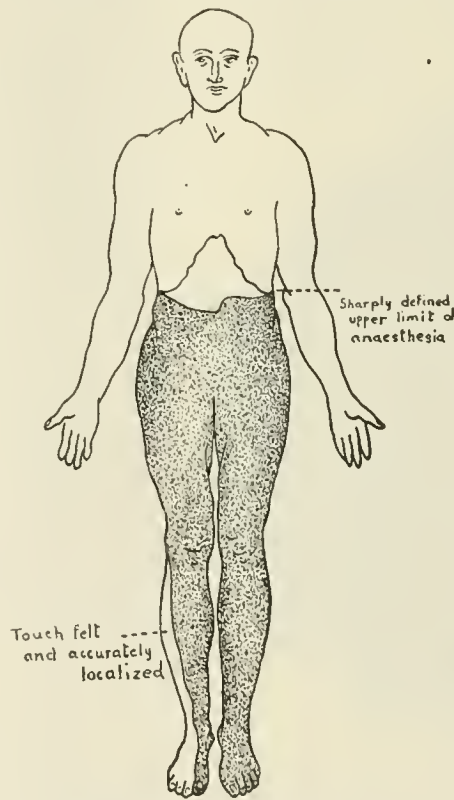


Fig. 2.—Diagram of modifications in sensation anteriorly.

Rigidity and ataxia interfered with walking more than loss of power; there never was complete loss of power in any muscle-groups, though the left lower extremity was much weaker than the right. Rigidity was much greater on the left; there was bilateral pes equinus, more pronounced on the left.

2. Sensation varied somewhat during the three weeks of observation and the chart represents the final examination of sensation to touch just before the operation. There was absolute loss of pressure sense, sense of position and of passive movement in the entire left lower extremity and in the right foot and leg. Analgesia and loss of temperature-sense followed accurately the distribution of anesthesia except toward the upper limit; in the zone between the umbilicus and the pubes the loss was not complete and, as has been noted by others, anesthesia gave much more accurate information as to the level of the lesion.

3. Reflexes in the lower extremities were much increased, although rigidity interfered with the demonstration of clonus. The Babinski and Oppenheim phenomena were present on both sides. The upper abdominal reflexes were present, the reflex

on the right being much livelier than on the left. The lower abdominal reflexes were not obtained. The umbilicus was in the median line. The muscles on the left side just above and below the umbilical level reacted decidedly less to the faradic current than on the right. There was occasional incontinence of urine.

4. There was moderate tenderness of the ninth, tenth, eleventh and twelfth dorsal vertebrae at times, and the spine in this region was slightly rigid. On sitting there was a slight scoliosis with convexity toward the left in the lower dorsal spine but this disappeared on standing.

5. Trophic changes were limited to the old scars below the left knee, and to a decided edema of both legs. Any movement caused sudden shooting pains down the anterior part of the thigh and leg, and severe pain occurred at times beneath the left costal arch and in the left groin.

The Wassermann reaction was negative. On February 12 hypodermic injection of 2 mg. of old tuberculin was followed in twelve hours by a typical rise of temperature, general malaise and decided increase of tenderness and pain in the back.

Diagnosis.—The level of the lesion in the cord could readily be deduced from the characteristic sensory changes. Following Sherrington's teaching, it is to be remembered that complete loss of common sensation in the ninth dorsal segment must mean involvement of the eighth dorsal segment as well. It is not here the place to go into the differential diagnosis of the lesion. The onset with nerve-root pain, the gradual development of paraplegia, the predominance of the symptoms on the left side, the early and marked ataxia led to the diagnosis of an intraspinal tumor or a localized meningitis rather than vertebral disease. Despite the general and local symptoms following the injection of tuberculin, the absence of definite vertebral changes spoke strongly against a tuberculous process, and the reaction was referred to slight signs of old thickening at the left apex. Oppenheim has recently emphasized the necessity of caution in judging that a nerve lesion is tuberculous simply from a pronounced tuberculin reaction.

In the absence of any results after three weeks' treatment with the large doses of mercury and iodid, the patient was referred to Dr. Sherman with the advice to cut down on the cord opposite the sixth dorsal spine. From the mode of onset the tumor would probably lie on the left posterior part of the cord. The following is Dr. Sherman's account of the operation:

Operation and Course.—"The relatively brief examination I made of the patient led me to the conclusion arrived at by Dr. Moffitt and I wholly agreed in the opinion that the spinal canal should be opened. I did, therefore, a simple laminectomy to the exclusion of an osteoplastic operation. The simple operation preserves the continuity of the erector spinae muscles, an important point in the convex curve of the dorsal spine, as it is a safeguard against consequent kyphosis, which might easily follow the cross-section of the muscles and the loss of their motor nerves, both of which are necessitated in the osteoplastic method. As much as possible of the periosteum of the lamina was preserved, but the patient was a stout woman, the spinal muscles were massive and lay beneath a thick fatty panniculus, so that the detailed scraping of the periosteum from each lamina was physically difficult. The lamina and spinous processes were removed from the sixth, seventh, eighth and ninth verte-

bræ. This exposed the dura, and as it did not pulsate and it seemed likely that more room might be needed, the lamina and spine of the fifth vertebra also were removed. The dura was tense but opposite the sixth body a mass was felt and could now be seen. When the dura was incised there was folded back with the left half a small tumor 1.5 cm. by 0.75 cm. adherent to the dura. The cord was at this point dislocated slightly to the right, so that it made a little curve in its course, but the surface showed no indentation from the pressure of the tumor. The tumor was readily detached from the dura, the little hemorrhage which followed stopping easily on a little pressure. When the cord itself was exposed it was seen to be pulsating normally, the hypertension of the cerebrospinal fluid probably having obscured the pulsation in the intact dura.

"After the removal of the tumor the dura was caught together with three catgut sutures, the muscles were sutured

lar in shape, firm to the touch and measured approximately 2 by 2 mm. Some pieces of tumor were fixed in alcohol, others in Orth's fluid; the same fixation methods were employed with the bodies from the pia. The preparations were sectioned in celloidin and stained with hematoxylin and eosin."

Microscopic Findings.—"The major portion of the tumor consists of small spindle-cells arranged in whorls. Here and there, however, irregular groups of round-cells appear. Both of these cellular elements show nuclei of a light staining index and but little protoplasm. Occasionally mitotic figures are found among them. Most of the larger blood-vessels are involved to an extreme degree in hyaline degeneration, and in a few areas hyalomyxomatous changes are found irrespective of the blood-vessels. Small interstitial hemorrhages occur but do not form a prominent feature of the picture. The small bodies from the pia consist of ramifying columns of hyaline tissue which histologically do not seem to bear any direct relationship to the tumor: Small spindle-cell sarcoma."

Post-Operative History.—The day following operation sensation to touch had returned to a considerable extent in both limbs and the patient could localize a touch fairly well. Two days later rigidity was much less and the knee-jerks and ankle-

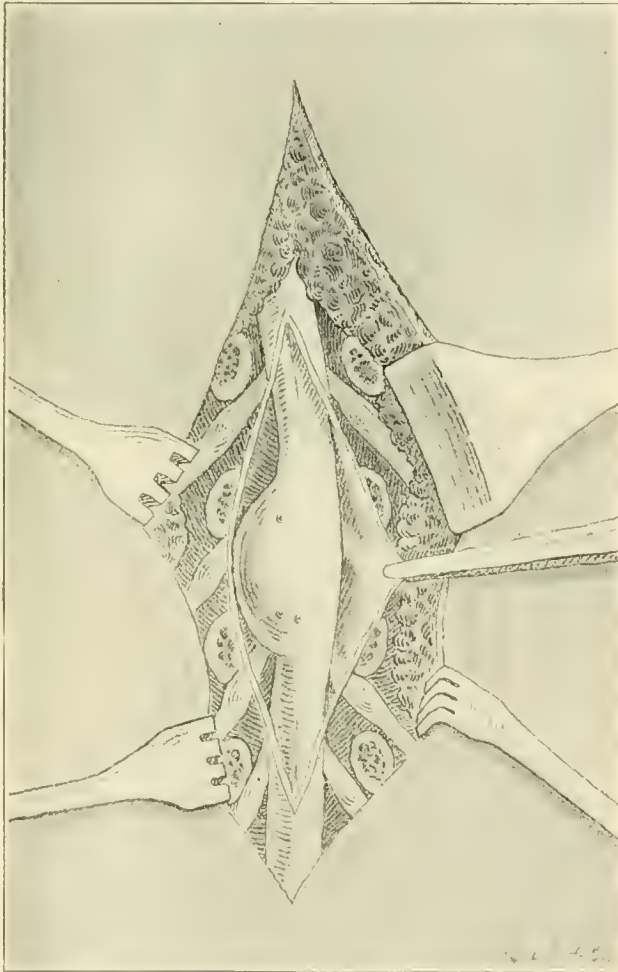


Fig. 3.—Tumor of spinal cord (small spindle-cell sarcoma) opposite sixth dorsal vertebra.

together across the median line over it and the skin sutured. The patient was put into a dorsal semi-jacket of plaster of Paris so padded that no pressure could come on the suture line.

"Healing was normal. On the twenty-fifth day the patient sat up in bed; on the twenty-seventh day she was up in a wheel chair and on the thirty-first day she walked.

"In the pia mater were seen three small, flat, white specks, 2 to 3 mm. in diameter; these were clipped out and sent to the laboratory with the tumor."

Macroscopic Examination of Specimen.—Dr. A. W. Lee returned the following report: "The tumor was oval in shape with one end slightly pointed. It measured about 2 by 1 cm., was of whitish-pink color, rather firm to the touch and showed on gross section a somewhat bulging cut surface that presented an intricate pattern of small whorls. Weight 1,600 mg. The bodies from the pia mater were grayish-white in color, irregu-



Fig. 4.—Histologic structure of tumor, consisting of small spindle-cells arranged in whorls, with irregular groups of round-cells. The blood-vessels show hyaline and myxomatous degeneration.

lar in shape, firm to the touch and measured approximately 2 by 2 mm. Some pieces of tumor were fixed in alcohol, others in Orth's fluid; the same fixation methods were employed with the bodies from the pia. The preparations were sectioned in celloidin and stained with hematoxylin and eosin."

jerks were not much increased. A Babinski was obtained on the left but not on the right side. Movements of the toes were correctly interpreted. It was interesting at this time to note that pain and heat and cold were felt much better on the left than on the right side. All movements could be executed with fair strength. Edema quickly disappeared. Bladder control was soon established. During the first month after operation signs varied considerably; the improvement was not steady but marked by retrogressions in which sensation below the knees would be less acute and weakness of both extremities often quite decided. Gradually such periods became less frequent and less marked and the patient was able to stand and walk on the thirty-first day. For a few weeks the gait was decidedly ataxic paraplegic, and there was complaint of stiffness and soreness in the lower dorsal and lumbar spine.

When seen last, Sept. 2, 1910, the patient felt perfectly well, had no difficulty in walking, no weakness, no pain or paresthesias. The knee-jerks were moderately increased, and sensation, superficial and deep, was entirely normal.

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THE EFFECT ON THE KIDNEY OF TEMPORARY COMPRESSION OF ITS VESSELS*

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1. PURPOSE

Considerable difference of opinion exists among surgeons in regard to the advisability of compressing the

renal vessels to control hemorrhage during nephrotomy. Some maintain that in addition to the temporary functional disturbance,^{1, 2} which often follows such compression, the anemia so produced causes serious and permanent degenerative changes of the parenchyma. At a recent meeting of the Chicago Urological Society Dr. A. D. Bevan stated that it would be of considerable interest to observe experimentally what effect such temporary



Fig. 1.—Section from kidney removed forty-eight hours after two-hour compression of renal vessels ($\times 110$). Note the extensive, total coagulation necrosis of the tubular epithelium. Glomerulae are normal and intact. Interstitial tissue is practically normal except for a few focal hemorrhages not yet absorbed (a) beneath capsule (b) in cortex between the tubules. Some scattered tubules are intact; c, intact tubule showing lumen filled with a hyaline cast; d, tubule showing epithelium partially destroyed but lumen still preserved, but filled with hyaline cast; e, tubule showing total necrosis of the epithelium, which is hyaline and swollen, completely obliterating the lumen.



Fig. 2.—Section from kidney removed four weeks after 1-hour compression of renal vessels ($\times 110$,—Zeiss). Note extensive calcification of tubular epithelium; that this is entirely intratubular; that the glomerula, interstitial tissue, and blood-vessels remain that the glomerula, interstitial tissue, and blood-vessels remain calcium-free. Calcium deposit (a) in degenerated epithelium is peripherally located, leaving an open lumen; (b) later stage—calcium deposit completely fills tube to form solid plug; c, normal glomerulus; d, hyaline cast in tubule whose epithelium is flattened. Note extensive round-cell interstitial infiltration and parenchymatous degeneration.

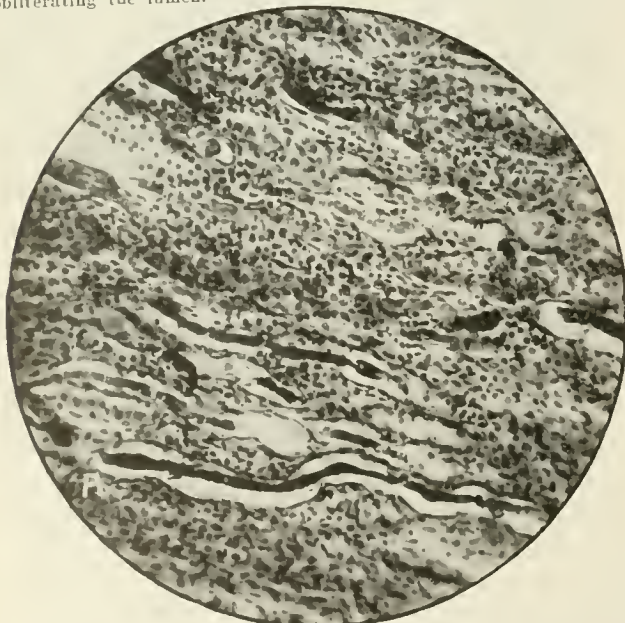


Fig. 3.—Section from kidney removed four weeks after 1½-hour compression of renal vessels ($\times 170$,—Zeiss). Note extensive deposition of calcium in tubuli recti; a, cylinder of calcium in straight tubule whose epithelium is destroyed. The space between the calcium deposit and the interstitial tissue is due to shrinkage of the tissue in fixing. Note also the extensive round-cell interstitial infiltration. A few polynuclear leukocytes can also be seen.

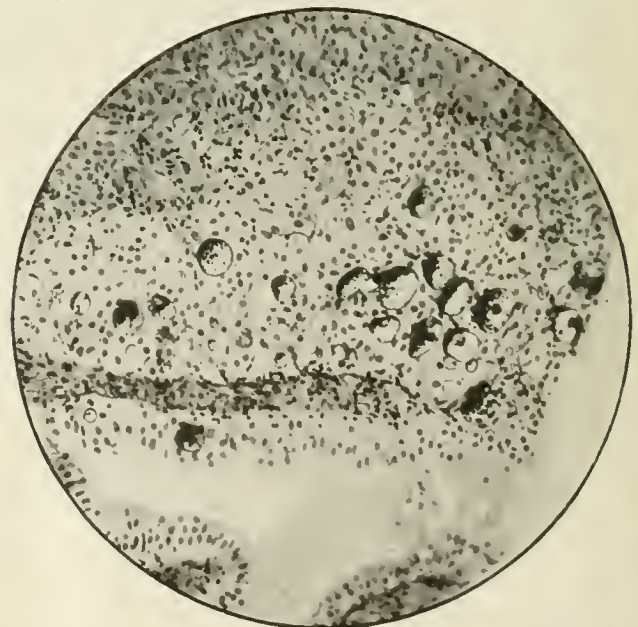


Fig. 4.—Section of kidney removed four weeks after 1¼-hour compression of renal vessels ($\times 170$,—Zeiss.) Note peripheral deposit of calcium within excretory tubules, seen in cross-section. Note also the marked decrease of interstitial infiltration in this section at the papilla, as compared with that in the region of the tubuli recti (Figure 3).

1. Schmidt, L. E.: Tr. Am. Assn. Genito-Urinary Surgeons, 1909, p. 224.
2. Cunningham, John H., Jr.: Tr. Am. Assn. Genito-Urinary Surgeons.

* From the Laboratory of Pathology, Michael Reese Hospital, Chicago; read in the Section on Pathology and Physiology of the Urology, June 1910.

interruption of the blood-supply of the kidney has on its parenchyma.

Our investigation was undertaken to observe how long the circulation through the renal vessels can be completely obstructed, without causing permanent degenerative changes in the kidney. This question is not only of interest to the pathologist, but is of even greater importance to those surgeons who believe in employing one of the various methods of compressing the renal vessels to control hemorrhage during operations like nephrotomy, for the removal of calculi, etc. It is beyond the scope of this paper to discuss which particular method of compression is preferable clinically, whether by clamp, rubber ligature or the fingers.

2. HISTORY

A review of the literature shows that but little work on this subject has been reported, since Litten³ published his exhaustive article on hemorrhagic infarct in 1880. His observations and deductions will be referred to later. He found that ligation of one and a half to two hours was enough to show all changes, and that these changes are only more intensive but not greater in extent if the ligature is left on longer, i. e., three or four hours.

A considerable amount of experimental work has been done during the past ten years to study the effect of permanent ligation, first, of both renal artery and vein;^{4, 5} second, of these vessels separately,⁴ and, third, of the ureter.⁶ It is now generally accepted that these three varieties of permanent ligation cause necrosis with secondary atrophy of the kidney; hence it will be unnecessary to consider the various articles which deal with permanent ligation, since the object of our experiments was simply to determine the effect of temporary anemia.

Beattie and Dickson⁷ state that, since the appearance of Litten's paper, similar experiments on permanent ligation of the renal artery were repeated by George Mackay, in Berlin, and the specimens were examined by Professor Greenfield, and that, more recently, one of the writers closely observed an extended series of similar experiments and observations conducted by Dr. Duncan Forbes, in the Pathological Department of the University of Edinburgh, under the direction of Professor Greenfield. Although these experiments dealt with permanent ligation, the animals were killed at varying periods after the application of the ligature, some almost immediately after ligation, others two hours after the ligature was applied. Dr. Forbes' findings, two hours after the ligature was applied, agree with our findings in a similar experiment.

A few observations have been made on the effects of temporary obstruction of the renal veins by Carrel.⁸ Guthrie⁹ reports one experiment in which the arterial circulation was restrained for nearly ten minutes. He found that this short temporary anemia alone (that is, without perfusion) caused no marked alterations. Aside from this work of Guthrie and that of Litten, we have been unable to find any experiments similar to those reported in this paper.

3. PLAN OF PROCEDURE AND TECHNIC

1. In order to study the permanent effects of temporary compression of the renal vessels the problem was attacked in the following manner: Five experiments were performed, the renal vessels being clamped for fifteen, thirty, forty-five, sixty and ninety minutes, respectively. At the end of this time the clamp was removed, allowing the circulation to be reestablished, as would be the case clinically, after nephrotomy. Rabbits of average size were used and the left renal vessels compressed in all of the experiments. Ether was used as an anesthetic.

The kidney was brought up into a median incision in the abdominal wall and the renal vessels were isolated and compressed with a rubber-covered clamp or serrefine. In every experiment the portion of artery between the clamp and the kidney was palpated, to be sure there was no pulsation, that is, that the obstruction was complete. In several cases a second clamp was applied, to be more certain that the obstruction was complete. The kidney and pedicle, with the clamp applied, were then returned to the left side of the abdomen, as near its original position as possible, and the peritoneal cavity temporarily closed by apposing the peritoneal edges. The clamp was allowed to remain on the vessels for variable periods: in Experiment 1, for fifteen minutes; in Experiment 2, for thirty minutes; in Experiment 3, for forty-five minutes; in Experiment 4, for sixty minutes; in Experiment 5, for ninety minutes. Four weeks after each one of these experiments the animal was killed with ether, and both kidneys were removed for histologic study and immediately placed in fixing solutions.

2. In order to study the immediate changes produced two experiments were performed. In one experiment the vessels were compressed for two hours, and at the end of this time the kidney was removed and histologic sections made at once. In the second the vessels were compressed for two hours and the kidney removed forty-eight hours after the operation.

4. CLINICAL RESULTS

No attempt was made to note the immediate and later effects of these experiments on the secretion of urine, either as to composition or amount. Only the resulting histologic changes were studied. In general, the animals appeared normal after the operation.

5. ANATOMIC RESULTS

1. GROSS EXAMINATIONS

After the clamp had been applied for the required length of time, and when the kidney was exposed to remove the clamp, the kidney was seen to be congested and cyanotic, and was larger than normal. In the experiments, in which compression lasted an hour and a half and two hours, these changes were especially marked, the kidney being dark blue and greatly increased in size.

When the kidneys were examined four weeks after the compression, they appeared quite different. In the experiment of compression for an hour and a half, the left (compressed) kidney was seen to be distinctly smaller than the right, and was much paler in color, that is, the kidney was atrophic and showed macroscopic evidence of marked parenchymatous degeneration. The cut surface showed that this parenchymatous degeneration was especially of the cortex. In the experiments in which the compression had been less than one hour and a half, there

3. Litten: *Ztschr. f. klin. Med.*, 1880, I.

4. Jaboulay: *Lyon medical*, 1906, cvii.

5. Jungano: *Ann. d. mal. d. org. génito-urin.*, xxiv: Alessandri: Quoted by Jungano.

6. Jaboulay: *Lyon medical*, 1903; Gayet: *Ann. d. mal. d. org. génito-urin.*, xxii.

7. Beattie and Dickson: *General Pathology*, 1908, p. 165.

8. Carrel: *Compt. rend. Soc. de Biol.*, 1909, lxvi.

9. Guthrie, C. C.: 'The Effect on the Kidneys of Temporary Anemia, Alone and Accompanied by Perfusion', *Arch. Int. Med.*, 1910, v, 232.

was no appreciable difference in size between the right and left kidney. In the one-hour experiment, the left kidney was much paler than the right, and the cut surface showed very marked parenchymatous degeneration. In the forty-five-minute experiment, also, the kidney showed considerable gross evidence of parenchymatous degeneration. In the fifteen-minute and the thirty-minute experiments, however, the kidney showed no gross changes.

The cut surface of the kidney which was removed immediately after the two-hour compression showed marked congestion. The cut surface of the kidney which was removed forty-eight hours after the two-hour compression of the renal vessels, also appeared somewhat congested, but this was much less marked.

II. MICROSCOPIC EXAMINATION

For this part of the work we are greatly indebted to Dr. J. W. Jobling, who was kind enough to look over the histologic sections with us.

A. IMMEDIATE CHANGES

1. *Two-Hour Compression; Kidney Removed at Once.*—Sections from the kidney which was removed immediately after two-hour compression show hemorrhage just beneath and within the capsule, elevating the capsule, and separating its layers. There are numerous focal hemorrhages in the medulla, especially between the tubules near the pelvis. It may be noted that the hemorrhage is from the capillaries which are nearest the collateral blood-supply (that is, ureteral artery to pelvis, and capsular arteries from the lumbar arteries). The glomerular tufts are distended, and the intertubular capillaries are generally greatly distended. The tubular epithelium shows very little change, and the nuclei stain well. In some cases, red blood-cells can be seen in the glomerular space, and in the tubuli recti.

2. *Two-Hour Compression; Kidney Removed After Forty-Eight Hours.*—Sections from this experiment (Fig. 1.) show that the focal hemorrhages which were seen immediately after the two-hour compression have been absorbed to a large extent. Most of the red blood-cells have disappeared from the capsule also. The striking feature in these sections is the marked necrosis of the tubular epithelium. The tubular epithelium, especially of the cortex, is almost entirely destroyed, showing total coagulation necrosis; the nuclei are gone for the most part, the individual cell outlines cannot be made out, and the cells are greatly swollen, so that the epithelium obliterates the lumen in many places, and gives the tubules the appearance of hyaline bands or casts. This total necrosis of the epithelium is very marked in the cortex and decreases in intensity toward the papilla, where there is practically no change of the epithelial lining, but hyaline blood casts are often seen in the lumen. Although this necrosis of the epithelium is very general, some tubules, in patches, escape, some partially, others almost entirely. Where the tubules are normal, or where a lumen remains, the lumen contains either a serous exudate, or, as a rule, hyaline or blood-casts. These completely fill the lumen, plugging them. The excretory tubules in the medulla contain hyaline and blood-casts, which obstruct their lumen. These are striking. There is but very little interstitial infiltration. The glomeruli appear normal.

B. LATER CHANGES

Four weeks after temporary compression the right kidney, whose vessels had not been compressed, showed no changes, with the exception of a slight amount of round-celled infiltration in some of the cases, and occasional slight parenchymatous changes, as one finds in rabbits generally.

Certain changes were common to all of the left (compressed pedicle) kidneys, such as thickening of the capsule and slight perirenal adhesions.

Experiment 1.—Fifteen-Minute Compression.—Sections from this kidney (left) show only a slight degree of parenchymatous degeneration and isolated foci of round-celled infiltration.

Experiment 2.—Thirty-Minute Compression.—The round-celled infiltration is more marked than in the kidney of fifteen-minute compression. It is focal and rather unequally distributed through the kidney, some sections showing little infiltration, while others show more. There are distinct, but not very advanced signs of parenchymatous degeneration.

Experiment 3.—Forty-Five-Minute Compression.—The round-celled infiltration is much more marked than in the thirty-minute kidney. It is most evident in the cortical portion, but quite extensive throughout the kidney, diminishing toward the papilla. The parenchymatous degeneration of the renal epithelium is also more marked than in the thirty-minute compression. The cytoplasm everywhere stains poorly. Some tubules contain hyaline and finely granular casts. There are some evidences of increase in the interstitial connective tissue. In this kidney we see, for the first time, slight traces of calcification, beginning in the most markedly degenerated tubules. These are rather indefinite.

Experiment 4.—One-Hour Compression.—(Fig. 2.)—In addition to the round-celled infiltration and more marked parenchymatous degeneration, as compared with the kidneys compressed for thirty and forty-five minutes, the most important feature of the sections of this one-hour kidney is the striking increase in the calcium deposits in those tubules which, in the kidneys of Experiments 2 and 3, compression for thirty and forty-five minutes had shown the most advanced degenerative changes. In the forty-five-minute kidney, there were only suggestions of calcium deposition, while in this one-hour kidney the calcium deposits were so evident that they could be seen in the sections with the naked eye. The lime salts are limited to the tubules, being deposited within and about the degenerated epithelium, leaving an open lumen.

Litten has explained this calcium deposition in the following manner: After the degenerated cells undergo necrosis, a deposition of calcium salts occurs in and about them, not because the cell is dead, but because, in the process of dying, the albumin of the cell is so altered as to possess or attain an affinity for calcium to form calcium albuminate. Litten believes that two factors are essential for the production of the calcification, first, necrosis, and, second, restoration of the circulation. This explains why, in our series, the calcium deposit is so much more marked than in cases of permanent ligation, for in such cases the circulation is not reestablished, with the exception of a little collateral circulation. Litten states that the interstitial tissue, the blood-vessels and glomeruli, always remain calcium-free, because these structures have remained unchanged. Litten showed in his experiments that it required compression for more than four hours before degeneration of the interstitial tissue, blood-vessels and glomeruli occurred.

Experiment 5.—One and One-Half-Hour Compression.—(Figs. 3 and 4.)—The deposits of calcium are much increased in number and distribution. The epithelial cells of the convoluted tubules are generally destroyed and absent. In some areas a few tubules show persistent epithelial cells, with nuclei intact. Such focal preservation is probably the result of collateral circulation. In many of the tubules the epithelial lining is completely replaced by calcium deposits. Some of the straight tubules also show these calcium deposits as long, solid cylinders. (Fig. 3.) Even at the papilla, some calcium deposits can be detected within the tubules. (Fig. 4.)

SUMMARY

The changes in all of the sections are seen to consist, first, of round-cell interstitial infiltration; later, parenchymatous degeneration of the secreting epithelium; and, finally, necrosis of the secreting epithelium with the deposition in and about it of lime salts. The blood-vessels, although congested, show no degenerative changes, and the glomeruli are noticeable in that they show no special changes. The capillary tufts are some-

what congested, but the glomerular space is normal, as a rule, and Bowman's capsule is intact.

The round-cell infiltration, which increases progressively with the length of temporary compression of the renal vessels, shows a marked focal distribution, even when generally present, and is found most marked in the cortex between the tubules just beneath the capsule, less marked in the boundary zone of the pyramids and decreases toward the papillae. Litten, however, in his report emphasizes the fact that he did not find any interstitial infiltration in any of his experiments.

The parenchymatous degeneration, and later necrosis of the epithelial cells of the tubules, show how dependent they are on the blood-vessels for their nourishment, and that, in the rabbit, they cannot stand even temporary interruption of this supply for more than three-quarters of an hour. One-hour compression causes marked necrosis and calcification. The parenchymatous degeneration, also, is most marked in the cortex, less in the boundary zone, and decreases toward the papillae; and it also is characteristically seen in patches. Even when the degeneration is intense and general there are always ribbon-like areas of intact tubules whose epithelium is normal. This, as Litten pointed out, is due to some collateral circulation.

Finally, if the compression has been long enough the degenerated cells undergo necrosis and then the deposition of calcium salts occurs in and about them. In the rabbit this occurs if the compression of the vessels has been one hour or longer. In his experiments Litten found that, when the ligature was left on an hour and a half or longer, the epithelium of the convoluted tubules of the cortex and of the boundary zone is doomed to destruction and does not regenerate, even though it again receives arterial blood. Morphologically, however, he found that this necrosis did not show itself for some time. In our experiments we found that, when the kidney was removed forty-eight hours after compression of two hours, marked parenchymatous degeneration was already evident, the cytoplasm staining very poorly and faintly and the nuclei being undemonstrable to a large extent (Fig. 1). Histologically the epithelial cells are found well preserved immediately after taking off the ligature. By the use of indigo-carmin, which is excreted by the intact cells (staining them blue), but not by the destroyed cells, Litten finds that one cannot tell from the morphologic appearance of the cells whether they are functionally normal or not, or how long they have been dead, for immediate injection of indigo-carmin after removal of the ligature applied for two hours shows bluish coloration of the nuclei of the epithelium of the convoluted tubules absent, or present only here or there; that is, there is permanent loss of function, with at first morphologically intact cells, which later become necrotic. Litten further finds that the deposit of calcium is already evident twenty-four hours after compression, and increases in proportion to the progress of the cell death, and progresses so rapidly that several days after the compression large coherent masses are evident.

By injection of the blood-vessels Litten found that they could stand cutting off of the circulation for even four hours without causing serious change in them, and that they were permeable forty-eight hours and even many days after the original operation. Longer compression causes complete necrosis of all of the epithelium of the kidney, even of the areas that were supplied by collateral arterioles.

CONCLUSIONS

From the above series of experiments in the rabbit the following conclusions may be drawn:

1. Temporary compression of the renal vessels, if continued thirty minutes or less, causes very slight changes in the kidney.
2. Temporary compression of the renal vessels, if continued forty-five minutes, causes considerable parenchymatous degeneration and interstitial infiltration.
3. Temporary compression of the renal vessels, if continued one hour, an hour and a half or two hours, causes marked permanent degenerative changes in parenchyma, as is evidenced by marked interstitial infiltration and extensive coagulation necrosis of the tubular epithelium; and, later, by the deposition of calcium in and about the destroyed tubular epithelium.

NOTE.—As the rabbit's kidney is much more susceptible to interference than the human kidney, it is probable that the human kidney would stand temporary compression of its vessels for a longer time than the rabbit's kidney, before these permanent changes would be produced in its parenchyma.

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ABSTRACT OF DISCUSSION

DR. VICTOR D. LESPINASSE, Chicago: As a necessary step in my work on anastomosis of the renal artery, I have been compelled to shut off the blood-supply to the kidney by clamps. In my first series of experiments in which the kidney was removed and then the artery to the opposite kidney clamped, cut and anastomosed, all the dogs but one died. In this dog the blood was shut off from his sole kidney for approximately one hour. In those that died the cause of death was shock, death occurring within twenty-four hours after the operation. The bladders were empty, although there was no obstruction to the blood-flow in the anastomosed renal artery. In the second series I clamped, cut and anastomosed, in one renal artery, the clamp remaining on approximately fifty minutes. Ten days later the other kidney was removed. In this experiment all the dogs lived. Hence a dog's kidney will withstand for one hour complete anemia and still be able to sustain life.

DR. D. N. EISENDRATH, Chicago: Dr. Strauss and I became interested in this work chiefly from its surgical importance. Last winter, at a meeting of the medical society in Chicago, we had a discussion as to the advisability of using this method of clamping the renal arteries and veins during operations for the removal of stone in the kidney, and as to what the effect of such temporary anemia on the structure of the organ would be. It was thought that this might do more harm than the losing of a little blood during the operation, leaving the temporary anemia out of the question. Dr. Betton of Chicago said that it might be of interest to study the effects of such temporary anemias as we repeatedly get in surgical operations on the kidney, and Dr. Strauss and I undertook this investigation last winter. Of course, there is this much to be said in regard to the comparison of rabbits' and human kidneys: the rabbit's kidney is an extremely sensitive organ to the withdrawal of blood. So one can deduce only that whereas the slides, shown here, of ligations of fifteen, thirty and forty-five minutes, exhibit practically no changes in such a sensitive organ as the kidney of the rabbit, probably such changes would be still less likely to occur in the less sensitive kidney of the human being when ligated for the same length of time. It is not until the clamp has been left on for an hour that one sees definite changes, such as an extensive amount of round-cell infiltration, degeneration, calcium deposition, etc. The interest of this to the surgeon is that we can safely, judging from the fact that the rabbit's kidney does not show marked changes from a ligation of less than an hour, compress the renal vessels of the human being for half an hour and cut off the blood-supply. No surgical operation on the kidney would be likely to require compression for a longer time than this. For that reason, we feel that

this work will be of considerable help to the general operating surgeon.

DR. YANDELL HENDERSON, New Haven, Conn.: The work of Carrel at the Rockefeller Institute has shown a great difference between the effects of interference with the circulation on the side of the vein and on the side of the artery. It seems to me that in such experiments as those of Drs. Eisen-drath and Strauss, care should be taken to note whether both artery and vein were shut off, or whether partial compression was used, shutting off the vein entirely and the artery partially. If the vein were compressed completely and the artery only incompletely, the outflow would be shut off and the renal blood-vessels (both arteries and veins) would be distended by the full arterial pressure. The work of Carrel shows that many organs stand interference with their arterial supply fairly well, but are greatly harmed by interference with their venous drainage.

DR. H. GIDEON WELLS, Chicago: Calcification of the tubules is usually very extensive in experiments with the kidneys of rabbits, and one has to consider the fact that the blood of these animals contains more calcium than does that of either the carnivora or the omnivora. The results of such experiments have been applied to the problems of general calcification. This, I believe, is entirely and fundamentally erroneous, for the reason that in the case of the calcification of the necrosed tubules of the rabbit's kidney there is the same process as in calcification of dead organic material in the urine, in which there is a solution of certain organic and inorganic salts, differing from calcification occurring within the body, when the calcium comes from the circulating blood.

A point brought out with regard to Litten's work is that he found no definite relation between the functional changes in these cells and the anatomic alterations. We are too little inclined to bear in mind the entire discrepancy between functional and histologic changes. Although this lack of correspondence of structure and function has been frequently mentioned, yet one so frequently sees it disregarded that I do not hesitate to emphasize this point. The opposite condition also holds good, namely, that extreme anatomic alterations are not necessarily productive of defective functional capacity. In Washington, in May, I presented before the American Association of Pathologists and Bacteriologists a paper describing the effects of the most extensive possible fatty degeneration that I had been able to produce in the liver. I found that the liver-cells in these cases showed as great a power to destroy uric acid, which is difficult to oxidize, as do the cells in the normal liver. Therefore, cells may show extensive histologic changes and yet be functionally competent; and may also show no histologic changes and be totally incompetent.

DR. DAVID C. STRAUSS, Chicago: In the beginning of the paper I did not care to refer to the literature, because there is so much of it, and most of it does not apply to temporary compression, but to permanent ligation. In regard to the functional effect of temporary compression of the renal vessels, I found mention of some experimental work done by Ludwig on dogs. He found that temporary compression of the renal pedicle often caused temporary anuria and albuminuria that remained for hours, or even days; but this did not always follow. In our paper we simply wanted to refer to the anatomic changes produced. As Dr. Wells has pointed out, the functional changes ought also to be studied; however, this is simply a preliminary study. With reference to whether in our experiments there was complete compression of the vein but not of the artery, I would say that the clamp used by us was very strong and was protected by rubber, so that there was little chance of failure to compress the artery entirely. Moreover, in every case I felt the artery in order to be sure that there was no pulsation between the clamp and the kidney, and in some cases put on a second clamp to be more certain. In regard to Dr. Wells' remarks concerning calcification, I did not quite understand the point he made about the deposition of calcium being the same as in the urinary bladder.

DR. H. GIDEON WELLS, Chicago: There is simply a precipitation of calcium as from a sponge. It is not comparable to the calcification of the bronchial glands, for instance.

DR. DAVID C. STRAUSS, Chicago: Litten, in his article, points out that the chief reason why there is so much more calcification in these temporary compression experiments than in experiments in which permanent ligation is done, is the fact that the blood-vessels are not destroyed by the brief temporary compression, and that the circulation through the renal vessels is reestablished. This allows further deposition of calcium to occur; whereas, when the vessels are ligated permanently, the only source of calcium deposit is from the collateral circulation. We did not observe functional changes. They ought, however, to be observed.

THE ETIOLOGY OF EPITHELIOMA *

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I. THE DEVELOPMENT OF FIBROUS TISSUE

The result of some studies in the development of fibrous tissue as observed in wound-healing form a necessary introduction to the consideration of the behavior of connective tissue in its relation to developing epithelium. It will be necessary, therefore, to present in outline some researches already published.¹

The first change in the healing of any wound is the exudation of a colorless serum. Within a few minutes this material begins to coagulate, forming bands extending from one wound surface to another. These bands become fully formed after a few hours. They take the direction most effectual for union. I speak of this process as coagulation because the fibers so formed stain by Weigert's fibrin stain and stain red by Mallory's stain, as is characteristic for fibrin (and Mallory's fibroglia fibrils), and because those things which prevent the coagulation of blood prevent the formation of these fibrils. We have then a tinctorial and a physiologic test in agreement that the process here observed is identical with that of blood coagulation. These fibrils after a few days lose their affinity for the Weigert and the red in Mallory's stain and stain blue with the latter and are, therefore, fibrous tissue. It remains to determine that the fibers staining blue with Mallory's stain after three to six days are the same as those which stain red with Mallory's and blue with Weigert's stain during the first few days.

Two facts are available for this proof. In a large series of experiments in which corn-pith was stitched to a peritoneal surface the fibrin bundles formed over the surface geometrically ("in a mathematical manner"—Kulmann). These results are constant.

After the change in tinctorial reaction has occurred, the fibers have an identical arrangement. If, therefore, the fibrin fibers are replaced by fibrous tissue the arrangement is identical. That they are not replaced finds its chief argument, however, in that a part of a single fiber may stain blue while the remainder still takes the red stain. These results also are constant. From these facts I conclude that the initial process in wound healing is the formation of fibrin identical with that formed in the coagulation of blood, and that the fibrin fibrils are converted into fibrous tissue fibrils.

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Hertzler, A. E.: Pseudoperitonitis, Varicosity of the Peritoneum and Scleroses of the Mesentery, THE JOURNAL A. M. A., Jan. 29, 1910, p. 351.

II. CHANGES IN CONNECTIVE TISSUE IN ARTIFICIALLY INDUCED EPITHELIAL CELL PROLIFERATION

When Sudan III in olive oil is injected beneath the epithelium, epithelial cell proliferation takes place to such an extent as to simulate very closely a beginning epithelioma. The influence of the Sudan oil, according to Fischer, is to act as an attractin. No attention has been paid to the fact that the connective tissue in the region of the developing epithelium loses its specific tinctorial reaction to connective tissue stains and that epithelium does not proliferate in regions where this change in the connective tissue has not taken place. From study of sections of specimens obtained soon after the oil has been injected and for short intervals afterward, it seems that the connective tissue changes precede the epithelial proliferation. The epithelial proliferation, too, takes place after the use of those dyes only which induce these changes in the connective tissue, namely those of the OH group. The changes in the connective tissue are the reverse of those changes which take place when fibrin changes to fibers, that is to say, the changes are from blue to red instead of red to blue. I am not certain that I have succeeded in completing the reverse process. Fibers occur which stain red by Mallory's stain, but I have not succeeded in reversing the process far enough to get a positive reaction with Weigert's fibrin stain. As a corollary to this line of evidence it may be mentioned that epithelium does not develop in wound-healing in the presence of adult connective tissue. The use of Sudan in the treatment of chronic ulcers has been supposed to act by stimulating the epithelium to proliferation. The connective tissue changes produced by the Sudan when used as an ointment are identical with those induced when the dye is injected. I conclude from such studies that the changes in the connective tissue are probably the essential factor in the production of the epithelial proliferation. When the healing of chronic ulcers is attempted by surgical means we empirically bring about the same condition which we produce by the Sudan, that is, fibrin is supplied, or in other words, we cause the chemical reaction of fibrous tissue to approach that of fibrin.

III. THE CONNECTIVE TISSUE CHANGES IN EPITHELIOMA

In advance of epithelial proliferation in beginning cancer the connective tissue undergoes changes similar to those artificially produced in the Sudan experiments. It no longer stains in a characteristic manner by Van Gieson and stains a paler blue by Mallory's stain. The reaction to Van Gieson is identical with that given by the connective tissue in the Sudan experiments. The results are so constant as to be most valuable in the determination of the clinical character of epithelial cell proliferations. The chief matter of interest, however, is the occurrence about certain cell-nests of small bundles of fibrils which correspond to my fibrin fibrils and to Mallory's fibroglia fibrils. These are found in small numbers in a great variety of tumors. Whether these fibrils result from a reverse change from blue to red or whether they are newly formed is difficult to determine. I am disposed to regard the latter as probable; in the first place, because this corresponds to Mallory's opinion, and in the second place, because one cannot distinguish the change from a degeneration process. In certain rapidly growing tumors granular material reacting to Weigert's stain is found which corresponds to the granular fibrin of the physiologists, which, as stated in my previous paper, does not develop into fibrous tissue.

This explains the paucity of stroma in certain rapidly growing tumors.

In exact harmony with these changes in epithelioma and in the Sudan experiments are the changes observed in *x*-ray dermatitis and beginning epitheliomas resulting from the exposure to the *x*-rays. These lesions seem to supply the missing link between the Sudan experiments and spontaneous epithelioma. In the *x*-ray lesions, investigators are in agreement that the changes are primarily in the connective tissue. We have in each of these conditions, the Sudan experiments, the ray proliferations and spontaneous cancer, cell proliferation and changes in the connective tissue and an attempt to determine which is primary is not an easy matter. In the ray tumor and particularly in the Sudan experiments the changes in the connective tissue precede epithelial cell proliferation and there is much collateral evidence that the same is true in cancer.

In the summary of such collateral evidence we are reminded that it was the theory of Thiersch that the primary factors lay in the connective tissue. The fact that blood-vessels are not formed in granulation tissue after the fibrin stage has passed has seemed to me to be in accord with the observation already made that epithelial cells do not develop in the presence of normal connective tissue. These changes in the connective tissue are attended by round-cell and leukocytic infiltration. That cancer is most apt to develop at sites where chronic irritation is most apt to occur is perhaps the most constant factor in cancer etiology. The evidence of inflammatory reaction is present before the epithelial proliferation and the change in the connective tissue occur; in the presence of such irritation it seems but logical to assume as a working hypothesis that the changes in the connective tissue stand in a causal relationship. The *x*-ray cancer and the epithelial cell proliferation produced by Sudan can be pretty definitely demonstrated as being constantly preceded by connective tissue changes. If the hypothesis that the primary change occurs in the connective tissue be accepted, the nature of that primary change is yet to be determined. In these studies several points have appeared which are of interest. The fibrin fibrils occur about cancer nests, but their causal relation to the developing epithelial cell cannot be determined. The fact that the leukocytes are present in these processes preceding cancer development may in some remote way have to do with the process of fibrin formation. It would seem, however, that this is expressive of reaction against the invading epithelium, just as fibrin, then fibrous tissue forms in granulomas and not as a causal factor. Returning to the experiments with Sudan, we are reminded that those dyes only which have the power of combining with lipoids *in vivo* have this power and that they are all dyes belonging to the OH group. The negation of the properties of the lipoids may permit the processes of coagulation—that is, fibrin formation—to become active.

We know also that cancer cells have a predilection for metastatic formation in certain situations. These sites of predilection correspond in a rough way with the class of phenomena above considered.

These facts have a constant harmony which makes a specific significance probable. In a previous paper² I attempted to follow out on clinical grounds some of the circumstances under which cancers develop. In most situations irritations plus an alkaline secretion are co-existent. This crude hypothesis may have some value as a

2. Hertzler, A. E.: The Etiology of Epithelioma; A Laboratory and Clinical Study, THE JOURNAL A. M. A., Feb. 8, 1908, p. 425.

working basis though a comprehensive statement cannot be entered into at this time. We may assume perhaps that a chemical balance has been broken. The latter would seem to be necessary in the explanation of the formation of metastasis, while the former might obtain as a preliminary factor in the development. I will remind you that epithelial metastases occur most frequently in those regions where leukocytes are most abundant (the lymph-glands) or where this prefibrin substance is most abundant (in subendothelial tissues). Metastasis, according to this hypothesis, becomes very closely related to the relation of leukocytes to blood coagulation. The relation of the leukocytes to chronic inflammations and the etiology of epithelioma halts at the same point. We must look to the physiologist for more light.

The relation of the fibrin fibers, of which I speak, to the fibroglia fibrils of Professor Mallory requires a word. They react to the same dyes and are found in the same situations, but I am at a loss to know how to go about establishing proof of their identity. Identity cannot be proved by fibrils produced otherwise than in wound-healing where the age of the fibrils can be accurately determined.

Studies in fibrils less than forty-eight hours old have convinced me of their identity. I desire to say a word about their relation to the cells which he believes produces them. I cannot agree that they may be produced by the cell, for the simple reason that they develop before the advent of the cells and in situations inaccessible to cells. They bridge areas not possible for cells to traverse. Their arrangement according to mathematical laws corresponds to the assumption that they are precipitated out of an amorphous exudate, while the arrangement cannot be explained by the assumption that they are the product as such of the cells: furthermore, at no time can any organic connection between the fibrils and the cell be demonstrated. What influence the cell may have in changing them from fibrin to fiber or what part the cell may have in the production of the material forming the amorphous exudate out of which the fibrils are precipitated by the action of some other factor, I cannot enter into here.

SUMMARY

1. The formation of fibrin is the first step in the formation of connective tissue.

2. Epithelium develops in the presence of fibrin only.

3. In the artificial production of epithelium by Sudan III the first changes are in the subepithelial connective tissue.

4. In *x*-ray cancer the epithelial development is preceded by changes in the connective tissue which are tinctorially identical with those which take place in the Sudan experiments.

5. The changes in the connective tissue in beginning epithelioma are tinctorially identical with those in the Sudan experiments and in *x*-ray cancer.

6. The factor most constant in cancer etiology is chronic irritation. Chronic irritation produces the changes above enumerated.

7. The sequence of phenomena above enumerated suggests as a working hypothesis that the etiology of cancer is associated with the lessened acidophilic properties of the connective tissue whereby it approaches fibrin in tinctorial reaction.

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A FURTHER CONSIDERATION OF THE QUESTION OF PERMANENT DRAINAGE IN CERTAIN CASES OF PANCREATITIS *

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At the Virginia Hot Springs meeting of the Southern Surgical Association, I read a paper entitled "A Plea for the More General Use of Cholecystenterostomy in Certain Cases of Pancreatitis." I said in part that I believed that the operation advocated was thoroughly consistent with the nature of the diseased process, namely, a chronic inflammation of the pancreas, whether the etiologic factor were gall-stones or infection independent of and apart from stone formation.

From what I have been able to read in books and the current literature, and have observed in the actual work of many large clinics, the operation of cholecystenterostomy in its relation to chronic or interstitial pancreatitis is not as generally in use by surgeons in this country as it should be.

The whole proposition hinges on this point: It appears that quite a number of cases of chronic pancreatitis require more or less permanent drainage to effect a symptomatic and physiologic cure; that if the pancreatic inflammation has progressed to a certain stage the operation of cholecystostomy does not afford drainage for a sufficient length of time to allow the trouble to subside; indeed, there is a point reached when the pancreatitis itself is incurable, although the symptoms due to insufficient bile drainage may be relieved by operation. In other words, if the pancreatitis which started as interstitial lasts long enough, the islands of Langerhans become involved and we then have the so-called inter-acinous pancreatitis with its resultant diabetes.

When we consider the comparatively small size of the bile channels, the very low blood-pressure under which bile is secreted, the slight force behind to force it on to the intestinal tract, it is easy to understand that in those cases in which the common duct passes through the head of the pancreas a comparatively slight obstruction would be sufficient to cause the damming back and absorption of the bile. I shall briefly relate a case which is typical of quite a number to serve as a concrete illustration.

M., a man aged 38, married, several years ago had an attack of pain in the gall-bladder region with very slight jaundice, pain occasionally radiating under right shoulder, slight fever, indigestion, etc.; these attacks would occur at frequent intervals; there was a gradual weakening and loss of flesh; no sugar in the urine. The diagnosis was gall-stones or pancreatitis (chronic) or both. At the operation a slightly distended gall-bladder with no stones was found; the bladder was full of the characteristicropy, tarry, black bile with well-marked colon-bacilli odor to it. The pancreatic head was markedly enlarged. Operation consisted in cholecystostomy after the common duct had been thoroughly explored and a probe passed into the duodenum to insure the patency of choledochus; drainage was continued for three months, and during this time the patient not only gained 20 pounds in weight, but was completely restored to health. This is a sentence from a letter received three months after the wound had been closed: "Dear Doctor: I have just had another attack very much worse than any before my operation; what shall I do?" On my advice, the patient returned to the hospital, at which time cholecystenterostomy was done, with the result that he has been permanently relieved from all his symptoms and is now in perfect health.

* Read in the Section on Surgery of the American Medical Association, at the Sixty-first Annual Session, at St. Louis, June, 1910.

I think it most important to try to determine at the primary operation which cases need permanent drainage and which do not, and not to wait for a recurrence of symptoms to point us to the error of our way, for it is my opinion that this malady is not only a more frequent one, but much more important than is the general belief.

The following from Mayo Robson¹ is very much to the point:

A simple drainage of the gall-bladder by cholecystotomy is frequently unsatisfactory and cannot be relied on in well-marked cases of obstruction, as drainage of the bile passages is not sufficiently long-continued. This applies especially to the cases in which the interstitial pancreatitis has persisted for some length of time, in which cases, although a cholecystotomy may lead to a disappearance of the jaundice and the digestive symptoms may be alleviated, the metabolic signs found in the urine many months, or even years subsequently, show that recovery has only been partial.

To my mind it is most important to draw a distinction between chronic pancreatitis due to gall-stones and chronic pancreatitis due to infection independent of and apart from the presence of stones: in the first case simple removal of the stones and temporary drainage of the gall-bladder gives permanent relief, because we remove the cause of the disease: in the other case, however, the trouble lies outside of and independent of stone formation, and these cases, within the bounds of my experience, at least, are much more likely to require permanent drainage to affect a cure. On this point Mayo² says:

I am impressed with the fact that chronic pancreatitis is not only a more frequent malady than has been supposed, but a more important one. In looking back over considerable experience in surgery of the gall-bladder and bile-tract, I find that a number of cases that have failed to make a good recovery, failed because of pancreatic complications. It is certain that a much larger proportion of cases, especially those with a distended gall-bladder and dilated common duct, with or without stones, should be treated by a cholecystenterostomy, than has been the practice among surgeons.

This position has been forced on me by an experience which I believe is rather unusual. Very briefly it is as follows: I have had in all fifteen cases of chronic pancreatitis; out of these cases the first twelve patients were treated by cholecystotomy, with the result that nine out of the twelve returned for a second operation, made necessary by a recurrence of the symptoms, at which time cholecystenterostomy was done. I have heard recently from eight out of these nine patients and they all report their general health and strength as being in every way satisfactory. Of the nine patients reoperated on in only one was the pancreatitis associated with gall-stone disease. In the last three cases I have felt justified in making permanent drainage at the primary operation, with the result that the trouble was ended at once. In a recent article Ochsner says, "In rare cases in which the common duct is permanently obstructed, cholecystenterostomy may be indicated." In fully half of my secondary operations for this trouble the patency of the common duct has been proved by passing a probe through the duct into the duodenum, and yet recurrence has taken place.

My experience is, I believe, unusual; the number of cases in which there has been recurrence is out of the ordinary and will probably never be paralleled. I would not for a moment encourage the inference that I believe

that two-thirds or one-half of the patients treated by simple drainage would have to be operated on again, but I do insist that this experience is so striking as to merit serious attention; and, incidentally, it suggests that the future will have to determine between temporary or permanent drainage for certain cases of infection of the gall-bladder and biliary passages. There has been one death in this series of cases from ether pneumonia.

I feel, then, that this conclusion is justified: When operating for chronic pancreatitis, if the conditions present do not necessitate cholecystenterostomy, they do present the strongest possible reasons for not making permanent drainage.

PATHOLOGY OF GALL-BLADDER AND BILE-TRACTS*

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In the study of the pathologic physiology of the gall-bladder and gall-tracts we are constantly confronted by the facts that all the various digestive organs, the liver, duodenum, pancreas, stomach, etc., are functionally synergistic, and not, as was formerly supposed, separate and incoordinate units, and that disease in one portion may manifest itself primarily by symptoms referred to an entirely different part. There are also universal symptoms, symptoms common to disease of any part of the digestive tract, which are still considered as neuroses due in some mysterious way to anything or to nothing in particular. The symptomatology of the diseases of the digestive tract is very confusing; and we need not wonder therefore why nearly all diseases of the gall-bladder and bile-tracts are not recognized early and are permitted to develop into dangerous and serious complications before operation is undertaken. Since the pancreas has the fatal defect of sharing terminal facilities with the common bile-duct, and since to that unfortunate arrangement the majority of the diseases of the pancreas are due, for this exposes it to infections and diseases of the gall-bladder and ducts, the early recognition and removal of the pathologic conditions in the gall-bladder and bile ducts is of paramount importance. It is the object of this paper to review the pathology of these conditions and their bearing on an early diagnosis.

Gall-stones are by far the most important pathologic factors we have to deal with. The most important factors which contribute to their formation are stagnation and infection. In old age the muscular tissue about the bile passages atrophies, and this interferes with normal movements of the bile. Lacing and pregnancy in women, and abdominal tumors and adhesions have a tendency to distort the bile passages; these conditions also produce stagnation by pressure. Heredity also plays a part in predisposing to the formation of gall-stones. Stasis is the great factor favoring the development of an infection of the biliary passages. Bile is usually sterile in spite of the open communication that exists between the common duct and the intestinal tract. The current of flow carries material into the intestines, and, even though bacteria are artificially introduced into the bile, they may be carried away by the current without doing any harm. On the other

1. Robson and Cammidge: *The Pancreas, Its Surgery and Pathology*, p. 446.

2. Mayo, W. J.: *Surg., Gynec. and Obst.*, December, 1908, p. 611.

* Read in the Section on Surgery of the American Medical Association, at the Sixty-first Annual Session, at St. Louis, June, 1910.

hand a mere ligation of one of the larger bile-ducts in an animal often suffices to set up an inflammation.

The following facts have been cited in support of the view that infections of the biliary tracts enter by way of the portal vein more frequently than by the common duct. Adami and Ford have asserted that there is a constant passage of bacteria through the mucosa of the healthy intestines; bacteria introduced into the blood may be excreted in the bile (Cushing). The bacteria causing cholecystitis are often not those found commonly in the duodenum. The infection of the biliary passages above a ligature around the common duct could hardly come from an ascending infection. Finally if an enteritis be caused by the administration of arsenic, etc., and if the animal is fed some easily recognizable organisms, such as *Bacillus prodigiosus*, the organisms can often be demonstrated in the bile passages. These facts render it very probable that infection frequently takes place by route of the portal vein. The bile is apt to contain bacteria in pneumonia, typhoid fever and other infections. The bacterial infection produces an inflammation of the mucous membrane and a desquamation of its epithelial cells. These latter contain undissolved cholesterol. They likewise contain calcium salts and these probably react to form the insoluble calcium salt of bilirubin. From this salt, as well as from the amorphous cholesterol in the cells, the biliary calculus takes its origin. Its further growth is carried on by the deposition and recrystallization of new material, especially of cholesterol. Pancreatitis about the common duct also may favor the formation of gall-stones.

In the diagnosis of gall-stones and cholecystitis the history is of great importance and little attention should be paid to the erroneous statement that gall-stones produce no symptoms until impaction takes place. We must also disregard the age of the patient or at least remember that gall-stones can occur before middle age. In fact we should look on every patient who presents himself with indigestion as having some serious lesion of the stomach or gall-bladder, perhaps with complications—till the seriousness is disproved.

The most prominent symptoms of gall-stone disease are a history of long-standing dyspepsia, a capricious appetite, constipation, marked flatulence, independent for the most part of the taking of food, associated with discomfort when the stomach is empty and with comparative ease at night after eating a little. In gall-stone disease we have often at the beginning a sense of constriction but not of actual pain and this sense of constriction is accompanied by a sensation of chilliness which is characteristic. Jaundice, hematemesis, etc., are all late symptoms which will clear up the diagnosis but so late that complications are always present.

From the surgical standpoint it does not make any difference whether we have gall-stones, gastric or duodenal ulcers, pericholecystic or perigastric adhesions; the same incision will relieve them all.

Inflammation of the gall-bladder and bile tracts may depend on causes originating within the ducts, as formation and retention of gall-stones or micro-organisms brought to them from the circulating blood, from the bile or ascending from the intestines. Disease of the pancreas also may cause inflammation in these parts by obstruction of the common duct. Even the majority of tumors of the gall-bladder, the carcinomas, are frequently the result of the trauma and continuous irritation resulting from gall-stone disease.

The disturbances produced by diseases of the gall-bladder and bile-ducts may be conveniently grouped under the following headings:

1. The resulting jaundice.
2. The result of the occlusion of bile from the intestines.
3. The accompanying pancreatitis.
4. The effect of occlusion of the pancreatic secretion from the intestines.

THE RESULTING JAUNDICE

Whenever the lumen of the common duct or both hepatic ducts are obstructed from any cause and the liver cells continue to secrete bile, then the gall-bladder and bile passages become filled with the secretion, the bile pressure within them increases, the liver cells are separated and the bile is absorbed in the lymphatic system or directly into the blood. Thence it is distributed and deposited in various tissues. The bile salts are the most toxic of the constituents of the bile that pass into the blood and are responsible for some of the resulting toxemia. The presence of bile also interferes with the coagulating power of the blood, and prevents operation in some cases on account of the tendency to hemorrhage by diapedesis.

THE EXCLUSION OF BILE FROM THE INTESTINES

The exclusion of bile from the intestines interferes seriously with the absorption of fats, only about 40 per cent. of the fats taken in the food being absorbed, as to the normal 90 per cent. In cases in which the bile is occluded from the intestinal tract we must pay close attention to the diet so as to maintain the nutrition of the patient. The diet should consist principally of proteids and of higher carbohydrates. Fat should not be given, for if present, it will undergo excessive cleavage through the action of intestinal bacteria and pancreatic ferments. The products of the decomposition are very irritating and are responsible for the diarrheas and other disturbances present. What influence the absence of bile exercises on the bacterial decompositions of the lower intestinal tract we are not surely informed about. We know, however, that the putrefaction of proteid material is increased.

THE ACCOMPANYING PANCREATITIS

According to studies made by Dr. C. H. Hoffman, pathologist of the College of Physicians and Surgeons of Little Rock, Ark., the most frequent causes of acute and chronic pancreatitis are gall-bladder and duct diseases. Mayo in 325 operations on the common and hepatic ducts found the pancreas involved in 22 of the cases. Quénu and Duval estimate the simultaneous occurrence of gall-stone disease with chronic pancreatitis as being close to 50 per cent. Williams and Bush in a collection of 83 cases chronicle their presence in nearly 40 per cent. Egdahl analyzed 105 cases and concluded that 42 per cent. of the cases of acute pancreatitis were associated with gall-stones, and inclines to the opinion that they are the most common causes of pancreatitis.

Opie established the proof of this relationship in a post-mortem in a case of Osler's operation by Bloodgood, in which a small stone occluded the ampulla of Vater, forming thereby a continuous passage for the bile from the common duct into that of the pancreas. This he supplemented later by the addition of seven other cases and inferred that in many cases the stone may be lodged temporarily, but long enough to damage

the pancreas, and then may escape, without leaving any further evidences of its impaction. Half of the cases examined by Opie showed more or less contraction or obliteration of the duct of Santorini so that it could not perform the functions of Wirsung's duct, when that duct was obstructed by the ordinary passage of an average-sized gall-stone through the pancreatic portion of the common duct without impaction at the ampulla. From this we understand that the actual lodgment and retrojection of bile frequently takes place.

Pancreatitis can be produced also by regurgitation of the contents of the duodenum into the diverticulum of Vater, the route having been opened by the passage of a gall-stone. The head of the pancreas encircles the common duct in nearly two-thirds of all cases. Stones lodged in that portion of the duct press on the pancreas and produce partial if not complete obstruction of its secretion, which can be readily infected either from the duodenum through Santorini's duct or through the ampulla of Vater. The bile is nearly always infected in all cases of common-duct stone and we must consequently anticipate more or less virulent infections of the pancreatic secretion from the same cause.

Flexner injected bile mixed with mucus into the pancreatic duct and found that this diluted bile produced only a mild pancreatitis while if the bile was injected undiluted an acute phlegmonous inflammation resulted. This will be sufficient to show that the etiology of pancreatitis is in most cases identical with that of cholecystitis and cholangitis.

THE EFFECT OF EXCLUSION OF PANCREATIC SECRETION FROM THE INTESTINES

Complete exclusion of pancreatic juice from intestines without concomitant exclusion of bile is extremely rare. A closure of both ducts does not occur frequently, and likewise a total degeneration of the secreting glandular parenchyma is rare.

Muller studied the feces of several patients who had extensive pancreatic degeneration, and found the absorption of carbohydrates not at all affected by the disease. He found that the absorption of the proteids was only slightly affected, and that the total quantity of fats absorbed was likewise not far from normal. The cleavage of fats in the intestines, however, was considerably diminished, for of the fat in the feces only 40 per cent. was found split into soaps as against the normal of 84 per cent. Others claim that the absorption of fats is greatly diminished. Weintraub's patient lost 25 per cent. of the fat taken in the food and Doucher's two patients lost respectively 52 and 83 per cent. of the fat taken in the food. Later observers, particularly Croftan, have established that in pancreatic obstruction the stools are bulky, because a great deal of the pabulum fails to be assimilated at all and therefore escapes absorption. There is much fat in the stools and the muscle nuclei pass through the intestine in an undigested form (Schmidt's test); in addition lipase may appear in the urine (Hewlett's test); also pentose (Cammidge's reaction) and much dextrose. Dr. Hoffman informs me that he has found the Cammidge reaction of a great deal of service in the diagnosis of chronic pancreatitis but of no value in the acute form.

TREATMENT

The nature and extent of the operation for gall-bladder and gall-stone disease must depend on the condition of the pancreas.

In gall-stone disease with chronic pancreatitis the removal of the stones with temporary free drainage by

means of a cholecystostomy is generally sufficient. This drainage relieves the infection caused by the stones and also will do away with the pressure which the pancreas exerts on the common duct. Whenever we have reason to believe that the pancreas is involved, unless there is malignant disease of the gall-bladder or the function of the organ has been destroyed by obliteration of its cystic duct, the removal of the gall-bladder is not advisable. A previous history of cholangitis, frequent attacks of jaundice, or calculi in the common duct, all contraindicate cholecystectomy, for keeping the gall-bladder intact will permit a secondary cholecystenterostomy if necessary. It must be constantly borne in mind that the mucus secreted by the gall-bladder has a function and protects the pancreas.

I have long ago been impressed with the importance of chronic pancreatitis and have always advocated that all cases of distended gall-bladder and a dilated common duct with or without stones should be treated by a cholecystenterostomy. The gall-bladder has two important functions, one to secrete protective mucus, and the second to relieve the tension in the common duct at the head of the pancreas. In doing a cholecystenterostomy we should constantly bear in mind the function of the bile in the intestines and should never make our anastomosis between the gall-bladder and the colon unless circumstances demand it. The most logical place for such union is between the gall-bladder and the duodenum as near the opening of the common duct as possible, but in some cases the duodenum is placed so deep or is so firmly fixed by adhesions as to render a union there almost impossible.

In gall-stones and gall-bladder trouble complicated by an acute pancreatitis the pancreas should be incised, free drainage established and it is better to employ the anterior abdominal incision than the posterior one. If the patient's condition will permit it, and there are stones in the gall-bladder or the ducts, or an acute infection of the bile passages, the stones should be removed and drainage of bile established through a right lateral incision. If jaundice is present drainage is imperative.

It will be seen from the foregoing that in all diseases of the gall-bladder and ducts an early diagnosis is the only means we have of preventing serious complications. To wait for repeated attacks of biliary colic, for vomiting, or hematemesis, or pancreatitis to make our diagnosis before operating would be a very dangerous procedure. Since we do not wait for a mastoid abscess to produce a sinus thrombosis, or for a gastric or duodenal ulcer or an inflamed appendix to perforate and produce peritonitis why should we wait for gall-stones to impact and develop a whole train of sequelæ before operating?

1902 Schiller Avenue.

ABSTRACT OF DISCUSSION

ON PAPERS BY DRs. GUERRY AND RUNYAN

DR. L. F. SCHMAUSS, Alexandria, Ind.: It is stated in the literature that gall-stones do not produce symptoms in about 90 per cent. of the cases. In 90 per cent. perhaps gall-stones do not produce symptoms early—that is, typical symptoms, like colic, jaundice, and so forth—but to say that in 90 per cent. of all cases of gall-stones there are no symptoms is wrong, and not according to the observation of anyone who gives the subject serious thought. I maintain that in all cases of cholelithiasis there are symptoms before the patient reaches old age; that in 90 per cent. of them there are more or less serious symptoms before that period, and that in at

least 10 per cent. of all cases of cholelithiasis the symptoms will be so severe as to necessitate operation. These patients all have so-called dyspeptic and neuralgic symptoms for many years, which means that we should give them more attention. Not only are they diagnosed as gastralgia or neuralgia of the stomach, but even as appendicitis, malaria, and so forth, and this statement that 90 per cent. of cholelithiasis cases give no symptoms is to a great extent responsible, I think, for these wrong diagnoses.

A CASE OF DIAPHRAGMATIC HERNIA

A. BAMBERGER, B.S., M.D.
CHICAGO

I report this case not only because of the rarity of diaphragmatic hernia, but also because of the abstruse and puzzling symptoms it presented.

Past History.—The patient, W. W., a negro butler, aged 23, had had the diseases of childhood; gonorrhoea several times, but denied syphilis. He used alcohol and tobacco in moderation, but denied coming in contact with lead in any form. He had never had a similar illness and was well up to the onset of the present trouble. Ten years previously he had been stabbed in the left seventh intercostal space just lateral to the anterior axillary line. The cut was about 2 inches long, through which a mass looking like fat (as he described it) protruded. The wound was sutured under general anesthesia and an uneventful recovery followed.

Present Trouble.—About 12:30 a. m., July 24, 1910, he entered my service at the Cook County Hospital. He gave the following history: Five days previously a sharp pain started on the left side of the abdomen, about 2½ inches below the costal arch, which grew so severe that he was unable to sleep that night. He vomited, but had no chills or fever. Bowels had been constipated since the onset of the pain, and resisted all cathartics and flushings that a physician had administered. The pain on the left side of the abdomen, which had radiated to the epigastrium, and the vomiting and constipation persisted until entrance to the hospital. On the day before admittance to the hospital, he vomited a brownish material, which, as he expressed it, looked like manure.

Examination.—The patient walked into the ward, but apparently had some pain. He was well nourished. There was no cyanosis or dyspnea; temperature 99.2 F. per mouth; pulse, 61; respirations 24 on admittance. The pupils were equal and reacted to light and accommodation. There was no rigidity of the neck and no lead line along the gums. The throat was negative. The lungs expanded equally on both sides. Dulness began posteriorly one hand's breadth below the angle of the scapula. There were no abnormal palpatory, percussion or auscultatory findings. The pulse was full, slow and regular. The heart was on the left side of the chest, not enlarged and showed no murmurs. The abdomen was not distended, and peristaltic waves could not be seen or auscultated. There was tympany all over. Some tenderness and rigidity were present over the entire abdomen, but especially in the region of the appendix. In the right anterior lumbar region there was an ovoid tumor mass, tympanitic and tender, but not movable. Liver and spleen were not palpable. The genitalia were negative. There was no stricture, prolapse or tumor of the rectum. Knee-jerks were present; no Babinski or ankle clonus. The urine was amber; clear; specific gravity 1.038; no albumin; no sugar; no casts; leucocytes, 6,250.

Course.—Repeated colonic flushings and "1-2-3" enemas were given with no results, and twelve hours after admittance the patient was practically in the same condition as when he entered; so the diagnosis of intestinal obstruction was made, the exact type of which was not known, and an operation decided on. Because of the good condition of the patient and the lack of marked abdominal symptoms, some physicians who saw the patient believed the condition to be an acute catarrhal appendicitis with paralytic ileus.

Operation. An incision was made in the mid-line of the abdomen. The appendix was normal, but the cecum and

ascending colon were markedly distended. The small intestine was run through, but no obstruction was found. The transverse colon was distended, but the colon below the splenic flexure was collapsed. In the lower border of the diaphragm, just to the left of the median line, was a hole large enough to admit the finger-tip, in which a knuckle of the descending colon was bound down so firmly by adhesions that it was deemed safer to let the obstruction alone, and do a lateral anastomosis between the portion of the colon proximal to the obstruction and the sigmoid. This was done in the usual way. A drainage-tube was inserted in the left side of the abdomen; the peritoneum and fascia were closed with continuous catgut, and the skin was sutured with interrupted silk-worm gut.

Postoperative History.—For four days after the operation the patient had a temperature of 99.8 to 102 F. per rectum, and on July 30, five days after the operation, he had a bowel movement. He then made an uneventful recovery.

The points to be considered in this case are:

1. The long time (ten years) elapsing between the time of injury to the diaphragm and the occurrence of the hernia.

2. The relatively few symptoms of intestinal obstruction and its close resemblance to appendicitis; also the good general condition of the patient, which is not usually seen in intestinal obstruction; and the fact that the patient recovered after being ill six days with an intestinal obstruction, in which condition the mortality is very high after forty-eight hours' duration.

100 State Street.

ACCIDENTS DUE TO SWIFTLY MOVING MACHINES, AND THEIR AUTOMATIC RATIONAL PREVENTION

ESPECIALLY AS CONCERNS INDUSTRIAL CONDITIONS

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The conscientious physician always seeks the removal of the cause of any disease that may come under his treatment when that is possible, rather than the treatment of mere symptoms that tend to recur so long as the cause remains.

We may apply this sound principle with practical results to the prevention of accidents arising from swiftly moving or power-driven machines. If manufacturers or factory owners should have passed in their respective states, a provision or clause in any law as concerns liability between the employer and employee, the respective state insurance commissioners to pass on all details of bond application, based on the following, or a similar method:

The manufacturer, builder, or agent of the machine shall place an indemnity bond with an approved surety company, to the amount of, say, 5 or 10 per cent. of the total cost of the machine, which bond is to run during the estimated life or period of usefulness of the mechanism, as shall be agreed on, such bond to be drawn on by the employer or manufacturer after an accident, for the purchase of safety devices, bulwarks, mechanical guards, etc., to be placed on the specific machine so covered.

This method should insure to the builder or agent of the machine:

1. The avoidance of the moral responsibility of maiming employees for life.
2. The saving of large treasure, if state governments should adopt such a measure, that is wasted at the present

time and otherwise would continue to be wasted, so far as prevention and a repetition of the accident are concerned.

3. Safety measures that are automatic in their function and operation, both obtained at a minimum of cost.

4. Relief of courts of law from the burden of time and expense in passing on the party at fault—the manufacturer as an employer, or the employee through negligence.

5. Universality and automatism of action and scope, whether the machine is a clattering loom in a New England cotton factory, a fast perfecting printing-press in New York City, or a threshing-machine on some Western farm.

6. Ingenuity of the mechanic or draftsman brought into play at the erection or construction of the machine, in order that the builder or agent may receive low rates on his bond or insurance for a well-protected machine, as is the case of a house well protected from fire—resulting in a low rate of insurance.

7. The minimum expense involved at the time of the construction of machinery in covering all dangerous points.

To the manufacturer or employer it should insure:

1. Relief from mental anguish, responsibility and worry after an accident.

2. Avoidance of expense and reduced profits on his output as the sequel to an injury.

3. Tranquillity of mind, in that defects or dangerous parts of machines that may and do cost him treasure will receive attention hereafter, as well as increased quantity and quality of output—minus damages—that he has apparently heretofore lost sight of.

4. Very little, if any, increase in the cost of machines to him, owing to growing competition and the low cost to the builder of safeguarding machine when it is under construction.

5. The right to sue builder of machine at any time to recover the sum paid for the mechanism, the law holding the sale or transaction void unless bond has been properly filed in the first instance.

To the employee or mechanic it would insure against:

1. Physical pain and misery.

2. Reduced earning capacity.

3. Death, or invalidism for life.

4. The receipt of possible injuries to limbs for which mere money could not hope to offer adequate compensation.

EXTENSIVE WOUND OF THE EYE BY AN INFECTED INSTRUMENT

RECOVERY WITH RETENTION OF VISION

EDWARD ARMITAGE, M.D., M.R.C.S. (Eng.)

Government Physician for the District of West Kau, County of Hawaii

NAALEHU, T. H.

History.—Between 3 and 4 p. m., May 16, 1910 while Iopa Kahula, an 8-year-old Hawaiian boy, was engaged in cutting an old leather whip-lash with his knife, the lash being suddenly divided, the blade of the knife penetrated his right eye. His mother, on seeing blood and water flowing from the wound, carried him into the house, laid him on a couch, and bound up the eye with a handkerchief. Between 5 and 6 p. m. the same day, I was summoned to see the boy.

Examination.—I found that there was an extensive, incised wound of the sclerotic and cornea, and felt convinced that the eye would eventually be lost. However, I determined to make an endeavor to save it and adopted the following plan of treatment.

Treatment.—There being no apparent prolapse of the iris, the eye was thoroughly irrigated with a solution of mercuric chlorid, 1 to 1,000; a solution of atropin, containing 1 50 grain was instilled; the eye was covered with a thick layer of cotton-wool and bandaged; the strictest repose in the recumbent position and the most complete quiet were enjoined.

Naalehu is specially renowned for two climatic features, viz., prevalence of high winds and accumulation of dust; the boy's house was close to the dusty highroad, and was certainly not much cleaner than that of the average poor Hawaiian. Throughout my district of West Kau, there was no hospital or semblance of hospital accommodation; and for this reason I decided to examine and dress the eye but once a day, while I most forcibly enjoined on the parents and on the boy himself, that on no account was the dressing to be touched; that the boy was to lie on his back constantly; that soft food only was to be given to him, in order to prevent, as far as possible, the movement of the facial muscles during mastication, and that he was to be brought, still in the recumbent position, lying on a wagon, every morning to my office, which was situated not far from his residence.

Every morning the boy was brought to my house, the wound and eye were carefully irrigated with a 1 to 1,000 solution of mercury bichlorid, four drops of a 1 per cent. solution of atropin sulphate were instilled into the right eye, and one drop of the same solution into left eye; then, both eyes were carefully padded over with cotton-wool and carefully bandaged. After the first day or two, 10 grains of sodium salicylate were administered every two hours, throughout the progress of the case.

Entering the sclerotic, 1 mm. below the center of the lower border of the cornea, in the "dangerous zone" of Nettleship, the blade of the knife divided the sclerotic and cornea, emerging from the latter 1 mm. below the upper and inner border of the cornea, thus making a somewhat curved incision, which was distant 1 mm. from the inner border of the cornea, the length of the wound being 6 mm.

May 17 there was keratitis and iritis; no pain, but some swelling of the eyelids; the wound appeared to have closed



Fig. 1.

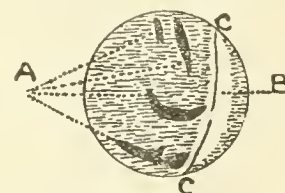


Fig. 2

Fig. 1.—Eye of patient, after sketch made July 11, showing scar and leukoma; dotted line, vein on lid.

Fig. 2.—Diagram of the cornea (Sept. 23, 1910); black spots (A) indicate apertures in stretched iris; white streak (B), scar and leukoma; line (C), blood-vessels supplying cicatricial tissue.

satisfactorily. May 20 the boy could not see light with the right eye, evidently owing to the previous effusion of blood, and I noticed after the first day or two that the pupil had taken on a grayish tinge, indicating the presence of cyclitis. The above symptoms gradually subsided, and on May 26 the boy was able to see me with the wounded eye for the first time since the injury. There was no pain on slight pressure on either eyeball, while the corneal wound was completely healed with a leukoma along its borders. May 30 I discontinued the use of the 1 to 1,000 solution of mercuric chlorid and commenced to irrigate the eye with a sterilized solution of boric acid. May 31 I instilled three drops of a 1 per cent. solution of atropin into the right eye and continued the one drop in the left eye. On June 6 the left eye was exposed, but the one drop of 1 per cent. solution of atropin was still continued every morning. No unpleasant effects have followed from the prolonged use of the atropin, and it was only on inquiry on June 9 that I elicited from him the statement that his mouth was dry. June 12 the boric acid lotion was changed for sterilized physiologic saline solution, and two drops of a 1 per cent. solution of atropin were instilled into the right eye, the drop in the left eye being continued. The sodium salicylate, 10 grains every two hours, was continued as before. June 13 I supplied the patient with a pair of orange-colored spectacles, in order to cut off the influence of the actinic rays of the spectrum. The bandage was discontinued, but a piece of cotton-wool was placed over the right

eye, behind the spectacle glass. He was now allowed to sit up. June 19 one drop of solution of atropin was instilled into each eye, and June 24 the instillation of the solution of atropin into the left eye was discontinued. June 27 the use of the 1 per cent. solution of atropin was discontinued in the right eye. July 4 I made a measurement of the cicatrix and of the leukoma with the curved strabismometer, and July 11 made a sketch of the eye (Fig. 1).

The cicatrix of the incision presents a beautiful linear scar bordered by two blood-vessels, and by the leukoma which at its widest part was then 2 mm. in diameter; the length of the corneal cicatrix was 5 mm. August 25, the boy not having come to see me previously during this month, I made an ophthalmoscopic examination of his right eye.

No details of the fundus were to be made out by either direct or indirect examination, but oblique foetal illumination showed that, since the discontinuation of the atropin, the iris had been drawn in on all sides toward the cicatrix, completely covering the pupil, but presenting within its texture several apertures through which good vision was obtained (Fig. 2). There was no pain or inconvenience whatever, and no tendency to staphyloma.

September 22 the leukoma measured 1 mm. at its widest part. The eye, apart from the anterior synechia and the scar, is normal in appearance. Distant vision with the right eye is apparently perfect; the near vision is somewhat difficult to determine, as the patient is unacquainted with the alphabet, but he takes pleasure in looking at, and recognizes the objects in picture-books, though when interrogated he says that he sees "small" with his right eye.

A peculiar feature in connection with this case is the development of a vein, proceeding from the inner border of the upper eyelid, along the median portion of the lid towards the outer canthus. Possibly this communicated with the angular vein and so with the ophthalmic vein.

Taking into consideration the very successful results which have followed the treatment of the above case and the good vision which the patient possesses with his right eye, I do not propose to perform any operation on the iris at present. At present I am instilling three drops of a 1 per cent. solution of atropin into the eye daily.

There is an old and time-honored maxim which asserts that "meddlesome midwifery is bad." How much worse is unnecessary interference in the healing process of such a delicate organ as is the eye!

CEREBROSPINAL FLUID OF ANOMALOUS CHARACTER IN A CASE OF INTRASPINAL TUMOR

C. M. COOPER, M.B., Ch.B.
SAN FRANCISCO

Since the cerebrospinal fluid is frequently examined as an aid to the diagnosis of cerebrospinal disease it seems wise that any anomalous finding should be reported.

The fluid withdrawn under a pressure of 160 mm. of water, from a patient without fever, and with signs of a localized segmental lesion of the cord, had the following characters:

Macroscopically, it was clear and of a yellowish-brown color, looking like the clear serous fluid that is aspirated from pleural or peritoneal effusions. On standing a well-marked cobweb coagulum formed. The Noguchi and Nome globulin tests were strongly positive, thick precipitates occurring. The Wassermann complement reaction was negative in the fluid as in the blood.

Microscopically, practically no cells were to be found either in the centrifugized fluid or in the coagulum. No bacteria could be detected.

Dr. Hyman, who later operated on the patient, and I came to the conclusion that we were dealing with a case of chronic compression of the cord, probably due to an intraspinal tumor,

but an explanation of the findings in the cerebrospinal fluid did not suggest itself. At operation a strongly marked edema of the membranes was found below the site of the tumor (an angiosarcoma). The transudate character of the fluid seems thus explained.

A similar finding, then, would suggest the presence of a compressing agent plus the probable concomitant occurrence of edema of the membranes, and would warn one to beware of the false localizing signs that may occur with such edemas.

SAPHENOUS VARIX SIMULATING FEMORAL HERNIA

ALFRED H. NOEHREN, M.D.
BUFFALO, N. Y.

To the well-known saying, "The man who never makes mistakes in diagnosis never does autopsies," I would add "and never operates." Of all the surprises I have ever had, either in operations of my own or in those at which I assisted, the case I am about to describe was the greatest. The rarity of the condition found and the importance of differentiating it from femoral hernia are my reasons for publishing this case.

History.—On Oct. 11, 1910, I was called to see Mrs. K., a woman of 37, mother of seven children, the youngest being 3 years old, who had always been in good health and had worked hard all her life. She complained of crampy pains all over her

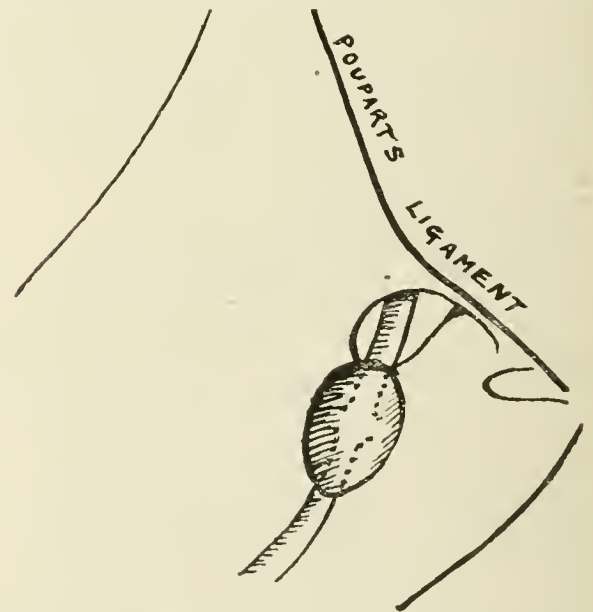


Diagram of saphenous varix simulating femoral hernia.

abdomen, but most severe on the lower left side, together with continual rumbling of gas. As she had been constipated for a few days, she had taken several doses of castor oil. These increased the pain, although they brought on a fairly good bowel movement. There were no other complaints.

Examination.—Temperature was 98 F.; pulse, 112. The abdomen was not tender, was soft, there were no masses felt or swelling noticed. Just below the saphenous opening on the left side, however, was a swelling about as large as a walnut. It was not tender, was easily reducible, especially when the patient lay down, and gave a most decided impulse on coughing. The patient said she had noticed this swelling ever since the birth of her last child and that it had never given her any trouble. I made a diagnosis of femoral hernia and told the patient it would be well to have it operated on, telling her of the danger of strangulation, etc. Her abdominal cramps I attributed to the cathartic and treated her accordingly.

Three days later I was called again. The abdominal pains had grown worse, especially on the lower left side, and radiated down the left thigh. She had frequent soft stools and the rumbling of gas was marked. Temperature was 100 F.; pulse, 124. Peristaltic waves could be seen over the lower left abdomen, where there was also tenderness and more resistance than on the right side. The hernial mass was a little larger, was tender, and was no longer reducible. Operation was now most urgently advised, but absolutely refused. During the day, the temperature rose to 102.6 F. and an indistinct mass could be felt in the lower left quadrant of the abdomen. On the evening of the next day, the bowels moved, but with much difficulty and straining. There was considerable resistance in the lower left side of the abdomen and the entire abdomen was moderately swollen and tympanitic, especially over the course of the colon. The patient felt nauseated and vomited a little bile. The hernial mass was tense, tender, and flat to percussion. Temperature was 102.2 F.; pulse, 124. Operation was now insisted on. The patient was taken to the German Deaconess Hospital at once, where I operated that same evening.

Operation.—An incision was made over the supposed hernial swelling and large enough to do a radical operation for the cure of femoral hernia. Imagine my surprise on dissecting out the mass to find that it did not emanate from the saphenous opening at all, but was continuous on either end with the internal saphenous vein just below its emergence from the saphenous opening. It formed a sacculated pouch springing from the anterior wall of the vein. The vein was tied off above and below the tumor and the latter removed. On opening, it was found to contain a fairly fresh unorganized blood-clot and the wall of the pouch was a dilatation of the wall of the vein. There was no hernial sac visible, neither was the femoral ring abnormally large; nevertheless I sutured Poupart's ligament to the pectineal fascia with one catgut stitch, thus preventing the possibility of a future hernia or the recurrence of one that might have slipped back into the abdomen. The wound was closed with interrupted silkworm-gut sutures. Examination under anesthesia now revealed a large infiltrating mass occupying the pouch of Douglas and extending upward into the left side of the abdomen. I decided to terminate the operation at this point and await developments.

Subsequent History.—The patient ran an irregular temperature ranging from 99 to 103 F. for ten days, after which it suddenly came to normal, where it stayed during the remaining eight days that she was in the hospital. During this time, the pelvic mass became gradually smaller and on her discharge could barely be felt. As it gave no symptoms and seemed to be gradually disappearing, the patient was tentatively discharged from the hospital.

In looking over the literature, I find a saphenous varix in this location a vary rare occurrence. I could find no case reported in the last three years. Although varicosities are common enough in the long saphenous vein, they are uncommon in this situation. According to MacCready's statistics quoted in von Bergman's and Keen's text-books on surgery, a saphenous varix was mistaken for femoral hernia nine times as against forty-seven times that abscess and one hundred and fifteen times that enlarged lymphatic glands were the cause of a mistaken diagnosis.

So much for a simple varix. But to find such a tumor, with impulse on coughing and easily reducible, after three days no longer reducible and tender in a patient with rising temperature, abdominal cramps, swollen tympanitic abdomen, and the other symptoms I have mentioned, was an unusual coincidence.

The explanation was simple enough after the operation. The varix had become thrombosed during the three days and the temperature and abdominal symptoms were due to the pelvic exudate.

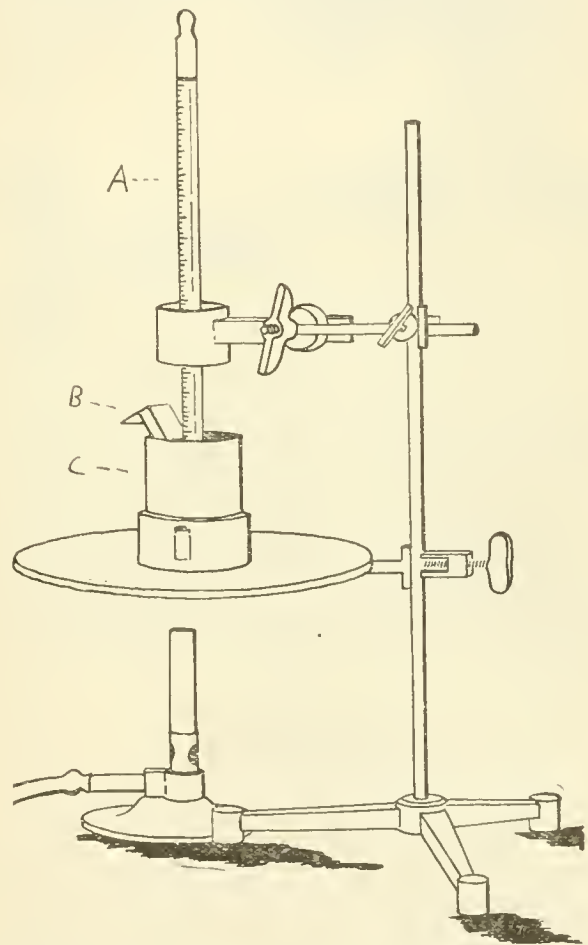
519 East Utica Street.

A SIMPLE APPARATUS FOR ACCURATELY FIXING BLOOD-SLIDES BY HEAT

GEORGE B. LAWSON, A.M., M.D.
ROANOKE, VA.

In fixing blood-slides by heat, one finds that the results of the copperplate method are so inconstant that it is difficult to get a good specimen unless one keeps in constant practice. There is no way of determining the exact amount of heat used or of keeping the heat regular. I have devised the following simple apparatus for office and laboratory use:

As shown in the illustration, an ordinary laboratory stand supports an iron dish, C, resting on an asbestos plate, under which is a gas burner. This iron dish is easily made by screwing a two-inch nipple into a pipe cap. This dish is filled with petrolatum, into which is sunk a small, thin copper cup so that the end sticks out as shown at B. This cup is



Apparatus for fixing blood-slides by heat. A, thermometer for registering amount of heat; B, copper cup for holding blood-slide; C, dish containing petrolatum in which cup with blood-slide is immersed.

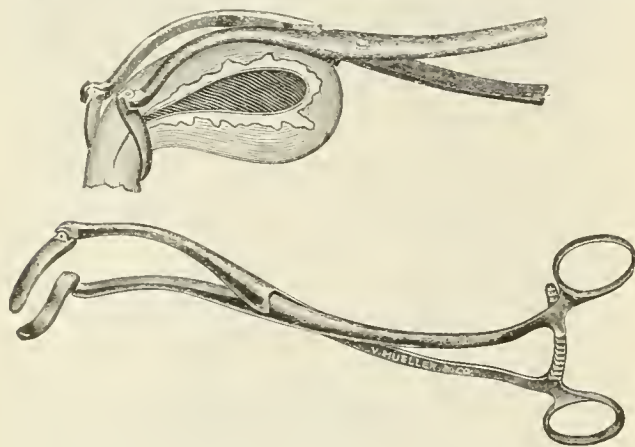
just large enough to admit with ease the glass slide. In the petrolatum is sunk the bulb of a thermometer, A. The exact temperature is registered by the thermometer. The slide may be introduced by using a small copper strip bent at an angle at the ends; and when the blood is sufficiently heated the slide and copper strip are withdrawn. With Ehrlich's stain I have obtained the best results by heating to 280 F. for seven minutes.

The disadvantages of this apparatus are that it requires constant attention. The advantages are that the slide may be accurately heated, and this may be done by one's untrained office assistant, whereas by the copperplate method one can hardly get constantly good results no matter how well one is trained.

AN IMPROVED UTERINE CLAMP AND RETRACTOR

A. MILES TAYLOR, M.D.
SAN FRANCISCO

The clamp illustrated is one which I have devised, believing that it will serve the purpose for which it is intended better than any clamp heretofore available. I find it very useful in all cases in which it is desired to elevate and hold up the uterus. Being devoid of teeth it does not injure or macerate the parts. The curves of the instrument allow it to fit around the uterus and it is not in the way in operating on the uterus or appendages from any side. In some cases it may be used as a



The uterine clamp and retractor, showing it applied to the uterus.

retractor. The jaws of the instrument are bent so as to grasp and surround the neck of the uterus without in any way injuring it. The jaws being on a swivel are not apt to produce sufficient pressure to do damage.

I have used the instrument in abdominal hysterectomies, removal of the appendages, in operations for ovarian lesions, shortening of the round ligaments, ventral fixation, removal of interstitial and subperitoneal fibromyomas, and in bringing up the uterus to expose the bladder.

Therapeutics

THE LOCAL APPLICATION OF DRY HOT AIR

The general practitioner will never be able to apply personally the major elements of physiologic therapy to any great extent because of the elaborateness of the plant required, but some of the minor elements can be perfectly utilized by the general practitioner, and most gratifying therapeutic results obtained. The local application of dry hot air is one of the most useful of them.

There are on the market several forms of apparatus for its application, all of which will do good work. In order to be efficient an apparatus must be capable of producing 400 degrees Fahrenheit in fifteen minutes at the outside, and of maintaining this temperature indefinitely. In order to be useful to the general practitioner these machines must also be easily portable. They may be heated by gas, gasoline, alcohol, or electricity, but one that is to be used in general practice should be supplied with a gasoline attachment, whatever other heating agent is usually employed, as the gas-pressure in some houses is not sufficient to produce an adequate degree of heat, electricity is available in only a few houses, and alcohol is not generally satisfactory for several reasons.

Preparation of the patient for the application is simple, consisting merely in covering the part of the body to be treated with three thicknesses of loose-meshed Turkish toweling; so as to secure intimate contact between wrapping and skin. If the perspiration which is induced as soon as the heat strikes the skin, is allowed to remain on the skin during a treatment, it will soon boil under the influence of the intense heat and blister the patient. These wrappings absorb it as soon as it is formed, the heat immediately vaporizes it and it rapidly diffuses itself out of the wrapping.

Directions for the general operation of the machines, are furnished by the manufacturers. Complete treatises on thermaerotherapy can be obtained by those who take more than a passing interest in it.

The physiologic effect of the dry hot-air application is produced in two ways: first, by thermic irritation of the numerous nerve-endings in the skin, and second, by the actual raising of the temperature of those portions of the body in immediate contact with the heat.

Irritation of the nerve-endings of the skin results, by reflex action, in (1) marked dilatation of the capillary areas, hence greatly increased blood-supply, (2) enormously increased functioning of the sweat-glands, hence increased local elimination, and (3) acceleration of the cell nutrition and function through reflex stimulation of the spinal centers. The raising of the temperature, *en masse*, results in acceleration of the chemical reactions constituting the cell metabolism of the part. It will be observed that the combination of these influences result in increased physiologic resistance of the tissues affected and acceleration of the process of repair of damaged tissue elements.

The sphere of action of this application, then, is in the treatment of pathologic conditions which are strictly local in character, and which can be happily influenced by increasing the local physiologic cell resistance and the local nutritional, absorptive, and eliminative functions. Such conditions obtain in many diseases encountered by the general practitioner but it will suffice to mention three which illustrate the different types of cases in which the local dry hot-air application is most useful. These three are (1) sprains, (2) most cases of true rheumatism in which but one or two joints are involved, and (3) local septic infection of the extremities before the process has involved the lymphatics connecting the affected part with the trunk, and in which the general toxemia resulting from the local lesion is not profound enough to overwhelm the organism as a whole.

SPRAINS

In an uncomplicated sprain the lesion consists simply of a traumatic solution of the continuity of soft tissues about the affected joint, accompanied by severe pain probably due to congestive irritation of lacerated nerve fibers. The therapeutic indications are (1) to relieve pain, (2) so to influence the trophic functions as to secure the quickest possible repair, and (3) to promote absorption of the exudate.

Increase in the physiologic resistance of cells is not called for in this condition, but acceleration of the nutritional, absorptive and eliminative processes are indicated; practically clinical experience demonstrates that the local dry hot-air treatment is well qualified to satisfy the requirements. If a sprain is put under treatment by this agent within three or four hours after the injury has been sustained, the pain will be relieved within half an hour, and all traces of the trouble will usually have disappeared within forty-eight hours. If the case is

three or four days old, however, and exudate is present to any great extent, complete removal of disability may require from two to three weeks; but the pain is usually susceptible of the same immediate relief as in early cases.

The local dry hot-air application also serves as a valuable diagnostic test in these cases, by informing us as to whether or not a fracture coexists. When a fracture complicates the case the treatment will usually relieve the pain somewhat; less frequently it will not relieve it at all, and sometimes it makes it worse. Its power to effect practically complete relief of pain is so universally observed when the lesion is uncomplicated, that failure to produce such relief is almost positive evidence that a fracture is present.

RHEUMATISM

In this affection we have an acute, infectious, inflammatory process, probably specific in nature, characterized by intense pain and more or less effusion, both probably due to local toxin irritation. The therapeutic indications, then, are to increase the physiologic resistance of the invaded regions and to accelerate elimination from this region. A sufficient increase in the physiologic resistance of the threatened cells would stop the invasion and immediately decrease the number of the invading organisms, which would immediately lessen the virulence of the toxemia attributable to them; accelerating elimination would still further lessen toxemia; and dilating the capillary areas would relieve blood-vessel spasm and whatever stasis of blood-vessel contents might be dependent thereon.

Clinically, dry hot air demonstrates its capacity for producing all these effects and some cases of rheumatism can be cured by it alone. The proportion of such cases, however, is not large enough to justify confining our therapeutics entirely to this agent, and salicylic acid, in some form and in adequate dosage, should always accompany the dry hot-air treatment. When these two remedies are used in combination, however, there result (1) immediate relief of the pain, however severe, (2) a shortening of the duration of the disease to from five to ten days, (3) a lessening of the likelihood of cardiac involvement because the rapidity with which control over the condition is obtained diminishes the time period during which the infection threatens structures other than those originally affected. When this picture is compared with that resulting from ordinary antirheumatic therapeutics, the beneficent rôle which dry hot air plays in the management of this disease becomes at once apparent.

This happy picture, however, applies only to uncomplicated cases in which but one or two joints are involved, cases in which the general toxemia is not severe enough to depress the general nervous system seriously. When the general toxemia is very severe, the development of a satisfactory recovery will necessitate invoking the powerful influence on general metabolism and elimination of the general or body application. The local application will be just as effective in relieving pain but the relief will not last as long and it will not be as complete. Neither does this picture apply to cases of arthritis deformans, neuritis, inflammatory joint or bone lesions, or malignant disease, which are so often misdiagnosed as rheumatism.

The foregoing implies that salicylic acid sustains more or less the relation of a therapeutic specific to rheumatism. Now it has become quite the fashion in recent years, on the part of some eminent clinicians, to assail this belief which has become so firmly grounded in the

mind of the average practitioner by his years of bedside experience with the drug—to maintain that it is purely and simply a pain-reliever. To one who habitually sees much of arthritis deformans in its early stages and of neuritis, a possible explanation suggests itself for these beliefs in the number of instances in which really eminent clinicians mistake neuritis and arthritis deformans in its early stages, for rheumatism, and prescribe salicylic acid. Of course the patient derives only more or less temporary relief of pain from this procedure; salicylic acid exercises no special curative effect on these conditions. Then again, however specific a curative agent may be, adequate dosage is required in order that it may manifest its specific properties, and salicylic acid is prescribed with astonishing frequency, in ludicrously insufficient quantities.

The last word has by no means yet been said regarding the specificness of salicylic acid as a remedy for true rheumatism. As a matter of fact, it cannot be said until the specific causative factors of the disease have been isolated and defined, so that a specific definition of rheumatism may be formulated, and we may be sure that we all mean the same thing when we use the term.

LOCAL SEPTIC INFECTION

This is another condition in which the physiologic influences of local thermotherapy are most appropriate. The disease process is of distinctly local origin, it involves a lowered vitality, or lack of physiologic resistance on the part of the involved tissues, and in the majority of cases it occurs on one of the extremities at a considerable distance from the trunk.

The therapeutic indications are (1) to increase the physiologic resistance of the invaded structures, whereby the pabulum of the micro-organisms is so modified as to inhibit their development, lessen the virulence of their toxic emanations, and finally to accomplish their destruction; and (2) to eliminate as rapidly as possible the toxic products already present in the affected parts.

A comparison of the physiologic action of this therapeutic agent with the pathology and therapeutic indications present in this ailment, explains at a glance why dry hot air would be expected to inhibit helpful attributes, and the clinical findings again bear out most happily the theoretical deductions. If a case is put under treatment before suppuration has been established and before the infective process has invaded that portion of the limb (lymphatics or other structures) immediately contiguous to the trunk, the pathologic phenomena will usually be abruptly arrested and the inauguration of convalescence will coincide with the first treatment. If suppuration at the point of infection has been established, the destructive process will become sharply and quickly localized when, by a stroke of the knife, the pus can be evacuated and the case brought to a rapid and satisfactory termination. If, however, the lymphatics at the junction of the affected part with the trunk are involved or if general toxemia is severe enough to seriously depress the central nervous system, the local application will have to be either superseded or accompanied by the general or body treatment.

Among other conditions in which the local application of hot air is more or less useful are pneumonia, pleurisy, acute gout, synovitis, fibrous ankylosis, some cases of neuritis, varicose ulcers, and sluggish healing processes not due to malignant, tuberculous or syphilitic infection. The physiologic action of hot air is definite and constant and hence constitutes a reliable guide as to what sort of pathology will yield to its influence.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 DEARBORN AVENUE . . . CHICAGO, ILL.

Cable Address "Medic. Chicago"

Subscription price Five dollars per annum in advance

[For other information see second page following reading matter]

SATURDAY, DECEMBER 31, 1910

[The large amount of space occupied by the index this week makes it necessary to omit some departments and to curtail others.]

THE CAUSE OF GENERAL PARESIS

Softening of the brain, general paralysis of the insane, or, in its more modern terminology, general paresis, has become a wide-spread affection. In the therapeutic attack on it we stand helpless, and therefore any clues that may be offered regarding the factors that assist in its development are eagerly grasped at in the hope that they may lead to its conquest.

Since Fournier's time the most widely accepted belief has been the syphilitic origin of paresis. Many English psychiatrists have maintained, and some even now hold, that sexual excesses, especially sexual aberrations, fellatio in particular, may cause the disorder in the absence of syphilis, but the more careful analysis of histories, the newly acquired knowledge concerning pseudoparetic syndromes in brain tumor, in arteriosclerosis, in multiple sclerosis, in alcoholism, plumbism and allied toxemias, and particularly the utilization of the cytologic examination of the spinal fluid with the Wassermann test of both blood and spinal fluid—these have all served to establish more firmly than ever the dictum, "without syphilis no paresis."

But even when this is said, the goal has not been reached, for the newly explored field of comparative psychiatry shows some very striking anomalous conditions, which compel one to stop and analyze the factors, especially since it would appear in the light of these newer facts that some other element than syphilis alone is essential.

It was but natural that alcohol should have been thought of as the chief contributory element in this etiologic chase. The early French psychiatrists so taught, and the belief is fairly universal that alcoholism and syphilis are the necessary elements. But we learn of the high percentage of paresis among peoples such as the Japanese, who have a low percentage of alcoholism and a high percentage of syphilis. Conversely, recent studies of the native peoples of North Africa—Mohammedans for the

most part, and non-alcoholic—show that general paresis is extremely rare among them, in spite of the fact that from 60 to 70 per cent. of the population of some regions suffer from syphilis, all stages being represented.

Only a few years have gone by since it was announced that the cause of paresis was to be found in a definite bacterium. Originally explained as a primary infection, the rôle of Ford-Robertson's diplococcus has fallen from that of a possible infectious factor secondary to that of an ordinary laboratory contamination. The possibility of light has been shut off in this direction.

Can comparative psychiatry throw some light on the subject? This question seems to be answered in the affirmative in a recent communication by Rudin,¹ based on some studies of paresis made on the native races of Algeria. Rudin has gone very completely into the much-discussed question concerning the presence of paresis among these races, and has apparently established the fact that for the present state of occupation and culture the native races of Algeria, notwithstanding a 60 to 70 per cent. infection with syphilis, are free from paresis, and the evidence further points to the fact that syphilis is no new disorder in Algeria, but was probably introduced there in epidemic form about the same time that it showed itself in Spain and Italy, *i. e.*, in the post-Columbian period.

Rudin looks on the process of civilization as the answer to the problem, which he looks at from two points of view.

In the first place, the severe stress of higher civilization and race culture shows itself more particularly in the nervous system. Modern modes of life place particularly heavy burdens on the nervous energy and the nerve centers. One result of the struggle with syphilis and excessive nerve-strain combined is paresis. In primitive peoples, in whom the latter factor is absent, the brain does not give way, and syphilitic lesions are more common in those parts of the body more exposed to physical wear and tear, namely, the skin and the bones.

Secondly, the advance in superiority of the white races, which has come about largely through increasing complexity of the nervous system, has entailed a high percentage of hereditary shortcomings. The studies of Julius and Arndt have shown, contrary to the usual belief, that hereditary factors are very prominent in the ascendants of paretics. It thus becomes plain that, after all, paresis, although primarily a result of infection, brings into high relief the general problem of the relation of soil to the processes of destruction. Given a brain not deteriorated by hereditary factors and not called to work at the high pressure forced on it by modern factors of civilization, a syphilitic infection rarely leads to a paretic breakdown. This is the final conclusion of this interesting study of Rudin in the field of comparative psychiatry.

1. Rudin. *Allg. Ztschr. f. Psychiat.*, 1910, No. 5.

A LITERARY CENTENNIAL OF MEDICAL INTEREST

This year, as the hundredth anniversary of the death of Charles Brockden Brown, one of the earliest of our American novelists, should not be allowed to pass unnoticed among physicians. Brown died from tuberculosis at the early age of thirty-nine. He was one of the men who, like John Addington Symonds and Robert Louis Stevenson, refused to give in to the disease, continued his work bravely, fought off the inevitable as effectively as possible and succeeded in accomplishing a good life's work in spite of his malady. Had he been a "quitter," tuberculosis would probably have taken him much earlier in life and with nothing done.

The story of his career has a therapeutic interest for those who have to do with tuberculous patients. There is an additional reason for medical interest in him, however, for Brown must be considered an important contributor to medical historical literature. In one of his stories, "Arthur Mervyn," he has given us probably one of the best descriptions of an epidemic ever written. It is a vivid picture of one of the awful epidemics of yellow fever which at the beginning of the nineteenth century used to rage in Philadelphia every few years.

We have, by the way, a series of descriptions of epidemics which were written by non-medical men, and which are classics in literature. Thucydides' description of the plague at Athens, Boccaccio's account of the Black Death in his introduction to the "Decameron," Defoe's "Journal of The Plague Year in London," are masterpieces, each in its own way. Brown's description of the Philadelphia epidemic has been placed beside these by Prof. John Erskine in his volume on "The Leading American Novelists." He says that "Brown's was the realism of the journalist. He had an instinct for headlines with the gruesome details, diagrammed and illustrated."

Now that we have reached a point at which we seem to be able to control the spread of epidemics, and now that the history of epidemic diseases begins a new chapter, the old chapters retain at least a historical interest. It is hard now to realize the awful condition of affairs that used to recur in Philadelphia every few years from the introduction and spread of this disease, now regarded as tropical or subtropical. As a matter of fact, however, during the late eighteenth century and early nineteenth century, not only Philadelphia, but New York and even Boston suffered severely from yellow fever. Indeed, the disease occurred so frequently in Philadelphia and worked such ravages among the local population that the question of abandoning that city is said to have been seriously discussed at one time during the first quarter of the nineteenth century, because the site was supposed to be almost hopelessly insanitary. In the intervals, malaria raged there with special virulence, showing that there were abundant opportunities in the neighborhood of the city for the development of mosquitoes of all types. The Philadelphian Rush was

an authority on yellow fever, while the elder Pepper, also a Philadelphian, was considered to have great experience with malaria. In another half century or more these diseases will have receded still farther from our horizon. Then Brown's realistic description of the epidemic which he witnessed will be a valuable original document—all the more valuable because it will show the triumph of sanitary science over what seemed to be hopeless conditions.

THE INDEX

With this issue we present the semiannual index. We call attention thus prominently to this feature of THE JOURNAL because we are continually impressed with the fact that the tremendous labor connected with it is not appreciated, nor is the practical value of the index realized, except by very few of our readers. It is worthy of emphasis that this is not only an index of the articles which appear in our own journal, but an index of most of the original articles that have appeared in most of the medical journals of the world for the last six months. In other words, the semiannual index issued with the last number of each volume of THE JOURNAL is an index of the progress made in medicine, covering all its phases, in every part of the world. As will be noticed, the matter is indexed both by title and by subject, being fully cross-indexed; and in addition there will be found a complete authors' index.

Another point to which attention should be called is this: The index is reprinted in pamphlet form, in which are included also the titles which have appeared week by week in THE JOURNAL. The advantage of this pamphlet,¹ the "Guide to Current Medical Literature," is that it is more easily handled than is the file or bound volume of THE JOURNAL, and thus the references are made more accessible.

Current Comment

SALVARSAN ("606")

In the Pharmacology Department of this issue,² appears an interesting and valuable report by the Association's laboratory on the chemistry of Salvarsan ("606"). While much has been written about this new remedy for syphilis, particularly about the technic of its administration, comparatively little has been said regarding the chemical identity of the drug. The report of the Association's chemists is a timely one and will enable physicians to follow more intelligently the directions for preparing the injections. The description of Salvarsan, which is given in concise language, makes clear the chemical properties of the substance, a knowledge of which should be possessed by those who purpose using it. As the report states, the investigation of Sal-

1. See advertising page 2, this week's issue.
2. Page 2314.

varsan was taken up at the request of the Council on Pharmacy and Chemistry in connection with the inclusion of this product with New and Nonofficial Remedies. This fact calls attention to three things: First, the United States is the only country in which the medical profession has its own body of expert pharmacologists and chemists to conserve its interests and thereby the interests of the public. Second, those manufacturers who consider the suggestion that they submit their products to the Council, for verification of the claims made for them, as a reflection on their probity, should note that those who sell this remedy, which may prove one of the therapeutic achievements of this century, do not hesitate to court the fullest investigation of the product. Third, it makes clear the fact that the Council examines each product impartially and without fear or favor. It is not only possible but probable that the enthusiastic claims which some of the users of this new remedy are making for it will, in the light of future developments, be greatly modified. Nevertheless, whatever opinion may be held regarding the ultimate value of Salvarsan, it is evident that the greater the amount of available information regarding it, the sooner will its true therapeutic status be determined.

THE BAT AS A DESTROYER OF MOSQUITOES

It is said that a Texas county medical society plans to ask the legislature of that state to pass a law protecting bats on the ground that they are efficient destroyers of the mosquito. The general cultivation of bats, even as inmates of homes, is also said to be recommended. No doubt the bat is an efficient insect-destroyer, but it is repulsive to most people, and, like the spider, which is an enemy to the infection-bearing house-fly, or the lizard, which is often tolerated or encouraged among tropical peoples, it is not considered a desirable house-mate by the tidy housekeeper of our country. In addition, the bat sometimes carries certain objectionable parasites of its own, such as *Cimex*. Thus, although the bat has its place in the economy of nature and may render us more service than we have been aware of, as a household pet it is hardly fitted to make homes happy, or even altogether hygienic.

GENERAL SHERMAN'S OBSERVATIONS CONCERNING COLDS

A wholesale illustration of the effect of outdoor living in preventing colds is contained in a letter of General Sherman to his wife written from Goldboro, North Carolina, during the Atlanta campaign. He speaks of his men, after having passed through the rigors and exposures of that strenuous campaign, and after being equipped with new clothing, as a fine-looking set of soldiers, brawny, strong and swarthy, a contrast to the weak and sickly-looking men who came to him in Kentucky three years before. He observes: "It is a general truth that men exposed to the elements do not catch cold, and I have not heard a man cough or a sneeze for three months; but were these men to go into

houses, in a month the doctors would have half of them. Now the doctors have no employment." A writer in the *Dietetic and Hygienic Gazette* refers to this as a "symptomatic observation worthy of a doctor, but unexpected in so great a general." He says that the general was not making a holiday health speech, but writing a universal cold-cure recipe, for a remedy which is as free as air and as bounteous as the canopy over us, and which any one can procure and use.

Medical News

ALABAMA

The Red Cross on Automobiles.—Forty-seven of the physicians of Birmingham, on the request of the chief of police, have placed on the fronts of their automobiles the Red Geneva Cross, whereby these are given the right of way over other vehicles.

Personal.—Dr. William W. Dinsmore, Decatur, has been appointed supervisor, for the state, of the Rockefeller Commission for Medical Research with headquarters in Montgomery.—Dr. Henry G. Perry, Greensboro, has been appointed general field agent and Dr. J. F. Orr, Littleton, has been appointed field worker.—Dr. James F. Meyers, Decatur, has severed his membership with the Morgan County Medical Society, and expects to locate in Springfield, Ill.—Dr. P. B. Moss has succeeded Dr. E. Marion Mason, Montgomery, as state bacteriologist.

ILLINOIS

Physician Wins Damage Suit.—Dr. Archie W. Barker, Springfield, won the suit in which a patient asked \$20,000 damages on the ground that Dr. Barker, in performing an operation for fistula, cut a muscle in such a way as to injure the patient for life.

Dispensary Staff Named.—The Springfield Tuberculosis Association announces the following active medical staff of the tuberculosis dispensary which will be in operation January 1: Drs. Charles L. Patton, John W. Kelly, Charles P. Colby, Samuel E. Munson, Milton G. Owen and George T. Palmer, who has also been elected superintendent. The consulting staff is composed of Dr. Lewis C. Taylor, president of the association and Dr. George F. Stericker.

Cook County Institutions.—The newly elected president of the Cook County Board precipitated a contest for supremacy between himself and the County Commissioners. At present, Dr. Charles F. W. Eberlein, formerly assistant superintendent, has been declared acting superintendent and, acting on orders from the president, has refused to obey the orders of a committee of the County Commissioners to turn the keys over to them.—Dr. Oscar C. Willhite, formerly superintendent of the Cook County Institutions, Dunning, was presented, on December 20, with a silver loving-cup by 200 employees of the institution, in token of their high regard for him. He had resigned rather than obey the order of the new president of the board to discharge two employees without trial. Their alleged offense was abuse of a patient, a charge of which Dr. Willhite declared that he was unable to find reliable evidence.

County Physicians Elect.—At the annual meeting of the Monroe County Medical Society, Dr. Stephen Kohlenbach, Columbia, was elected president; Dr. Arthur F. Schellshmidt, New Design, vice-president; Dr. Louis Adelsberger, Waterloo, secretary (reelected); Dr. Jacob C. Fults, Waterloo, treasurer; and Dr. John S. Sennott, Waterloo, delegate to the State Medical Society.—Champaign County Medical Society held its annual meeting in Champaign, December 8, and elected the following officers: Dr. William Rees, St. Joseph, president; Dr. Lucy A. Exton, Thomasboro, vice-president; Dr. Jennie Lyons, Champaign, secretary-treasurer; and Drs. Albert S. Wall, William L. Gray, both of Champaign, and James S. Mason, Urbana, censors; Dr. John Marten, Tolono, delegate to the state society; and Dr. Thomas J. McKinney, Gifford, alternate.—The thirty-seventh annual meeting of the Northern Central Illinois Medical Association was held in Peru, December 7, and the following officers were elected: Dr. Alfred E. Owens, Princeton, president; Drs. Thomas W. Burrows, Ottawa, and Ezra T. Goble, Earlville, vice-presidents; Dr. George A. Dicus,

Streator, secretary-treasurer.—Winnebago County Medical Society, at its annual meeting, held in Rockford, December 13, elected Dr. William H. Fitch, president; Dr. Allen C. Eakin, vice-president; Dr. Frank W. Hanford, secretary-treasurer; and Dr. William E. Park, censor, all of Rockford.—The LaSalle-Peru Medical Society, at its annual meeting in LaSalle, December 13, elected Dr. Samuel G. Mengle, Peru, president; Dr. Walter W. Greaves, LaSalle, vice-president; and Dr. Frederick A. Guthrie, LaSalle, secretary-treasurer.

Chicago

Bequests to Hospitals.—By the will of the late Michael Cudahy, \$2,500 is devised to St. Elizabeth's Hospital, and a similar sum to St. Joseph's Hospital.

Fined for Misbranding.—Charles Gilbert Wheeler of the Wheeler Chemical Works, Chicago, is said to have pleaded guilty, December 21, to selling an adulterated and misbranded headache remedy (Anadol). This nostrum was exposed in THE JOURNAL, May 21, 1910, in a report from the Association laboratory following an analysis of the stuff by the Association's chemists.

Nurses' Meeting.—The Visiting Nurses' Association of Chicago announces its annual meeting to be held at Fullerton Hall, Art Institute, Jan. 4, 1911, at 4 p. m. Addresses will be made by the president; by Dr. Rachelle S. Yarros on "The Relation of the Visiting Nurse to Settlement Work;" by Dr. William A. Evans on "The Visiting Nurse in the Municipality;" and by Dr. William P. Merrill on "The Personal Note in Social Service."

INDIANA

Local Association Organized.—The physicians of Owensville met November 28, and organized the Owensville Medical Association, and elected Dr. John M. Williams, president, and Dr. Thomas L. Lockhart, secretary.

Provisions for Hospitals.—The will of George F. Johnson, New Jersey, which bequeathed \$50,000 to Logansport for the erection of a public hospital in memory of his parents, has been held valid by the courts.—Contracts have been let for the construction of a hospital to cost \$60,000 at the Southern Insane Asylum, Evansville.

Tuberculosis Farm Dedicated.—Boehne Farm, the open-air hospital of the Vandeburg County Antituberculosis Society, was dedicated November 27. The farm was donated to the association by Mr. John W. Boehne who also donated \$5,000 to the movement. The camp is ready for occupancy and can accommodate at present seventeen patients.

Case Against Unlicensed Practitioner Dismissed.—The case of the state against R. A. Winkelman, Bluffton, charged with practicing medicine without a license, is said to have been dismissed November 28. The defendant conducted a sanitarium for some time, and when charges were filed against him, he sold his institution, and is said to have stopped illegitimate practice.

Specific Instead of General Provisions.—The State Board of Medical Registration and Examination held a conference at the state house, December 15, with representatives of the nine accredited colleges and universities of the state to place a specific construction on entrance requirements of the medical colleges. The present law provides that students seeking admission to a medical school shall have at least two years' work in an accredited college or university.

Personal.—Dr. James W. Milligan, surgeon of the State Penitentiary, Michigan City, has been appointed deputy warden of the institution.—The county commissioners of Marion County, at their meeting, December 16, made the following Indianapolis appointments: Dr. Benjamin S. Potter, superintendent of Marion County Insane Asylum, Julietta; Dr. Clarence L. Marlatt, physician and surgeon at the Poor Asylum; Dr. Thomas L. Sullivan, Jr., physician and surgeon at the Workhouse, and Dr. James R. Anthony, physician and surgeon at the jail.

County Elections.—The Fort Wayne Medical Society, the Medical Society of Allen County, held its annual meeting in Fort Wayne, December 6, and elected the following officers: president, Dr. J. Clifford Wallace, Fort Wayne; vice-president, Dr. Lyman T. Rawles, Hometown; secretary, Dr. Garrette Van Sweringen, Fort Wayne; treasurer, Dr. Elmer E. Morgan, Fort Wayne; censors, Drs. Samuel H. Havice, Edward J. McOscar and Eric A. Crull, all of Fort Wayne.—Vigo County Medical Society, at its annual meeting in Terre Haute, December 5, elected Dr. Myron A. Boor, president; Dr. Charles N. Combs, vice-president, and Dr. Bennet V. Caffee, secretary, all of Terre Haute.

IOWA

Society Meeting.—At the annual meeting of the Pottawattamie County Medical Society, held in Council Bluffs, December 6, Dr. George A. Spaulding, Avoca, was elected president; Dr. N. Jasper Jones, Shelby, vice-president; Dr. Grant Augustine, Minden, secretary-treasurer, and Dr. Willis F. Pierce, Carson, censor. Council Bluffs was selected as the next place of meeting.

Hospital Notes.—The physicians of Fort Madison, aided by liberal-spirited citizens, have taken over and reopened St. Elizabeth's Hospital founded by the Franciscan Sisters, and have made it entirely self-sustaining.—Dr. David S. Fairchild, Clinton, has written the State Board of Control strongly endorsing the project of establishing a state hospital for epileptic patients.—The State Board of Control has decided to join the State Board of Education in asking the next legislature to establish a psychopathic hospital. This is to be a kind of clearing-house of patients afflicted with various kinds of mental diseases.

MARYLAND

Typhoid Epidemic Checked.—Only twenty midshipmen with typhoid fever remain in the hospital at Annapolis, the rest having recovered sufficiently to go home on leave. No new cases have developed for ten days.

To Abolish Contract Practice.—Physicians of Cumberland met December 20, and adopted a resolution "to abolish all contract practice as applied to medical service of every sort in the city." Dr. Francis E. Harrington was chairman of the meeting, and Dr. John B. Littlefield, secretary.

Bequests.—By the wills of Mrs. Mary E. Burns and her daughter, Mrs. Ella B. Beaston, Endowood Hospital for Consumptives, near Towson, will eventually receive a bequest of nearly \$350,000. Other bequests provided are \$10,000 to the Hospital for the Women of Maryland, \$10,000 to the Church Home and Infirmary, \$5,000 to the Baltimore Day Nursery, and \$1,000 to Dr. Thomas C. Stellwagen, Jr., Philadelphia.

Personal.—Dr. John Sloan, organizer of the Board of Trade of Lonaconing, was given a banquet, December 20, prior to his departure to his new home in North Yakima, Wash.—Dr. William L. Smith has been appointed physician of the Baltimore county jail, and Dr. W. E. Ensor, physician of the county almshouse.—Dr. Arthur L. Wright has been elected pathologist at Spring Grove State Hospital for the Insane, vice Dr. Robert P. Winterode, resigned.

Baltimore

Near the Million.—The Johns Hopkins University fund has reached \$950,000, leaving only \$50,000 to be subscribed to complete the million necessary to complete the fund for the removal of the institution to its new site at Homewood.

Personal.—Dr. William J. Schmitz has been promoted to second assistant bacteriologist in the city health department.—Dr. George L. Wilkins, city jail physician, was seriously injured and bruised, December 21, by being caught in an ascending elevator in the jail.

Donation to School.—Mrs. William Painter has given \$20,000 to the Children's Hospital School to be used for the erection of buildings for the education and care of convalescent, crippled and invalid children. Other buildings will, it is contemplated, be erected in the future.

MICHIGAN

Personal.—Dr. Henry M. Joy of the Calumet and Hecla medical staff, has returned from Europe.—Dr. A. Verne Wenger, Grand Rapids, who has been ill in a hospital with septicemia, is convalescent and has resumed practice.—Dr. Homer I. Kedney, Marcellus, was painfully injured, December 15, by being thrown from his cutter.—Dr. George E. Moore, Ironwood, has been reelected physician of Gogebie County.—Dr. William H. Marshall, Boyne City, has started for Europe.—Dr. H. Allen Moyer, Charlotte, fractured his right arm and sprained his right wrist recently while cranking his automobile.

State Tuberculosis Society Meets.—The fourth annual meeting of the Michigan Society for the Prevention of Tuberculosis was held in Ann Arbor, December 10. The following officers were elected: president, Dr. Alfred S. Warthin, Ann Arbor; vice-presidents, Drs. Guy L. Kiefer, Detroit, and Edward F. Abrams, Dollar Bay; secretary, Miss Carroll Welton, Ann Arbor; treasurer, Dr. Henry J. Hartz, Detroit; and directors, Miss Ella Hubbard, Houghton; Drs. Charles Jennings and

Guy L. Kiefer, Detroit, and Mrs. M. W. Smith, Hastings (relected), and Mrs. Lucy Toms, Lapeer, and Miss Carroll Welton, Ann Arbor.

MISSOURI

Elections.—At the annual meeting of the St. Joseph-Buchanan County Medical Society, held December 7, the following officers were elected: Dr. Samuel F. Kessler, president; Drs. John I. Byrne and James F. Owens, vice-presidents; Dr. Herbert Lee, secretary; Dr. John M. Bell, treasurer, all of St. Joseph, and Dr. Clarence O. Jefferies, Savannah, delegate to the state association, and Dr. Charles R. Woodson, St. Joseph, alternate.—Platte County Medical Association, at its meeting in Platte City, elected the following officers: Dr. Egbert R. Hull, Camden Point, president; Dr. John W. Shulz, Weston, vice-president; Dr. Albert S. J. Smith, Dearborn, secretary; Dr. Frank M. Shafer, Edgerton, treasurer; Dr. Joseph J. Carter, Weston, delegate to the state association, and Dr. James H. Winter, Parkville, censor.—At the annual meeting of the Grundy County Medical Society, held December 6, in Trenton, Dr. William H. Wingham was elected president; Dr. Edgar A. Duffy, vice-president; Dr. Samuel Sheldon, secretary; Dr. William D. Fulkerson, treasurer and censor, all of Trenton, and Dr. John M. Stone, Laredo, delegate to the state Medical Association.—Jackson County Medical Society, at its annual meeting in Kansas City, December 6, elected Dr. Jefferson Davis Griffith, president; Dr. James Q. Chambers, vice-president; Dr. Edward L. Stewart, secretary; Dr. William F. Kuhn, treasurer, and Dr. Frederick T. Van Eman, censor.

St. Louis

Hospital Saturday and Sunday.—The donations on account of Hospital Saturday and Sunday have passed the \$41,000 mark, and the managers expect that not less than \$50,000 will be donated for the charities of the city.

Work Commenced on Hospital.—Ground has been broken for the new hospital to be erected by the Sisters of Mercy to form the clinical department of St. Louis University. The building will be five stories in height, will have 125 private rooms and 4 wards, and will cost \$350,000.

The Cocain Crusade.—Following the report made to the police department that cocain was being sold very generally in the downtown district, the police on November 20 and 21, arrested seventeen individuals charged with selling or using cocain. One of the defendants, charged with peddling cocain without license, was discharged, December 1, on account of the case against him not being properly prepared. Meanwhile, cocain traffic is said to flourish openly. A reporter for a local paper purchased nine packages of cocain in the course of twenty-four hours.

NEW YORK

New Sanatoria.—The Tupper Lake Sanatorium Corporation has been given permission to establish a private sanatorium for the treatment of tuberculosis at Tupper Lake.—The supervisors of Saratoga County have decided to build a tuberculosis sanatorium for the county, and have appointed a committee of five to investigate sites, secure the consent of authorities, prepare plans and specifications and report back to the board.

Opposition to Hospital Overcome.—Approval has been given by the State Commissioner of Health, Dr. Porter, and Health Officer Dr. J. S. White, Moreau, to the application of the Metropolitan Life Insurance Company for the establishment at Mount McGregor, Saratoga County, of a hospital eight miles out of Saratoga for the treatment of its employees afflicted with tuberculosis. The plan was vigorously opposed by the residents of Saratoga Springs, who asserted that it would injure the village as a summer resort.

New York City

Oppenheimer Institute Not Approved.—The State Board of Charities at its last meeting refused to approve the certificate of incorporation of the Oppenheimer Institute, which claims to cure the drink habit. This action is part of a fight that is being made against the institute by the New York County Medical Society on the ground that the law provides that a corporation may not advertise to practice medicine unless it be a hospital corporation formed under the membership corporation law and have obtained a certificate of incorporation from the State Board of Charities. The case is still pending.

Koch Memorial. At the New York Academy of Medicine meeting, December 15, the president, Dr. John A. Wycyth, gave a brief memorial address on the late Dr. Robert Koch, honor-

ary fellow of the academy. Dr. S. Adolphus Knopf, who was a student under Dr. Koch, presented a portrait of Dr. Koch. In closing his remarks Dr. Knopf said "Let this portrait which shall henceforth grace the walls of our beloved academy, this likeness of a prince of science, a teacher of teachers, one of the greatest physicians of his time, remind present and future academicians of Koch's motto in life: 'Nunquam otiosus' (never be idle). Let it be to us an inspiration, an incentive, and a reminder of the fact that though man has done much, there is still more to do."

Alliance Between Hospital and Medical School.—Announcement has just been made of a gift of \$1,500,000 to the Presbyterian Hospital, for the purpose of making possible an alliance between the hospital and the medical department of Columbia University. Edward S. Harkness gave part of the money himself and presented the remainder in behalf of a donor whose name he was not at liberty to mention. This alliance has been under discussion for some time and when it is finally consummated there will exist practically the same relation between the two institutions as now exists between the Johns Hopkins University and the Johns Hopkins Hospital. The fundamental principle of the alliance is that the university, in return for the privilege of making all nominations to the hospital staff, shall meet the expenses of all scientific and educational work associated with the hospital. It is for this purpose that the gift has been made. There are certain conditions imposed by the donor, some of which may be changed from time to time. One condition calls for the privilege of placing a memorial tablet in the new building of the hospital, which is soon to be erected, and it is rumored that this tablet will be in memory of Dr. Andrew McCosh. This is the first alliance of this kind between a medical college and a hospital in this city.

NORTH CAROLINA

Health Talks.—Dr. Watson S. Rankin, secretary of the State Board of Health, Raleigh, addressed the school teachers of Mecklenburg County at Charlotte, December 5, on "The Vital Problems of Public Health and the Teacher's Responsibility."

Society Meetings.—The first annual meeting of the Seventh District Medical Society, which includes the counties of Mecklenburg, Anson, Cabarrus, Lincoln, Union, Gaston, Stanly, Cleveland and Rutherford, was held in Charlotte, December 6. Dr. Andrew J. Crowell, Charlotte, acted as temporary president, and Dr. Robert H. Lafferty, Charlotte, as temporary secretary. The next meeting will be held in Gastonia.—Forsyth County Medical Association held its annual meeting in Winston-Salem, December 13, and elected the following officers: president, Dr. Aaron Y. Linville; vice-president, Dr. Everett A. Lockett; secretary, Dr. Eugene P. Gray, and delegate to the Medical Society of the State of South Carolina, Dr. Thomas W. Davis, all of Winston-Salem.

OHIO

Appropriation for Laboratory.—Dr. Bernhard F. C. Becker, health officer of Toledo, with the help of the Toledo Academy of Medicine and a federation of the Women's Clubs, has secured the approval of an appropriation of \$1,000 for a bacteriological laboratory for the city.

Academy of Medicine Meets.—At the meeting of physicians of East Liverpool, Wellsville, Chester and Newell, held in East Liverpool, November 25, the Ohio Valley Academy of Medicine was organized. Dr. George P. Ikirt, East Liverpool, was elected temporary chairman. The academy proposed to follow the postgraduate course suggested by the American Medical Association.

PENNSYLVANIA

Personal.—Dr. Wilmer R. Batt of Harrisburg, state registrar, was taken to the Harrisburg Hospital, December 24, suffering with appendicitis.—Dr. Paul G. Weston, pathologist to the State Hospital, Warren, is suffering with septicemia, contracted in performing an autopsy.

Loving-Cup Presented.—Dr. Edward H. Small, Pittsburg, who has been compelled on account of illness to move to Saranac Lake, N. Y., sent his resignation to the Pittsburg Academy of Medicine, of which he was one of the first members and the founder of its library. The Academy of Medicine declined to accept the resignation and sent Dr. Small a message to that effect accompanied by a silver loving-cup in token of the affection and esteem in which he is held.

Bequest.—The will of the late Elizabeth W. Garrett, widow of the late Casper S. Garrett, the millionaire paper manufacturer, provides for a country home for poor children and deserving single women. Nearly \$500,000 is bequeathed to relatives on condition that they withdraw all claim to 200 acres of farm lands and buildings thereon, situated near Newton Square, Delaware County. The institution is to be known as the "Garrett-Williamson Lodge," and will be run on principles similar to the country week associations.

Philadelphia

Research Laboratory for Stomach Hospital.—Plans for a research laboratory for the American Hospital for Diseases of the Stomach have been approved by the managers. The new building will be a two-story fireproof structure equipped with the latest appliances.

Wills Eye Hospital Appointments.—At a meeting of the board of city trusts on December 13, last year's officers of the Wills Eye Hospital were reelected, Dr. John A. Kenney was appointed resident surgeon and Drs. Luther C. Peter and Elmer E. Johnson were made clinical assistants.

Frankford Hospital Enlarged.—The Frankford Hospital formally opened the new Adele D. Schlechter Maternity, the Schlechter Home for Nurses and the Hunter Home for Nurses on the evening of December 16. Besides these additions, a wing to the Frankford Hospital building is in the course of erection.

New Anatomic Building.—The building of the former Pennsylvania Dental College, purchased some months ago and presented by Mr. Daniel Baugh to the Jefferson Medical College, is to be remodeled to serve as an anatomic laboratory. The cost of reconstruction will be about \$100,000, also the gift of Mr. Baugh, and the building will be known as the Daniel Baugh Institute of Anatomy of Jefferson Medical College.

Small-Pox on Steamer.—When the North German Lloyd steamer *Chemnitz* was docked on December 17, the health officers sent five children with measles and one, supposed to be suffering with ebriken-pox, to the Philadelphia Hospital. Later it developed that there was a case of small-pox among them, and the chief medical inspector sent three physicians to the government detention station to vaccinate every person held there for examination.

SOUTH CAROLINA

Eyeglass Peddlers Convicted.—D. Copeland and S. Frieburg, charged at Spartanburg with obtaining money under false pretenses, and with practicing medicine in the state without first having procured a license, are said to have been found guilty and sentenced to serve one year in the chain gang. The defendants are said to have assumed the names of reputable physicians of Atlanta and Spartanburg. They have appealed their case to the supreme court of the state.

State Board of Health Bulletin.—The South Carolina State Board of Health is issuing an interesting series of bulletins for free distribution throughout the state, the first of which was on "Small-Pox, Its Control, Suppression and Prevention," the second on "The Mosquito, The House Fly (*Musca domestica*), The Typhoid Fly," the third on "Typhoid Fever and How to Prevent It," the fourth on "Diphtheria and Scarlet Fever, Their Restriction and Prevention," the fifth on "Clean Milk in the Home," the sixth on "Hookworm Disease," the seventh on "Anterior Poliomyelitis (Infantile Paralysis)," and the eighth on "Tuberculosis."

Medical Society Election.—At the annual meeting of the Columbia Medical Society, held December 12, the following officers were elected: president, Dr. Skottowe B. Fishburne; vice-president, Dr. Henry W. Rice; secretary-treasurer, Dr. Mary R. Baker, and delegates to the state association, Drs. Augustus B. Knowlton and Pinckney V. Mikell.—Greenville County Medical Society held its annual meeting, December 5, in Greenville, and elected the following officers: president, Dr. Anthony White, Mauldin; vice-president, Dr. W. B. Sparkman, Greenville; secretary, Dr. Charles O. Bates, Greenville, and treasurer, Dr. R. W. Bruce, Greenville.

TENNESSEE

New Infirmary.—A new infirmary is to be erected in Chattanooga by Drs. Edward T. and E. Dunbar Newell, to cost \$50,000. The institution will contain thirty-two rooms and will be fully equipped.

Three Hospitals in One Building.—Drs. William G. Bogart, John S. B. Woolford and Raymond Wallace have each leased

an entire floor in the new Highland Apartments, Chattanooga, and will operate independent private hospitals.

Boyd Memorial.—Work has begun on the memorial arch which is to be erected by the Boyd Memorial Association in memory of the late Dr. John M. Boyd, Knoxville. The arch is to be built of Tennessee marble and will stand at the front of the court house.

Election of Officers.—The annual meeting of the Maury County Medical Society was held in Columbia, December 9. Dr. Horace E. Thomas, Columbia, was elected president; Drs. Henry O. Anderson, Williamsport, and James G. Williamson, Jr., Columbia, vice-presidents, and Dr. Maximilian M. Cook, Santa Fé, secretary-treasurer (reelected).

VIRGINIA

New College Building.—The trustees of the University College of Medicine, Richmond, have awarded contracts for a new college building, to cost \$135,000, to replace the one recently burned. The new building will be erected on the site of the old college, will be of granite ashlar, red brick and cement construction, three stories and basement in height. The building will be ready for occupancy in about a year.

Personal.—Dr. R. Lindsay Robertson has been elected city physician of Charlottesville, vice Dr. Roy K. Flannagan, resigned to accept the position as state health inspector.—Dr. Joseph S. DeJarnette, superintendent of the Western State Hospital, Staunton, is ill with typhoid fever.—Dr. William A. Swimley, Winchester, was thrown from a street car in Washington recently and severely injured.—Dr. Robert C. Randolph, Boyce, is ill with typhoid fever in Winchester Memorial Hospital.

Elections.—The Southside Virginia Medical Association held its thirty-first annual meeting in Suffolk, December 13 and 14. The following officers were elected: president, Dr. J. Bolling Jones, Petersburg; vice-presidents, Drs. Edward R. Hart, Suffolk; William T. Moore, Valentine's; and H. M. Musgrove, Capron, and secretary-treasurer, Dr. Emmett F. Reese, Courtland. The spring meeting of the association will be held in Norfolk.—At the annual meeting of the Richmond Academy of Medicine and Surgery, December 13, the following officers were elected: Dr. George Ross, president; Drs. Alfred L. Gray, John S. Horsley, and Alexander G. Brown, vice-presidents; Dr. Mark W. Peyser, secretary (elected for the seventeenth term); Dr. William A. Shepherd, treasurer; Dr. George P. LaRoque, librarian; and Dr. William S. Gordon, chairman of the judiciary committee.

GENERAL NEWS

Interurban Academy Meets.—The annual meeting and banquet of the Interurban Medical Academy, composed of physicians of Duluth, Minn., and Superior, Wis., was held in Superior, November 23. Dr. Louis T. Pare, Duluth, was elected president; Dr. Thomas J. O'Leary, Superior, vice-president; Dr. Olin W. Rowe, Duluth, secretary-treasurer, and Dr. Luther A. Potter, Superior, censor for three years.

Seaboard Physicians Hold Meeting.—The fifteenth annual session of the Seaboard Medical Association of Virginia and North Carolina was held in Kinston, N. C., December 6-8, under the presidency of Dr. William T. Parrott, Kinston. The following officers were elected: President, Dr. Clarence Porter Jones, Newport News, Va., and secretary, Dr. J. Rainey Parker, Goldsboro, N. C. Newport News was selected as the place for the next meeting.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Dec. 9, 1910.

The Responsibility of Opticians

In this country a good deal of prescribing of spectacles is done by opticians, and a diploma in sight-testing has been instituted by a society composed of these persons. The medical profession has always objected to prescribing by opticians on the grounds that even if they can measure errors of refraction they are quite incompetent to diagnose or treat diseases of the eye, while the patients for whom they prescribe spectacles may be suffering from grave disease. A case hinging on this point has been tried. A woman, aged 23, sued a "qualified optician" (one with the diploma mentioned) for negligence in supplying spectacles and in examining and testing her eyes. She was a student studying science for a Lon-

don degree and had passed all her examinations except the final one. She consulted the defendant's firm for her sight in 1907, 1908 and 1909. Her eyes were examined and tested and she was given two sets of spectacles. Eventually she sought medical advice and it was found that she was suffering from conical cornea, which permanently prevented her from continuing reading, and she became nearly blind. She asserted that if she had received proper advice from the defendant she would have consulted an oculist in time. She first went to him in September, 1907, and was seen by his assistant, who tested her sight and according to her evidence used an ophthalmoscope. He said that her defective sight was due to astigmatism and that with his glasses her sight would be good and she might in time be able to dispense with them. In the spring of 1908, she went again and complained that print appeared blurred. Her eyes were again examined and the glasses were changed without advantage. In November, 1909, she consulted an oculist, who said that conical cornea must have existed since she first consulted the defendant, and that any one with any knowledge of the eyes would have detected this and forbidden her reading, and that her sight would probably have been preserved or, at any rate prolonged, but that now it was too late and she was on the verge of blindness. Evidence to this effect was given by the oculist in question, who also said that the glasses prescribed were wrong and quite useless. The optician was examined and stated that he prescribed for the plaintiff by means of test-types and did not use an ophthalmoscope but might have used a plain mirror. Medical evidence was given for the defense that conical cornea was hard to detect in its early stages. The judge, in summing up, pointed out that the defendant was not a professional man, and that, therefore, no standard of skill was applicable to him. People ordered glasses as they did telescopes, at their own risk. An optician was bound to exercise reasonable care, and if he found some disease should refer the patient to an oculist. He did not think it was an optician's duty to detect diseases of the eye. After a long discussion the jury failed to agree.

Radium for England

Mr. Alton, director of the English Radium Institute, has bought from the Austrian Ministry 1 gm. of radium for \$75,000. This purchase was made on behalf of the well-known Jewish philanthropist, Sir Ernest Cassel, who will present it to the institute. According to the eminent scientist, Sir William Ramsay, a gram of radium is a fifth of the entire quantity in the world. In a previous letter (THE JOURNAL, Nov. 5, 1910, p. 1658) an important discovery of pitchblende in Cornwall mines, which promise to be an even better source of supply than the Austrian, was announced. It is evident that the Radium Institute, which will soon be opened, will be well supplied with the precious metal.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Dec. 2, 1910.

Reorganization of the Service of Military Sanitation

In one of my previous letters (THE JOURNAL, March 12, 1910, p. 885) I mentioned the insufficient number of military physicians. The minister of war has presented a bill to increase them by 217. A counter-project has been presented to increase the proportion of positions of superior grade as well as the whole number of physicians. The condition from which the army surgical corps has been suffering since 1905 is shown by the increasing number of resignations and requests for early retirement, as well as by a continuous diminution in the number of candidates for the special schools of Lyons and Val-de-Grâce. The acuteness of this crisis is shown by the fact that in 1909, seventy-two military physicians resigned and there were only fifty-seven nominations. This year a concours at Val-de-Grâce for fifty-five places of *stagiaire* physicians brought together only thirty-one candidates. Evidently, an increase in the number of military physicians will require to be supplemented by increased chance of advancement.

An Epidemic of Trachoma

The lay press has created some stir over an epidemic of trachoma which appears to have been raging for some time in some of the *arrondissements* of Paris, and which is attributed to the influx of Jews and Armenians from Syria, Egypt and other Asiatic countries. Some have even gone so far as to propose the expulsion of these immigrants. This harsh

measure seems not only inhuman but unjustifiable, for the importance of the epidemic has been exaggerated and, moreover, trachoma is endemic in certain parts of France, especially in the South. It would be far more rational to give hygienic instruction to those who come into contact with immigrants subject to trachoma.

Masseurs and the Illegal Practice of Medicine

The case of a masseur accused of practicing medicine contrary to law was recently before the courts. The defendant pleaded that in case of disease he sent the patient to a physician, and confined himself to practicing Swedish medicine. The prosecutor, however, brought out the fact that the defendant called himself a "Swedish gymnastic physician" and that on his cards were printed the names of diseases which the defendant treated, not as a masseur, but as a physician who gives fixed hours of consultation. The defendant, moreover, admitted that to know what part ought to be massaged it was necessary to examine the patient; this implied a diagnosis and a line of treatment. A newspaper, moreover, related the marvelous cures which the defendant was said to have made on patients whom physicians had declared incurable. The court found him guilty of illegal practice of medicine and fined him \$20 (100 francs).

International Agreement in Regard to Industrial Accidents

An agreement has been signed between France and Great Britain intended to assure to the citizens of each country the reciprocal benefit of the legislation in force in the two countries in regard to the payment of damages by industrial accidents. A similar agreement was concluded some years ago between France and Italy.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Dec. 1, 1910.

The Kaiser on Temperance

At the opening of a naval academy a few days ago, the emperor addressed the cadets and advised them to avoid the use of alcohol and to join the Good Templars. He said that the next war would demand healthy men and that victory would be on the side of that nation which showed the smallest consumption of alcohol. So at least the papers reported; whether it literally accords with what the emperor said, I doubt. At least it may be assumed that the Kaiser, who also sometimes on social occasions likes "a good drop" (*cinq guten Tropfen*) himself, did not intend to advise general abstinence. Nevertheless the teetotalers will undoubtedly quote the Kaiser's speech to support their arguments.

Proposed Abolishing of Brothels in Baden

As a result of a petition of the Baden Women's Associations (*Frauenvereine*), the Baden national assembly (*Landtag*) has voted a resolution to close all the present houses of ill fame in the grand duchy and that no more new ones be established; that appropriate measures be taken by the government for combating prostitution and restricting it as far as possible, and especially for the suppression of street prostitution, and that all the efforts of societies and individuals to this end be sustained as far as possible. In the preparation for the discussion of the preliminary bill for the new criminal code and the proposed legislation by the imperial upper house (*Bundesrath*) for the regulation of prostitution, the government is asked to have the entire question of prostitution submitted to an expert commission, assisted by capable women. The commission shall especially investigate the questions: 1. Whether the present form of *réglementation* cannot be replaced by another form of supervision of prostitution which will not make it so difficult for the victim of prostitution to return to an honest life. 2. Whether measures following the model of the Danish law of March 16, 1906, are not to be recommended against the constantly increasing venereal diseases. The government is further asked to make provision in the next budget for the installation of female assistants to the police in the large cities. The question of the protection of waitresses in saloons is also one to be thoroughly investigated and it is to be determined what further measures of protection, especially for young persons, ought to be introduced into the imperial trade regulations. As the government is opposed to abolition of segregation, it is very questionable whether the resolution passed by the *Landtag* will have any actual results.

The Public Service

Medical Department, U. S. Army

Changes for the week ended Dec. 24, 1910.

Woodson, Thomas D., lieutenant, December 1, granted thirty days' leave of absence.

Long, Charles J., D.S., December 19, ordered to proceed to Forts Constitution, N. H.; Williams, Me., and Ethan Allen, Vt., for temporary duty.

Scott, Harold O., D.S., December 19, ordered to proceed to Forts Totten, N. Y.; Monroe, Va.; Myer, Va., and Washington Barracks, D. C., for temporary duty.

Leeper, John F., M.R.C., December 16, granted thirty days' leave of absence about Jan. 1, 1911.

Cullen, Charles W., M.R.C., December 16, ordered to proceed from Fort D. A. Russell, Wyo., to Fort Duchesne, Utah, for temporary duty.

Foster, George B., Jr., lieutenant, December 16, ordered to Washington Barracks, D. C., for temporary duty.

McAndrew, P. H., major, December 16, left Fort Terry, N. Y., on ten days' leave of absence.

Tetrault, Charles A., M.R.C., December 17, reported for temporary duty at Fort Terry, N. Y.

Chambers, William H., D.S., December 19, left West Point, N. Y., on two months' leave of absence.

Thomason, Henry D., captain, December 20, granted thirty days' leave of absence.

Gunckel, George I., D.S., December 19, left Fort Oglethorpe, Ga., on thirty days' leave of absence.

Leslie, Samuel H., D.S., December 19, reported for temporary duty at Fort Riley, Kan.

Conner, Dillis S., M.R.C., December 20, resignation accepted, to take effect at date.

U. S. Public Health and Marine-Hospital Service

Changes for the seven days ended Dec. 21, 1910.

Pettus, W. J., asst. surg.-gen., directed to proceed to Baltimore and make inspection of the operations of the service at that port; granted five days' leave of absence from Dec. 27, 1910.

Carter, H. R., surgeon, directed to proceed to Evansville, Ind., and make inspection of the operations of the service at that port.

Lumsden, L. L., P. A. surgeon, directed to proceed to Des Moines, Iowa, and confer with the secretary of the state board of health relative to an outbreak of typhoid fever.

McLaughlin, A. J., P. A. surgeon, directed to proceed to Buffalo, N. Y., via Albany, N. Y., on special temporary duty; granted five days' leave of absence en route.

Brooks, S. P., A. A. surgeon, leave of absence granted for seven days from Dec. 12, 1910, amended to read nineteen days from Dec. 13, 1910.

Cleaves, F. H., A. A. surgeon, granted six days' leave of absence from Dec. 24, 1910, under paragraph 210, Service Regulations.

Hart, G. G., A. A. surgeon, granted eleven days' leave of absence from Dec. 20, 1910.

Hume, Lea, A. A. surgeon, granted ten days' leave of absence from Dec. 13, 1910.

Tappan, J. W., A. A. surgeon, granted ten days' leave of absence from Dec. 17, 1910.

Limits to the Advance of Science.—In a study of American men of science, J. McKeen Cattell (*Science*, Nov. 4, 1910) says that a man of genius is likely to do his best work at an early age and to receive prompt recognition. "Kelvin was appointed full professor at Glasgow at 22, Thomson at Cambridge at 26, Rutherford at McGill at 27. Men of science of this age and rank simply do not exist in America at the present time; . . . the number of scientific men of standing is only about one-half so large as the increase in the population of the country. . . . Racial senescence, the lack of emotional stimuli, and the accumulations of knowledge will probably set limits to the further advance of science. In the presence of racial senescence we should be entirely helpless, but it is possible that there is no such thing. Twenty years ago the Chinese were called a senile race, but such a statement could not be justified to-day. In a way our stock is as young as any, and the germ plasma may increase as much in complexity as it has since the ameba. Still a highly specialized organism is likely to become uniplastic and extinct, and apart from physical exhaustion of the stock there is likely to be a social senescence. This is closely related to the lack of emotional stimuli. Great men and great achievements are likely to be associated with national excitement, with wars, . . . and the like. Such stirring events will probably disappear from the world civilization of the future, and it may be impossible to devise artificial stimuli adequate to arouse men from a safe and stupid existence. But exactly because within a century the great achievements of science may belong to the past, where the great creations in poetry, art and religion may perhaps now only be found, it is our business to do the best we can to assure the race of an adequate endowment."

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SIGNIFICANCE OF LARGE VACCINATION SCARS

To the Editor:—1. Of what value, as evidence of successful vaccination, is a large and distinct scar?

2. Is it probable that most of the unfavorable conditions and large scars following vaccination are due to infections other than the vaccine virus?

EUSTACE LONG, Madison, Fla.

ANSWER.—1. The size of the scar is of itself no positive evidence of successful vaccination. The size may be due to the severity of associated infection. What is characteristic of successful vaccination is the minute depressions in the scar.

2. It is probable that most of the unfavorable conditions following vaccination are due to infections of a mixed character, but it seems to be true that an active though pure vaccine virus may sometimes produce extensive inflammation and large scars.

DIFFERENCE BETWEEN GERMICIDE AND ANTISEPTIC

To the Editor:—Please state briefly the difference between a germicide and an antiseptic. In what way does a non-germicidal antiseptic relieve infections such as are met in out-patient work?

W. I. CLARK, Worcester, Mass.

ANSWER.—A germicide is a substance or agent which destroys microorganisms so that they will not grow when placed in appropriate culture media. An antiseptic is a substance which hinders or prevents the growth of microorganisms but does not necessarily destroy their vitality. Organisms which have been treated with non-germicidal antiseptics will grow in appropriate culture media if the antiseptic is thoroughly removed. Non-germicidal antiseptics may stimulate the tissues, so as to render them more active in resisting infection.

HARRINGTON'S SOLUTION FOR HAND ASEPSIS

To the Editor:—Can you give me the formula for making Harrington's antiseptic solution?

P. F. DODSON, Wilber, Neb.

ANSWER.—Harrington's solution consists of commercial alcohol (94 per cent.), 640 c.c.; hydrochloric acid, 60 c.c.; water, 300 c.c.; corrosive sublimate, 0.8 gm. It is intended for hand disinfection. The hands and arms should first be thoroughly washed with sterile soap and hot water and then bathed in the solution for half a minute or longer.

Book Notice

SYMPTOMATIC AND REGIONAL THERAPEUTICS. By George Howard Hoxie, M.D., Professor of Internal Medicine and Dean of the Clinical Department in the School of Medicine of the University of Kansas. Cloth. Price, \$4. Pp. 499, with 58 illustrations. New York: D. Appleton & Co., 1910.

In the preface the author says that this book contains the material recommended by the Committee on Curriculum of the American Medical Association and by a similar committee of the Association of American Medical Colleges for the college course in therapeutics. It is divided into three parts: the first is devoted to symptomatic therapeutics; the second to regional therapeutics or therapeutics of lesions or diseases; and the third to notes on remedies. The first part is the most satisfactory and the last the least so.

The individual chapters are not so carefully planned as they might have been. For instance, in the one devoted to pain, local treatment is first described, then drug treatment; and following that section is one devoted to "other drug treatment." But under the last head a page is devoted to local treatment again. The chapter devoted to the nature of fever is not explicit enough, and the methods of giving baths in typhoid and other fevers are not described with sufficient fulness. Certainly a student could not learn from the description precisely how, when, or for how long a time the bath can be best given. Nor are these facts brought out further on in the book when typhoid is specifically discussed. The description of asthma occupies only part of a page, and for a work devoted to treatment the discussion of the subject is unsatisfactory.

For the undergraduate, for whom the book is said to be intended, it is not detailed enough. Many subjects are so

treated that one feels pleased, but not quite satisfied, with what one has read. In particular, too little is said of just how individual drugs and remedial procedures do good when prescribed for symptoms or diseases; and not enough pains are taken to point out exactly when they should be used in a given disease, for it is rare that any one remedy is useful or best throughout the course of a disease. The notes on remedies are most unsatisfactory, for they do not discuss fully either the mode of action or the pharmacology; and these are subjects on which the student should be well informed. Drugs are included which are of little or no value, while insufficient space is given to the more important ones.

However, in spite of the defects to which we call attention, the book on the whole is commendable; it will be useful to practitioners who desire to refresh their memories of this subject and to bring their practical knowledge up to date.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

New York Medical Journal

December 17

- 1 Rhinology and Its Relation to General Medicine. H. Arrowsmith, Brooklyn.
- 2 *Etiology of Poliomyelitis. F. Proescher, Pittsburg.
- 3 Endemic Poliomyelitis. W. S. Bryant, New York.
- 4 Congenital Hypertrophic Stenosis of the Pylorus. R. Harrison, Philadelphia.
- 5 Mixed Cell Sarcoma of the Pituitary Body. M. O'Malley, Washington, D. C.
- 6 Froehlich's Syndrome in Cases of Pituitary Tumor. R. Ottenberg, New York.
- 7 *Spontaneous Appearance of Indigo Blue in the Urine. A. L. Benedict, Buffalo.
- 8 Insufficient Pylorus. B. Frankel, New York.
- 9 Magic and Medicine. J. Knott, Dublin, Ireland.

2. Etiology of Poliomyelitis.—A peculiar kind of micro-organism was found by Proescher in a fatal case of poliomyelitis, with the usual well-known lesions of the spinal cord. Microscopically, perivascular infiltrations, hemorrhages, and degenerations of the ganglionic cells were found throughout the spinal cord. To confirm the diagnosis, a monkey was inoculated into the right paracentral convolution, and into the peritoneal cavity, with an emulsion made from various parts of the spinal cord and brain. The animal recovered from the operation and an hour later appeared in a normal condition. No change occurred during the next six days, but on the seventh day a marked ptosis of the left eye developed so that the lifting up of the eyelid became difficult. The temperature ranged from 103.2 F. (normal temperature) to 105.4 F. In other respects the animal seemed well and had normal appetite. The ptosis lasted for three days, when it disappeared, and was followed on the morning of the twelfth day after inoculation by a complete paralysis of the left leg. The movements of the right leg and both arms were normal and no other clinical signs were noted. Temperature, 102.3 F. Daily examination of the blood showed a relative lymphocytosis. On the sixteenth day after inoculation the animal was killed, and the postmortem showed no macroscopic changes in the brain or cord, except a slight hyperemia and edema of the lumbar section. Internal organs were apparently normal. The microscopic examination of the cord and brain, gave the same lesions as found in the nervous system of a child. Smears were made from the fresh cord, hardened in bichloric alcohol, subjected to the action of dilute Lugol's solution and of sodium thiosulphate and stained by Mann's method. Peculiar cell inclusions, resembling Negri bodies, and also parasitic formations similar to protozoic bodies, were found. In regard to the true nature of parasitic inclusions, no explanation at present seems available.

7. Indigo Blue in Urine.—After the administration of benzoic acid in a proprietary mixture, the urine was of a peculiar brownish-green color. On adding chloroform, the blue was extracted, and, from the correspondence with previous and subsequent indican tests, the difference in tint from anilin cases and the exclusion of adventitious and dietetic causes of

coloration, was regarded as indigo. The impure brownish-green color of the urine before shaking with chloroform was regarded as the mixture of indigo with the ordinary yellowish-brown pigment, the urine containing a uratic deposit. It is suggested by Benedict that the benzoic acid may have acted as an oxidizing agent both in this case and in various others in which spontaneous passage of blue urine has been noted.

Lancet-Clinic, Cincinnati

December 10

- 10 Headache. A. C. Carney, Hamilton, Ohio.
- 11 Office Treatment of Antral Disease. W. W. Pennell, Mount Vernon, Ohio.
- 12 Diagnosis of Obstruction of the Bowel. C. T. Souther, Cincinnati.
- 13 Cause of Glaucoma. F. W. Davis, Cincinnati.
- 14 Surgery in the Private Home. C. A. Langdale, Cincinnati.

Boston Medical and Surgical Journal

December 15

- 15 Phylogenetic Association in Relation to Certain Medical Problems. G. W. Crile, Cleveland.
- 16 *Tuberculosis Problem as Applied to Children. J. B. Hawes, Boston.
- 17 Therapeutics of Light. H. McIntosh, Boston.
- 18 Extraperitoneal Cesarean Section. J. L. Huntington, Boston.

16. Tuberculosis Problem as Applied to Children.—As an outline for future work of anti-tuberculosis societies, Hawes suggests the following: 1. Every effort should be made to get the state and local authorities to provide adequate facilities for the care of children with pulmonary tuberculosis. One effective way of doing this is to make application for the admission of all such cases to the state sanatoria. The strongest argument which the board of trustees of the state sanatoria can use before the legislature is a long list of applications from children for whom there is no place, nor for whom, with the present appropriation, can a place be provided. 2. Earnest and intelligent cooperation with the local school board to provide an outdoor school or fresh-air room for pre-tuberculous children; if such a school room is established, the attention of the city legislature and board of health should be called to the good which it does. 3. It should be insisted on that the terms of the 1908 act, that "tuberculosis and its prevention shall be taught in our public schools," etc., be complied with. This can best be done by means of tuberculosis exhibits prepared along the line of those now loaned by the state, placed in all the public schools, and demonstrated wherever possible by physicians, nurses or social workers.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Indian Medical Gazette, Calcutta

October

- 1 The Operation Theater. P. C. Gabbett.
- 2 Organization and Management of Abdominal Operations. R. F. Standage and G. G. Giffard.
- 3 Treatment of Acute Peritonitis and Other Conditions Associated with Grave Shock. C. C. Barry.
- 4 *Sterilization of Skin by Iodin. A. F. Hamilton.
- 5 Surgery of the Female Pelvic Organs and Structures. H. P. Dinmock.
- 6 Appendicitis. C. Stevens.
- 7 Tumors and Intestinal Obstructions. E. O. Thurston.
- 8 Operations for Hernia. W. J. Nillock.
- 9 Septic Phlebitis of the Spermatic Cord. R. Bird.
- 10 Surgical Treatment of Tuberculosis. L. P. Stephen.
- 11 Penetrating Wounds of the Abdomen Illustrating the Recuperative Power in Natives of India. L. G. Fischer.
- 12 *Treatment of Senile Enlargement of the Prostate and Acute Inflammation of the Prostate. H. Smith.
- 13 *Ideal Operation for Fistula in Ano. S. C. Evans.
- 14 Operative Treatment of Hydrocele. C. Hudson.
- 15 Treatment of Stricture of the Urethra and of Fistula. P. C. Gabbett.

4. Sterilization of Skin by Iodin.—Hamilton has used an alcoholic solution of iodine in water in over seventy cases with good results. A few minutes before the patient is brought to the table the field of operation is thoroughly painted over with the solution and allowed to dry. Immediately anesthesia is complete a second coating is given and then the operation is commenced. On the completion of the operation the line of sutures is lightly painted over with the same solution.

12. **Treatment of Senile Enlargement of Prostate.**—Smith makes a crescentic wound from tuber-ischium to tuber-ischium with its convexity about an inch in front of the anus. He separates the anus and lower part of the rectum from the distal or penile half of the prostate. With a median staff in the bladder, take the staff in one hand and turn it so that its groove will be postero-lateral, into which pass the knife at the apex of the prostate and on into the bladder, making a lateral incision. Then turn the staff to look postero-lateral in the opposite direction and make a corresponding cut in the other side; so that the v-shaped tongue left by the junction of these two cuts will have in it the median septum and the termination of the seminal ducts which would thus be out of the way and out of danger. Then pass a finger into the capsule of the prostate in one side and enucleate it by working around it from the lateral aspect and finishing by enucleating that lateral half from the urethra and posterior septum. Repeat the process with the other lateral half. If there is a median lobe deal with it directly. By this method one need not injure the anterior part of the urethra or the seminal ducts. All bleeding points can be caught with forceps and twisted in proper surgical fashion, as they are visible. Proper drainage is secured, and the wounds heal up as quickly as in an ordinary lateral lithotomy and the results are good.

13. **Operation for Fistula in Ano.**—The patient is placed in the lithotomy position with the buttocks well over the end of the table. The sphincter is dilated in the usual way and the rectum douched out with sterile normal saline solution or weak biniodid. Beginning at any convenient external opening the main fistula and all lateral diverticula beyond the limits of the sphincter are laid freely open. Any prominent vessels are now picked up, the surface dried and attention directed to the anal end of the gaping wound. This corner must be explored with the greatest pains and with the greatest gentleness, with probes of diminishing size, until the rectal opening, or, when none exists, the summit of the fistula is discovered. Great care should be exercised at this stage lest the probe, infected from the main tract, be thrust into healthy tissues. The probe is followed by a director and the fistula laid open in such a manner as to divide the sphincter in a radial direction. The incision involves the mucous membrane of the rectum up to the internal opening or, where no such opening exists, to the level of the summit of the tract. A few bleeding points now need picking up.

The next step is to remove all diseased tissue. With a sharp scalpel (the knife must be sharp) a v-shaped piece is cut out of the bottom of the gutters left by splitting open the fistula and its ramifications in such a manner as to remove all granulation tissue. The section leaves a clean white shiny surface dotted with minute bleeding points. Any undiscovered diverticula are indicated by small dark patches of granulation tissue. These are similarly laid open and their lining excised. As soon as the granulation tissue lining the main tract is cut away lateral ramifications at once become evident. Attention is now turned to the skin and all thin, discolored and diseased overhanging portions are trimmed away with scissors or knife. The next step is to close the somewhat irregular and usually extensive wound with sutures. The material used is silkworm gut. The left forefinger is introduced into the rectum. The needle is entered at the anal margin on one side of the wound, is made to transverse the sphincter and run just beneath the mucous membrane of the rectum, till the summit of the wound is passed. The instrument is then grasped in the full of the hand and its direction forcibly altered in such a manner as to cause the point to travel round the apex of the wound and along beneath the mucous membrane of the rectum till it emerges at the anal margin on the opposite side. A series of stitches are introduced in this way. The first three are placed close together so as to bring the tissues in the sphincter region into accurate opposition. The remainder need not be quite so close, but great care must be taken to bring the sides of the entire wound into continuous contact. There must be no cavities where blood can collect. All the stitches are introduced before being tied. A double twist is preferable to a knot especially in the neighborhood of the anus, as there is always, when the time comes

for removing the stiches, considerable difficulty in getting the point of a pair of scissors under the loop; the proceeding, moreover, is very painful. The ends of all sutures are left long to avoid the irritation of sharp wiry points, are tied up in one or more convenient bundles, and are wrapped up in iodoform gauze. A morphin and iodoform suppository is introduced into the rectum, the wound dusted freely with iodoform and boric acid and dressed with a pad of wool and a T-bandage. The patient's knees should be fastened together and his bowels kept confined with small doses of opium for four days. The results of the operation in Evan's experience are excellent—six failures out of 107 cases.

Journal of Obstetrics and Gynecology of the British Empire, London

November

- 16 Hematoma of the Ovary. J. P. Hedley.
- 17 Results of Wound Healing and Mortality Rate of 156 Consecutive Laparotomies. G. B. Marshall.
- 18 Spontaneous Separation of the Symphysis Pubis. F. M. Huxley.
- 19 Acute Appendicitis within Ten Hours After Delivery. J. W. Ballantyne.

Journal of Tropical Medicine and Hygiene, London

November

- 20 Investigation of Pellagra. L. W. Sambon.

Annales de l'Institut Pasteur, Paris

October, XXIV, No. 10, pp. 753-831

- 21 *Intestinal Poisons and Arteriosclerosis. (Etudes sur la flore intestinale, II.) E. Metchnikoff.
- 22 Inherited Soil and Tuberculosis. (L'hérédité-prédisposition tuberculeuse et le terrain tuberculisable.) A. Calmette.
- 23 Parasitic Origin of Cancer. (Parasitisme et Tumeurs.) A. Borrel.
- 24 Relations Between Natural and Artificial Oxydasic Phenomena. J. Wolff.
- 25 Latency of Rabies Virus in the Nerve Centers. P. Remlinger.
- 26 Action of Small Intestine on Microbes. E. Wollman.
- 27 Experimental Research on Tuberculosis of the Bladder. M. Breton.
- 28 Experimental Chemotherapy of Tick Fever. (Contribution à la chimiothérapie de la "Tick-fever" avec "606" et la couleur de benzidine.) W. L. and N. K. Yakimoff.

21. **Arteriosclerosis and Intestinal Poisons.**—Metchnikoff has continued his research on the poisons generated by the ordinary bacteria in the intestines, and believes that his experiments have now established beyond question that small doses of paraeresol and indol, acting on the organism over a longer or shorter period, are capable of inducing chronic lesions of the nature of sclerosis. Such lesions are the very ones that are most frequently encountered in senility. His latest experimental and chemical research further demonstrates, he states, that the phenols and indol found in the stool and urine are not the excreta of our tissues, but are the products of the permanent microbial flora. It is not unreasonable to assume, he declares, that the digestive tract can constantly harbor an injurious flora, the source of chronic poisoning leading to arteriosclerosis; helminths are so frequent among certain primitive peoples that they may almost be regarded as the normal "physiologic" fauna, and yet they are liable at any moment to entail more or less serious disturbances. Mathis and Leger announced last year that they found helminths in every native examined in Indo-China. It is established now beyond question, he continues, that the *Bacillus perfringens* and the colon bacillus produce poisons which can be absorbed by the normal walls of the intestines and are capable of inducing serious lesions in vital organs, arteries, kidneys, liver, etc. He then discusses how to prevent this injurious action from the poisons thus engendered in the intestines. These same lesions occur in the horse and rabbit, which eat no meat; consequently, a meat diet cannot be the main cause, and experiences are showing that with a mixed diet there is really less production of these poisons. On the other hand, it seems to be possible to check the production of indol by these bacilli by fighting them with certain other bacilli, especially lactic-acid bacteria. The simultaneous presence of Bulgarian lactic-acid bacilli in a culture medium with the colon bacilli seems to render it impossible for the latter to attack the nitrogenous elements in the medium, and hence there is no production of substances of the aromatic series. Metchnikoff reiterates that it is on this principle of letting

Greek fight Greek that we may hope to find the solution of the problem of the suppression of the poisons which are responsible for the development of the sclerosis in our organs, and consequently of their premature wearing-out. (Metchnikoff's previous work in this line was reviewed to date in THE JOURNAL, March 19, 1910, page 970.)

Archiv für klinische Chirurgie, Berlin

XCIII, No. 3, pp. 557-789. Last indexed November 19, p. 1850

- 29 *Treatment of Dangerous Gastric Hemorrhage. (Zur Behandlung der lebensgefährlichen Magenblutungen.) L. Kraft.
30 *Operative Treatment of Stab Wounds of Diaphragm. (Stichverletzungen des Zwerchfells.) M. Magula.
31 *Instrumental Stretching of the Enlarged Prostate. C. Bayer.
32 Relief of Flat-Foot by Exclusion of Achilles Tendon. (Erfolge mit der Ausschaltung der Achillessehne beim schweren Plattfuß nach Nicoladoni.) J. Hertle.
33 Healing of Experimental Heart Wounds. (Heilungsvorgänge bei Herzwunden und nach Herzwandresektionen.) R. Göbell.
34 *Experiences with Rhinoplasty. N. Wolkowitsch.
35 Subcutaneous Ruptures of Stomach or Intestine. (Zur Pathogenese der subcutanen Magen-Darmrupturen.) E. Haam.
36 *Hernia of Anterior Abdominal Wall. (Zur Pathologie und Therapie der Brüche der vorderen Bauchwand.) W. Denk.
37 *Treatment of Recent Fracture of Long Bones. (Zur Behandlung frischer Diaphysenbrüche.) O. v. Frisch.
38 *Suggestion for Operative Correction of Fracture of Leg and Forearm. (Vorschlag zur blutigen Einrichtung der Unterschenkel- und Vorderarmbrüche.) P. Clairmont.
39 Experimental Callus Production Under Fibrin Injections. S. Bergel.
40 Extensive Resection of Intestine. (Ausgedehnte Darmresektion.) H. Miyake.
41 Endothelioma of Submaxillary Gland. G. Bolognesi.

29. **Treatment of Dangerous Gastric Hemorrhage.**—Kraft refers to severe hemorrhage from gastric ulcer, and cites statistics to show that this occurs in from 1.1 to 11.6 per cent. of all cases of gastric ulcer, while minute hemorrhage is encountered in about 75 per cent. The rarity of operative interference is due to the unsatisfactory technic hitherto, the outcome seldom answering anticipations. Kraft states, but, he continues, all this has been changed by Rovsing's method of direct diaphanoscopy and gastroscopy, the light introduced through a minute incision in the stomach wall. This has made the surgeon the master of the situation and has revolutionized the prognosis. (The technic was described in THE JOURNAL, Aug. 22, 1908, page 713.) Kraft has applied it in five cases; all the patients were cured at once, with the exception of one who was fatally injured by accidental short-circuiting of the electric current before the technic had been fully mastered. The diaphanoscopy permits exact knowledge of the source of the hemorrhage, and it is then readily obliterated by running a suture thread around it. The patients were prepared with saline infusion (1,000 c.c.) an hour before the operation; camphor and strophanthin were never given, as he thinks they render more of the anesthetic necessary. An injection of 200 c.c. of a 5 per cent. gelatin solution was made in a few cases, but no benefit from it could be detected. Immediately before the operation the stomach was cleaned out as completely as possible. If this has to be done during the operation it increases the operative risks. He has never found that lavage of the stomach increased the bleeding.

30. **Stab Wounds of the Diaphragm.**—Magula reports his experiences with operative treatment in sixty-one cases of stab wounds of the diaphragm at St. Petersburg. He has been able to find only 129 similar cases on record. Only twenty-five of his cases were without concomitant injury of other internal organs. The wound in the diaphragm was not diagnosed in 41 per cent. of the cases; in 9.7 per cent. the stab had been received in the fourth and fifth interspace. The danger of diaphragmatic hernia is so great as also the possibility of unsuspected injury of other organs that expectant treatment is contra-indicated. In case it proves impossible to suture the wound in the diaphragm, the lips of the wound may be sutured to the costal pleura as Frey has suggested. This prevents hernia and also danger of secondary infection of the pleural cavity.

31. **Stretching the Passage Through the Enlarged Prostate.**—Bayer has been advocating for some time instrumental dilatation of the prostatic portion of the urethra for difficulty in urination from chronic non-malignant enlargement of the prostate. The measure is particularly adapted for debilitated elderly patients, as it is so simple and harmless, and he reports

complete success with it in five out of eleven cases and material improvement in two other cases. Only one of the patients has required prostatectomy since, after a period of transient improvement. The outcome in the other cases is not known, except that one patient has died from other causes. He uses a curving instrument like a lithotrite, except that one branch is made hollow to permit irrigation through it. The other branch fits over the first and by turning a thumbscrew the curving tip of the second branch slides along on the first branch, the curving tips thus separating, although remaining parallel. The separating branch exerts pressure toward the rectum, stretching the prostatic urethra in this direction. After the part has been stretched, he closes the instrument and flushes the region through it with iodoform-glycerin to aid in healing any slight lesions that may result from the dilatation. He has applied the instrument also in three quite recent cases. The dilatation may be repeated after a few weeks or months, if necessary.

34. **Restoration of the Nose.**—Wolkowitsch reports a number of rhinoplastic operations; in two of them he made the new nose out of the patient's fourth finger, as he describes in detail. The first case dates from 1896. His experience, he thinks, encourages further work in this line, as also with the Italian method of rhinoplasty which was applied in the other cases.

36. **Hernia in the Anterior Abdominal Wall.**—Denk urges operative treatment as early as possible, as the hernia is liable to increase with delay and with it the danger of recurrence. A plastic operation is the only reliable technic and catgut should be used for ligatures, as primary healing is indispensable. These conclusions are based on 135 operative cases at von Eiselsberg's clinic at Vienna, 1901-1910. In thirty other cases of the kind an operation was contra-indicated or refused. The technic preferred is described in detail and illustrated; the outcome was a permanent cure in 76.8 per cent. in the ninety-five cases followed to date, which he compares with the outcome in fourteen other clinics. There had been stitch-hole abscess in half of the twenty-two cases with recurrence, and drainage had been necessary in most of the other recurring cases.

37. **Treatment of Recent Fracture of Long Bones.**—Among the measures advocated by von Frisch is one to be applied when apparently unconquerable contraction of the muscles prevents apposition of the stumps after a transverse fracture. He shows by illustrations that if the lapping stumps are bent outward, at an angle of about 125 degrees, the contracting muscle on their inner side becomes slackened. It is then a simple matter to manipulate into apposition the inner edge of the two stumps thus meeting at the above angle of about 125 degrees. Then by pulling on the farther ends of the bones to bring the whole into a straight line, the inner edge of the stumps in apposition serves as a lever which brings the rest of the stump into apposition in spite of the opposition of the muscle. The very inequalities of the cleft ends of the stumps make them grip each other with a firmer hold, and the contraction of the muscle then serves to hold them immovably in contact. It is in this class of cases that extension is almost certain to fail, while the simple maneuver described rights conditions at one stroke and very little callus production follows. The manipulation is done after a few whiffs of ether—primary ether anesthesia—or in general anesthesia. The arm is placed in supination and then the hand is drawn toward the side to which the distal fragment projects, dorsal or ventral, while the surgeon's fingers manipulate the stump ends in the angle thus formed, pushing them into correct apposition. If the reduction is correctly done, the arm can be rotated afterward without danger of displacing the stumps again.

38. **Treatment of Fracture.**—Clairmont has found it possible to reduce certain fractures by introducing a retractor through a small incision and pulling the dislocated stumps into correct apposition with the instrument. In a case described, the fracture of the forearm was 13 days old and this little operation, after failure of bloodless reduction, answered the purpose admirably, as also in a case of fracture of the leg.

Medical Economics

West Virginia Adopts Medical Defense

At the annual meeting of the West Virginia State Medical Association, Dr. W. W. Golden, chairman of the Committee on Medical Defense, presented a report, reviewing the history of cooperative medical defense and recommending changes in the by-laws to make it operative in West Virginia.

After stating that it was the conviction of the committee that, in time, medical defense would become a permanent feature of every state medical organization, the advantages of cooperative medical defense were outlined. The committee held that any physician was liable to become the defendant in a suit for alleged malpractice at any time, the general practitioner being just as liable as the specialist, and the physician at the cross-roads as the city doctor. It consequently behooves all to take precautionary measures. In most malpractice suits the trouble originates with some misguided and jealous fellow-practitioner. Consequently, the ideal prophylaxis is to be found in a more effective dissemination of the principles for which the medical organization stands. Liability companies furnish protection to physicians at a very handsome premium, binding themselves to pay the amount of judgment up to a certain sum, as well as the expenses of the suit. As most of the suits brought are for blackmail or for the purpose of offsetting the physician's bills, verdicts are not often found against physicians. The committee regards the rate charged by liability companies as needlessly high, and states that members of the Wisconsin State Medical Society, for instance, get practically as good protection for \$1 per year as that for which liability companies doing business in the state charge \$15. The adoption of medical defense by the state society has invariably been followed by a marked diminution in the number of malpractice suits, not so much through the effect on the lawyer and the prospective plaintiff as on the "medical culprit" who is instigating the prosecution and whose sole object is persecution. Again, should the policy-holder be so unfortunate as to have more than one law-suit brought against him in a short period, the liability company may take advantage of its right to cancel his policy. The committee points out, however, that there is nothing in the adoption of medical defense by the state society to prevent those physicians who so desire from carrying personal liability policies in addition.

The chief advantage of cooperative defense is that it enables all of the members of the state society to unite in securing the services of a competent attorney, who, having all of the business of the state society, can afford to devote enough time to this subject to become proficient in it. Those who have had experience with malpractice suits know that even the best lawyers are but little informed on the subject. As has been frequently pointed out, the law of malpractice is almost entirely a law of court decisions rather than of statutory enactments. An attorney, no matter how able, is at a disadvantage in defending a suit if he is not thoroughly familiar with the precedents and decisions on this subject. This is particularly true of prominent and busy lawyers, as the demands on their time make it impossible for them to become thoroughly familiar with the law in the case. The most important feature of cooperative medical defense by the state society is that such a provision makes it possible to retain a competent attorney who by constant application can in a short time become thoroughly familiar with the law. It is not expected that one attorney would personally try all of the suits, but his advice and assistance to local attorneys would be of the greatest value. As the committee well says, "this feature alone makes the adoption of a plan for medical defense highly desirable and the amount of \$1 per year is certainly a small sum to pay for such a benefit."

The report discussed the value of this feature in attracting and holding members, and presented the necessary amendments to the by-laws. They provide for a committee on medical defense, composed of the members of the state council and three members especially elected for this purpose, the three members to constitute the executive committee. The executive committee is to select an attorney to

look after the interests of the members of the state association. One dollar per year is assessed against each member to defray the expenses of the committee on medical defense. No suits are to be defended based on acts committed prior to Jan. 1, 1911, or prior to the date of qualification of the physician as a member of the association. Only members in good standing are entitled to the privileges of medical defense.

The adoption of this feature by the West Virginia State Medical Association will greatly enhance the value of membership and will be productive of much good in that state, as it has in others.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

Fifth Month—Fourth Weekly Meeting

II. INFLAMMATIONS OF THE SKIN (CONTINUED)

- DERMATITIS: Dermatitis traumaticus, d. ealorica, d. venenata, d. medicamentosa, d. gangrenosa. Etiology and diagnosis of each. More frequent drug eruptions.
TINEA TRICHOPHYTINA: Small and large spored fungi. Incidence. Tinea circinata, tonsurans, sycosis, cruris, unguium.
TINEA FAVOSA, TINEA VERSICOLOR. Clinical and microscopic diagnosis of each. Treatment in detail.
SCABIES: Etiology, diagnosis, treatment.
PEDICULOSIS: Varieties, diagnosis, treatment.

III. HEMORRHAGES OF THE

- PURPURA: Purpura simplex, p. rheumatica, p. hemorrhagica. Etiology and diagnosis.

IV. HYPERTROPHIES

- ICHTHYOSIS: Simplex, and hystrix. Symptoms and diagnosis.

V. ATROPHIES

- ALOPECIA: Congenital, senile or premature alopecia. Premature alopecia: (a) idiopathic, (b) symptomatic. Etiology.
ALOPECIA SEBORRHOICA: Diagnosis, treatment.
ALOPECIA AREATA: Diagnosis, treatment.

Monthly Meeting

- Diagnosis and Treatment of Psoriasis.
Etiology and Treatment of Urticaria.
Diagnosis and Differentiation of Eczema.

Pharmacology

Slovenly and Shotgun Prescribing

A physician sends us the following letter as a contribution to the subject of the need of more careful prescription writing:

"A druggist showed me a prescription by one of the most prominent physicians in a neighboring city who long held a professorship in a leading medical school. After turning the prescription in such a manner as to hide the writer's name, he permitted me to copy it, and I here reproduce it, preserving spelling and capitalization:

R. Terpin hydrategr. xxx
Quinia Sulphatgr. xx
Heroin —gr. iss
Pulv. Nucis vomicae.....gr. vi
Guaiaecol Carb.gr. xlv
Ammoniae Muriat.3i
Protonuclein3l
M. Fiat capsules No XX. Sig. One after meals.

"Questions: Why begin hydrate with a lower case letter, muriate with a capital? Presumably the dash after Heroin was to fill the line, or, did he wish the sulphate? Why Quinia, but Ammoniae? Even granting that protonuclein has a remedial action when given separately, would it have any influence in such a combination? (The manufacturer's representative informed me that it was doubtful.) Why Ammoniae Muriat, instead of Ammonii Chloridi?

"I fully realize that it is easy to criticize, and that my own prescriptions are far from perfect, but it seems that such Gatling-gun examples of polypharmacy, coming from leaders in the profession at this time, demonstrate the absolute necessity for more attention to this subject of prescription writing, in the journals and medical societies."

[CONTRIBUTION FROM THE CHEMICAL LABORATORY OF THE AMERICAN
MEDICAL ASSOCIATION]

THE CHEMICAL PROPERTIES OF SALVARSAN ("606")

W. A. Puckner and W. S. Hilpert

At the request of the Council's referee for Salvarsan ("606"), its examination was taken up in the Association laboratory. Inasmuch as the statements in articles regarding the chemistry of this new remedy have been somewhat vague, it is deemed of interest to record the following experiments:

The specimen of Salvarsan was contained in a sealed glass tube said to contain 0.6 gm. of the product. To determine its content the tube was weighed, the contents transferred to a beaker, the tube washed out with water, dried and weighed. It was found that the contents of the tube amounted to 0.6510 gm. When the tube was opened a marked wood-spirit-like odor became apparent, probably due to the vapor with which the tube was filled as a means of preventing the decomposition of Salvarsan by air. The powder, which was light yellow in color, when treated with water became a soft, transparent, gelatin-like mass which dissolved to form a clear yellow solution. This solution was made up to 100 c.c. and portions used for the following tests:

TESTS

The solution was distinctly acid to litmus. When sodium hydroxid solution was added gradually, a precipitate appeared, which on further addition of alkali redissolved. The reaction which takes place apparently consists in the liberation of the water insoluble free base; thus, $\text{HCl} \cdot \text{NH}_2 \cdot \text{OH} \cdot \text{C}_6\text{H}_3 \cdot \text{As} : \text{As} \cdot \text{C}_6\text{H}_3 \cdot \text{OH} \cdot \text{NH}_2 \cdot \text{HCl} + 2\text{NaOH} \rightarrow \text{NH}_2 \cdot \text{OH} \cdot \text{C}_6\text{H}_3 \cdot \text{As} : \text{As} \cdot \text{C}_6\text{H}_3 \cdot \text{OH} \cdot \text{NH}_2 + 2\text{NaCl} + 2\text{H}_2\text{O}$, the phenolic hydroxyl of which then reacts with the alkali to form the water soluble sodium salt (the phenolate of the base) thus: $\text{NH}_2 \cdot \text{OH} \cdot \text{C}_6\text{H}_3 \cdot \text{As} : \text{As} \cdot \text{C}_6\text{H}_3 \cdot \text{OH} \cdot \text{NH}_2 + 2\text{NaOH} \rightarrow \text{NH}_2 \cdot \text{ONa} \cdot \text{C}_6\text{H}_3 \cdot \text{As} : \text{As} \cdot \text{C}_6\text{H}_3 \cdot \text{ONa} \cdot \text{NH}_2 + 2\text{H}_2\text{O}$. When to the aqueous solution of Salvarsan a solution of sodium carbonate was added, a precipitate appeared, which did not dissolve when further quantities of the alkali carbonate were added.

The solution was not affected when treated respectively with diluted hydrochloric, diluted nitric and diluted sulphuric acids. When the aqueous solution was treated with strong nitric acid a yellowish-white precipitate was produced which redissolved when more acid was added, yielding finally a dark red solution. When the solution was treated with strong sulphuric acid a yellowish-white precipitate was formed which dissolved when more acid was added yielding a solution which at first was almost colorless, then became brown and finally black, apparently through carbonization.

When the solution was treated with a little ferric chlorid solution, a violet coloration, such as is given by many other phenols, was produced, which, on standing became dark red; finally the liquid became turbid. When the solution of Salvarsan was treated with dilute nitric acid and then silver nitrate solution added, a yellow precipitate was produced which rapidly darkened and soon became black. When the Salvarsan solution was treated with an alkaline solution of potassium permanganate and warmed, the permanganate was reduced and an odor of ammonia developed.

When the solution was treated gradually with a tenth-normal solution of iodine, the iodine was reduced as shown by disappearance of the iodine color and it was noted that at the same time the color of the Salvarsan solution became less pronounced. The gradual addition of iodine solution being continued, a colorless liquid finally was obtained. This reaction appears to be perfectly definite and in several experiments for 0.0651 gm. substance 10.5 c.c. tenth-normal iodine was required—this regardless of the dilution.

THE ARSENIC CONTENT

The arsenic content of Salvarsan was determined by treating 10 c.c. of the solution contained in a Kjeldahl flask with 25 c.c. of strong sulphuric acid and digesting this mixture until colorless. The colorless solution so obtained was diluted,

neutralized with sodium hydroxid, an excess of sodium bicarbonate added and the arsenic content determined by titration with tenth-normal iodine, a method substantially the same as that used in the examination of atoxyl by W. A. Puckner and A. H. Clark (*THE JOURNAL, A. M. A.*, Sept. 21, 1907, p. 1041).

Ten c.c. of Salvarsan solution containing 0.0651 gm. substance required (a) 5.67 c.c., (b) 5.71 c.c. or an average of 5.69 c.c. tenth-normal iodine solution, equivalent to 0.0211 gm. arsenic; calculating this on the basis of the weighed contents of the tube it indicates that the product contains 32.41 per cent. of arsenic. As the contents of the tube weighed 0.6510 gm. although the label claimed a content of 0.6 gm. it seemed probable that the excess weight was due to hygroscopic water or possibly to vapors of the substance used to replace the air in the tube.

Calculating the arsenic content on the assumption that the tube contained 0.6 gm. real Salvarsan, 35.16 per cent. of arsenic was indicated. As but a single tube of the material was at our disposal, no extended experiments regarding the arsenic content could be undertaken at this time. In view of this and in view of the difficulty of putting up an exact quantity of a material so unstable as this product, our examination must be taken as a confirmation of the chemical claims made for the product.

THE PRODUCT AND ITS BEHAVIOR

In order that physicians who use this substance may handle it more intelligently the following condensed description of its behavior is given: Salvarsan is an arsenic compound containing that metal in a low state of oxidation and the product is, therefore, a powerful reducing agent and is decomposed by bodies which are oxidizers, including air. The amine groups of the body give it the character of a weak base enabling it to form salts such as the chlorid, the salt that constitutes Salvarsan. Being a weak base, its hydrochlorid, when dissolved in water, is largely decomposed by the latter (hydrolysed) and hence gives a solution having an acid reaction. A solution of Salvarsan is, therefore, acid and will remain so until for every molecule of Salvarsan there have been added two molecules of sodium hydroxid or a similar monovalent base.

Salvarsan also contains two phenol (hydroxyl) groups and in agreement with phenols in general it forms compounds with strong bases (phenolates). When, therefore, the free base from Salvarsan has been precipitated by addition of an alkali and further alkali is added, a clear solution of the sodium salt will result when two further molecules of sodium hydroxid or a similar monovalent base have been added. It is the free insoluble base that is injected subcutaneously and intramuscularly in the form of a suspension and it is the alkaline water-soluble sodium salt which is injected intravenously in the form of a solution.

Marriages

ARTHUR CHARLES STOKES, M.D., to Miss Bertha Shackelford, both of Omaha, December 17.

JAMES DELAVEN HEARD, M.D., to Miss Edith McIlvaine, both of Pittsburg, Pa., December 27.

JOHN M. SPAULDING, M.D., Salt Lake City, to Miss Ella Maxwell of Boise, Ida., December 24.

JOHN W. HAYES, M.D., Cleveland, to Miss Mary Mejer of Chicago, at Buffalo, N. Y., December 16.

JAMES MCCLURE RICHARD, M.D., Salt Creek, Tenn., to Miss Statira Gray of Retro, Tenn., November 21.

C. E. FOWLBE, M.D., Sparrows Point, Md., to Miss Geneva E. Isaacs of Ellicott City, Md., December 12.

FRANK EDWART ARTAUD, M.R.C., U. S. Army, to Miss Annie Alderslade Ball of Key West, Fla., November 9.

DIEBRICH JANSSEN MEENTS, M.D., West Point, Ia., to Miss Violet Ward of Dufur, Ore., at Fort Madison, Ia., November 22.

Deaths

Jeremiah Mason Main, M.D. New York University, New York City, 1859; attached to the U. S. S. *Constitution* at the time of the visit of Commander Perry to Japan; for forty years a practitioner of the Mexican frontier; United States pension examining surgeon at Laredo, Tex., for thirteen years; for fourteen years an attaché of the United States Marine-Hospital Service; and for sixteen years city physician of Laredo; died at his home in that city, December 9, from senile debility, aged 84.

Charles E. Stone (examination, Medical Society of California, 1876); a member of the American Medical Association; for sixty years a practitioner of California; a member of the first State Board of Health of California in 1870; president of the Medical Society of Yuba and Sutter Counties; county physician of Yuba County, and superintendent of the Yuba County Hospital; mayor of Marysville in 1876-1877 and 1880-1881; died at his home in Marysville, December 10, aged 82.

Joseph Athanasius McDonald, M.D. Harvard Medical School, 1866; a member of the Massachusetts Medical Society; a member of the legislature from Charlestown in 1866, of the Charlestown School Board from 1869 to 1873, and for eighteen years a member of the Boston School Board; surgeon of the Ninth Infantry, M. V. M. from 1870 to 1874; died at his home in Charlestown, Boston, December 8, from pneumonia, aged 70.

James M. Wheat, M.D. Albany (N. Y.) Medical College, 1853; a member of the Redlands (Cal.) Medical Society; secretary of the board of health and health officer of Redlands; formerly a resident of Minnesota; from 1875 to 1877 a member of the legislature, and from 1877 to 1887 a member of the senate; died at his home in Redlands, November 27, from cerebral hemorrhage, aged 85.

Napoleon Hickman, M.D. University of Pennsylvania, Philadelphia, 1862; of Philadelphia; a member of the American Medical Association; formerly demonstrator of anatomy in his alma mater; a surgeon of volunteers during the Civil War; United States pension examining surgeon; died at the home of his daughter in Ocala, Fla., December 9, from heart disease, aged 71.

Martin J. Thompson, M.D. University of Alabama, Mobile, 1872; formerly a member of the city board of health, president of the Mississippi State Medical Association, and president of the Lauderdale County Medical Society; died at his home in Meridian, December 5, from the effects of a fractured hip sustained in a runaway accident last winter, aged 65.

Presley C. Hunt, M.D. Georgetown University, Washington, D. C., 1891; formerly a member of the American Medical Association; neurologist to Providence Hospital, Washington; attending physician to St. Ann's Infant Asylum, and the Children's Country Home; died in Johns Hopkins Hospital, Baltimore, December 15, aged 39.

William Steptoe Christian, M.D. Jefferson Medical College, 1851; a member of the Medical Society of Virginia, twice orator, and president in 1904; a Confederate veteran; for several years superintendent of schools of Middlesex County; died at his home in Urbanna, December 15, aged 79.

William M. Holton, M.D. College of Physicians and Surgeons, New York City; 1852; a member of the Indiana State Medical Association; assistant surgeon of the Twenty-Fifth Indiana Volunteer Infantry during the Civil War; died at his home in New Harmony, December 12, aged 83.

David Williams Vander Burgh, M.D. University of Michigan, Ann Arbor, 1866; assistant surgeon of the Tenth Michigan Volunteer Infantry during the Civil War, and acting assistant surgeon, U. S. Army for a year thereafter; died at his home in Fall River, Mass., August 29, aged 68.

Albert R. Fouser, M.D. Hahnemann Medical College, Chicago, 1883; a member of the Desplaines Valley Medical Association; for two years assistant physician at the State Penitentiary, Joliet; died at his home in Canton, Ill., December 9, from disease of the gall-bladder, aged 56.

Ora C. McEwen, M.D. St. Louis College of Physicians and Surgeons, 1897; local surgeon for the Denver and Rio Grande Railway at Farmington, N. Mex., and later a practitioner of Aztec; died in the Territorial Hospital for the Insane, Las Vegas, December 12, aged 35.

Samuel E. Martin, M.D. Eclectic Medical Institute, Cincinnati, 1852; a pioneer practitioner of Kansas; surgeon of the Fifteenth Kansas Volunteer Infantry during the Civil War; died suddenly at his home in Topeka, December 8, from heart disease, aged 84.

Edmund Arthur Donnan, M.D. Jefferson Medical College, 1880; a member of the Medical Society of the State of Pennsylvania; a member of the staff of the Shenango Valley Hospital; died at his home in New Castle, December 14, from pneumonia, aged 55.

William E. Brown, M.D. College of Physicians and Surgeons, Baltimore, 1884; a member of the South Carolina Medical Association; for several terms intendant of the town of Manning; died at his home, December 5, from nephritis, aged 54.

Francis Vincent Ely, M.D. New York University, New York City, 1897; of Pittsburg; a sufferer from epilepsy; died at his home, December 13, from the effects of a gunshot wound of the right temple, self-inflicted with suicidal intent, aged 37.

James H. Denny, M.D. Harvard Medical School, 1867; formerly of Boston; a member of the Massachusetts Medical Society and visiting physician to the Boston City Hospital; died in Vienna, Austria, October 16, aged 71.

Thomas J. Collier, M.D. Tulane University, New Orleans, 1867; of Griffin; a member of the Medical Association of Georgia; died in a sanitarium in Atlanta, December 12, nine days after a surgical operation, aged 69.

William Raleigh Cherry, M.D. Vanderbilt University, Nashville, Tenn., 1901; a member of the Kentucky State Medical Association; died at his home in Morgantown, December 13, from appendicitis, aged 35.

William Church Dake, M.D. University of Nashville of Nashville, Tenn., 1872; a prominent homeopathic practitioner of Nashville; died at his home, December 9, from cerebral hemorrhage, aged 58.

Harriet A. Miner, M.D. Hahnemann Medical College, Chicago, 1890; of Evanston, Ill.; died in Chicago, November 6, from carcinoma of the breast, with metastases to the liver and spleen, aged 46.

Stefano Joseph Hickey, M.D. Jefferson Medical College, 1888; a member of the Medical Society of the State of Pennsylvania; died at his home in Philadelphia, December 13, from pneumonia, aged 45.

Jerome A. Hughes, M.D. University of California, San Francisco, 1883; in 1894, coroner of San Francisco County; died at his home in Mill Valley, Cal., December 5, from heart disease, aged 54.

Andrew Goddard, M.D. Memphis (Tenn.) Medical College, 1853; for twelve years surveyor of McClellan County, Tex.; a Confederate veteran; died at his home in Waco, November 30, aged 80.

Felix F. Porter, M.D. University of Pennsylvania, Philadelphia, 1859; assistant surgeon of the Fifth Tennessee Infantry, C. S. A.; died at his home in Paris, Tenn., November 27, aged 72.

William Lambert, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1884; formerly of LaCrosse, Wis.; died at his home in Chattanooga, Tenn., November 26, from pneumonia, aged 54.

William Payne (years of practice, Tex.); for more than 50 years a practitioner of medicine and law; died at his home in Frankfort, Ky., November 7, from senile debility, aged 96.

John Flagg Gardner, M.D. Jefferson Medical College, Philadelphia, 1849; a Confederate veteran; died at his home in Manassas, Va., November 12, from senile debility, aged 85.

Arthur Alexander Chance, M.D. Medical College of Georgia, Augusta, 1884; of Wadley, Ga.; died in the State Hospital, Milledgeville, July 16, from chronic nephritis, aged 42.

C. Perry Sayles, M.D. Michigan College of Medicine, Detroit, 1884; of Kalamazoo; died at Bronson Hospital in that city, December 10, from carcinoma of the intestine, aged 52.

Dexter A. Smith, M.D. University of Georgetown, Washington, D. C., 1884; died at his home in Irving Park, Chicago, December 16, from cirrhosis of the liver, aged 60.

Sarah Grattles Hiatt (license, Kansas, 1870; Texas, 1892); of Mound City, Kan.; died at the home of her niece in Kansas City, Mo., November 2, from peritonitis, aged 72.

William J. Bartmess, M.D. Reform Medical College, Macon, Ga., 1857; a retired practitioner of Ellsworth, Ind.; died at his home, December 3, from septicemia, aged 76.

James Hamilton Morrison, M.D. Texas Medical College, Galveston, 1867; of Hempstead, Tex.; died in a hospital in Houston, November 20, after prostatictomy, aged 68.

Charles P. Godfrey, M.D. Geneva (N. Y.) Medical College, 1868; health officer of Cayuta, N. Y.; died at his home in that place, October 10, from tetanus, aged 67.

Cornelius Corboy, M.D. Miami Medical College, Cincinnati, 1887; formerly of Cincinnati; died at the home of his sister in Sardinia, Ohio, December 5, aged 52.

James Franklin Dick, M.D. University of Tennessee, Nashville, 1878; died suddenly at his home in Dongola, Ill., December 2, from angina pectoris, aged 63.

George Washington Drawdy, M.D. Atlanta (Ga.) Medical College, 1883; of Jesup, Ga.; died suddenly in a restaurant in that city, December 3, aged 60.

James W. Keath, M.D. University of Pennsylvania, Philadelphia, 1876; died at his home in Schaefferstown, Pa., October 15, from tuberculosis, aged 55.

Charles Tessier, M.D. Victoria University, Coburg, Ont., 1883; died at his home in Haverhill, Mass., November 30, from cerebral hemorrhage, aged 57.

Horace William Hammond, M.D. University of Michigan, Ann Arbor, 1876; died at his home in Luther, Mich., November 29, from paralysis, aged 61.

William L. Bettis, M.D. Marion-Sims Medical College, St. Louis, 1895; died at his home in Harrisonville, Ill., November 26, from uremia, aged 45.

Rosalie Senftenberg, M.D. National Medical University, Chicago, 1894; died at her home in Weyauwega, Wis., October 28, aged 70.

Daniel V. Moyer, M.D. College of Physicians and Surgeons, Baltimore, 1882; died at his home in Maryland Line, Md., November 9.

James R. Berry, M.D., Tulane University, New Orleans, 1880; died at his home in Columbia, Miss., September 29, aged 54.

Jett Theodore Keith, M.D. Keokuk (Iowa) Medical College, 1901; died at his home in Wichita, Kan., November 30, aged 36.

Robert C. Blair, M.D. McGill University, Montreal, 1865; formerly of Quebec; died in Chicoutimi, Quebec, November 12.

Julian E. Phinney, M.D. Rush Medical College, 1889; of Harrison, Neb.; died in Norfolk, Neb., October 25, aged 50.

Edward Augustus Reed, M.D. University of Louisville, Ky., 1891; died at his home in Knoxville, Tenn., November 25.

Orin S. Bonsteel, M.D. Geneva (N. Y.) Medical College, 1850; died at his home in Ypsilanti, Mich., December 7, aged 85.

William B. Hardy, M.D. Jefferson Medical College, 1856; died at his home in Belleville, Kan., December 6, aged 78.

Miscellany

A Collecting Letter.—One of New York's prominent nose and throat specialists uses the following letter form as a note on statements of accounts past due. In his work, as in ours, says the *Dental Digest*, accounts sometimes run long past the date on which they should be paid. He practices where expenses are high and competition keen. Here, as everywhere, the value of a pleasant personality is great, and business procedures should be courteous as well as firm.

Dear Sir: Permit me to draw your attention to the enclosed bill which has been rendered to you on — (here are filled in the dates on which statements were rendered). It is customary for me to turn my accounts unpaid after six months to my attorney, Mr. John Smith, — Broadway, New York City, as my practice does not permit me to give them personal attention after that time. I am sure this matter has simply been overlooked, and that bringing it to your notice will secure it prompt attention.

I am sending this letter by registered mail, believing that I may have had your address incorrect.

The Doctor makes the following interesting comments on this letter and its effects: "This letter assumes their desire to pay. It puts part of the blame on them, and assumes part of it for me, as I say I may have had their address wrong. It makes some of them feel rather ashamed, and brings remittances from many. Once in a while some man will come in with one of these letters and say, 'What do you mean by sending me a letter like this?' and he will follow it up with a lot of talk. I let him talk it all out without interrupting him. Then I say, 'You musn't come into my office and talk to me like that, because I am a pretty decent sort of a fellow and don't deserve it. You must know that I am not in practice for the love of it. If I were, I should have transferred your account to the charity side of my ledger and you wouldn't like that. All that is necessary is that you send me a check, and we will be on good terms again.'"

The result of these tactful and firm methods is that in a long list of accounts, in a form of practice notorious for poor collections, this practitioner has less than a dozen old accounts, and nearly all of these are in process of payment by installments.

Efficient Cholera Prophylaxis.—The high degree of efficiency which characterizes the work of the Medical Department of the Army, says the *Army and Navy Journal*, has been nowhere better illustrated than in the Philippine Islands, where in the fiscal year 1909 there was not a case of cholera among the American troops, although the scourge counted thousands of victims among the natives. In the provinces there were 8,055 cases, with 5,524 deaths, these figures being below the actual number on account of the disposition of the natives to conceal all cases. In Manila there were 263 cases, with 211 deaths, the death percentage being slightly above 80. In numerous towns adjacent to military posts the disease was epidemic at some period during the year, but so thorough was the medical inspection and so vigilant the attention of the military surgeons that not a single case of cholera appeared among our troops. This achievement Surgeon-General Torney, in his interesting annual report, thus modestly refers to: "The absence of this disease among American officers and enlisted men and their families under such circumstances is excellent proof of the thoroughness and effectiveness of the sanitary measures employed. The Americans have been thoroughly imbued with the importance of abstaining from eating uncooked native vegetables and of using only sterilized water for drinking." In the native soldiery there were only nine cases, with seven deaths, figures that testify to the salutary influence of the Army system of sanitation even with people accustomed for centuries to conditions of living that foster such diseases as cholera.

CLIPPINGS FROM LAY EXCHANGES

AUTOS ARE POLISHED—WHY NOT CHAUFFEURS?

Wanted: Situation as "Chauffeur, . . . by a responsible, good looking, highly polished young physician, single and rare ability.—Advt., *N. Y. Herald*, November, 1910.

UNDIFFERENTIAL DIAGNOSIS

"F. C. N—— is still in Cleveland. A diagnosis of his case has been made but it has not as yet been determined just what his ailment is."—Painesville, Ohio, paper.

A BUSTER OF A GIRL

"So high is the temperature of Miss E—— M——, a fever patient, that the bulbs of three thermometers placed beneath her tongue by physicians burst after the mercury had registered the highest figure on the graduated scale."—*Daily News*, Chicago, Nov. 16, 1910.

NEW USE FOR STEEL MAGNETS

"He was taken to the office of Dr. H——, where it was necessary to temporarily remove the eye ball from the socket and extract the steel with a strong magnet."—*Rockford (Ill.) Republic*, Nov. 29, 1910.

THIS MUST MEAN A JOB IN THE STOCK-ROOM

"Dr. —— has accepted a position on the staff of the Laying In Hospital of the City of New York."—*Rome (Ga.) Tribune*, Nov. 25, 1910.

SURGICAL PSYCHIATRY

"Architects are drawing plans for a new synecopathic department for the Nugent Sanatorium, Wauwatosa."—*Milwaukee News*, Nov. 12, 1910.

THIS FACT IS EMPHASIZED

"When he was kicked in the fact by a horse."—*Johnstown (Pa.) Democrat*.

BIRDS OF A FEATHER CLASSED TOGETHER

"John L—— died * * * last evening of chronic intestinal nephritis."—*Johnstown (Pa.) Democrat*.

A HEARTQUAKE

"His death was attributed to an acute form of neuralgia of the heart which to medical men is known as pectoralis agitans."—*Lorain (Ohio) News-Herald*, January 10.

GENERAL INDEX

All reading matter in THE JOURNAL from July to December, 1910, inclusive, is indexed here. (For Current Medical Literature Index see pages 2352 to 2410). "Deaths," "Book Notices," and "Society Proceedings" are indexed under these titles at the ends of the letters "D," "B" and "S." Matter pertaining to the Association is under "American Medical Association." With the above exceptions, all matter is indexed under the most important word of the heading that was used in THE JOURNAL, and also under the subject heading. For instance, abscess of brain will be found indexed under "abscess" as well as under "brain." Such titles as "ocular manifestations, etc." have been indexed under "eye." Cross references have been made wherever this was possible. It is also well to remember that, in looking up a certain subject, related words should be consulted, for example, chest, thorax; skull, cranium; bowel, intestines. The letters used to explain in which department the matter indexed appeared are as follows: "E" editorial; "O" original article; "C" correspondence; and "ab" denotes an abstract of an article that has appeared in full elsewhere. Names of authors of original articles appearing in THE JOURNAL are not given in this index, but are included in the Index of Authors.

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Fractures, Joint, and Dislocations, 1916
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- Tolmav, S., Medical Electricity and Röntgen Rays, 716
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- Tulcy, H. E., Obstetric Nursing, for Nurses and Students, 2002
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- Urbantschitsch, V., Lehrbuch der Ohrenheilkunde, 2287
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SOCIETIES

Abbreviations:
Acad.—Academy.
Am.—American.
A.—Association.
Conf.—Conference.
Cong.—Congress.
Hosp.—Hospital.
Internat.—International.
M.—Medical, Medicine.
Pharm.—Pharmaceutical.
Phys.—Physicians.
Ry.—Railway.
S.—Society.
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CURRENT MEDICAL LITERATURE

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Explanation: The reading matter which appeared in THE JOURNAL is not indexed here, except the original articles and the abstracts of original articles. This index refers to the titles and the subjects of original articles published in the leading medical journals of the world, including THE JOURNAL, during the past six months. The titles of the articles and the names of the journals in which they appeared were listed weekly in the Current Medical Literature Department, and it is to them that references are here made. The figure in parentheses refers to the paragraph; the number following to the page in THE JOURNAL. For instance, "Abdominal Aorta, Graft of Vena Cava on. (119) 1684—ab," refers to page 1684 of THE JOURNAL, on which is found, in paragraph numbered 119, the title of the paper and the name of the author, viz., "Graft of Vena Cava on Abdominal Aorta, A. Carrel." This title is listed under the journal in which the article appeared, the *Annals of Surgery*, October, 1910. When "ab" follows a page number it indicates that the article was abstracted in THE JOURNAL; for instance, "Abscess, Liver. (89) 801—ab." On page 801, paragraph 89, will be found an abstract of this article, which appeared in *Surgery, Gynecology and Obstetrics*, August, 1910. Titles of articles which appeared originally in THE JOURNAL are indicated in the index by an asterisk (*) before the page number; for instance, "Abscess, Appendicular, Localized Treatment of. *363," refers to page 363 of THE JOURNAL, on which is found the complete original article. The index to authors of all articles, both original and those listed under Current Medical Literature, appears separately on pages 2411 to 2428 of this Index.

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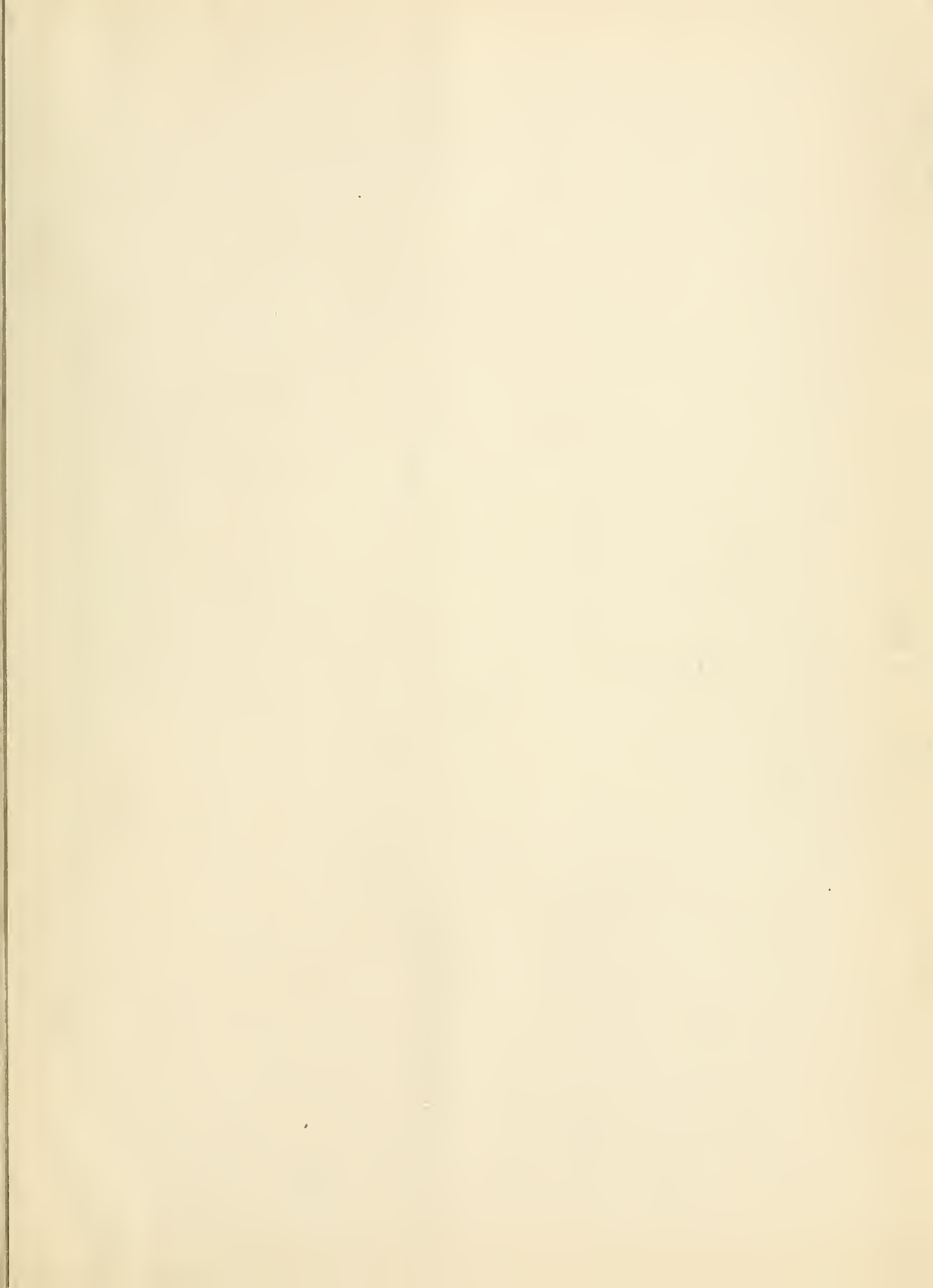
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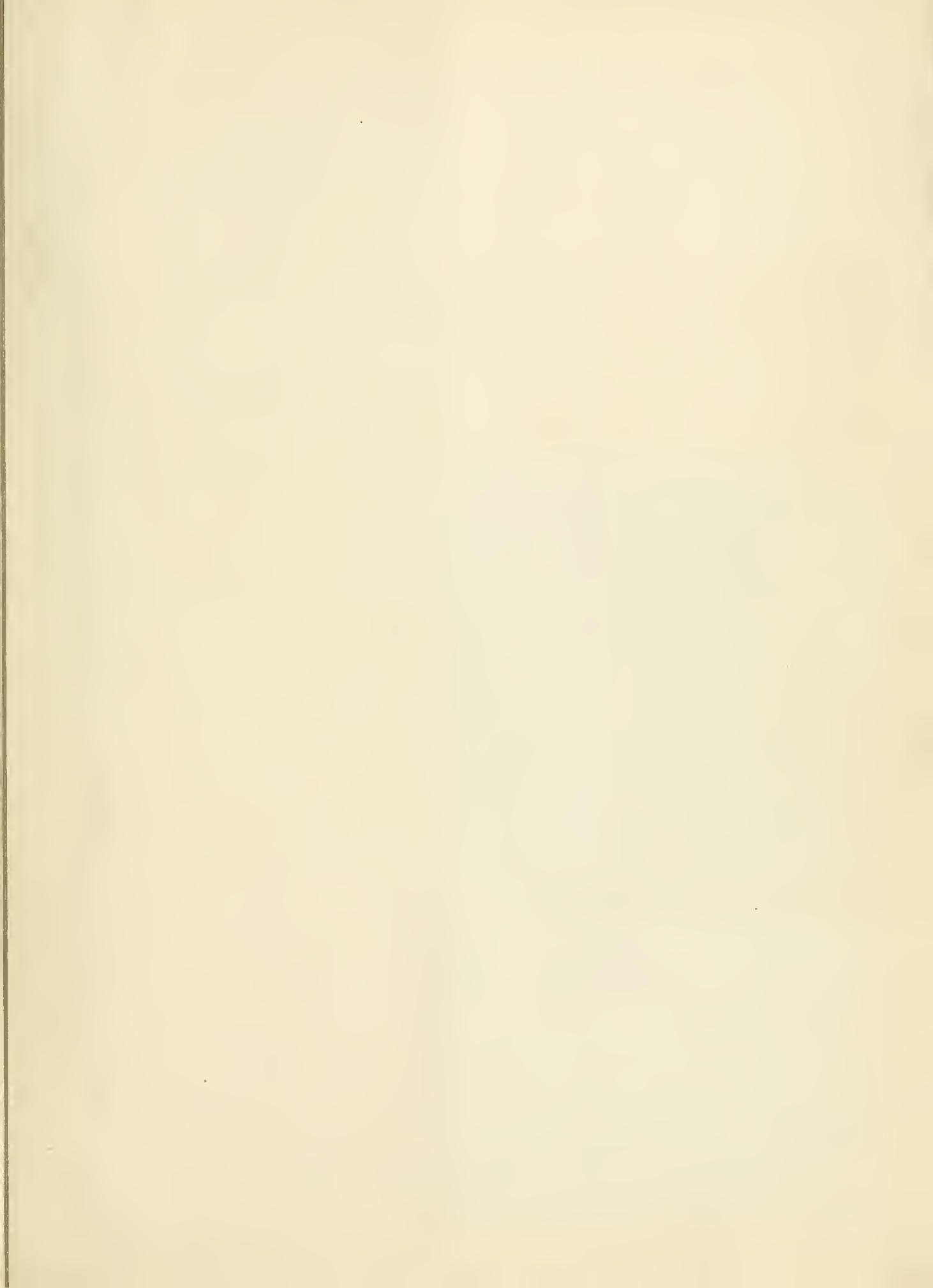
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